Court File No. 98-CV-141369 CP00

ONTARIO
SUPERIOR COURT OF JUSTICE

B E T W E E N:

DIANNA LOUISE PARSONS, MICHAEL HERBERT CRUICKSHANKS, DAVID TULL, MARTIN HENRY GRIFFEN, ANNA KARDISH, ELSIE KOTYK, Executrix of the Estate of Harry Kotyk, deceased and ELSIE KOTYK, personally

Plaintiffs

and

THE CANADIAN RED CROSS SOCIETY, HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO and THE ATTORNEY GENERAL OF CANADA

Defendants

and

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF SASKATCHEWAN,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF MANITOBA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEW BRUNSWICK,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF PRICE EDWARD ISLAND,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEWFOUNDLAND,
THE GOVERNMENT OF THE NORTHWEST TERRITORIES,
THE GOVERNMENT OF NUNAVUT and THE GOVERNMENT OF THE YUKON TERRITORY

Intervenors

Proceeding under the *Class Proceedings Act, 1992*

Court File No. 98-CV-146405

B E T W E E N:

JAMES KREPPNER, BARRY ISAAC, NORMAN LANDRY, as Executor of the Estate of the late SERGE LANDRY, PETER FELSING, DONALD MILLIGAN, ALLAN GRUHLKE, JIM LOVE and PAULINE FOURIER as Executrix of the Estate of the late PIERRE FOURNIER

Plaintiffs

and

THE CANADIAN RED CROSS SOCIETY, THE ATTORNEY GENERAL OF CANADA and HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO

Defendants

and

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF SASKATCHEWAN,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF MANITOBA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEW BRUNSWICK,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF PRICE EDWARD ISLAND,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEWFOUNDLAND,
THE GOVERNMENT OF THE NORTHWEST TERRITORIES,
THE GOVERNMENT OF NUNAVUT and THE GOVERNMENT OF THE YUKON TERRITORY

Intervenors

Proceeding under the *Class Proceedings Act, 1992*

No. C965349
Vancouver Registry

In the Supreme Court of British Columbia

Between:

Anita Endean, as representative plaintiff

Plaintiff

and:

The Canadian Red Cross Society
Her Majesty the Queen in Right of the Province of
British Columba, and The Attorney General of Canada

Defendants

and:

Prince George Regional Hospital, Dr. William Galliford,
Dr. Robert Hart Dykes, Dr. Peter Houghton, Dr. John Doe,
Her Majesty the Queen in Right of Canada, and
Her Majesty the Queen in Right of the Province of
British Columbia

Third Parties

Proceeding under the *Class Proceedings Act*, R.S.B.C. 1996, C. 50

C A N A D A
PROVINCE OF QUÉBEC
DISTRICT OF MONTREAL

NO: 500-06-000016-960

SUPERIOR COURT

Class action

DOMINIQUE HONHON

Plaintiff

-vs-

THE ATTORNEY GENERAL OF CANADA
THE ATTORNEY GENERAL OF QUÉBEC
THE CANADIAN RED CROSS SOCIETY

Defendants

-and-

MICHAEL SAVONITTO, in the capacity of the Joint Committee member for the province of Québec

PETITIONER

-and-

FONDS D'AIDE AUX RECOURS COLLECTIFS

-and-

LE CURATEUR PUBLIC DU QUÉBEC

Mis-en-cause

C A N A D A
PROVINCE OF QUÉBEC
DISTRICT OF MONTREAL

NO: 500-06-000068-987

SUPERIOR COURT

Class action

DAVID PAGE

Plaintiff

-vs-

THE ATTORNEY GENERAL OF CANADA
THE ATTORNEY GENERAL OF QUÉBEC
THE CANADIAN RED CROSS SOCIETY

Defendants

-and-

FONDS D'AIDE AUX RECOURS COLLECTIFS

-and-

LE CURATEUR PUBLIC DU QUÉBEC

Mis-en-cause

AFFIDAVIT OF JORDAN FELD

I, Jordan Feld, of the City of Toronto, in the Province of Ontario, MAKE OATH AND SAY:

1. I am a physician and scientist at the University Health Network specializing in hepatology, and focusing on the management of the hepatitis C virus ("**HCV**"). I am member of the Steering Committee of a pan-Canadian initiative aimed at delivering comprehensive HCV care to individuals across the country, including in underserved rural and First Nations Communities, and at improving future HCV care by focusing on highly relevant areas of research ("**National HCV Initiative**"). Six other eminent Canadian leaders in HCV care and research serve on the Steering Committee with me.

2. The Steering Committee seeks to intervene as an added party in the upcoming motion regarding the allocation of Excess Capital[1] currently held by the Trustee of the 1986-1990 Hepatitis C Settlement Agreement, for the purpose of making submissions that some of the Excess Capital should be used to fund the National HCV Initiative. In my view, and in the view of the Steering Committee, the National HCV Initiative will directly benefit Class Members, including those who are thus far unaware that they are claimants, and their families, by providing access to the best possible hepatitis C care and treatment. For these reasons, I have knowledge of the matters contained in this affidavit.

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[1] I have used the phrase "Excess Capital" as it is defined by Ms. Rumble-Peterson in her affidavit sworn October 16, 2015 in support of the Joint Committee's position: that is, to describe actuarially unallocated money and other assets held by the Trustee of the Settlement.

Education and Training

3. I am a scientist at the Toronto General Research Institute and the Sandra Rotman Centre for Global Health. I am also Research Director for the Francis Family Liver Clinic and an Associate Professor of Medicine at the University of Toronto.

4. I obtained my medical degree in 1997 from the University of Toronto, and completed residency programs in Internal Medicine and Gastroenterology. I then completed a clinical research fellowship in hepatology (the field of medicine that focuses on the study of the liver, gallbladder, biliary tree and pancreas, as well as management of their disorder) and subsequently spent four years doing clinical and laboratory research in the Liver Diseases Branch of the National Institutes of Health. I completed a Masters of Public Health with a focus on Infectious Diseases from Johns Hopkins University. I am also the Chair of the Canadian HCV Clinical Practice Guidelines Committee and serve as the only non-American on the American Association for the Study of Liver Disease and Infectious Disease Society of America HCV Guidance panel. A copy of my curriculum vitae is attached at Exhibit "**A**".

Current Involvement in HCV Research and Care

5. HCV affects 170 million people worldwide, including 1–2% of the Canadian population. The virus, which is spread primarily through blood-to-blood contact, infects the liver and causes progressive damage that may lead to liver cirrhosis, increasing the risk of dying from liver failure or liver cancer. The virus also causes other non-liver diseases such as blood cell cancers, diabetes, and kidney disease.

6. Unlike other chronic viral infections, HCV is curable. I currently lead a large clinical research program that has been at the forefront of evaluating new therapies for HCV. My laboratory focuses on understanding the antiviral immune response with the goal of developing new strategies for the treatment of viral hepatitis. Recently, my laboratory conducted a clinical trial that found that a simple drug regimen given for 12 weeks cured 99% of patients treated, including patients with 5 of the 6 known strains of the virus. While this is a ground-breaking achievement that has been lauded worldwide, eliminating HCV from the Canadian population faces several significant hurdles.

7. One hurdle is that because liver disease often has no symptoms until very advanced stages, the majority of Canadians infected with HCV remain undiagnosed. There are some Class Members who may not even be aware that they could be claimants. Another hurdle is that not all infected persons have access to life-saving treatment, largely due to geographic barriers. Effective drugs to combat HCV are available, but to translate the gains in drug developments into improved health outcomes for Class Members and others, infected persons need to be reached, diagnosed, and engaged into care and treatment. Currently, only an estimated 15% of Canadians infected with HCV ever receive therapy for their disease, and given the poor treatment effectiveness of older drugs, only about 7% of Canadians have been cured of HCV. Unfortunately, this means that many infected persons may have unwittingly passed the infection to family members or other intimate contacts, who also likely remain unaware of their infection.

8. Finally, preventing reinfection and spread of the disease, including from Class Members to their families, is a critical component to eliminating the virus from Canada.

Overview of the National HCV Initiative and its Benefits to Class Members

9. The National HCV Initiative is aimed at overcoming these hurdles and achieving two broad, interrelated goals: first, to identify those who are not yet diagnosed, increase treatment uptake, and optimize delivery of care for Class Members and all Canadians living with HCV, including underserved rural and First Nations populations, by substantially improving access to the expertise needed to treat hepatitis C and manage complications of the disease.

10. The Steering Committee intends to combat the underdiagnoses of HCV and the low treatment rates by rolling out a national ECHO project, which stands for "Extension for Community Health Outcomes". The ECHO project would use video-conferencing facilities to connect healthcare providers and nurse practitioners in rural and indigenous communities with academic providers who have expertise in all aspects of hepatitis C care. The ECHO project will ensure that Class Members who live in remote communities or who are otherwise unable to access specialized clinics will still receive the best hepatitis C care available and realize the benefits of curative treatments.

11. While the ECHO project will increase diagnosis rates and improve access to care, we must also overcome gaps in knowledge to improve clinical outcomes and eliminate the disease from the population. The second goal of the National HCV Initiative is therefore to further improve future HCV care through the development of focused, highly relevant areas of research.

12. In particular, the Steering Committee intends to address four major gaps in the current knowledge and understanding of HCV:

(a) Vaccine development to prevent the spread and reinfection of the disease;

(b) Development of point-of-care diagnostics for screening and on-treatment monitoring to overcome the enormous under-diagnosis and under-treatment of hepatitis C

(c) Outcomes research to assess the effectiveness of the ECHO program and the changing epidemiology of the disease and its complications; and

(d) Development of screening tests and new therapies for liver cancer.

13. With appropriate funding, the National HCV Initiative is poised to become the most effective and efficient Canadian-wide program that provides Class Members, including those who do not yet even know that they are claimants, and others infected with HCV, state of the art disease prevention, diagnosis, care, and treatment.

14. The National HCV Initiative will directly benefit Class Members and their families by improving their quality of life and health outcomes. The benefits of the Initiative will also extend beyond Class Members and their families to transform the care of patients infected with HCV across the country and lead to the elimination of the disease from the Canadian population.

15. A copy of the National HCV Initiative Proposal, including a proposed budget for the Initiative, is attached as Exhibit "**B**".

Members of the Steering Committee are Leaders in HCV Care and Research

16. As I mentioned, I am one of seven hepatitis C specialists on the Steering Committee. One of my colleagues on the Steering Committee is Dr. Harry Janssen, Chief of Hepatology at the University of Toronto, who will serve as the first Chair of the Steering Committee based on his

extensive experience both in the field of clinical and translational hepatitis C research, and in leading large international consortia.

17. The members of Steering Committee include the following leaders in HCV care and research, from across the country:

(a) Dr. Lorne Tyrrell (University of Alberta);

(b) Dr. Michael Houghton (University of Alberta);

(c) Dr. Naglaa Shoukry (Université de Montréal);

(d) Dr. Julie Bruneau (Université de Montréal); and

(e) Dr. Mel Krajden (University of British Columbia).

18. The biographies of each member of the Steering Committee are found at Appendix "D" to the National HCV Initiative Proposal.

The Steering Committee has a Real and Direct Interest in the Motion

19. I understand that there will be a hearing in June regarding the allocation of Excess Capital. I understand that the Joint Committee, representing Class Members, and the federal and provincial governments will each be making submissions as to how the Courts should exercise their discretion to allocate Excess Capital. I understand that the amount of Excess Capital is estimated to be between $207 million and $256 million, and that the specific amount is a point of contention between the Joint Committee and the Federal Government.

20. I also understand that the Joint Committee has put forward a proposal recommending that the Excess Capital be used to increase existing benefits to Class Members, and that the Federal Government will be submitting that the Excess Capital revert back to the government.

21. The Steering Committee is seeking party status so that it can make submissions at the hearing in June regarding the allocation of Excess Capital. Specifically, the Steering Committee will be asking the Courts to exercise their discretion to allocate some Excess Capital to the National HCV Initiative.

22. In my view, and in the view of the Steering Committee, Class Members would directly benefit from the implementation of the National HCV Initiative. If consequences of the disease, like liver cancer, can be avoided or treated more effectively, then these improved health outcomes are of greater benefit than additional financial compensation.

23. The Steering Committee has a real interest in the issues on the motion. This interest is tied to the Committee's professional commitments to HCV care and research and ensuring that Canadians living with HCV, including Class Members, have an opportunity to access innovative, state of the art care and have their diseases managed by world-class specialists with expertise in this disease area.

24. The Steering Committee's interest also flows from the understanding that the National HCV Initiative is unlike any other proposal being considered anywhere in the country and that no other source of funding, except some allocation of Excess Capital, could get the Initiative off the ground.

The Steering Committing and its Work Could be Adversely Affected by a Judgment

25. Currently, the researchers involved with the National HCV Initiative receive funding for HCV research through various public and private grants. Although great strides have been made towards managing HCV and finding treatment options for patients, these grants often do not cover the full costs of a given project. The monetary sum of even the largest grants would not cover the cost of administrating and delivering the comprehensive, national ECHO project or the highly focused research projects proposed in the National HCV Initiative.

26. One of the largest grants available for research in this area is a grant of $4.5 million from the Canadian Institutes for Health Research, which is divided among 62 researchers and distributed over a period of five years. Most grants are much smaller. There are no other sources of funding available for such a game-changing project.

27. The Steering Committee and its intended work in eliminating HCV would be adversely affected if denied the opportunity to intervene as a party and make submissions as to why the Courts should allocate some Excess Capital to the National HCV Initiative.

28. Critically, if the Steering Committee is denied party status, the National HCV Initiative will not go forward, and many Class Members will be deprived of the potential to access the most innovate, life-saving care and treatment.

Conclusion

29. The Steering Committee does not intend to cross-examine any parties on material filed for the Joint Hearing, nor does the Steering Committee intend to request that the Joint Hearing be adjourned to a later date. The Steering Committee does not intend to expand the record, other than

to present the National HCV Initiative Proposal (attached at Exhibit "B") to the Court at the Joint Hearing and make submissions based on the Proposal.

30. The National HCV Initiative is a unique program that could eliminate a deadly disease that adversely affects hundreds of thousands of Canadians adversely and reflects an enormous, continuing drain on public health resources. This Initiative will be of enormous benefit to Class Members and their families by giving them a better quality of, and longer, life, as well as providing an enduring benefit to Canadian society.

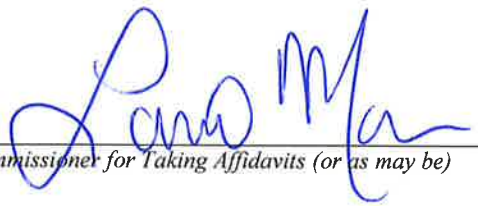
SWORN BEFORE ME at the City of Toronto in the Province of Ontario on the 16th day of March, 2016.

Commissioner for Taking Affidavits
(or as may be)

LARISSA MOSCU

JORDAN FELD

This is Exhibit "A" referred to in the Affidavit of Jordan Feld sworn March 16, 2016



Commissioner for Taking Affidavits (or as may be)

LARISSA MOSCU

Curriculum Vitae

Jordan Jay Feld
MD MPH FRCP(C)

Biographical Information

Primary Office	Toronto General Hospital 200 Elizabeth Street 9th Floor, Eaton Building, North Wing Room 240 Toronto, Ontario, Canada M5T 2S8
Telephone	(416) 340-4584
Fax	(416) 340-4533
Email	jordan.feld@uhn.ca

1. EDUCATION

Degrees

2006 Jul - 2007 May	Masters Public Health, Johns Hopkins University, Baltimore, Maryland, United States
1993 Aug - 1997 Jun	MD, Medicine, Faculty of, University of Toronto, Toronto, Ontario, Canada
1991 Sep - 1993 May	Chemistry, Western University, Canada
1985 Sep - 1991 Jun	OAC, Honors, University of Toronto Schools

Postgraduate, Research and Specialty Training

2004 Jul - 2006 Apr	Post-doctoral Research Fellowship, Liver Diseases Branch, NIDDK, National Institutes of Health, Bethesda, Maryland, United States, Supervisor(s): JH Hoofnagle, TJ Liang
2004 Jan - 2004 Mar	Research/Clinical Supervisor, Medicine/Infectious Diseases Institute, Academic Alliance for AIDS Care and Prevention in Africa – Mulago Hospital, Makerere University, Kampala, Uganda, Supervisor(s): A Ronald
2003 Sep - 2003 Oct	Yale Johnson & Johnson International Health Program, Medicine/Infectious Diseases Institute, Hospital Municipal San Juan de Dios, Santa Cruz, Bolivia, Plurinational State Of
2002 Jul - 2003 Jun	Clinical Research Fellowship, Hepatology, Medicine/Gastroenterology, University of Toronto, Toronto, Ontario, Canada, Supervisor(s): EJ Heathcote
2000 Jul - 2002 Jun	Gastroenterology Fellowship, Medicine/Gastroenterology, University of Toronto, Toronto, Ontario, Canada
1998 Feb	Infectious Disease Elective, Clinica de Salud de Santa Clotilde, Santa Clotilde, Peru
1997 Jul - 2000 Jun	Internal Medicine Residency Program, Dept of Medicine, University of Toronto, Toronto, Ontario, Canada
1997 Apr - 1997 May	Gastroenterology Elective, Medicine/Gastroenterology, Hospital Tornu, Buenos Aires, Argentina, Supervisor(s): L Koss
1996 Jul - 1996 Aug	Orthopedic Surgery Elective, Shaare Tzedek Hospital, Jerusalem, Israel, Supervisor(s): I Yitchaki

Qualifications, Certifications and Licenses

2004 Jul - present	University of the State of New York, Education Dpt. Office of Professions, New York, United States, License / Membership #: 233193-1
2001 Jul - present	College of Physicians and Surgeons of Ontario (CPSO), Ontario, Canada, License /

	Membership #: 71450
2001 Jul - present	Fellow, Royal College of Physicians of Canada (FRCPC), Internal Medicine, Ontario, Canada, License / Membership #: 568300
2001 Jul - present	Fellow, Royal College of Physicians of Canada (FRCPC), Gastroenterology, Ontario, Canada, License / Membership #: 568300
2001 Jul - present	Diplomate, American Board of Internal Medicine, United States
1997 Jul - present	Licentiate, Medical Council of Canada, Ontario, Canada

2. EMPLOYMENT

Current Appointments

2015 Nov - present	Associate Professor of Medicine, University of Toronto, Toronto, Ontario, Canada
2014 Jul 1 - present	Faculty Member, University of Toronto, Institute of Medical Science Graduate Faculty, Toronto, Ontario, Canada
2014 Jun - present	Associate Member, Ryerson University, Yeates School of Graduate Studies, Toronto, Ontario, Canada
2012 Oct - present	Scientist, Sandra Rotman Centre for Global Health, Toronto, Ontario, Canada
2012 Oct - present	Scientist, Toronto General Research Institute (TGRI), Toronto, Ontario, Canada
2010 Jul - present	Research Director, Gastroenterology, Medicine/University of Toronto, Francis Family Liver Clinic - Toronto Western Hospital, Toronto, Ontario, Canada *Oversee and coordinate all research activities for liver disease research*
2008 Nov - present	Full time Active Staff Gastroenterologist, Gastroenterology, Medicine, Toronto Western Hospital, University Health Network, Toronto, Ontario, Canada
2008 Nov - present	Associate Staff Gastroenterologist, Gastroenterology, Medicine, Mount Sinai Hospital, Toronto, Ontario, Canada

Previous Appointments

RESEARCH	
2008 Nov - 2012 Oct	Affiliate Scientist, Toronto General Research Institute (TGRI), Toronto, Ontario, Canada
2008 Nov - 2012 Oct	Affiliate Scientist, McLaughlin-Rotman Centre for Global Health, Toronto, Ontario, Canada
2006 Apr - 2008 Nov	Assistant Clinical Investigator (Assistant Professor Equivalent), Liver Diseases Branch, NIDDK, National Institutes of Health, Bethesda, Maryland, United States
UNIVERSITY	
2009 May - 2014 Jun 30	Associate Member, University of Toronto, Institute of Medical Science Graduate Faculty, Toronto, Ontario, Canada
UNIVERSITY - RANK	
2008 Nov - 2015 Nov	Assistant Professor of Medicine, University of Toronto, Toronto, Ontario, Canada
OTHER	
1999 Sep - 2002 May	Spanish / English Translation, Legal Clinic – Centro para Gente de Habla Hispana, Toronto, Ontario, Canada
1994 Sep - 1997 May	Residence Don, University College, University of Toronto, Toronto, Ontario, Canada
1994 Jun - 1996 Jul	English Instructor, Institut auf dem Rosenberg, Arosa, Switzerland *Summers: June – July, 1994-1996*

3. HONOURS AND CAREER AWARDS

Distinctions and Research Awards

INTERNATIONAL

Received

2008 May	**Sheila Sherlock Clinical & Translational Research Award**, American Association for the Study of Liver Disease. (Research Award) *Role of Interferon-inducible HCV-Specific microRNAs in Human HCV Infection. $75,000 per year x 2 years. Total Amount: 150,000*
2006 Mar	**Commonwealth Scholarship**, British Government. (Distinction)
2006 Mar	**Summer Scholarship for Masters in Public Health Program**, Johns Hopkins University Bloomberg School of Public Health, United States. (Distinction) *Full tuition plus stipend.*
2005 Jun	**Student Travel Award (AASLD) Single Topic Conference: Genomics and Proteomics**, American Association for the Study of Liver Disease (AASLD). (Research Award)
2003 Aug - 2003 Nov	**Johnson & Johnson International Health Scholarship**, Yale University. (Distinction)

NATIONAL

Received

2001 Feb	**Fellows Course – Best Oral Presentation**, Canadian Association of Gastroenterology, Canada. (Research Award)
1999 Feb	**Research Competition Award**, Royal College of Physicians & Surgeons of Canada, Canada. (Research Award)
1997 Jun	**Alpha Omega Alpha Membership**, University of Toronto, Canada. (Distinction)
1996 Jun	**Crohn's & Colitis Foundation of Canada Book Award for Excellence Gastroenterology**, University of Toronto, Canada. (Distinction)

LOCAL

Received

2014 Jul - 2017 Jun	**Department of Medicine Merit Award**, Department of Medicine - Univesity of Toronto. (Research Award) *Total Amount: 75,000 CAD*
2003 Jun	**Hollenberg Research Day Poster of Distinction**, University of Toronto, Canada. (Research Award)
2002 Jul	**Department of Medicine Research Fellowship Award**, University of Toronto, Canada. (Research Award)
1999 May	**3rd Prize, Department of Medicine Residents & Fellows Research Competition**, Mt. Sinai Hospital, Toronto, Ontario, Canada. (Research Award)
1997 Jun	**Dr. Fred Douglas Memorial Award for Excellence in Internal Medicine**, University of Toronto, Canada. (Distinction)
1995 Jun	**Walter F. Watkins Scholarship of High Academic Standing in the Second Medical Year**, University of Toronto, Canada. (Distinction)
1993 Nov	**Armando and Nicolina Pavone Outstanding Achievement Award**, University of Toronto, Canada. (Distinction)
1993 Sep - 1997 Jun	**Deans List, Faculty of Medicine**, University of Toronto, Canada. (Distinction)
1993 May	**Faculty of Medicine – Entrance Scholarship for High Academic Standing**, University of Toronto, Canada. (Distinction)

Teaching and Education Awards

LOCAL

Received

1999 May	**Outstanding Housestaff Award**, General Internal Medicine, Dept of Medicine, Faculty of Medicine, Mt. Sinai Hospital, Toronto, Ontario, Canada

4. PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Professional Associations

2015 Jul - present	**Member of the Doctoral Research Awards B**, Canadian Insititutes of Health Research (CIHR)
2012 Nov - present	**Member**, The Hepatitis C Drug Development Advisory Group (HCV DrAG)
2011 - present	**Hepatitis C Special Interest Group**, American Association for the Study of Liver Disease (AASLD)
2011 - present	**Regular member**, European Association for the Study of the Liver
2010 - present	**Hepatitis B Special Interest Group**, American Association for the Study of Liver Disease (AASLD)
2010 - present	**Regular member**, Ontario Association of Gastroenterology, 809
2009 Oct - present	**Fellow**, Royal College of Physicians and Surgeons of Canada, 568300
2008 - present	**Regular Member**, Canadian Association for the Study of the Liver (CASL)
2008 - present	**Regular Member**, Canadian Association of Gastroenterology (CAG)
2002 - present	**Regular Member**, American Association for the Study of Liver Disease (AASLD), 105027
2002 - present	**Regular Member**, American Gastroenterological Association (AGA), 267238
1997 - present	Alpha Omega Alpha Honor Society
2010 Jun	**Gastroenterology & Hepatology Representative**, Provincial Expert Panel on Pharmacogenomics (Ontario Ministry of Health)
2009 - 2010	**Provisional Clinical Opinion Working Group - Hepatitis B Reactivation**, American Society of Clinical Oncology
2007 Oct - 2008 Oct	**Member of Basic Research Committee**, American Association for the Study of Liver Disease (AASLD)

Administrative Activities

INTERNATIONAL

American Association for the Study of Liver Disease (AASLD)

2014 Nov - present	Hepatitis C Special Interest Group Executive Committee, United States.
2013 Jun - present	AASLD Act-First Curriculum on HCV for Primary Care Practitioners, United States.
2012 Nov - present	Hepatitis B Special Interest Group Executive Committee, United States.
2014 Nov - 2015 Nov	Nominating Committee, United States.
2013 Mar - 2013 Nov	AASLD Special Symposium: Challenges in Diagnosis and Management of Chronic Hepatitis B Virus (HBV) Infection in Endemic Countries. Washington, District of Columbia, United States.
2010 Feb - 2011 Feb	Hepatitis B Specialty Based Slide Set Development Committee: Oncology Lead, United States.

2007 - 2008 **Member**, Basic Science Committee

American Association for the Study of Liver Disease (AASLD) / Infectious Disease Society of America

2013 Jul - present HCV Treatment Guideline Committee, United States.

American Society of Clinical Oncology

2014 Aug - 2015 Jan Provisional Clinical Opinion on Hepatitis B Reactivation Working Group, United States.

2010 Jan - 2010 Mar Provisional Clinical Opinion on Hepatitis B Reactivation Working Group, United States.

Anti-CD20 Hepatitis B Virus Reactivation Interest Group (ACT-HBVr)

2013 Jun - present Expert Panel on HBV Reactivation, Toronto, Ontario, Canada.

Hepatitis C Therapeutic Registry and Research Network (HCV-TARGET)

2012 Jul - present Steering Committee, United States.

2012 Jul - present Publication Committee, United States.

Hepatology 360: International Collaboration to Promote Hepatology Research, Training and Education

2011 May - present Steering Committee, Faculty of Medicine, Dept of Medicine

HepCure: Hepatitis Cure and Eradication Conference

2014 Feb - present Organizing Committee, Canada.

NIH Clinical Research Network

2011 Jul - present Adjudication Committee, United States.

2011 Jul - present Virology Committee, United States.

2011 Jul - present Ancillary Study Committee, United States.

Pan-American Health Organization (PAHO)

2015 Nov - present Technical Advisory Committee on Viral Hepatitis, Washington, District of Columbia, United States.

The Hepatitis C Drug Development Advisory Group (HCV DrAG)

2012 Nov - present United States.

The Viral Hepatitis Congress

2013 Feb - present Scientific Committee, Frankfurt, Germany

Toronto Addis Ababa Collaboration (TAAC)

2009 Jun - present Addis Ababa Gastroenterology Curriculum Committee (Chair), Faculty of Medicine, Dept of Medicine, Ontario, Canada.

University of Toronto Division of Gastroenterology

2013 Mar - 2013 Oct Jenny Heathcote Farewell Symposium Co-Chair, Toronto, Ontario, Canada.

World Gastroenterology Organisation

2013 Aug - present Hepatitis B Treatment Guidelines Co-Chair

NATIONAL

Canadian Agency for Drugs and Technologies in Health

2013 Aug - present HCV Treatment Evaluation Panel, Canada.

Canadian Association for the Study of the Liver (CASL)

2014 Feb - present Research Committee Co-Chair, Canada.

2010 Jul - present Research Committee, Canada.

2011 Oct - 2011 Dec Hepatitis C Virus (HCV) Clinical Practice Guideline Writing Committee Co-Chair, Canada.

National CIHR Research Training Program in Hepatitis C (NCRTP)

2012 Feb - present Mentor, National CIHR Research Training Program in Hepatitis C, Canada.

2013 Feb - 2014 Feb **Chair**, 3rd Annual National Symposium on Hepatitis C Virus, Toronto, Ontario, Canada.

PROVINCIAL / REGIONAL

Ministry of Health, Province of Ontario

2010 Jul - 2010 Dec Provincial Expert Panel on Pharmacogenomics, Canada.

Ontario Association of Gastroenterology

2011 Jul 1 - 2012 Jun 30 Conference Organizing Committee, Ontario, Canada.

LOCAL

Francis Family Liver Clinic Research Director

2010 Jul - present Toronto, Ontario, Canada

Toronto Centre for Liver Disease

2014 Jan - present Sheila Sherlock Liver Research Day Chair, Toronto, Ontario, Canada.

University of Toronto Division of Gastroenteorlogy

2015 Mar - present GI Research Day Co-Chair, Toronto, Ontario, Canada

University of Toronto Division of Gastroenterology

2015 Mar - present Research Committee Co-Chair, Canada.

2010 Nov - present Research Committee, Canada.

2011 Nov - 2012 May GI Division Research Retreat Co-Chair, Faculty of Medicine, Dept of Medicine, Toronto, Ontario, Canada.

Peer Review Activities

ASSOCIATE OR SECTION EDITING

Editor

2014 Jul - present Journal of Hepatology/Viral Hepatitis

EDITORIAL BOARDS

Reviewer

2014 Mar - present	HCV Next
2012 Sep - present	Alimentary Pharmacology & Therapeutics/Liver Disease
2011 Jun - present	Hepatology: Viral Hepatitis
2011 Apr - present	Journal of Clinical Gastroenterology/Viral Hepatitis
2011 Jan - present	Annals of Hepatology

GRANT REVIEWS

External Grant Reviewer

2012 Apr	Wellcome Trust, Wellcome Trust External Grant Review
2012 Feb	Hong Kong Health and Health Services Research Fund
2010 Dec	Ireland National Health Research Board
2007 Sep	Federal Drug Administration External Grant Review

Internal Grant Reviewer

2010 - present	Canadian Liver Foundation
2013 Jun	Grant Miller Cancer Research Competition
2011 Sep	Astellas Transplant Research Award Competition

Reviewer

2014 Jun - 2015 Jul	CIHR, Doctoral Research Awards Committee B
2013 Jun - 2014 Jul	CIHR, Doctoral Research Awards Committee B

MANUSCRIPT REVIEWS

Reviewer

2013 Nov - present	CMAJ
2013 Jul - present	Nature Medicine
2013 Apr - present	Journal of Clinical Investigation
2012 May - present	Gut
2011 May - present	Canadian Journal of Gastroenterology
2011 Apr - present	International Journal of Infectious Diseases
2011 Apr - present	Virology Research
2011 Jan - present	European Journal of Cancer
2010 Jan - present	Journal of Clinical Gastroenterology
2009 Apr - present	PLoS One
2009 Jan - present	American Journal of Gastroenterology
2009 Jan - present	Antiviral Therapy
2009 Jan - present	Hepatogastroenterology
2009 Jan - present	Journal of Gastroenterology and Hepatology
2009 Jan - present	Journal of Hepatology
2009 Jan - present	Journal of Infectious Diseases
2007 May - present	Antiviral Research
2007 Apr - present	AIDS Reviews
2007 Mar - present	Cochrane Library
2007 Mar - present	Proceedings of the National Academy of Sciences (PNAS)
2007 Jan - present	Gastroenterology
2007 Jan - present	Journal of Pediatric Gastroenterology and Nutrition
2007 Jan - present	Lancet Infectious Diseases

2006 Jan - present Hepatology

PRESENTATION REVIEWS

Reviewer

2011 - present	European Association for the Study of the Liver (EASL)
2009 - present	Canadian Association for the Study of Liver Disease
2008 - present	American Association for the Study of Liver Disease (AASLD)
2008 - present	American Association of Gastroenterology (AGA) Annual Meeting
2014 Mar	21st International Symposium On Hepatitis C Virus and Related Viruses
2013 Mar	20th International Symposium On Hepatitis C Virus and Related Viruses
2011 Mar	18th International Symposium On Hepatitis C Virus and Related Viruses

Research Funding

1. GRANTS, CONTRACTS AND CLINICAL TRIALS

PEER-REVIEWED GRANTS

FUNDED

2015 Sep - 2020 Sep **Co-Principal Investigator**. National CIHR Hepatitis C Network. Canadian Institutes of Health Research (CIHR). PI: Shoukry N, Bruneau J, Krajden M. 4,500,000. [Grants]

2015 Sep - 2017 Sep **Co-Investigator**. miRNA122 inhibition during ex-vivo liver perfusion to prevent hepatitis C reinfection after liver transplantation. Canadian Liver Foundation. Operating Grant. PI: **Feld, Jordan J**. Collaborator(s): Selzner, Markus. 120,000 CAD. [Grants]

2015 Jan - 2020 Jun **Co-Investigator**. Recently Acquired HCV Trials (REACT). National Institute of Health (NIH) (USA). PI: Matthews, Gail. Collaborator(s): **Feld JJ**, Kim A, Dore G, Grebely J, Rockstroh J, Hellard M. 1,576,000 USD. [Grants]

2014 Jul - 2016 Jun **Co-Principal Investigator**. The role of microRNAs in the hepatitis B lifecycle. NIH. PI: **Feld, Jordan**; Ghany, Marc; Chung, Raymond. Collaborator(s): Janssen, Harry; Lau, Darryl; Schaefer, Esperanza; Lok, Anna; Razavi, Rozita. 242,389 USD. [Grants]

2014 Mar - 2016 Mar **Co-Investigator**. Estimation of health and economic burden of blood-borne infections. Canadian Institute for Health Research (CIHR). Operating Grant. PI: Thein, Hla H. Collaborator(s): **JJ Feld**, J Kwong, B Sander. 420,122 CAD. [Grants]

2014 Mar - 2016 Mar **Co-Investigator**. Cross sectional and longitudinal measures of quality of life and utility among patients with chronic hepatitis C virus infection. Canadian Institute for Health Research (CIHR). Operating Grant. PI: Wong, W. Collaborator(s): **JJ Feld**, M Krahn, J Powis, J Bruneau. 215,859 CAD. [Grants]

2013 Jul - 2016 Dec **Principal Applicant**. Diagnosis and management of hepatitis B and hepatitis C infection in Ontario. Physicians Services Incorporated Foundation (The) (PSI). Open grant competition. PI: **Feld, Jordan**, Lapointe-Shaw Lauren. Collaborator(s): Kwong Jeff, Sander Beate, Peter Austin, Liane Macdonald, Shelly Bolotin. 169,500 CAD. [Grants]

2013 Jul - 2016 Jul — **Co-Investigator**. Developing a framework to estimate healthcare costs for infectious diseases using administrative data. Canadian Institute for Health Research (CIHR). Operating Grant. PI: Sander, Beate. Collaborator(s): **JJ Feld**, J Kwong, M Krahn, A McGeer, J Daneman. [Grants]

2013 Jul - 2016 Jul — **Co-Principal Investigator**. Health Consequences and Cost-Effectiveness of Hepatitis B Screening Before Adjuvant Chemotherapy for Patients with Early Stage Breast Cancer: A Modeling Perspective. Canadian Breast Cancer Foundation (CBCF). Operating Grant. PI: Kelvin Chan. Collaborator(s): **JJ Feld**, W Wong, L Hicks, K Pritchard, M Krahn. 105,040 CAD. [Grants]

2013 Mar - 2016 Mar — **Principal Investigator**. Randomized controlled trial to evaluate the role of pre-emptive vs. on-demand tenofovir for prevention of hepatitis B reactivation in patients who are HBsAg-negative, anti-HBc positive receiving rituximab-based chemotherapy for non-Hodgkin's lymphoma. Canadian Institute for Health Research (CIHR). Operating Grant. Collaborator(s): K Chan, L Hicks, M Crump. 143,446 CAD. [Grants]

2012 Apr - 2014 Apr — **Co-Principal Investigator**. The Current Management Pattern and the Prevalence of Lymphoma Patients who are Hepatitis B Core-Antibody Positive but Surface Antigen Negative, and their Risk of Hepatitis B Virus Reactivation with Rituximab. Division of Medical Oncology, Department of Medicine. University of Toronto Strategic Planning Innovation Fund 201. PI: K Chan, **JJ Feld**, L Hicks. Collaborator(s): M Chung. 30,000 CAD. [Grants]

2011 Oct - 2016 Jun — **Co-Investigator**. Combination Tenofovir and Peginterferon Therapy in HBeAg-Positive Immune-Active Adults with Chronic Hepatitis B. National Institutes of Health (NIH) (USA). PI: Wong, David. Collaborator(s): HLA Janssen. [Grants]

2011 Oct - 2016 Jun — **Principal Site Investigator**. Combination Entecavir and Peginterferon Therapy in HBeAg-Positive Immune- Tolerant Adults with Chronic Hepatitis B. National Institutes of Health (NIH) (USA). Collaborator(s): D Wong, HLA Janssen. [Grants]

2011 Aug - 2013 Aug — **Principal Investigator**. Antiviral mechanisms of interferon in HCV infection. Canadian Liver Foundation. Operating Grant (PI). Collaborator(s): Ian McGilvray, Conrad Liles. 120,000 CAD. [Grants]

2011 Apr - 2015 Apr — **Co-Investigator**. Studies of HCV using activity-based profiling. Canadian Institute for Health Research (CIHR). Operating Grant. PI: Pezacki J. Collaborator(s): L Tyrrel. 183,000 CAD. [Grants]

2011 Apr - 2013 Apr — **Co-Investigator**. Cost-effectiveness models of HCV therapy. Canadian Institute for Health Research (CIHR). Operating Grant. PI: Thien, H. Collaborator(s): G Dore, M Krahn. 79,540 CAD. [Grants]

2010 Nov - 2012 Nov — **Principal Investigator**. Predictive models for treatment outcome in HCV infection. Canadian Institute for Health Research (CIHR) - Institute of Genetics. Clinical Investigatorship Award. Collaborator(s): Mentor: K.Siminovitch, Ian McGilvray. 280,000 CAD. [Grants]

2010 Jul - 2016 Jun — **Co-Investigator**. Immune Regulation and Costimulation in Natural History of Chronic Hepatitis B. National Institutes of Health (NIH) (USA). PI: Wong, David. Collaborator(s): HLA Janssen. [Grants]

2010 Jul - 2012 Jun — **Principal Investigator**. Automation of hepatitis B testing prior to chemotherapy: a quality assurance project. University of Toronto. Grant Miller Cancer Grant. Collaborator(s): K Chan,

L Hicks, C Bell. 20,000 CAD

2009 Jul - 2016 Jun **Co-Investigator**. Observational Study of Persons with Hepatitis B Virus Infection in North America. National Institutes of Health (NIH) (USA). PI: Janssen, HLA. Collaborator(s): D Wong. 1,786,409 USD. [Grants]

2008 May - 2010 May **Principal Investigator**. Role of Interferon-inducible HCV-Specific microRNAs in Human HCV Infection. American Association for the Study of the Liver (AASLD). Sheila Sherlock Clinical & Translational Research Award. 150,000 USD. [Grants]

NON-PEER-REVIEWED GRANTS

FUNDED

2015 Feb - 2017 Sep **Principal Investigator**. A Phase 2, Open-label Study to Investigate the Efficacy, Safety, Tolerability and Pharmacokinetics of 6 or 8 Weeks of Treatment With Simeprevir, Daclatasvir and Sofosbuvir in Treatment-naïve Subjects With Chronic Hepatitis C Virus Genotype 1 Infection. Janssen Pharmaceutica Inc. Operating Grant. [Grants]

2015 Feb - 2017 Jan **Principal Investigator**. Sub-study to evaluate intrahepatic immune responses and virological changes during therapy using fine needle aspiration biopsy samples. Janssen Pharmaceutica Inc. Operating Grant. Collaborator(s): Janssen HL. 79,000 USD. [Grants]

2014 Sep - 2018 Sep **Co-Principal Investigator**. Canadian prospective study for hepatocellular carcinoma surveillance using biomarkers. Wako Diagnostics. Operating Grant. PI: Sherman, Morris. [Grants]
Feld, Jordan.

2014 Sep - 2016 Aug **Principal Investigator**. An open label study of Sofosbuvir/GS-5816 Fixed Dose Combination in Subjects with Chronic HCV Infection. Gilead Sciences. Operating Grant. [Grants]

2014 Aug - 2016 Jul **Principal Investigator**. A Phase 3, Multicenter, Randomized, Open-Label Study to Compare the Efficacy and Safety of Sofosbuvir/GS-5816 Fixed Dose Combination for 12 Weeks with Sofosbuvir and Ribavirin for 24 Weeks in Subjects with Chronic Genotype 3 HCV Infection. Gilead Sciences. Operating Grant. [Grants]

2014 Jul - 2016 Jan **Principal Investigator**. The Clinical application of HCV core antigen assay as a monitoring tool in patients with chronic HCV who are receiving new direct acting antiviral agents. Abbot Laboratories Diagnostics. Operating Grant. Collaborator(s): Janssen, HL. [Grants]

2014 Apr - 2015 Apr **Co-Investigator**. Miravirsen to prevent hepatitis C virus (HCV) reinfection after liver transplantation. Santaris Pharma. Operating Grant. PI: Selzner, Markus. Collaborator(s): **Feld JJ**, Janssen HL. 182,916 CAD. [Grants]

2014 Jan - 2016 Jan **Principal Investigator**. A Phase II/III Randomized Clinical Trial to Study the Efficacy and Safety of the Combination Regimen of MK-5172 and MK-8742 in Subjects with Chronic Hepatitis C Virus Infection and Chronic Kidney Disease. Merck Sharp & Dohme Research Laboratory. Operating Grant. [Grants]

2013 Apr - 2014 Jan **Principal Investigator**. An Open-Label Study of GS-7977 + Ribavirin with or without Peginterferon Alfa-2a in Subjects with Chronic HCV Infection who Participated in Prior Gilead HCV Studies. Gilead Sciences. Awarded. [Grants]

2013 Mar - 2016 Mar **Principal Investigator**. Randomized controlled trial to evaluate the role of pre-emptive vs.

on-demand tenofovir for prevention of hepatitis B reactivation in patients who are HBsAg-negative, anti-HBc positive receiving rituximab-based chemotherapy for non-Hodgkin's lymphoma. Gilead Sciences. Collaborator(s): Hicks L, Chan K, Janssen H, Crump M. 714,323 CAD. [Grants]

2012 Dec - 2014 Jan — **Principal Investigator**. A Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Efficacy and Safety of ABT-450/Ritonavir/ ABT 267 (ABT-450/r/ABT-267) and ABT-333 Co-administered with Ribavirin (RBV) in Treatment Naïve Adults with Genotype 1 Chronic Hepatitis C Virus (HCV) Infection (SAPPHIRE-I)M11-646. Abbvie. [Clinical Trials]

2012 Dec - 2014 Jan — **Principal Investigator**. A Randomized, Double-blind, Placebo-controlled Study to Evaluate the Efficacy and Safety of ABT-450/Ritonavir/ ABT 267 (ABT-450/r/ABT-267) and ABT-333 Co-administered with Ribavirin (RBV) in Treatment-Experienced Adults with Genotype 1 Chronic Hepatitis C Virus (HCV) Infection (SAPPHIRE-II). Abbvie. [Clinical Trials]

2012 Jul - 2015 Jul — **Principal Site Investigator**. Hepatitis C therapeutic registry and research network (HCV-TARGET). Industrial and Academic partners. PI: **Feld, Jordan**. 150,000 USD. [Clinical Trials]

2012 Mar - 2014 Oct — **International Steering Committee Member & Site Principal Investigator**. A Phase 3b Study of 2 Treatment Durations of Telaprevir, Peg-IFN (Pegasys®), and Ribavirin (Copegus®) in Treatment-Naive and Prior Relapser Subjects With Genotype 1 Chronic Hepatitis C and IL28B CC Genotype (VX11-950-114. Vertex Pharmaceuticals. [Clinical Trials]

2011 Dec — **International Steering Committee Member & Site Principal Investigator**. A Phase 3b Study of 2 Treatment Durations of Telaprevir, Peg-IFN (Pegasys®), and Ribavirin (Copegus®) in Treatment-Naive and Prior Relapser Subjects With Genotype 1 Chronic Hepatitis C and IL28B CC Genotype (VX11-950-114). Vertex Pharmaceuticals Incorporated. [Clinical Trials]

2011 Dec — **Principal Site Investigator**. A Randomized, Open-Label, Multicenter Study to Evaluate the Antiviral Activity, Safety, and Pharmacokinetics, of ABT-450 with Ritonavir (ABT-450/r) in Combination with ABT-267 and/or ABT-333 With and Without Ribavirin (RBV) for 8, 12 or 24 Weeks in Treatment-Naïve and Null Responder Subjects with Genotype 1 Chronic Hepatitis C Virus Infection (M11-652). Abbott Laboratories. [Clinical Trials]

2011 Dec — **Principal Site Investigator**. A randomized, double-blind, placebo-controlled trial of the efficacy and safety of DEB025/Alisporivir in combination with standard of care in hepatitis C genotype 1 treatment-naïve patients (CDEB025A2301). Novartis Pharmaceuticals Corporation. [Clinical Trials]

2011 Dec — **Principal Site Investigator**. A Phase 2 Randomized, Double-Blind, Placebo-Controlled Study of GS-5885, GS-9451, Tegobuvir and Ribavirin; GS-5885, GS-9451 and Tegobuvir; GS-5885, GS-9451 and Ribavirin in Interferon Ineligible or Intolerant Subjects with Chronic Genotype 1a or 1b HCV Infection(GS-US-248-0132). Gilead Sciences. [Clinical Trials]

2011 Nov - 2013 Mar — **Principal Site Investigator**. A Phase II,Randomized,Double-Blind, Multicenter, Active-Controlled, Parallel Group Study to Evaluate the Sustained Virologic Response of the HCV Polymerase Inhibitor Prodrug RO5024048 in Combination with Telaprevir and Pegasys®/Copegus® Compared with Telaprevir and Pegasys®/Copegus® in Patients with Chronic Hepatitis C Genotype 1 Virus Infection Who Were Prior Null Responders to Treatment with Pegylated Interferon/Ribavirin (NV27779). Hoffman-LaRoche Pharmaceuticals. [Clinical Trials]

2011 Nov — **International Steering Committee Member & Site Principal Investigator**. A Randomized,

Placebo-Controlled Dose-Ranging Study to Evaluate the Safety, Tolerability and Efficacy of Different Regimens of MK-5172 When Administered Concomitantly with Peginterferon Alfa-2b and Ribavirin in Treatment-Naïve Patients with Chronic Genotype 1 Hepatitis C Virus Infection (MK-5172-003-00). Merck Pharmaceuticals. [Clinical Trials]

2011 Mar — **Principal Site Investigator**. A Randomized, Partially-blind Study to Evaluate the Safety, Tolerability and Effect on Virological Response of Treatment with the HCV Protease Inhibitor RO5190591 in Combination with Pegasys and Copegus for 12 or 24 weeks, versus treatment with Pegasys and Copegus alone, in Treatment-Naïve Patients with Chronic Hepatitis C Genotype 1 Virus Infection (NV21075). Hoffman-LaRoche Pharmaceuticals. [Clinical Trials]

2011 Mar — **Principal Investigator**. A Randomized, Open-Label, Multicenter Study to Evaluate the Sustained Virologic Response of the HCV Protease Inhibitor Danoprevir Boosted with Low Dose Ritonavir (DNV/r) and Copegus, in Combination with the HCV Polymerase Inhibitor Prodrug RO5024048 and/or Pegasys in Chronic Hepatitis C Genotype 1 Patients Who Failed with a Previous Course of Peginterferon Alfa Plus Ribavirin Combination Therapy (Protocol # WV21913). Hoffman-LaRoche Pharmaceuticals. [Clinical Trials]

2. SALARY SUPPORT AND OTHER FUNDING

Trainee Salary Support

2014 Sep - 2015 Aug — TGRI Post-Doctoral Fellowship Award. Trainee Name: Mia Biondi. Toronto General Research Institute. 25,000 CAD. Toronto, Ontario, Canada.

2014 Jul - 2015 Jun — Development of a risk prediction model for hepatocellular carcinoma. Trainee Name: Suraj Sharma. Canadian Liver Foundation. 50,000 CAD. Ontario, Canada.

2014 Jun - 2014 Aug — Development of a plasmonic ELISA for rapid point-of-care detection of hepatitis C virus (HCV) infection. Trainee Name: Greg Heymann. Canadian Liver Foundation. 5,000 CAD. Ontario, Canada.

2013 Jun - 2013 Aug — Development of a plasmonic ELISA for rapid point-of-care detection of hepatitis C virus (HCV) infection. Trainee Name: Mia Biondi. Canadian Liver Foundation. 5,000 CAD. Ontario, Canada.

2013 Jun - 2013 Aug — Development of a plasmonic ELISA for rapid point-of-care detection of hepatitis C virus (HCV) infection. Trainee Name: Mia Biondi. National CIHR Research Training Program in Hepatitis C (NCRTP). 4,500 CAD. Ontario, Canada.

2012 Jun - 2012 Aug — Understanding the reasons for failure to screen for hepatitis B prior to chemotherapy. Trainee Name: Alissa Visram. Canadian Liver Foundation. 5,000 CAD. Ontario, Canada.

2011 Jun - 2011 Aug — Understanding the antiviral mechanisms of alpha-defensin against hepatitis C virus (HCV). Trainee Name: Alana R Sherker. Canadian Liver Foundation. 5,000 CAD. Ontario, Canada.

2011 Jun - 2011 Aug — Understanding the reasons for failure to screen for hepatitis B prior to chemotherapy. Trainee Name: Alissa Visram. Canadian Liver Foundation. 5,000 CAD. Ontario, Canada.

2011 May - 2011 Jul — Understanding the antiviral mechanisms of alpha-defensin against hepatitis C virus (HCV). Trainee Name: Alana Sherker. American Gastroenterology Association Stuart Brotman Student Research Fellowship. 5,000 USD. United States.

Publications

1. MOST SIGNIFICANT PUBLICATIONS

1. **Feld JJ**, Kowdley K Coakley E, Sigal S, Nelson DR, Crawford D, Weiland O, Aguilar H, Xiong J, DaSilva-Tillman B, Larsen L, Podsadecki T, Bernstein B. Treatment of HCV with ABT-450/r-ombitasvir and Dasabuvir with ribavirin. NEJM. 2014. Apr 24;370(17):1594-603. Impact Factor 51.65. **Principal Author**.

   Treatment of hepatitis C virus (HCV) infection has traditionally required prolonged therapy with peginterferon and ribavirin with numerous side effects and low rates of cure. In this international Phase 3 study, we demonstrated that a combination of 3 novel well-tolerated oral antivirals for HCV combined with ribavirin led to cure rates of 96% with only 12 weeks of therapy. This and other oral regimens will lead to a complete paradigm shift in HCV treatment.

2. Zurawska U, Hicks LK, Woo G, Bell CM, Krahn M, Chan KK, **Feld JJ**. Hepatitis B virus screening before chemotherapy for lymphoma: a cost-effectiveness analysis. J Clin Oncol. 2012 Sep;30(26):3167-73. Impact Factor 18.4 (Trainee publication, Zurawska U). **Senior Responsible Author**.

   The management of hepatitis B virus (HBV) infection in the setting of chemotherapy is an important but controversial issue. Although the CDC recommends universal HBV screening prior to starting cancer chemotherapy, the American Society of Clinical Oncology (ASCO) advocates only testing high-risk individuals, basing their decision on a lack of robust evidence and concerns about cost-effectiveness. In this study, we show that HBV screening is not only cost-effective but actually cost-saving prior to chemotherapy for aggressive or indolent lymphoma. The accompanying editorial in the Journal of Clinical Oncology advocated for a change in guidelines based on our findings.

3. Myers RP, Ramji A, Bilodeau M, Wong S, **Feld JJ**. An update on the management of hepatitis C: consensus guidelines from the Canadian Association for the Study of the Liver. Can J Gastroenterol. 2012 Jun;26(6):359-75. **Senior Responsible Author**.

   As part of my efforts to promote clinical practice guidelines, I was selected by my peers across the country to co-chair the Canadian consensus conference on the management of hepatitis C virus (HCV) infection. Together with Rob Myers from Calgary, we assembled and edited the various components of the guidelines, which are widely used in clinical practice and have been cited by authors in other countries as among the best clinical guideline documents in this field.

4. McGilvray I, **Feld JJ**, Chen L, Pattullo V, Guindi M, Fischer S, Borozan I, Xie G, Selzner N, Heathcote EJ, Siminovitch K. Hepatic cell-type specific gene expression better predicts HCV treatment outcome than IL28B genotype. Gastroenterology. 2012 May;142(5):1122-1131.e1. Impact Factor 12. **Co-Principal Author**.

   We have previously shown that baseline interferon-stimulated gene (ISG) expression in the liver is associated with the response to interferon-based therapy. Patients with high baseline ISG expression respond poorly to therapeutic interferon, likely because the interferon system is already maximally activated. In this study we evaluated the gene expression pattern in a cell-type specific manner by looking at ISG protein staining in hepatocytes and Kupffer cells (resident liver macrophages). We found that patients who responded well to interferon-based therapy had low baseline ISG expression in hepatocytes but interestingly, had markedly elevated ISG expression in macrophages. Perhaps more importantly we found that in those who do not respond to therapy, the opposite pattern was seen: high hepatocyte ISG staining and low or absent macrophage staining. In fact, macrophage staining proved to be effectively a prerequisite for a response to interferon as the absence of staining had a 98% negative predictive value for treatment response. As a result, with a simple and inexpensive tool, we could identify patients who would not respond to current therapy without exposing them to this potentially toxic and very expensive treatment. We also found that the ISG staining pattern was highly correlated with a recently identified single nucleotide polymorphism (SNP) associated with treatment response. Our data clearly show that the interaction between macrophages and hepatocytes in the liver is critical to the innate antiviral immune response. Collectively this study identified a useful clinical tool and offered some important insights in the innate antiviral response, which we are now continuing to investigate.

5. **Feld JJ**, Modi AA, El-Diwany R, Rotman Y, Thomas E, Ahlenstiel G, Titerence R, Koh C, Cherepanov V, Heller T, Ghany MG, Park Y, Hoofnagle JH, Liang TJ. S-adenosyl methionine improves early viral responses and interferon-stimulated gene induction in hepatitis C nonresponders. Gastroenterology. 2011 Mar;140(3):830-9. Impact Factor 12. **Principal Author**.

   Hepatitis C virus (HCV) has evolved unique strategies to circumvent the innate antiviral immune response. Like many viruses, HCV interferes with interferon signaling, allowing it to establish persistent infection. Up-regulation of protein phosphatase 2a (PP2a) by HCV leads to reduced STAT1 methylation. The protein inhibitor of activated STAT (PIAS1) binds unmethylated STAT1 thus preventing STAT1 from binding to DNA and leading to interferon-stimulated gene (ISG) transcription. Cell culture data supported the concept that methyl donors such as SAMe improve STAT1 methylation thus restoring ISG expression. We were able to demonstrate that SAMe improved early viral kinetics and augmented ISG induction by interferon. Using in-vitro systems we confirmed that SAMe acts by increasing STAT1 methylation, thereby reducing STAT1-PIAS1 interaction and enhancing ISG induction. This was the first study to reveal a simple and inexpensive strategy to improve responses to interferon treatment. It is also a nice example of using a translational approach to demonstrate the utility of a clinically relevant advance.

2. PEER-REVIEWED PUBLICATIONS

Journal Articles

1. Dahari H, Cotler SJ, **Feld JJ**. Cure prevents more than transmission of HCV. Hepatology. 2016 Jan. [Epub ahead of print]. In Press. **Senior Responsible Author**.

2. Hwang JP, Somerfield MR, Alston-Johnson DE, Cryer DR, **Feld JJ**, Kramer BS, Sabichi AL, Wong SL, Artz AS. Reply to J. Cabezas et al. J Clin Oncol. 2016 Jan. 34(3):290-1. doi: 10.1200/JCO.2015.64.3064. Epub 2015 Dec 7. **Coauthor or Collaborator**.

3. Brahmania M, **Feld J**, Arif A, Janssen HL. New therapeutic agents for chronic hepatitis B. Lancet Infect Dis. 2016 Jan. **Coauthor or Collaborator**.

4. Cloherty G, Talal A, Coller K, Steinhart C, Hackett J Jr, Dawson G, Rockstroh J, **Feld J**. The Role of Serologic and Molecular Diagnostic Assays in the Identification and Management of Hepatitis C Virus Infection. J Clin Microbiol. 2015 Dec. pii: JCM.02407-15. [Epub ahead of print]. In Press. **Senior Responsible Author**.

5. van der Meer AJ, Maan R, Veldt BJ, **Feld JJ**, Wedemeyer H, Dufour JF, Lammert F, Duarte-Rojo A, Manns MP, Zeuzem S, Peter Hofmann W, de Knegt RJ, Hansen BE, Janssen HL. Improvement of platelets after SVR among patients with chronic HCV infection and advanced hepatic fibrosis. J Gastroenterol Hepatol. 2015 Dec. doi: 10.1111/jgh.13252. [Epub ahead of print]. In Press. **Co-Principal Author**.

6. Park JJ, Wong DK, Wahed AS, Lee WM, **Feld JJ**, Terrault N, Khalili M, Sterling RK, Kowdley KV, Bzowej N, Lau DT, Kim WR, Smith C, Carithers RL, Torrey KW, Keith JW, Levine DL, Traum D, Ho S, Valiga ME, Johnson GS, Doo E, Lok AS, Chang KM; HBRN. HBV-specific and global T-cell dysfunction in chronic hepatitis B. Gastroenterology. 2015 Dec. pii: S0016-5085(15)01736-9. doi: 10.1053/j.gastro.2015.11.050. [Epub ahead of print]. **Coauthor or Collaborator**.

7. Duarte-Rojo A, Fischer S, Adeyi A, Zita D, Cotler S, McGilvray IM, **Feld JJ**. Cell-type specific interferon stimulated gene expression is predictive of response to protease-inhibitor based therapy. J Viral Hepatitis. 2015 Dec. 2015 Dec 29. doi: 10.1111/jvh.12494. [Epub ahead of print]. **Senior Responsible Author**.

8. Negro F, Forton D, Craxì A, Sulkowski MS, **Feld JJ**, Manns MP. Extrahepatic Morbidity and Mortality of Chronic Hepatitis C. Gastroenterology. 2015 Nov. 149(6):1345-60. doi: 10.1053/j.gastro.2015.08.035. **Coauthor or Collaborator**.

9. Grebely J, Robaeys G, Bruggmann P, Aghemo A, Backmund M, Bruneau J, Byrne J, Dalgard O, **Feld JJ**, Hellard M, Hickman M, Kautz A, Litwin A, Lloyd AR, Mauss S, Prins M, Swan T, Schaefer M, Taylor LE, Dore GJ;. Empfehlungen zur Hepatitis Versorgung bei Drogenkonsumierenden. Int J Drug Policy. 2015 Nov:S0955-3959. (15)00352-7. doi: 10.1016/j.drugpo.2015.11.010. [Epub ahead of print]. **Coauthor or Collaborator**.

10. Khalili M, Lombardero M, Chung RT, Terrault NA, Ghany MG, Kim WR, Lau D, Lisker-Melman M, Sanyal A, Lok AS, HBRN, Roberts LR, Smith CI, Di Bisceglie AM, Brunt EM, Janssen HL, Wong DK, Juan J, **Feld J**, Yim C, Heathcote J, Lee WM, Perrillo R, Do S, Han SH, Tran TT, Cooper SL, Fontana RJ, Tsai N, Fried MW, Patel K, Evon D, Carithers RC, Shuhart M, Kowdley KV, Wang CC, Sterling RK, Liang TJ, Chang KM, Park JJ, Belle S, Wahed A, Cloonan Y, Kleiner D. Diabetes and prediabetes in patients with hepatitis B residing in North America. Hepatology. 2015 Nov. 62(5):1364-74. doi: 10.1002/hep.28110. Epub 2015 Sep 29. **Coauthor or Collaborator**.

11. **Feld JJ**, Jacobson IM, Hézode C, Asselah T, Ruane PJ, Gruener N, Abergel A, Mangia A, Lai CL, Chan HL, Mazzotta F, Moreno C, Yoshida E, Shafran SD, Towner WJ, Tran TT, McNally J, Osinusi A, Svarovskaia E, Zhu Y, Brainard DM, McHutchison JG, Agarwal K, Zeuzem S; ASTRAL-1 Investigators. Sofosbuvir and Velpatasvir for HCV Genotype 1, 2, 4, 5, and 6 Infection. NEJM. 2015 Nov. PMID: 26571066 [PubMed - as supplied by publisher]. **Principal Author**.

12. Fralick M, **Feld JJ**. Hepatitis C virus infection. CMAJ. 2015 Oct;187(15):1159. **Coauthor or Collaborator**.

13. Zeuzem S, Flisiak R, Vierling JM, Mazur W, Mazzella G, Thongsawat S, Abdurakhmanov D, Van Kính N, Calistru P, Heo J, Stanciu C, Gould M, Makara M, Hsu SJ, Buggisch P, Samuel D, Mutimer D, Nault B, Merz M, Bao W, Griffel LH, Brass C, Naoumov NV; ESSENTIAL II Study Group, Tanno H, Bessone F, Terg R, Frider B, Bertuzzi R, Desmond P, Zekry A, Weltman M, George J, Crawford D, Matthews G, Moreno C, Van Vlierberghe H, Reynaert H, Gould M, Lee S, Ramji A, Tam E, Marotta P, Yoshida E, Wong F, **Feld J**, Samuel D, Marcellin P, Alric L, Zarski JP, Zoulim F, Buggisch P, Hinrichsen H, Goeser T, Zeuzem S, Galle P, Berg T, Schott E, Rasenack J, Gerken G, Wedemeyer H, Tsang O, Yuen MF, Chan H, Hui AJ, Makara M, Tornai I, Gervain J, Szalay F, Varga M, Horvath G, Hunyady B, Vincze A, Mazzella G, Gaeta GB, Alberti A, Colombo M, Andreone P, Rizzetto M, Angelico M, Craxi A, Picciotto A, Sacchi P, Vinci M, Invernizzi P, Bruno S, Heo J, Lee Y, Cho M, Han S, Lee J, Ahn S, Lim Y, Hwang S, Sanchez J, Muñoz L, Mal. Randomised clinical trial: alisporivir combined with peginterferon and ribavirin in treatment-naïve patients with chronic HCV genotype 1 infection (ESSENTIAL II). Aliment Pharmacol Ther. 2015 Oct. 42(7):829-44. doi: 10.1111/apt.13342. Epub 2015 Aug 4. **Coauthor or Collaborator**.

14. **Feld JJ**, Moreno C, Trinh R, Tam E, Bourgeois S, Horsmans Y, Elkhashab M, Bernstein DE, Younes Z, Reindollar RW, Larsen L, Fu B, Howieson K, Polepally AR, Pangerl A, Shulman NS, Poordad F. Sustained Virologic Response of 100% in HCV Genotype 1b Patients with Cirrhosis Receiving Ombitasvir/Paritaprevir/r and Dasabuvir for 12 Weeks. Journal of Hepatology. 2015 Oct. S0168-8278(15)00676-5. **Principal Author**.

15. O'Brien TR, **Feld JJ**, Kottilil S, Pfeiffer RM. No Scientific Basis to Restrict 8 Weeks of Treatment with Ledipasvir/Sofosbuvir to Patients with HCV RNA <6,000,000 IU/ml. Hepatology. 2015 Oct. doi: 10.1002/hep.28292. **Coauthor or Collaborator**.

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109. **Feld JJ**, Meddings J, Heathcote EJ. Abnormal intestinal permeability in primary biliary cirrhosis. Dig Dis Sci. 2006 Sep;51(9):1607-13. Impact Factor 2.1. **Principal Author**.

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119. **Feld JJ**, Heathcote EJ. Epidemiology of autoimmune liver disease. J Gastroenterol Hepatol. 2003 Oct;18(10):1118-28. Impact Factor 2.4. **Principal Author**.

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121. **Feld J**, Locarnini S. Antiviral therapy for hepatitis B virus infections: new targets and technical challenges. J Clin Virol. 2002 Dec;25(3):267-83. **Principal Author**.

122. **Feld J**, Sherbin P, Cole E. Barriers to organ donation in the Jewish community. J Transpl Coord. 1998 Mar;8(1):19-24. **Principal Author**.

Case Reports

1. **Feld J**, Mehta H, Burkes RL. Acute spontaneous tumor lysis syndrome in adenocarcinoma of the lung: a case report. 2000 Oct. Am J Clin Oncol;23(5):491-3. **Principal Author**.

2. Rafik Loutfy M, **Feld JJ**, Maynard Conly J. Multiorgan failure and rhabdomyolysis in a recent émigré: your diagnosis? 2000 May. Can J Infect Dis;11(3):134-54. Impact Factor 2.2. **Coauthor or Collaborator**.

Book Chapters

1. **Feld JJ**. Hepatitis Caused by Other Viruses. In: Feldman M, Friedman LS, Sleisenger MH, editor(s). Sleisenger and Fortran's Gastrointestinal and Liver Disease. 10th Edition. WB Saunders; 2014. **Principal Author**.

2. **Feld JJ**, Fung SK, Hanbidge AE, Hirschfield GM, Kamath BM, Khalili K, Lilly LB, Ling S, Ng VL, Renner EL, Roberts EA, Selzner N, Shah HA, Sherman M, Wong DKH. Hepatology. In: Heathcote, Jenny E, editor(s). Diagnosis and Clinical Management. First Edition. Wiley-Blackwell; 2012. **Coauthor or Collaborator**.

3. Sherman M, Lee, SS, Wong F, Yoshida EM, Conway B, **Feld JJ**, Shafran SD. Hepatitis C: A new era. 2011. **Coauthor or Collaborator**.

4. Shah H, **Feld JJ**. Management of hepatitis C virus infection. In: Clinical Care Options Hepatitis Journal. 2011. **Senior Responsible Author**.

5. **Feld JJ**, Heathcote EJ. Hepatitis Caused by Other Viruses. In: Feldman M, Friedman LS, Sleisenger MH, editor(s). Sleisenger and Fortran's Gastrointestinal and Liver Disease. 9th Edition. WB Saunders; 2010. **Principal Author**.

6. **Feld JJ**, Heathcote EJ. Primary Biliary Cirrhosis. In: Bayless TM, Diehl AM, editor(s). Advanced Therapy in Gastroenterology and Liver Disease. 5th Edition. BC Decker; 2005. **Principal Author**.

7. **Feld JJ**, Heathcote EJ. Other Hepatitis Viruses. In: Feldman M, Friedman LS, Sleisenger MH, editor(s). Sleisenger and Fortran's Gastrointestinal and Liver Disease. 7th Edition. WB Saunders; 2005. **Principal Author**.

8. **Feld J**, So D, Shah B, Kandel G. Gastroenterology Section. In: Medical Council of Canada Qualifying Examination Notes. University of Toronto Press; 1997. **Principal Author**.

Manuals

1. **Feld J**. Jewish Aspects of Organ Donation. 1997. Publication by Multiple Organ Retrieval and Exchange Program of Ontario. **Principal Author**.

Editorials

1. Leber A, **Feld JJ**. Does Eltrombopag Really ENABLE SVR? Gastroenterology. 2014 Feb;146(2):339-42. Impact Factor 12.82 (Trainee publication, A Leber). **Principal Author**.

2. Dranoff JA, **Feld JJ**, Lavoie EG, Fausther M. How does coffee prevent liver fibrosis? Biological plausibility for recent epidemiological observations. Hepatology. 2014. Jan 27. doi: 10.1002/hep.27032. Impact Factor 12. **Coauthor or Collaborator**.

3. **Feld JJ**. Considerations for on-treatment evaluation and management. HCV Next. 2014. **Principal Author**.

4. Pereira OC, **Feld JJ**. Sustained virologic response for patients with hepatitis C-related cirrhosis: a major milestone, but not quite a cure. Clin Infect Dis. 2013 Jul;57(2):237-9 (Trainee publication, OC Pereira). **Coauthor or Collaborator**.

5. **Feld JJ**. Interferon responses and spontaneous HCV clearance: is it all a matter of fat? J Hepatol. 2012 Jul;57(1):3-5. **Principal Author**.

6. **Feld JJ**, Ghany MG. Evolution of therapy for chronic hepatitis B: progressing from the simple to the complex. Ann Intern Med. 2007 Dec 4;147(11):806-8. Impact Factor 16.7. **Principal Author**.

Commentaries

1. Kelley M, **Feld JJ**. Commentary: What factors are important in diagnosing hepatic fibrosis? Aliment Pharmacol Ther. 2014 Mar;39(5):545-6 (Trainee publication, M Kelley). **Senior Responsible Author**.

2. Sharma S, **Feld JJ**. Commentary: non-haemodynamic effects of beta-blockers in cirrhosis - more than meets the eye? Aliment Pharmacol Ther. 2013 Sep;38(6):652 (Trainee publication, S Sharma). **Senior Responsible Author**.

Letters to Editor

1. van der Meer AJ, Wedemeyer H, **Feld JJ**, Dufour JF, Zeuzem S, Hansen BE, Janssen HL. Life expectancy in patients with chronic HCV infection and cirrhosis compared with a general population. JAMA. 2014 Nov;(18):1927-8. **Coauthor or Collaborator**.

2. Dinani A, **Feld JJ**. Noninvasive Tests of Fibrosis: To Get the Right Answers, We Need to Ask the Right Questions. Hepatitis Monthly. 2011;11(8):668-70 (Trainee publication, Dinani A). **Senior Responsible Author**.

3. Duarte-Rojo A, **Feld JJ**, Heathcote EJ. Pegylated Alpha Interferons: An Unresolved Clash of the Titans? J Hepatitis Monthly. 2010 Jun;10(3):226-8 (Trainee publication, Duarte-Rojo A). **Coauthor or Collaborator**.

4. **Feld JJ**, Heathcote EJ. In type 1 autoimmune hepatitis, is cirrhosis at presentation or follow-up associated with a poorer outcome? - author reply. Hepatology. 2005 Nov;42(5):1237-8. Impact Factor 10.9. **Principal Author**.

In Preparation

1. Cherepanov V, Ma M, Alvandi Z, Chen L, Selzner N, Renner EL, McGilvray I, **JJ Feld**. The ubiquitin specific protease USP18 is necessary but not sufficient for a hepatocyte interferon refractory state: Variable roles in Type 1 and Type III interferon responsiveness. 2013. **Senior Responsible Author**.

2. **Feld JJ**, Gladwin MT, Shields T, Haynes-Williams V. Nichols JS, Kleiner DE, Liang TJ Hoofnagle JH, Kato G, Heller T. Liver pathology in sickle cell anemia. 2013. **Principal Author**.

3. **Feld JJ**, Li Q, Hu Z, Thomas E, Cherepanov V, Liang TJ. Identification of novel antiviral interferon-stimulated genes (ISGs) using a high throughput siRNA approach. 2013. **Principal Author**.

Clinical Care Guidelines

1. Davis GL, Jensen DM, Masur H, Saag MS, Thomas DL, Aronsohn AI, Charlton MR, Chung RT, **Feld JJ**, Fontana RJ, Ghany MG, Godofsky EW, Kim AY, Kottilil S, Marks K, Martin P, Miturka K, Morgan TR, Naggie S, Raymond D, Reau N, Schooley RT, Sherman KE, Sulkowski MS, Ward JW, Wyles DL. Recommendations for Testing, Managing, and Treating Hepatitis C. 2014 Jan. Available from: http://www.hcvguidelines.org/panel. **Coauthor or Collaborator**.

Newspaper Articles

1. Toronto Declaration: A roadmap for Canada to lead fight against viral hepatitis. THE HILL TIMES (Monday, May 4, 2015). 2015 May:#18. **Principal Author**.

Online Resources

1. **Feld JJ**. HBV Reactivation and Cancer Chemotherapy. American Association for the Study of Liver Diseases (AASLD); 2011 Jan. Slide module. Available from: http://www.aasld.org/education/Documents/Feld-HBV%20Reactivation%20and%20Cancer%20Chemotherapy.pdf. **Principal Author**.

3. NON-PEER-REVIEWED PUBLICATIONS

Magazine Entries

1. **Feld JJ**. Hepatitis C: On the brink of a cure. The Medical Post. 2014 Aug 12. Available from: http://www.canadianhealthcarenetwork.ca/physicians/magazines/the-medical-post/. **Principal Author**.

2. **Feld JJ**. Eradication of Hepatitis C virus (HCV): Possibility or Fantasy. Hepatitis B & C Public Policy Newsletter. 2014 Feb:5-6. Available from: http://www.hepbcppa.org/newsletter-february-2014/. **Principal Author**.

4. SUBMITTED PUBLICATIONS

Journal Articles

1. Chen L, Ma MX, Qin B, Sun J, Lin LT, Richardson C, Edwards AM, Selzner N, **Feld JJ**, McGilvray ID. The USP18 cysteine protease promotes HCV independent of its protease activity – Implications for treatment. 2014. **Coauthor or Collaborator**.

2. Sharma S, Hansen BE, Wong DK, Shah H, Ascaru U, Khalili K, Yim C, Heathcote EJ, Janssen HLA, Hirschfield G, **Feld JJ**. Toronto Hepatocellular Carcinoma Risk Index: Development of a clinical scoring system to predict 10-year risk of HCC in patients with cirrhosis. 2014 (Trainee publication, S. Sharma). **Senior Responsible Author**.

3. **Feld JJ**, Kato GJ, Koh C, Shields T, Hildesheim ME, Kleiner DE, Sandler N, Douek D, Haynes-Williams V, Nichols JS, Liang TJ Hoofnagle JH, Gladwin MT, Heller T. Liver Injury is Associated with Mortality in Sickle Cell Disease. 2014. **Principal Author**.

4. **Feld JJ**, Kleiner DE, Gladwin MT, Shields T, Haynes-Williams V. Nichols JS, Liang TJ Hoofnagle JH, Kato G, Heller T. Hepatic iron overload predicts mortality in sickle cell disease. 2014. **Principal Author**.

Presentations and Special Lectures

1. INTERNATIONAL

Invited Lectures and Presentations

2015 Dec **Invited Speaker**. Toward Interferon Free Therapy of Chronic Hepatitis C. APDW: Asian Pacific Digestive Week. Taipei, Taiwan, Province Of China.

2015 Nov **Invited Speaker**. Visão geral das novas terapias contra hepatite C. 10th Brazilian AIDS Conference and 3rd Brazilian Viral Hepatitis Conference. São Paulo, Brazil.

2015 Nov **Invited Speaker**. TERAPIA DA HEPATITE C: Riscos de insucesso. 10th Brazilian AIDS Conference and 3rd Brazilian Viral Hepatitis Conference. São Paulo, Brazil.

2015 Nov **Invited Speaker**. HCV in the Patient on Immune-Modulatory Therapy. AASLD The Liver Meeting: Early Morning Workshops. San Francisco, California, United States.

2015 Nov **Invited Speaker**. Notes from the 2nd International Hepatitis Cure & Eradication Meeting 2015. VHAC Bi-Annual Partners Meeting: AASLD. San Francisco, California, United States.

2015 Oct **Invited Speaker**. Conquering C – the challenges we face. The 4th International Symposium on Hepatitis in Substance Users (INHSU 2015). Sydney, New South Wales, Australia.

2015 Oct **Invited Speaker**. Conquering C – reducing global disease burden and making elimination possible through collaboration. The 4th International Symposium on Hepatitis in Substance Users (INHSU 2015). Sydney, New South Wales, Australia.

2015 Oct **Invited Speaker**. IFN-free therapy for HCV infection: In search of perfectovir. The 4th International Symposium on Hepatitis in Substance Users (INHSU 2015). Sydney, New South Wales, Australia.

2015 Sep **Invited Speaker**. Which anti-HCV drugs will be approved after the VHC 2015? The Viral Hepatitis Congress. Frankfurt, Germany.

2015 Sep **Invited Speaker**. Treating the Cirrhotic HCV Patient: Is Longer Better? GALA GI and Liver Association of Americas. Chicago, Illinois, United States.

2015 Aug **Visiting Professor**. "The Innate Immune Response to HCV: It still matters....". Stanford University School of Medicine Division of Gastroenterology & Hepatology. San Francisco, California, United States.

2015 Jul **Visiting Professor**. Futuro en el tratamiento del virus C. Curso Anual Del Departamento De Gastroenterologia Avances en Hepatología. Mexico City, Mexico.

2015 Jul **Visiting Professor**. Virus B oculto. Curso Anual Del Departamento De Gastroenterologia Avances en Hepatología. Mexico City, Mexico.

2015 Jun **Visiting Professor**. Tratamiento de la coinfección HIV. XVIII Congreso Argentino de Hepatología 2015. Buenos Aires, Argentina.

2015 Jun **Visiting Professor**. Terapias basadas en Daclatasvir. XVIII Congreso Argentino de Hepatología 2015. Buenos Aires, Argentina.

2015 Jun **Visiting Professor**. Nuevas terapias en desarrollo. XVIII Congreso Argentino de Hepatología 2015. Buenos Aires, Argentina.

2015 Jun **Invited Speaker**. Translational research priorities in HCV. 15th International Symposium on Viral Hepatitis and Liver Disease ISVHLD. Berlin, Germany.

2015 May **Visiting Professor**. The Standard of Care in HCV: 2015. The Annual Clinical Care Options HIV and Hepatitis C Symposium. San Francisco, California, United States.

2015 Apr **Visiting Professor**. HCV Treatment Failures: How Do You Manage Patients Who Fail The New Therapies? GALA Dallas Conference. Dallas, Texas, United States.

2015 Apr **Invited Speaker**. Challenge: the HCC epidemics in «cured» hepatitis patients. The International Liver Congress; EASL. Wien, Austria.

2015 Mar **Invited Speaker**. Preventive Care for the Patient with HCV. Medscape. New York, United States.

2015 Mar **Invited Speaker**. An Expert Guide to Staging Liver Disease. Medscape. New York, United States.

2015 Mar **Visiting Professor**. Stem Cell Therapy in Liver Disease: Potential Targets. Hepatobiliary Disease in Clinical Practice: Update XXI. Miami, Florida, United States.

2014 Dec **Visiting Professor**. The steps so far and the perspectives for the near future on HCV Therapy. Second Latin American Symposia on Antiviral Therapy Against HCV. São Paulo, Brazil.

2014 Dec **Visiting Professor**. HCV therapy from 2014 and beyond. Second Latin American Symposia on Antiviral Therapy Against HCV. São Paulo, Brazil.

2014 Dec **Visiting Professor**. HCV therapy in the liver transplantation settings. Second Latin American Symposia on Antiviral Therapy Against HCV. São Paulo, Brazil.

2014 Nov **Invited Speaker**. Treatment in Special Clinical Populations. 1st Hepatitis Cure & Eradication Meeting 2014. Toronto, Ontario, Canada.

2014 Nov **Invited Speaker**. All-Oral Therapy for HCV: A New Era Begins. American Association for the Study of Liver Disease. Boston, Massachusetts, United States.

2014 Nov **Invited Speaker**. Chronic Hepatitis C Infection: From Cure to Eradication. 27th Annual Scientific Meeting and International Symposium on Hepatology 2014 HKASLD. Hong Kong.

2014 Nov **Invited Speaker**. Hepatitis B Virus reactivation: A Tiger in Sheep's Clothing. 27th Annual Scientific Meeting and International Symposium on Hepatology 2014 HKASLD. Hong Kong.

2014 Oct **Invited Speaker**. Curbside Consults - Case Presentations in HCV. Vindico, ACCME. Philadelphia, Pennsylvania, United States.

2014 Oct **Invited Speaker**. Effects of hepatitis B and C outside the liver: HCV and Lymphomas. The Viral Hepatitis Congress. Frankfurt, Germany.

2014 Sep **Invited Speaker**. The Impact of the Innate Immune Response on HCV Treatment. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC). DC, Washington, United States.

2014 Sep **Invited Speaker**. Mechanisms of Non-Response to Antiviral Therapy in Cirrhotic Patients. AASLD/EASL Special Conference on Hepatitis C. New York, New York, United States.

2014 Aug **Visiting Professor**. The Innate Immune Response to HCV: Battle of the Interferons. GI & Hepatology Grand Rounds: Mayo Clinic. Rochester, Minnesota, United States.

2014 Jul **Invited Speaker**. Viral Hepatitis: Will new therapies deliver global impact? Kirby Institute, University of New South Wales. Sydney, New South Wales, Australia.

2014 Jul **Invited Speaker**. The role of ribavirin in the new era of HCV therapy. 20th International AIDS Conference: HIV/Viral Hepatitis Co-Infection Symposium. Melbourne, Victoria, Australia.

2014 Jun **Invited Speaker**. Treatment updates for genotype 1, 4, 5 and 6 patients. GI and Liver Association of the Americas (GALA). Dallas, Texas, United States.

2014 May **Invited Lecturer**. The Cirrhotic Patient with HCV: Avoiding Potential Pitfalls. AGA Postgraduate course. Chicago, Illinois, United States.

2014 May **Invited Lecturer**. Choosing the Optimal HCV Regimen. AGA Postgraduate course. Chicago, Illinois,

United States.

2014 May **Visiting Professor**. Clinical update of new treatment regimens: Who to treat now and when to wait. Asian Pacific Hepatitis Summit 2014. Shanghai, China.

2014 May **Invited Lecturer**. So you want to have more clinical trials at your site.... Asian Pacific Hepatitis Summit 2014. Shanghai, China.

2014 May **Visiting Professor**. HCV-HIV Co-infection. Asian Pacific Hepatitis Summit 2014. Shanghai, China.

2014 May **Invited Speaker**. Interferon-free regimens without a nucleotide. XII International Symposium on Viral Hepatitis. Barcelona, Spain.

2014 Apr **Keynote Speaker**. New HCV Therapies: Solved Issues. European Association for the Study of the Liver (EASL). London, United Kingdom. Plenary Session Address.

2014 Apr **Keynote Speaker**. Treatment of CHB and CHC in the elderly and patient with renal impairment. European Association for the Study of the Liver (EASL). London, United Kingdom. Postgraduate Course.

2014 Feb **Invited Speaker**. Latest treatment updates for genotype 1 patients. GI and Liver Association of the Americas (GALA). Miami, Florida, United States.

2014 Feb **Invited Speaker**. Current Management Strategy: Hepatitis C. GI and Liver Association of the Americas (GALA). Miami, Florida, United States.

2014 Jan **Visiting Professor**. The Future of Interferons for Hepatitis C. Perlman School of Medicine University of Pennsylvania Medical Grand Rounds. Philadelphia, Pennsylvania, United States.

2013 Dec **Keynote Speaker**. Keeping Up in HCV: Counting Down the Final Days of Interferon. Clinical Care Options (CME) - Webinar. United States.

2013 Dec **Invited Speaker**. The role of interferons in antiviral activity. HCV University. Newark, New Jersey, United States.

2013 Dec **Invited Speaker**. Lymphomas Associated with HCV. HepDart 2013: Frontiers in Drug Development for Viral Hepatitis. Kona, Hawaii, United States.

2013 Nov **Invited Speaker**. How Do We Determine the Best Regimen for Genotype 1 Going Forward? Clinical Care Options. Washington, District of Columbia, United States.

2013 Nov **Keynote Speaker**. HCV Treatment Race – Who Will Win the Cup? National Hepatitis Symposium. Melbourne, Victoria, Australia.

2013 Nov **Keynote Speaker**. New Treatment Approaches for HBV. National Hepatitis Symposium. Melbourne, Victoria, Australia.

2013 Nov **Invited Speaker**. To treat or wait, that is the question. Melbourne Gut Club. Melbourne, Victoria, Australia.

2013 Oct **Invited Speaker**. Medical Treatment: Moving to Eradication. International Gairdner Awards Symposium: Hepatitis C Virus From Discovery to Cure. Toronto, Ontario, Canada.

2013 Oct **Invited Speaker**. Eradication of HCV: Possibility or Fantasy? The Jenny Heathcote Farewell Symposium. Toronto, Ontario, Canada.

2013 Oct **Invited Speaker**. Farewell Tribute to Jenny Heathcote. The Jenny Heathcote Farewell Symposium. Toronto, Ontario, Canada.

2013 Oct **Keynote Speaker**. Will interferon remain part of the therapeutic landscape beyond 2015? 20th International Symposium on Hepatitis C and Related Viruses. Melbourne, Victoria, Australia.

2013 Sep **Invited Lecturer**. Case Presentations in Tropical GI Disease. Interscience Conference on Antimicrobial

Agents & Chemotherapy (ICAAC). Denver, Colorado, United States.

2013 Sep **Invited Speaker**. The Future of HCV Treatment. Scientific Steering Committee on Hepatitis C Diagnosis and Treatment: Ministry of Health of Brazil, Secretary for Health Surveillance, Department of STD, AIDS and Viral Hepatitis. Brasilia, Distrito Federal, Brazil.

2013 Sep **Invited Speaker**. Quad Therapy: Peginterferon + 2 DAAs. The Viral Hepatitis Congress. Frankfurt, Germany.

2013 Sep **Invited Speaker**. Biomarkers in the changing world of HCV therapy. The Viral Hepatitis Congress. Frankfurt, Germany.

2013 Aug **Visiting Professor**. Interferon and HCV infection: Relevance to current and future therapies. Rabin Medical Centre Liver Disease Institute. Tel Aviv, Israel.

2013 Jul **Invited Speaker**. Innate Immune Responses to HCV: Relevance to Antiviral Therapy. Liver Institute, Rabin Medical Center. Petah Tiqva, Tel-Aviv, Israel.

2013 Jun **Invited Speaker**. HBV in refugee & immigrant populations. North American Refugee Health Conference. Toronto, Ontario, Canada.

2013 Jun **Invited Speaker**. Hepatitis B: Current and emerging therapies. GI and Liver Association of the Americas (GALA). Austin, Texas, United States.

2013 May **Invited Speaker**. Finite therapy in HBV: Fact or fantasy. Hepatology Live. Athens, Greece.

2013 Apr **Keynote Speaker**. Treatment of Hepatitis C Infection: A very bright future. Ethiopian Society of Gastroenterology. Addis Ababa, Ethiopia.

2013 Apr **Keynote Speaker**. What's new in HBV therapy? Ethiopian Society of Gastroenterology. Addis Ababa, Ethiopia.

2013 Apr **Keynote Speaker**. Clinical Management of DAA-based Triple Therapy. European Association for the Study of the Liver (EASL). Amsterdam, Netherlands. Plenary Session Address.

2013 Apr **Invited Speaker**. Case studies in HCV therapy. European Association for the Study of the Liver (EASL). Amsterdam, Netherlands.

2013 Apr **Invited Speaker**. Innate Immune Response in Current & Future HCV Therapies. European Association for the Study of the Liver (EASL). Amsterdam, Netherlands.

2013 Feb **Invited Speaker**. Recognizing the many faces of chronic hepatitis B in the US. Medscape. Atlanta, Georgia, United States.

2013 Feb **Invited Speaker**. Acute Hepatitis C. American Association for the Study of Liver Disease (AASLD) - Single Topic Conference - Hepatitis C in Special Populations. Atlanta, Georgia, United States.

2013 Feb **Invited Speaker**. Hepatitis C: Lymphoma and Other Lymphoproliferative Disorders. American Association for the Study of Liver Disease (AASLD) - Single Topic Conference Hepatitis C in Special Populations. Atlanta, Georgia, United States.

2012 Dec **Invited Speaker**. Interferon lambda. 2nd Global Workshop on HCV Therapy Advances. Rome, Roma, Italy.

2012 Nov **Visiting Professor**. Host response to HCV - Battle Royale of the Interferons. University of Pennsylvania - HCV and Co-Infections: New insights and emerging therapies. Philadelphia, Pennsylvania, United States.

2012 Nov **Invited Speaker**. How Will New HCV Therapies Overcome the Challenges of Current Regimens? Clinical Care Options. Boston, Massachusetts, United States.

2012 Nov **Invited Speaker**. Update on Current HCV Regimens. Chronic Liver Disease Foundation. Boston,

Massachusetts, United States.

2012 Nov **Invited Speaker**. HCV Therapy: Theory into practice. Latin American Liver Disease Consortium. Boston, Massachusetts, United States.

2012 Sep **Invited Speaker**. Quadruple regimens: Are they realistic? For whom would they apply. The Viral Hepatitis Congress. Frankfurt, Germany.

2012 Sep **Visiting Professor**. Primer to the Future Treatment of HCV. 8th Australasian Conference on Viral Hepatitis. Auckland, New Zealand. Keynote Plenary Session Address.

2012 Sep **Visiting Professor**. Interferon non-response: New Pieces to a very complicated puzzle. 8th Australasian Conference on Viral Hepatitis. Auckland, New Zealand.

2012 Sep **Invited Speaker**. HCV will no longer be a medical problem in 2025. AASLD/EASL Special Conference: Therapy of Hepatitis C - Clinical Applications and Drug Development. Prague, Czech Republic.

2012 Jun **Visiting Professor**. HBV Reactivation: A largely preventable problem. Peruvian Congress of Digestive Diseases: Sociedad de gastroenterologia del Peru. Lima, Peru.

2012 Jun **Visiting Professor**. New Antivirals for HCV. Peruvian Congress of Digestive Diseases: Sociedad de gastroenterologia del Peru. Lima, Peru.

2012 Jun **Visiting Professor**. Avances en el tratamiento de la hepatitis Cronica C (Advances in the treatment of HCV). Peruvian Congress of Digestive Diseases: Sociedad de gastroenterologia del Peru. Lima, Peru.

2012 Jun **Visiting Professor**. Predicting treatment outcome in HCV. Peruvian Congress of Digestive Diseases: Sociedad de gastroenterologia del Peru. Lima, Lima, Peru.

2012 May **Distinguished Speaker**. What's new in hepatitis C? A primer to new therapies. Hepatology Live. Vienna, Austria. Plenary Session.

2012 May **Invited Speaker**. Viral Hepatitis: Difficult to treat patients. Hepatology Live. Vienna, Austria.

2012 Apr **Keynote Speaker**. A primer to the future treatment of HCV. European Association for the Study of the Liver (EASL). Barcelona, Spain. Plenary Session Address.

2012 Mar **Distinguished Speaker**. Genetic determinants of interferon non-response. Fortis International Liver Summit. Chandigarh, Punjab, India. Plenary Session Keynote Address.

2012 Mar **Invited Speaker**. S-Adenosyl Methionine (SAMe) for hepatitis C non-responders. Fortis International Liver Summit. Chandigarh, Punjab, India.

2012 Mar **Invited Speaker**. The cusp of a new era in HCV: Not all supplements are the SAMe. All Delhi Gut Club. Delhi, National Capital Territory, India.

2012 Mar **Invited Speaker**. The cusp of a new era in HCV: Not all supplements are the SAMe. Chennai Gastroenterology City-wide Rounds. Chennai, Tamil Nadu, India.

2012 Mar **Invited Lecturer**. Hepatitis B Reactivation: A Largely Preventable Problem. Clinical Care Options (CME) - Webinar. United States.

2012 Feb **Visiting Professor**. ISG expression vs. IL28B: phenotype trumps genotype. Brown University Division of Gastroenterology. Providence, Rhode Island, United States. GI Divisional Research Rounds.

2012 Feb **Visiting Professor**. Direct-acting antivirals for HCV infection: will resistance be manageable. Brown University Division of Gastroenterology. Providence, Rhode Island, United States. GI Grand Rounds.

2012 Jan **Visiting Professor**. The clinical and mechanistic implications of pharmacogenomics in HCV. University of Illinois-Chicago (UIC). Chicago, Illinois, United States.

2011 Nov **Invited Lecturer**. Early Morning Workshop: Mechanism of Action of antiviral agents for HCV. American

Association for the Study of Liver Disease. San Francisco, California, United States.

2011 Nov **Invited Lecturer**. A new era of HCV therapy: Case discussions. 1st Global Workshop on HCV Therapy Advances. Madrid, Spain.

2011 Nov **Invited Lecturer**. Efficacy of Protease Inhibitors for HCV: A Major Step Forward. Valor Medical Communications (CME). San Francisco, California, United States. Accredited CME webinar on efficacy of new protease inhibitors for HCV infection. www.hepatitiscenters.com/**jfeld**.

2011 Nov **Invited Lecturer**. Safety of Protease Inhibitors for HCV: The Devil is in the Details. Valor Medical Communications (CME). San Francisco, California, United States. Accredited CME webinar on efficacy of new protease inhibitors for HCV infection. www.hepatitiscenters.com/**jfeld**.

2011 Aug **Invited Lecturer**. Ribavirin: Still relevant but how does it work? XXVII Brazilian Congress of Infectious Disease. Brasilia, Brazil.

2011 Aug **Invited Lecturer**. Clinical application of pharmacogenomics in HCV. XXVII Brazilian Congress of Infectious Disease. Brasilia, Brazil.

2011 Aug **Distinguished Speaker**. Protease inhibitors for HCV: The devil is in the details. XXVII Brazilian Congress of Infectious Disease. Brasilia, Brazil.

2011 May **Invited Lecturer**. The cusp of a new era in HCV: But not all treatments are the SAMe. Hepatology Live. Rome, Italy.

2011 May **Invited Lecturer**. HBV and immunosuppression: Getting to the core of the matter. American Association for the Study of Liver Disease (AASLD). Chicago, Illinois, United States.

2011 Mar **Keynote Speaker**. The Phase 3 Clinical Trials: Lessons learned, questions remain. European Association for the Study of the Liver (EASL) Presidential Plenary Session. Berlin, Germany.

2011 Feb **Visiting Professor**. Hepatitis B: A very clever virus. Black Lion Hospital Medical Ground Rounds. Addis Ababa, Ethiopia.

2011 Feb **Visiting Professor**. The future has arrived: Hepatitis C treatment in the 21st century. Black Lion Hospital Infectious Disease Ground Rounds. Addis Ababa, Ethiopia.

2011 Feb **Visiting Professor**. Management of cirrhosis. Black Lion Hospital Internal Medicine Ground Rounds. Addis Ababa, Ethiopia.

2011 Jan **Invited Lecturer**. Induction of innate immunity by botulinum toxin. Botulinum Toxin Study Group. Dallas, Texas, United States.

2010 Dec **Invited Lecturer**. Role of innate immunity in guiding STAT-C therapy. 1st Latin American Symposium on antiviral therapy for HCV: STAT-C and other new therapy. Sao Paolo, Brazil.

2010 Dec **Invited Lecturer**. Dealing with resistance. 1st Latin American Symposium on antiviral therapy for HCV: STAT-C and other new therapy. Sao Paolo, Brazil.

2010 Nov **Invited Lecturer**. HBV: A Debate. AASLD Postgraduate course. Boston, Massachusetts, United States.

2010 Oct **Visiting Professor**. Improving Interferon: Not all supplements are the SAMe. Rockefeller & Cornell Hepatology Interest Group. New York, New York, United States.

2010 Sep **Visiting Professor**. Ribavirin: Still Relevant but how does it work? Yale University Division of Gastroenterology. New Haven, Connecticut, United States.

2010 Aug **Invited Lecturer**. Ribavirin: Can modeling explain its MOA? Santa Fe Workshop on Viral Dynamics and the Innate Immune Response to Influenza and HCV. Santa Fe, New Mexico, United States.

2010 Jun **Invited Lecturer**. Ribavirin: Still relevant but how does it work? 5th International Workshop on Clinical

Pharmacology of Hepatology Therapy. Boston, Massachusetts, United States.

2009 Dec **Invited Speaker**. Ribavirin: Still relevant, but how does it work? HepDart 2009: Frontiers in Drug Development for Viral Hepatitis. Kona, Hawaii, United States.

2009 Jun **Invited Lecturer**. Decentralized Models of HCV Care: A Canadian Perspective. Symposium on Decentralized Models of HCV Care. Atlanta, Georgia, United States.

2009 Apr **Invited Lecturer**. HCV: A Public Health Conundrum in Canada. Public Health Models & HCV Care, Experience from North America and Europe. Boston, Massachusetts, United States.

2009 Jan **Invited Lecturer**. Sorting out ISGs in HCV infection. International Symposium on Viral Hepatitis and Liver Disease (ISVHLD). Washington, District of Columbia, United States.

2007 Mar **Invited Speaker**. Gene Expression in liver during interferon therapy in humans. AASLD Single Topic Conference: Mechanism of Action of Interferon and Ribavirin. Chicago, Illinois, United States.

2005 Jun **Invited Speaker**. Hepatic gene expression profiles during treatment with peginterferon and ribavirin: Identifying important molecular pathways for treatment response. AASLD Single Topic Conference: Genomics and Proteomics. Warrenton, Virginia, United States.

2004 Mar **Visiting Professor**. Hepatitis B: A very clever virus. Mulago Hospital Infectious Disease Institute. Kampala, Uganda.

2003 Oct **Visiting Professor**. Alimentacion Parenteral Total: Usos y Peligros (Total Parenteral Nutrition: Uses and Dangers). Hospital Caja Nacional. Santa Cruz, Bolivia, Plurinational State Of.

2003 Oct **Visiting Professor**. Manejo del cirrosis (Management of Cirrhosis). Hospital Municipal San Juan de Dios – Grand Rounds. Santa Cruz, Bolivia, Plurinational State Of.

Presented Abstracts

2009 Jan **Presenter**. SAMe improves early viral kinetics and interferon-stimulated gene induction when added to peginterferon and ribavirin therapy for previous hepatitis C non-responders. International Symposium on Viral Hepatitis and Liver Disease (ISVHLD). Washington, District of Columbia, United States.

2005 Jun **Presenter**. Hepatic gene expression discriminates responders and nonresponders in treatment of chronic hepatitis C viral infection. AASLD Single Topic Conference: Genomics & Proteomics. Warrenton, Virginia, United States.

2002 Nov **Presenter**. AT 130: A Novel Inhibitor of HBV Replication. American Association for the Study of Liver Disease (AASLD). Boston, Massachusetts, United States.

2001 May **Presenter**. Autoimmune Hepatitis: Features of Asymptomatic and AMA + Variants. American Gastroenterological Association (AGA). Atlanta, Georgia, United States.

1999 Nov **Presenter**. Abnormal Intestinal Permeability in Primary Biliary Cirrhosis. American Association for the Study of Liver Disease (AASLD). Dallas, Texas, United States.

Presented and Published Abstracts

2015 Nov Cure prevents more than transmission of HCV.

Publication Details:
Dahari H, **Feld J**, Colter, S. Cure prevents more than transmission of HCV. HEP-15-2193.

2015 Nov Real-World Medical Costs Of Antiviral Therapy Among Patients With Chronic HCV Infection And Advanced Hepatic Fibrosis. ISPOR 18th Annual European Congress. Milano, Italy.

Publication Details:
Feld JJ. Real-World Medical Costs Of Antiviral Therapy Among Patients With Chronic HCV Infection And

Advanced Hepatic Fibrosis. 2015. **Coauthor or Collaborator**.

2015 Nov Toronto Hepatocellular Carcinoma Risk Index: Development of a validated clinical scoring system to predict 10-year risk of HCC in patients with cirrhosis. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Sharma S, Kowgier M, Hansen B.E, Wong D.K, Shah H, Khalili K, Yim C, Heathcote J.E, Brouwer W.P, H Janssen H.L, Sherman M, Hirschfield G, **Feld J.J**. Toronto Hepatocellular Carcinoma Risk Index: Development of a validated clinical scoring system to predict 10-year risk of HCC in patients with cirrhosis. Hepatology. 2015 Oct;62(1):Abstract # 348. **Coauthor or Collaborator**.

2015 Nov Optimal age to start surveillance for hepatocellular carcinoma in patients with HCV-related cirrhosis after sustained virological response. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Farhang Zangneh H, Wong W.W, Sander B, Bell C.M, Mumtaz K, Kowgier M, van der Meer AJ, Cleary S.P, Janssen H.L, Chan K.K, **Feld J.J**. Optimal age to start surveillance for hepatocellular carcinoma in patients with HCV-related cirrhosis after sustained virological response. Hepatology. 2015 Oct;62(1):Abstract # 350. **Coauthor or Collaborator**.

2015 Nov Hepatocellular carcinoma has a more aggressive disease course in patients with HCV genotype 3 compared to other genotypes. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Maan R, van der Meer A.J, **Feld J.J**, Wedemeyer H, Dufour JF, Lammert F, Duarte-Rojo A, Manns M.P, Zeuzem S, Janssen H.L, Hansen B.E, Veldt B.J, de Knegt R.J. Hepatocellular carcinoma has a more aggressive disease course in patients with HCV genotype 3 compared to other genotypes. Hepatology. 2015 Oct;62(1):Abstract # 445. **Coauthor or Collaborator**.

2015 Nov Reducing Wait Times for Radiofrequency Ablation in Patients with Hepatocellular Carcinoma: A Quality Improvement Initiative at the Toronto Centre for Liver Disease. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Brahmania M, Ahmed O, Khalili K, Renner E.L, Janssen H.L, Sherman M, Wong D.K, Shah H, **Feld J.J**. Reducing Wait Times for Radiofrequency Ablation in Patients with Hepatocellular Carcinoma: A Quality Improvement Initiative at the Toronto Centre for Liver Disease. Hepatology. 2015 Oct;62(1):Abstract # 542. **Coauthor or Collaborator**.

2015 Nov Efficacy and Safety of Ombitasvir/Paritaprevir/ Ritonavir Co-Administered with Ribavirin in Adults with Genotype 4 Chronic Hepatitis C Infection and Cirrhosis (AGATE-I). The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Asselah T, Hassanein T.I, Qaqish R.B, Feld J.J, Hezode C, Zeuzem S, Ferenci P, Pilot-Matias T, Yu Y, Redman R, Mobashery N. Efficacy and Safety of Ombitasvir/Paritaprevir/ Ritonavir Co-Administered with Ribavirin in Adults with Genotype 4 Chronic Hepatitis C Infection and Cirrhosis (AGATE-I). Hepatology. 2015 Oct;62(1):Abstract # 714. **Coauthor or Collaborator**.

2015 Nov Turquoise-III: 12-Week Ribavirin-Free Regimen Of Ombitasvir/Paritaprevir/R And Dasabuvir For Patients With HCV Genotype 1B And Cirrhosis. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Poordad F, **Feld J.J**, Trinh R, Horsmans Y.J, Elkhashab M, Bourgeois S, Lee S.S, Moreno C, Bernstein D, Younes Z, Polepally A.R, Howieson K, Fu B, Ball G, Shulman N, Tam E. Turquoise-III: 12-Week Ribavirin-Free Regimen Of Ombitasvir/Paritaprevir/R And Dasabuvir For Patients With HCV Genotype 1B

And Cirrhosis. Hepatology. 2015 Oct;62(1):Abstract # 1051. **Coauthor or Collaborator**.

2015 Nov Clinical Management of Ribavirin Dosing in HCVInfected Patients with Anemia-Related Events Receiving Ombitasvir/Paritaprevir/r and Dasabuvir. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld J.J, Bernstein D, Younes Z, Vlierberghe H.V, Ball G, D'Amico R, Ferenci P. Clinical Management of Ribavirin Dosing in HCVInfected Patients with Anemia-Related Events Receiving Ombitasvir/Paritaprevir/r and Dasabuvir. Hepatology. 2015 Oct;62(1):Abstract # 1067. **Principal Author**.

2015 Nov Long-Term Efficacy of Ombitasvir/Paritaprevir/r and Dasabuvir With or Without Ribavirin in HCV Genotype 1-Infected Patients With or Without Cirrhosis. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Zeuzem S, Jacobson I.M, **Feld J.J**, Wedemeyer H, Forns X, Andreone P, Colombo M, Bernstein D, Poordad F, Hezode C, Podsadecki T, Xie W, Pilot-Matias T, Vilchez R.A, Vierling J.M. Long-Term Efficacy of Ombitasvir/Paritaprevir/r and Dasabuvir With or Without Ribavirin in HCV Genotype 1-Infected Patients With or Without Cirrhosis. Hepatology. 2015 Oct;62(1):Abstract # 1086. **Coauthor or Collaborator**.

2015 Nov Frequency of Renal Impairment in Patients With Hepatitis C Infection Treated With Sofosbuvir-based Antiviral Regimens. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Almarzooqi S, Klair J.S, Karkada J.G, Maan R, Cerocchi O, Kowgier M, Harrell S.M, Rhodes K, Janssen H.L, **Feld J.J**, Duarte-Rojo A. Frequency of Renal Impairment in Patients With Hepatitis C Infection Treated With Sofosbuvir-based Antiviral Regimens. Hepatology. 2015 Oct;62(1):Abstract # 1099. **Coauthor or Collaborator**.

2015 Nov Efficacy and safety of ombitasvir/paritaprevir/r and dasabuvir +/- ribavirin in HCV genotype 1-infected patients with a history of bleeding disorders: Results from phase 3 trials. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Parruti G, Macedo G, Baumgarten A, Nevens F, **Feld J.J**, Hezode C, Larsen L.M, Shulman N, Vilchez R.A, Wedemeyer H. Efficacy and safety of ombitasvir/paritaprevir/r and dasabuvir +/- ribavirin in HCV genotype 1-infected patients with a history of bleeding disorders: Results from phase 3 trials. Hepatology. 2015 Oct;62(1):Abstract # 1107. **Coauthor or Collaborator**.

2015 Nov The number needed to treat with interferon-free therapy to prevent one cirrhosis-related complication for individual HCV-infected patients with advanced fibrosis. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Adriaan J. van der Meer, Raoel Maan, **Jordan J. Feld**, Heiner Wedemeyer, Giovanna Fattovich, Jean-Francois Dufour, Frank Lammert, Andres Duarte-Rojo, Michael P. Manns, Stefan Zeuzem, Wolf P. Hofmann, Donatella Ieluzzi, Robert J. de Knegt, Bart J. Veldt, Bettina E. Hansen, Harry L. Janssen. The number needed to treat with interferon-free therapy to prevent one cirrhosis-related complication for individual HCV-infected patients with advanced fibrosis. Hepatology. 2015 Oct;62(1):Abstract # 1166. **Coauthor or Collaborator**.

2015 Nov Clinical Outcomes of Patients with Private vs. Public Drug Coverage for Treatment of Chronic Hepatitis B. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Aman V. Arya, Mayur Brahmania, Matthew Kowgier, Hemant Shah, Orlando Cerocchi, David K. Wong, **Jordan J. Feld**, Harry L. Janssen. Clinical Outcomes of Patients with Private vs. Public Drug Coverage

for Treatment of Chronic Hepatitis B. Hepatology. 2015 Oct;62(1):Abstract # 1556. **Coauthor or Collaborator**.

2015 Nov Hepatitis C RNA assay differences in results around 6 million IU/mL: Potential clinical implications for shortened Ledipasvir/Sofosbuvir therapy. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Cloherty G.A, Sarrazin C, Holzmayer V, **Feld J.J**, Maasoumy B, Vermehren J, Chevaliez S, Wedemeyer H, Pawlotsky JM, Dawson G. Hepatitis C RNA assay differences in results around 6 million IU/mL: Potential clinical implications for shortened Ledipasvir/Sofosbuvir therapy. Hepatology. 2015 Oct;62(1):Abstract # 1797. **Coauthor or Collaborator**.

2015 Nov Nucleos(t)ide Analogue Discontinuation in Patients with HBsAg Loss: Sustained Off-treatment Response Independent of Anti-HBs Status. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Heng Chi, Victor Lo, Jie Peng, Jiawei Cao, Xun Qi, Liang Chen, David K. Wong, **Jordan J. Feld**, Robert J. de Knegt, Bettina E. Hansen, Harry L. Janssen. Nucleos(t)ide Analogue Discontinuation in Patients with HBsAg Loss: Sustained Off-treatment Response Independent of Anti-HBs Status. Hepatology. 2015 Oct;62(1):Abstract # 1998. **Coauthor or Collaborator**.

2015 Nov Sofosbuvir and Velpatasvir for HCV Genotype 1, 2, 4, 5, and 6 Infection.

Publication Details:
Feld J.J, Jacobson I.M, Hézode C, Asselah T, Ruane P.J, Gruener N, Abergel A, Mangia A, Lai C-L, Chan H.L.Y, Mazzotta F, Moreno C, Yoshida E, Shafran S.D, Towner W.J, Tran T.T, McNally J, Osinusi A, Svarovskaia E, Zhu Y, Brainard D.M, McHutchison J.G, Agarwal K, Zeuzem S. ASTRAL-1 Investigators. Sofosbuvir and Velpatasvir for HCV Genotype 1, 2, 4, 5, and 6 Infection. NEJM The New England Journal of Medicine. 2015 Nov. DOI: 10.1056/NEJMoa1512610. **Principal Author**.

2015 Nov **Invited Speaker**. LB-2 A Phase 3 Double-Blind Placebo-Controlled Evaluation of Sofosbuvir/Velpatasvir Fixed Dose Combination for 12 Weeks in NaÃ¯ve and Experienced Genotype 1, 2, 4, 5, 6 HCV Infected Patients with and without cirrhosis: Results of the ASTRAL-1 Study. AASLD The Liver Meeting: Late-Breaking Abstract Session. San Francisco, California, United States. Presenter(s): **Feld, J.J**.

Publication Details:
LB-2 A Phase 3 Double-Blind Placebo-Controlled Evaluation of Sofosbuvir/Velpatasvir Fixed Dose Combination for 12 Weeks in NaÃ¯ve and Experienced Genotype 1, 2, 4, 5, 6 HCV Infected Patients with and without cirrhosis: Results of the ASTRAL-1 Study.

2015 Sep Inflammation Blunts Hepatocyte Interferon Singnaling Via USP 18.

Publication Details:
Zhong M, Chen L, Khattar R, Cherepanov V, Selzner M, Selzner N, **Feld J**, McGilvray I. Inflammation Blunts Hepatocyte Interferon Singnaling Via USP 18. HEP-15-1847. **Coauthor or Collaborator**.

2015 Sep No Scientific Basis to Restrict 8 Weeks of Treatment with Ledipasvir/Sofosbuvir to Patients with HCV RNA <6,000,000 IU/ml.

Publication Details:
Feld J, Thomas O. No Scientific Basis to Restrict 8 Weeks of Treatment with Ledipasvir/Sofosbuvir to Patients with HCV RNA <6,000,000 IU/ml. HEP-15-1656. **Co-Principal Author**.

2015 Jun Turquoise-III: Safety and Efficacy of 12-Week Ribavirin-free Treatment for Patients with HCV Genotype 1B and Cirrhosis. 15th International Symposium on Viral Hepatitis and Liver Disease ISVHLD. Berlin, Germany.

Publication Details:

Feld JJ, Moreno C, Trinh R, Tam E, Bourgeois S, Horsmans Y, Elkhashab M, Bernstein DE, Younes Z, Fu B, Pangerl A, Shulman NS, Poordad F. Turquoise-III: Safety and Efficacy of 12-Week Ribavirin-free Treatment for Patients with HCV Genotype 1B and Cirrhosis. **Principal Author**.

2015 Apr Cost-Effectiveness Analysis of Hepatocellular Carcinoma Surveillance in Patients with Hepatitis C Related Cirrhosis After Sustained Virological Response. The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Farhang Zangneh H, Wong W.W, Sander B, Bell C.M, Mumtaz K, Kowgier M, Van Der Meer A.J, Cleary S.P, ChanK, **Feld J.J***. Cost-Effectiveness Analysis of Hepatocellular Carcinoma Surveillance in Patients with Hepatitis C Related Cirrhosis After Sustained Virological Response. Journal of Hepatology. 2015 Apr. Abstract # P0330. **Principal Author**.

2015 Apr Assessment of Baseline Viral Load Cut-Off for Shortened Ledipasvir/Sofosbuvir Therapy by Widely Used HCV RNA Assays. The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Vermehren J*, Maasoumy B, S Chevaliez S,**Feld J.J**, Cloherty G, Pawlotsky JM, Sarrazin C, Wedemeyer H. Assessment of Baseline Viral Load Cut-Off for Shortened Ledipasvir/Sofosbuvir Therapy by Widely Used HCV RNA Assays. Journal of Hepatology. 2015 Apr. Abstract # P0735. **Coauthor or Collaborator**.

2015 Apr Clinical Utility of Hepatitis C Virus Core Antigen Testing in the Monitoring of Treatment Naive Non-Cirrhotic Patients Receiving an All-Oral, Interferon-Free Regimen. The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Cloherty G*, Cheng K, Chevaliez S, Wedemeyer H, Sarrazin C, **Feld J.J**, Maasoumy B, Herman C, Hackett Jr J., Dawson G, Pawlotsky JM. Clinical Utility of Hepatitis C Virus Core Antigen Testing in the Monitoring of Treatment Naive Non-Cirrhotic Patients Receiving an All-Oral, Interferon-Free Regimen. Journal of Hepatology. 2015 Apr. Abstract # P0767. **Coauthor or Collaborator**.

2015 Apr The Impact of Metabolic Syndrome on ALT Levels Among the Large Multiethnic Cohort of North American Patients with Chronic Hepatitis B Infection Enrolled in the Hepatitis B Research Network (HBRN). The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Khalili M*, Lombardero M, **Feld J.J**, Shuhart M, Chung R, Terrault N, Kowdley K, Lisker-Melman M, Ghany M, Kim W.R, Sanyal A, Lok A. The Impact of Metabolic Syndrome on ALT Levels Among the Large Multiethnic Cohort of North American Patients with Chronic Hepatitis B Infection Enrolled in the Hepatitis B Research Network (HBRN). Journal of Hepatology. 2015 Apr. Abstract # P1019. **Coauthor or Collaborator**.

2015 Apr The Astral Studies: Evaluation of SOF/GS-5816 Single Tablet Regimen for the Treatment of Genotype 1-6 HCV Infection. The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Asselah T*, Charlton M, **Feld J.J**, G Foster G.R, Mcnally J, Brainard D.M, McHutchison J.G, Mangia A, Sulkowski M, Zeuzem S. The Astral Studies: Evaluation of SOF/GS-5816 Single Tablet Regimen for the Treatment of Genotype 1-6 HCV Infection. Journal of Hepatology. 2015 Apr. Abstract # P1332. **Coauthor or Collaborator**.

2015 Apr A Randomized, Open-Label Study to Evaluate Efficacy and Safety of Ombitasvir/Paritaprevir/Ritonavir Co-Administered with Ribavirin in Adults with Genotype 4 Chronic Hepatitis C Infection and Cirrhosis. The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Asselah T*, Hassanein T, Qaqish R. B, **Feld J.J**, Hezode C, Zeuzem S, Ferenci P, Pilot-Matias T, Yu

Y, Mobashery N. A Randomized, Open-Label Study to Evaluate Efficacy and Safety of Ombitasvir/Paritaprevir/Ritonavir Co-Administered with Ribavirin in Adults with Genotype 4 Chronic Hepatitis C Infection and Cirrhosis. Journal of Hepatology. 2015 Apr. Abstract # P1345. **Coauthor or Collaborator**.

2015 Apr Implications of Baseline HCV RNA Level and Intrapatient Viral Load Variability on OBV/PTV/R + DSV 12 - Week Treatment Outcomes. The International Liver Congress; EASL. Wien, Austria.

Publication Details:
Brown R.S*, Puoti M, Cooper C, Wyles D.L, Sepe T.E, Nahass R.G, King M, Coakley E, McGovern B.H, **Feld J.J**. Implications of Baseline HCV RNA Level and Intrapatient Viral Load Variability on OBV/PTV/R + DSV 12 - Week Treatment Outcomes. Journal of Hepatology. 2015 Apr. Abstract # LP39. **Coauthor or Collaborator**.

2015 Feb Efficacy and safety of sofosbuvir plus simeprevir in patients with advanced HCV cirrhosis. Hep C Forum Meeting. Madrid, Spain.

Publication Details:
Capraru CI, Kuczynski M, La D, Kaznowski D, Kowgier M, Wong DK, Juan J, Shah H, Ramji A, Janssen HL, **Feld JJ**. Efficacy and safety of sofosbuvir plus simeprevir in patients with advanced HCV cirrhosis. 2015 Feb. **Coauthor or Collaborator**.

2014 Nov Type III interferons, including IFNL4, drive interferon-stimulated gene (ISG) pre-activation and the interferon-refractory state. The Liver Meeting, AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Cherepanov V, Anand N, Hansen T, Macparland S, Janssen H, Kowgier M, McGilvray IM. Type III interferons, including IFNL4, drive interferon-stimulated gene (ISG) pre-activation and the interferon-refractory state. Hepatology. 2014 Nov;Absract # 60665. **Principal Author**.

2014 Nov Time to Viral Suppression is Not Related to Achievement of SVR12 in HCV GT1-infected Patients Treated with ABT-450/r/Ombitasvir and Dasabuvir With or Without Ribavirin. The Liver Meeting, AASLD. Boston, Massachusetts, United States.

Publication Details:
Sulkowski MS, Fried MW, Ozaras R, Isakov V, Wyles DL, Ferenci P, **Feld JJ**, Calinas F, Gschwantler M, King M, Baykal T, Gane EJ. Time to Viral Suppression is Not Related to Achievement of SVR12 in HCV GT1-infected Patients Treated with ABT-450/r/Ombitasvir and Dasabuvir With or Without Ribavirin. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 1950. **Coauthor or Collaborator**.

2014 Oct Increaed HBsAg Decline in Sustained Responders After Discontinuation of Long-term Nucleos(t)ide Analogue Therapy in Chronic Hepatitis B. The Liver Meeting, AASLD. Boston, Massachusetts, United States.

Publication Details:
Chi H, Hansen BE, Abu-Amara M, Yim C, Arends P, **Feld JJ**, Van Der Eijk AA, de Knegt RJ, Wong DK, Janssen HL. Increaed HBsAg Decline in Sustained Responders After Discontinuation of Long-term Nucleos(t)ide Analogue Therapy in Chronic Hepatitis B. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 1881. **Coauthor or Collaborator**.

2014 Oct Long-term Nucleos(t)ide Analogue Consolidation Therapy Reduces Risk of Relapse in Chronic Hepatitis B. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Chi H, Hansen BE, Arends P, Abu-Amara M, Yim C, **Feld JJ**, de Knegt RJ, Wong DK, Janssen HL. Long-term Nucleos(t)ide Analogue Consolidation Therapy Reduces Risk of Relapse in Chronic Hepatitis B. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 1856. **Coauthor or Collaborator**.

2014 Oct Preventing HBV reactivation: An automated prompt to remind oncologists to screen was only partially

successful. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Juan J, Hicks LK, Lapointe-Shaw L, Truong J, Zurawaska U, Chan K, **Feld JJ**. Preventing HBV reactivation: An automated prompt to remind oncologists to screen was only partially successful. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 1644. **Coauthor or Collaborator**.

2014 Oct Clinical Relevance of Viral Blipping During Potent Nucleos(t)ide Analogue Treatment in Chronic Hepatitis B Infection. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Brahmania M, Pieter Brouwer W, Hansen T, Kowgier M, **Feld JJ**, Wong DK, Janssen HL. Clinical Relevance of Viral Blipping During Potent Nucleos(t)ide Analogue Treatment in Chronic Hepatitis B Infection. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 1643. **Coauthor or Collaborator**.

2014 Oct Assessment of noninvasive hepatic fibrosis markers among patients with chronic HCV infection and advanced liver disease. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Mann R, van der Meer AJ, **Feld JJ**, Wedemeyer H, DuFour JF, Lammert F, Duarte-Rojo A, Manns MP, Zeuzem S, Hofmann WP, Janssen HL, Hansen BE, Veldt BJ, de Knegt RJ. Assessment of noninvasive hepatic fibrosis markers among patients with chronic HCV infection and advanced liver disease. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 1520. **Coauthor or Collaborator**.

2014 Oct Efficacy and safety of sofosbuvir plus simeprevir in patients with advanced HCV cirrhosis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Capraru CI, Kuczynski M, La D, Kaznowski D, Kowgier M, Wong DK, Juan J, Shah H, Ramji A, Janssen HL, **Feld JJ**. Efficacy and safety of sofosbuvir plus simeprevir in patients with advanced HCV cirrhosis. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 963. **Coauthor or Collaborator**.

2014 Oct Safety and Efficcacy of Sofosbuvir (SOF) in Combination with Simeprevir (SIM) + Ribavirin (RBV) in Patients with Genotype1: Interim Results of a Prospective, Observational Study. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Sulkowski MS, Vargas HE, Di Bisceglie AM, Kuo A, Reddy KR, Lim JK, Morelli G, **Feld JJ**, Brown RS, Frazier LM, Fried MW, Nelson DR, Jacobson IM. Safety and Efficcacy of Sofosbuvir (SOF) in Combination with Simeprevir (SIM) + Ribavirin (RBV) in Patients with Genotype1: Interim Results of a Prospective, Observational Study. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 955. **Coauthor or Collaborator**.

2014 Oct Type III interferons, including IFNL4, drive interferon-stimulated gene (ISG) pre-activation and the interferon-refractory state. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Cherepanov VA, Anand N, MacParland SA, Hansen T, Janssen HL, Kowgier M, McGilvray I. Type III interferons, including IFNL4, drive interferon-stimulated gene (ISG) pre-activation and the interferon-refractory state. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 619. **Principal Author**.

2014 Oct Noninvasive testing are poor surrogate markers for fibrosis staging and liver-related outcomes in patients with primary biliary cirrhosis who do not respond to ursodeoxycholic acid. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Cheung AC, Meza-Cardona J, Kowgier M, Janssen HL, **Feld JJ**. Noninvasive testing are poor surrogate markers for fibrosis staging and liver-related outcomes in patients with primary biliary cirrhosis who do not

respond to ursodeoxycholic acid. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 296. **Coauthor or Collaborator**.

2014 Oct Fenofibrates do not improve transplant-free survival despite biochemical response in patients with primary biliary cirrhosis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Cheung AC, Meza-Cardona J, Kowgier M, Heathcote EJ, Janssen HL, **Feld JJ**. Fenofibrates do not improve transplant-free survival despite biochemical response in patients with primary biliary cirrhosis. Hepatology. 2014 Oct;60(Suppl 4):Abstract # 291. **Coauthor or Collaborator**.

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Publication Details:
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2014 Oct Clinical efficacy of highly effective interferon-free therapy in patients with chronic HCV infection and compensated advanced hepatic cfibrosis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
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2014 Oct ABT - 450/r/Ombitasvir and Dasabuvir with Ribavirin achieves high sustained virologic response rates regardless of baseline characteristics: Pooled analyses of the SAPPHIRE - I and SAPPHIRE - II studies. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
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Publication Details:
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2014 Apr Hepatitis B surface antigen (HBsAg) levels differ across HBV genotype and phenotype: Results from the Adult Cohort Study of the NIDDK-Sponsored Hepatitis B Research Network. The International Liver Congress; EASL. London, United Kingdom.

Publication Details:
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2014 Apr The risk of hepatitis B-related hepatocellular carcinoma (HCC) is reduce with antiviral therapy: Evidence from 3 HCC prediction models. The International Liver Congress; EASL. London, United Kingdom.

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Abu-Amara M, Cerocchi O, Mahli G, Sharma S, Yim C, Shah H, Wong DK, Janssen HLA, **Feld JJ**. The risk of hepatitis B-related hepatocellular carcinoma (HCC) is reduce with antiviral therapy: Evidence from 3 HCC prediction models. Journal of Hepatology. 2014. Abstract 0194. **Coauthor or Collaborator**.

2014 Apr Prediction of ALT flares in the natural history of chronic hepatitis B infection: A prospective cohort study from the NIDDK Hepatitis B Research Network (HBRN). The International Liver Congress; EASL. London, United Kingdom.

Publication Details:
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2014 Apr Incidence and risk factors for infections during interferon-based treatment of chronic hepatitis C patients with advanced hepatic fibrosis. The International Liver Congress; EASL. London, United Kingdom.

Publication Details:
Maan R, van der Meer AJ, Hansen BE, **Feld JJ**, Wedemeyer H, Dufour JF, Zangneh HF, Lammert F, Manns MP, Zeuzem S, Janssen HLA, de Knegt RJ, Veldt BJ. Incidence and risk factors for infections during interferon-based treatment of chronic hepatitis C patients with advanced hepatic fibrosis. Journal of Hepatology. 2014. Abstract P1176. **Coauthor or Collaborator**.

2014 Apr Can a lifestyle modification intervention improve risk factors for a negative response to peginterferon treatment in patients with chronic hepatitis C, cirrhosis and obesity? The International Liver Congress; EASL. London, United Kingdom.

Publication Details:
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Hepatology. 2014. Abstract P1180. **Coauthor or Collaborator**.

2014 Apr Modelling predicts clinically meaningful SVR rates in genotype 1 treatment-experienced patients based on results in genotype 1 treatment-naive patients treated with sofosbuvir + peginterferon + ribavirin for 12 weeks. The International Liver Congress; EASL. London, United Kingdom.

Publication Details:
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2014 Jan Is there sufficient evidence to recommend antiviral therapy in hepatitis C?

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van der Meer AJ, Wedemeyer H, **Feld JJ**, Hansen BE, Manns MP, Zeuzem S, Janssen HL. Is there sufficient evidence to recommend antiviral therapy in hepatitis C? Journal of Hepatology. 2014 Jan;60(1):191-6. **Coauthor or Collaborator**.

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Publication Details:
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2013 Nov Liver Stiffness Measurement by Transient Elastography to Assess Liver Fibrosis in a Multicenter Chronic Hepatitis B Study. The Liver Meeting AASLD. Washington, United States.

Publication Details:
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2013 Nov A Bayesian Bridging Model Using Phase 3 Data in Treatment-Experienced HCV Genotype 3 Patients Demonstrates Extending Sofosbuvir+Ribavirin Treatment from 12 to 16 Weeks in Treatment-Naive Genotype 3 Patients May Significantly Increase SVR Rates. The Liver Meeting AASLD. Washington, United States.

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2013 Nov Computational insights into the role of USP18 in type I interferon refractoriness. The Liver Meeting AASLD. Washington, United States.

Publication Details:
Nayak C, Cherepanov VA, **Feld JJ**, Zilman A. Computational insights into the role of USP18 in type I interferon refractoriness. Hepatology. 2013. 58(4) Suppl Abstract 1266. **Senior Responsible Author**.

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Publication Details:
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2013 Nov The risk for hepatocellular carcinoma among patients with chronic HCV infection and advanced hepatic fibrosis following sustained virological response. The Liver Meeting AASLD. Washington, United States.

Publication Details:
van der Meer AJ, **Feld JJ**, Hofer H, Almasio PL, Calvaruso V, Ferndandez-Rodriguez CM, Aleman S, Ganne-Carrie N, D'Ambrosio R, Pol S, Trapero-Marugan M, Moreno-Otero R, Mallett V, Hultcrantz RW, Weiland O, Rutter K, Di Marco V, Alonso S, Bruno S, Colombo M, de Knegt RJ, Veldt J, Hansen BE, Janssen HL. The risk for hepatocellular carcinoma among patients with chronic HCV infection and advanced hepatic fibrosis following sustained virological response. Hepatology. 2013. 58(4) Suppl Abstract 143. **Coauthor or Collaborator**.

2013 Nov Ribavirin Resets the STAT4-Dependent IFN-γ Responsiveness of Natural Killer Cells in Hepatitis C. The Liver Meeting AASLD. Washington, United States.

Publication Details:
Rehermann B, Werner JM, Serti E, Chepa-Lotrea X, Stoltzfus JD, Ahlenstiel G, **Feld JJ**, Liang TJ, Rotman Y. Ribavirin Resets the STAT4-Dependent IFN-γ Responsiveness of Natural Killer Cells in Hepatitis C. Hepatology. 2013. 58(4) Suppl Abstract 1869. **Coauthor or Collaborator**.

2013 Nov Effect of thrombocytopenia on treatment tolerability and outcome in chronic hepatitis C patients with advanced hepatic fibrosis receiving (peg)interferon-based antiviral treatment. The Liver Meeting AASLD. Washington, United States.

Publication Details:
Maan R, van der Meer AJ, Hansen BE, **Feld JJ**, Wedemeyer H, Dufour J, Farhang Zangneh H, Lammert F, Manns MP, Zeuzem S, Janssen HL, de Knegt RJ, Veldt BJ. Effect of thrombocytopenia on treatment tolerability and outcome in chronic hepatitis C patients with advanced hepatic fibrosis receiving (peg)interferon-based antiviral treatment. Hepatology. 2013. 58(4) Suppl Abstract 1884. **Coauthor or Collaborator**.

2013 Nov Immune correlates of chronic hepatitis B phenotypes in North America: Results from the Hepatitis B Research Network (HBRN). The Liver Meeting AASLD. Washington, United States.

Publication Details:
Chang K, Park J, Wong DK, Wahed AS, Lee WM, **Feld JJ**, Terrault N, Khalili M, Kowdley KV, Lau D, Sterling RK, Kim W, Smith C, Carithers RL, Levine DL, Keith J, Valiga ME, Lok AS. Immune correlates of chronic hepatitis B phenotypes in North America: Results from the Hepatitis B Research Network (HBRN). Hepatology. 2013. 58(4) Suppl Abstract 191. **Coauthor or Collaborator**.

2013 Nov Cell-type specific interferon stimulated gene expression is predictive of response to protease-inhibitor-based therapy. The Liver Meeting AASLD. Washington, United States.

Publication Details:
Feld JJ, Duarte-Rojo A, Fischer SE, Adeyi O, Zita D, Deneke MG, Selzner N, Cotler S, McGilvray I. Cell-type specific interferon stimulated gene expression is predictive of response to protease-inhibitor-based therapy. Hepatology. 2013. 58(4) Suppl Abstract 2032. **Principal Author**.

2013 Nov Alcohol and tobacco use are infrequent in North American adults with chronic hepatitis B (HBV): Results from the NIDDK-Sponsored Hepatitis B Research Network (HBRN) Adult Cohort Study. The Liver Meeting AASLD. Washington, United States.

Publication Details:

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2013 Nov Postnatal Vegfr2 ablation in mice results in hepatic microvascular changes including decreased arteries, sinusoidal endothelial degeneration, infarcts, hepatic vein remodeling, and nodular regenerative hyperplasia. The Liver Meeting AASLD. Washington, United States.

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Wanless IR, Eremina V, Lunyova M, Hirashima M, **Feld JJ**, Quaggin S. Postnatal Vegfr2 ablation in mice results in hepatic microvascular changes including decreased arteries, sinusoidal endothelial degeneration, infarcts, hepatic vein remodeling, and nodular regenerative hyperplasia. Hepatology. 2013. 58(4) Suppl Abstract 519. **Coauthor or Collaborator**.

2013 Nov Poor recognition of risk factors for chronic hepatitis B virus infection among physicians who prescribe immunosuppressive therapy. The Liver Meeting AASLD. Washington, United States.

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Visram A, Boro J, Chan K, Hicks LK, **Feld JJ**. Poor recognition of risk factors for chronic hepatitis B virus infection among physicians who prescribe immunosuppressive therapy. Hepatology. 2013. 58(4) Suppl Abstract 886. **Senior Responsible Author**.

2013 Apr Improvement in interferon-based therapy substantially reduced the number needed to treat to prevent HCC among HCV genotype 1 infected cirrhotics. European Association for the Study of the Liver EASL. Amsterdam, Netherlands.

Publication Details:
Van der Meer AJP, Veldt BJ, **Feld JJ**, Wedemeyer H, Dufour J-F, Lammert F, Duarte-Rojo A, Manns MP, Zeuzem S, Hofmann WP, de Knegt RJ, Hansen BE, Janssen HLA. Improvement in interferon-based therapy substantially reduced the number needed to treat to prevent HCC among HCV genotype 1 infected cirrhotics. Journal of Hepatology. 2013;Abstract 504. **Coauthor or Collaborator**.

2013 Apr All oral therapy with sofosbuvir+ribavirin for 12 or 16 weeks in treatment experienced CT2/3 HCV-infected patients: results of the phase 3 FUSION trial. European Association for the Study of the Liver EASL. Amsterdam, Netherlands.

Publication Details:
Nelson DR, **Feld JJ**, Kowdley KV, Al-Assi MT, Lin M, Mo H, McNally J, Brainard DM, Symonds WT, McHutchison JG, Patel K, Gordon SC. All oral therapy with sofosbuvir+ribavirin for 12 or 16 weeks in treatment experienced CT2/3 HCV-infected patients: results of the phase 3 FUSION trial. Journal of Hepatology. 2013;Abstract 6. **Coauthor or Collaborator**.

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Publication Details:
Sharma S, Acarsu U, Hirschfield GM, **Feld JJ**. Development of a scoring system to predict risk of hepatocellular carcinoma in a cohort of patients with cirrhosis. Journal of Hepatology. 2013;Abstract 111. **Senior Responsible Author**.

2013 Apr All oral therapy with sofosbuvir + ribavirin for 12 or 16 weeks in treatment experiences G2/3 HCV-infected patients: Results of the Phase 3 Fusion Trial. European Association for the Study of the Liver EASL. Amsterdam, Netherlands.

Publication Details:
Nelson DR, **Feld JJ**, Kowdley KV, Al-Assi MT, Lin M, Mo H, McNally J, Brainard DM, Symonds WT, McHutchison JG, Patel K, Gordon SC. All oral therapy with sofosbuvir + ribavirin for 12 or 16 weeks in

treatment experiences G2/3 HCV-infected patients: Results of the Phase 3 Fusion Trial. Journal of Hepatology. 2013;Abstract 6. **Coauthor or Collaborator**.

2013 Gradual increase in platelets following sustained virological response among patients with HCV-induced advanced hepatic fibrosis. The Liver Meeting AASLD. Washington, United States.

Publication Details:
van der Meer AJ, Maan R, Veldt BJ, **Feld JJ**, Wedemeyer H, Dufour J, Lammert F, Duarte-Rojo A, Manns MP, Zeuzem S, Hofmann WP, de Knegt RJ, Veldt J, Hansen BE, Janssen HL. Gradual increase in platelets following sustained virological response among patients with HCV-induced advanced hepatic fibrosis. Hepatology. 2013. 58(4) Suppl Abstract 1470. **Coauthor or Collaborator**.

2012 Nov Evidence for a distinct molecular basis for adverse clinical outcomes in hepatitis C infection following liver transplant. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Selzner N, Chen L, Xuezhong M, Ma M, Virtanen C, Renner EL, **Feld JJ**, Selzner M, McGilvray I. Evidence for a distinct molecular basis for adverse clinical outcomes in hepatitis C infection following liver transplant. Hepatology. 2012;56(4 Suppl). Abstract #267. **Coauthor or Collaborator**.

2012 Nov Tenovir monotherapy is effective salvage therapy of nucleoside-resistant hepatitis B. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
So J. Win LL, Sarin N, Yim C, Shah H, **Feld JJ**, Heathcote EJ, Wong DK. Tenovir monotherapy is effective salvage therapy of nucleoside-resistant hepatitis B. Hepatology. 2012;56(4 Suppl). Abstract #364. **Coauthor or Collaborator**.

2012 Nov Death from liver failure despite Lamivudine prophylaxsis during R-CHOP chemotherapy due to rapid emergence of M204 mutations. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Win LL, Powis J, Shah H, **Feld JJ**, Wong D. Death from liver failure despite Lamivudine prophylaxsis during R-CHOP chemotherapy due to rapid emergence of M204 mutations. Hepatology. 2012;56(4 Suppl). Abstract #435. **Coauthor or Collaborator**.

2012 Nov Characteristics of 'rapidly growing' HCCs: Missed screening or unique tumor biology? The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Sharma S, Acarsu U, Khalili K, Hirshfield G, **Feld JJ**. Characteristics of 'rapidly growing' HCCs: Missed screening or unique tumor biology? Hepatology. 2012;56(4 Suppl). Abstract #609. **Senior Responsible Author**.

2012 Nov Up to 100% SVR4 rates with ritonavir-boosted danoprevir (DNVr), mericitabine (MCB) and ribavirin (R) peginterferon alfa-2a (40KD) (P) in HCV genotype 1-infected partial and null responders: results from the Matterhorn study. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Jacobson IM, Jensen D, Foster GR, Pol S, Tam E, Berak H, Vierling JM, Tavel J, Navarro MT, Shahdad S, Kulkarni R, LePogam S, Najera I, Lim CY, Yetzer ES. Up to 100% SVR4 rates with ritonavir-boosted danoprevir (DNVr), mericitabine (MCB) and ribavirin (R) peginterferon alfa-2a (40KD) (P) in HCV genotype 1-infected partial and null responders: results from the Matterhorn study. Hepatology. 2012;56(4 Suppl). Abstract #81. **Principal Author**.

2012 Nov Safety and efficacy of ritonavir-boosted danoprevir (DNVr), peginterferon a-2a (40KD) (P) and ribavirin (R) with or without mericitabine in HCV genotype (G) 1-infected treatment-experienced patients with advanced hepatic fibrosis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Jacobson I, Jensen D, Pol S, Foster GR, **Feld JJ**, Yoshida EM, Jabikowski MS, Perez-Gomez HR, Shahdad S, Kulkarni R, Navarro MT, A Scalori A, Tavel J, Hooper G, Yetzer E. Safety and efficacy of ritonavir-boosted danoprevir (DNVr), peginterferon a-2a (40KD) (P) and ribavirin (R) with or without mericitabine in HCV genotype (G) 1-infected treatment-experienced patients with advanced hepatic fibrosis. Hepatology. 2012. Abstract #155. **Coauthor or Collaborator**.

2012 Nov Number of patients needed to treat to prevent death in genotype 1 chronic hepatitis C cirrhosis; the impact of improved interferon-based therapy. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
van der Meer AJ, Veldt BJ, **Feld JJ**, Wedemeyer H, Dufour JF, Lammert F, Duarte-Rojo A, Manns MP, Zeusem S, Hofmann WP, de Knegt RJ, Hansen BE, Janssen HJ. Number of patients needed to treat to prevent death in genotype 1 chronic hepatitis C cirrhosis; the impact of improved interferon-based therapy. Hepatology. 2012;56(4 Suppl). Abstract #155. **Coauthor or Collaborator**.

2012 Nov The USP18/ISG15 pathway links hepatic inflammation, viral hepatitis and the innate immune response. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Chen L, Ma MXM, Renner EL, Selzner N, **Feld JJ**, McGilvray I. The USP18/ISG15 pathway links hepatic inflammation, viral hepatitis and the innate immune response. Hepatology. 2012;56(4 Suppl). Abstract #1969. **Coauthor or Collaborator**.

2012 Nov Prediction of All-cause Mortality in Chronic HCV-infected Patients with Compensated Advanced Liver Disease – A Validated Objective Risk Score. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Van der Meer AJ, Hansen BE, Fattovich G, **Feld JJ**, Wedemeyer H, Dufour J, Lammert F, Duarte-Rojo A, Manns MP, Leluzzi D, Zeuzem S, Hofmann WP, de Knegt RJ, Veldt BJ, Janssen HL. Prediction of All-cause Mortality in Chronic HCV-infected Patients with Compensated Advanced Liver Disease – A Validated Objective Risk Score. Hepatology. 2012;56(4 Suppl). Abstract #155. **Coauthor or Collaborator**.

2012 Nov The ubiquitin specific protease USP18 is necessary but not sufficient for a hepatocyte interferon refractory state: Variable roles in Type 1 and Type III interferon responsiveness. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
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2012 Apr Alpha defensin (HNP-1) inhibits hepatitis C virus by blocking both viral entry and RNA replication with a novel mechanism of action. European Association for the Study of the Liver EASL. Barcelona, Spain.

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Sherker AR, Cherepanov V, Alvandi Z, McGilvray I, Zhang H, **Feld JJ**. Alpha defensin (HNP-1) inhibits hepatitis C virus by blocking both viral entry and RNA replication with a novel mechanism of action. Journal of Hepatology. 2012;56:874. **Senior Responsible Author**.

2012 Apr IP10 is associated with early viral kinetics but not sustained virological response during treatment for recent hepatitis C infection. European Association for the Study of the Liver EASL. Barcelona, Spain.

Publication Details:

Grebely J, **Feld JJ**, Applegate T, Matthews GV, Hellard M, Suppiah V, Sherker A, Peroumenos K, Shaw I, Yeung B, Kaldor JM, Cherepanov V, Bruneau J, Lloyd A, Shoukry N, Dore GJ. IP10 is associated with early viral kinetics but not sustained virological response during treatment for recent hepatitis C infection. Journal of Hepatology. 2012;56:889. **Co-Principal Author**.

2012 Apr Prediction of long-term survival in chronic hepatitis C patients with advanced fibrosis using standard laboratory tests. European Association for the Study of the Liver EASL. Barcelona, Spain.

Publication Details:
Van der Meer AJ, Hansen BE, **Feld JJ**, Wedemeyer H, Dufour J, Lammert F, Duarte-Rojo A, Manns MP, Kuske L, Zeuzem S, Hofmann WP, de Knegt RJ, Veldt BJ, Janssen HL. Prediction of long-term survival in chronic hepatitis C patients with advanced fibrosis using standard laboratory tests. Journal of Hepatology. 2012;56:931. **Coauthor or Collaborator**.

2012 Apr Factors associated with hepatocellular carcinoma in chronic hepatitis C patients with advanced liver fibrosis. European Association for the Study of the Liver EASL. Barcelona, Spain.

Publication Details:
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2011 Nov Ultrasound surveillance of hepatocellular carcinoma in North America: Rates of success and potential causes of failure. Radiologic Society of North America (RSNA). Chicago, Illinois, United States.

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Yazdi L, Khalili K, Khalatbari A, Menezes R, Sharma S, Kim T, **Feld JJ**, Hirschfield, Sherman M. Ultrasound surveillance of hepatocellular carcinoma in North America: Rates of success and potential causes of failure. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov The IL28B Polymorphism rs12979860 Does Not Predict Response to Ribavirin Monotherapy in Patients with Chronic Hepatitis C. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
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Publication Details:
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2011 Nov Clinical, Virological, Biochemical Outcomes After 20 Years of Sustained Virological Response (SVR) in

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2011 Nov Interferon-alfa/Ribavirin Therapy Induces Rapid Changes in Natural Killer Cell Phenotype and Function in Vivo. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Ahlenstiel G, Edlich B, Hogdal L, Rotman Y, Noureddin M, **Feld JJ**, Titerence RH, Liang TJ, Rehermann B. Interferon-alfa/Ribavirin Therapy Induces Rapid Changes in Natural Killer Cell Phenotype and Function in Vivo. Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov Interferon alpha/ribavirin therapy induces rapid changes in natural killer cell phenotype and function. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Edlich B, Ahlenstiel G, Hogdal LJ, Rotman Y, Noureddin M, **Feld JJ**, Titerance R, Liang TJ, Rehermann B. Interferon alpha/ribavirin therapy induces rapid changes in natural killer cell phenotype and function. Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov Improved platelet count and smaller spleen size long after sustained virological response in chronic hepatitis C patients with advanced fibrosis. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Van der Meer AJ, Veldt BJ, **Feld JJ**, Wedemeyer H, Dufour J, Lammert F, Duarte-Rojo A, Heathcote EJ, Manns MP, Kuske L, Zeuzem S, Hofmann WP, de Knegt RJ, Hansen BE, Janssen HL. Improved platelet count and smaller spleen size long after sustained virological response in chronic hepatitis C patients with advanced fibrosis. Hepatology. 2011 Nov;54(1):820A -820A. **Coauthor or Collaborator**.

2011 Nov Differential hepatic expression of interferon stimulated genes between HCV genotypes 1 and 2/3 correlates with responsiveness to peginterferon. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Noureddin M, Rotman Y, **Feld JJ**, Han H, Park YJ, Thomas E, Koh C, Abdalla AA, Gara N, Sarkar S, Doo E, Ghany MG, Heller T, Hoofnagle JH, Liang TJ. Differential hepatic expression of interferon stimulated genes between HCV genotypes 1 and 2/3 correlates with responsiveness to peginterferon. Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov Age-related susceptibility to hepatic ischemia/reperfusion injury: Role for heat shock protein expression? The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Selzner N, Selzner M, Ma MM, **Feld JJ**, Chen L, McGilvray I. Age-related susceptibility to hepatic ischemia/reperfusion injury: Role for heat shock protein expression? Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov Ten year hepatocellular carcinoma risk in patients with cirrhosis: impact of etiology and screening. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Sharma S, Kochak Yazdi L, Khalili K, Acarsu U, Kim T, Shah H, Wong DK, Sherman M, Hirschfield GM, **Feld JJ**. Ten year hepatocellular carcinoma risk in patients with cirrhosis: impact of etiology and

screening. Hepatology. 2011 Nov. **Senior Responsible Author**.

2011 Nov Ribavirin Exerts a Weak Interferon-Like Effect on Gene Expression in the Liver of Patients with Chronic Hepatitis C. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Rotman Y, Noureddin M, **Feld JJ**, Han H, Park YJ, Thomas E, Abdalla AA, Gara N, Sarkar S, Koh C, Doo E, Heller T, Ghany MG, Rehermann B, Hoofnagle JH, Liang TJ. Ribavirin Exerts a Weak Interferon-Like Effect on Gene Expression in the Liver of Patients with Chronic Hepatitis C. Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov Non-cirrhotic portal hypertension in Sickle Cell Disease: An underappreciated entity. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld JJ, Kleiner DE, Sandler NG, Haynes-Williams V, Nichols J, Hoofnagle JH, Liang TJ, Douek D, Gladwin M, Kato GJ, Heller T. Non-cirrhotic portal hypertension in Sickle Cell Disease: An underappreciated entity. Hepatology. 2011 Nov. **Principal Author**.

2011 Nov Direct hyperbilirubinemia in sickle cell disease is a marker of intrinsic liver pathology and a predictor of mortality. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld JJ, Kleiner DE, Haynes-Williams V, Nichols J, Hoofnagle JH, Liang TJ, Gladwin M, Kato GJ, Heller T. Direct hyperbilirubinemia in sickle cell disease is a marker of intrinsic liver pathology and a predictor of mortality. Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Nov Immunostaining for hepatic interferon-stimulated genes (ISG) accurately predicts treatment failure: An important clinical tool with potential mechanistic implications. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld JJ, Pattullo V, Chen L, Selzner N, Guindi M, Fischer SE, Xie G, Edwards A, Siminovitch K, McGilvray I. Immunostaining for hepatic interferon-stimulated genes (ISG) accurately predicts treatment failure: An important clinical tool with potential mechanistic implications. Hepatology. 2011 Nov. **Principal Author**.

2011 Nov Ferritin elevation is a marker of total body iron and predictor of mortality in Sickle Cell Disease. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld JJ, Kleiner DE, Haynes-Williams V, Nichols J, Hoofnagle JH, Liang TJ, Gladwin M, Kato GJ, Heller T. Ferritin elevation is a marker of total body iron and predictor of mortality in Sickle Cell Disease. Hepatology. 2011 Nov. **Principal Author**.

2011 Nov Screening for hepatitis B virus (HBV) prior to chemotherapy: A cost-effectiveness analysis. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Zurawska U, Hicks LK, Woo G, Bell C, Krahn M, Chan K, **Feld JJ**. Screening for hepatitis B virus (HBV) prior to chemotherapy: A cost-effectiveness analysis. Hepatology. 2011 Nov. **Senior Responsible Author**.

2011 Nov Limited influence of socioeconomic status related factors on survival of hepatocellular carcinoma in the Ontario Population; A population-based study, 1990-2009. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Jembere N, Campitelli M, **Feld JJ**, Hirschfield GM, Sherman M, Yoshida E, Hoch J, Peacock S, Earle C,

Krahn M, Thein H. Limited influence of socioeconomic status related factors on survival of hepatocellular carcinoma in the Ontario Population; A population-based study, 1990-2009. Hepatology. 2011 Nov. **Coauthor or Collaborator**.

2011 Sep Exposure to interferon lambda induces a prolonged interferon-refractory state that abrogates the antiviral effects of interferon alpha. 18th International Symposium on Hepatitis C and Related Viruses. Seattle, Washington, United States.

Publication Details:
Alvandi Z, Cherepanov V, Sherker A, Selzner N, McGilvray I, **Feld JJ**. Exposure to interferon lambda induces a prolonged interferon-refractory state that abrogates the antiviral effects of interferon alpha. Gastroenterology. 2011 Sep. **Senior Responsible Author**.

2011 Sep Liver cell-type specific phenotypes and HCV treatment responses: Phenotype outperforms IL28B genotype. 18th International Symposium on Hepatitis C and Related Viruses. Seattle, Washington, United States.

Publication Details:
Feld JJ, Chen L, Pattullo V, Guindi M, Fischer M, Selzner N, McGilvray I, Siminovitch K. Oral plenary presentation. Liver cell-type specific phenotypes and HCV treatment responses: Phenotype outperforms IL28B genotype. Gastroenterology. 2011 Sep. **Principal Author**.

2011 Jun Screening for hepatitis B virus (HBV) prior to chemotherapy: A cost-effectiveness analysis. American Society of Clinical Oncology (ASCO). Alexandria, Virginia, United States.

Publication Details:
Zurawska U, Hicks LK, Woo G, Bell C, Krahn M, Chan K, **Feld JJ**. Screening for hepatitis B virus (HBV) prior to chemotherapy: A cost-effectiveness analysis. Journal of Clinical Oncology. 2011 Jun. **Senior Responsible Author**.

2011 Mar IP10 is associated with early viral kinetics but not sustained virological response during treatment for recent hepatitis C infection. International Liver Congress. European Association for the Study of the Liver EASL. Berlin, Germany.

Publication Details:
Feld JJ. Grebely J, Applegate T, Matthews GV, Hellard M, Suppiah V, Sherker A, Peroumenos K, Shaw I, Yeung B, Rawlinson W, Booth D, Kaldor JM, Lloyd, Dore GJ. IP10 is associated with early viral kinetics but not sustained virological response during treatment for recent hepatitis C infection. International Liver Congress. Journal of Hepatology. 2011 Mar;54:S455. **Principal Author**.

2011 Mar IL28B genotype has variable influence on early viral kinetics but no influence on sustained virological response during treatment for recent hepatitis C infection. International Liver Congress. European Association for the Study of the Liver EASL. Berlin, Germany.

Publication Details:
Grebely J, Matthews GV, Hellard M, Suppiah V, Petoumenos K, Applegate T, Yeung B, Rawlinson W, **Feld JJ**, Lloyd AR, Booth D, Kaldor JM, George J, and Dore GJ. IL28B genotype has variable influence on early viral kinetics but no influence on sustained virological response during treatment for recent hepatitis C infection. International Liver Congress. Journal of Hepatology. 2011 Mar. **Coauthor or Collaborator**.

2010 Nov Effects of Ribavirin Monotherapy on ALT, HCV Viral Levels, Serum Cytokines, and Hepatic Interferon-Stimulated Gene Expression in Chronic Hepatitis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Noureddin M, Rotman Y, **Feld JJ**, Thomas E, Koh C, Abdalla A, Holz L, Park S, Park Y, Ghany M, Doo E, Heller T, Rehermann B, Hoofnagle JH, Liang TJ. Effects of Ribavirin Monotherapy on ALT, HCV Viral

Levels, Serum Cytokines, and Hepatic Interferon-Stimulated Gene Expression in Chronic Hepatitis. Hepatology. 2010 Nov. **Coauthor or Collaborator**.

2010 Nov Identification of anti-hepatitis C virus interferon-stimulated genes by a functional genomic approach. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Li Q, Hu Z, Thomas E, Liang TJ. Identification of anti-hepatitis C virus interferon-stimulated genes by a functional genomic approach. Hepatology. 2010 Nov. **Principal Author**.

2010 Nov Hepatic gene expression profile is a better predictor of treatment outcome in HCV infection than IL28B genotype. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Chen L, Liu X, Pattullo V, Heathcote EJ, Borozan I, Siminovitch K, McGilvray I. Hepatic gene expression profile is a better predictor of treatment outcome in HCV infection than IL28B genotype. Hepatology. 2010 Nov. **Principal Author**.

2010 Nov Effect of ribavirin monotherapy on ALT, HCV viral loads serum cytokines and interferon-stimulated gene expression in chronic hepatitis C. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Noureddin M, Rotman Y, **Feld JJ**, Thomas E, Koh C, Abdalla A, Holz L, Park Y, Ghany MG, Doo E, Heller T, Rehermann B, Hoofnagle JH, Liang TJ. Effect of ribavirin monotherapy on ALT, HCV viral loads serum cytokines and interferon-stimulated gene expression in chronic hepatitis C. Hepatology. 2010 Nov. **Coauthor or Collaborator**.

2010 Apr Cell-Type Specific Gene Expression Signature in Liver Underlies Response to Interferon Therapy in Chronic Hepatitis C Infection. European Association for the Study of the Liver EASL. Wien, Austria.

Publication Details:
Chen L, Borozan I, Sun J, Guindi M, Fischer S, **Feld JJ**, Anand N, Heathcote J, Edwards AM, McGilvray ID. Cell-Type Specific Gene Expression Signature in Liver Underlies Response to Interferon Therapy in Chronic Hepatitis C Infection. Journal of Hepatology. 2010 Apr. **Coauthor or Collaborator**.

2009 Nov A novel scoring system accurately identified regressed cirrhosis in patients with chronic viral hepatitis otherwise misclassified by histological fibrosis stage and serological markers of hepatic fibrosis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Pattullo V, Fischer S, **Feld JJ**, Wong DK, Heathcote JE, Guindi M. A novel scoring system accurately identified regressed cirrhosis in patients with chronic viral hepatitis otherwise misclassified by histological fibrosis stage and serological markers of hepatic fibrosis. Hepatology. 2009 Nov. **Coauthor or Collaborator**.

2009 Nov The effects of ribavirin pre-treatment on HCV levels before and during combination treatment with peginterferon. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Noureddin M, Rotman Y, **Feld JJ**, Koh C, Abdalla A, Thomas E, Heller T, Ghany MG, Park Y, Hoofnagle JH, Liang TJ. The effects of ribavirin pre-treatment on HCV levels before and during combination treatment with peginterferon. Hepatology. 2009 Nov. **Coauthor or Collaborator**.

2009 Nov Reduced liver fibrosis: coffee or caffeine? The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Modi AA, **Feld JJ**, Everhart JE, Liang TJ, Hoofnagle JH. Reduced liver fibrosis: coffee or caffeine? Hepatology. 2009 Nov. **Coauthor or Collaborator**.

2009 Oct Cell-Type Specific Gene Expression Signature in Liver Underlies Response to Interferon Therapy in Chronic Hepatitis C Infection. 16th International Meeting on Hepatitis C and Related Viruses. Philadelphia, Pennsylvania, United States.

Publication Details:
Chen L, Borozan I, Sun J, Guindi M, Fischer S, **Feld JJ**, Anand N, Heathcote J, Edwards AM, McGilvray ID. Cell-Type Specific Gene Expression Signature in Liver Underlies Response to Interferon Therapy in Chronic Hepatitis C Infection. Gastroenterology. 2009 Oct. **Coauthor or Collaborator**.

2009 Oct Characterization of gene induction and antiviral effects on HCVcc infection following ribavirin, interferon and polyIC stimulation. 16th International Meeting on Hepatitis C and Related Viruses. Philadelphia, Pennsylvania, United States.

Publication Details:
Thomas E, Li Q, Clark SA, **Feld JJ**, Liang TJ. Characterization of gene induction and antiviral effects on HCVcc infection following ribavirin, interferon and polyIC stimulation. Gastroenterology. 2009 Oct. **Coauthor or Collaborator**.

2009 Mar SAMe improves early viral kinetics and interferon stimulated gene induction when added to peginterferon and ribavirin therapy for previous hepatitis C non-responders. 13th International Symposium on Viral Hepatitis and Liver Disease (ISVHLD). Washington, District of Columbia, United States.

Publication Details:
Feld JJ, Modi AA, Ahlenstiel G, El-Diwany R, Rotman Y, Koh C, Titerence R, Park Y, Ghany MG, Heller T, Hoofnagle JH, Liang TJ. Oral Presentation. SAMe improves early viral kinetics and interferon stimulated gene induction when added to peginterferon and ribavirin therapy for previous hepatitis C non-responders. 2009 Mar. **Principal Author**.

2008 Nov Disease activity in chronic hepatitis C correlates with IFN-alpha-dependent polarization of natural killer cell function towards cytotoxicity. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Ahlenstiel G, Titerence RH, Koh C, **Feld JJ**, Rotman Y, Ghany MG, Kleiner DE, Hoofnagle JH, Liang TJ, Heller T, Rehermann B. Disease activity in chronic hepatitis C correlates with IFN-alpha-dependent polarization of natural killer cell function towards cytotoxicity. Hepatology. 2008;48(4 Suppl 1):179A. **Coauthor or Collaborator**.

2008 Nov Correlation of biochemical and hisotological responses in therapeutic trials of nonalcoholic steatohepatitis (NASH). The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Rotman Y, Koh C, **Feld JJ**, Kleiner DE, Liang TJ, Hoofnagle JH. Correlation of biochemical and hisotological responses in therapeutic trials of nonalcoholic steatohepatitis (NASH). Hepatology. 2008;48(4 Suppl 1):1122A. **Coauthor or Collaborator**.

2008 Nov Ribavirin improves second phase kinetics through enhanced interferon signaling in genotype 1 HCV infection. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld JJ, Ko MS, Hara K, Lutchman GA, Rotman A, Heller T, Ghany MG, Neumann AU, Liang TJ, Hoofnagle JH. Ribavirin improves second phase kinetics through enhanced interferon signaling in genotype 1 HCV infection. Hepatology. 2008;48(4 Suppl 1):1217A. **Principal Author**.

2008 Nov SAMe improves early viral kinetics and interferon stimulated gene induction when added to peginterferon and ribavirin therapy for previous hepatitis C non-responders. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:

Feld JJ, Modi AA, Ahlenstiel G, El-Diwany R, Rotman Y, Koh C, Titerence R, Park Y, Ghany MG, Heller T, Hoofnagle JH, Liang TJ. Oral Presentation. SAMe improves early viral kinetics and interferon stimulated gene induction when added to peginterferon and ribavirin therapy for previous hepatitis C non-responders. Hepatology. 2008 Nov. **Principal Author**.

2007 Nov Twice vs once weekly dosing of peginterferon alfa 2a in chronic HCV genotype 1 infection: Analysis of early viral kinetics. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Lutchman GA, Loomba R, Modi AA, Rotman Y, Nagabhyru PR, Ghany M, Heller T, Haynes-Williams V, Liang TJ, Neumann A, Hoofnagle JH. Twice vs once weekly dosing of peginterferon alfa 2a in chronic HCV genotype 1 infection: Analysis of early viral kinetics. Hepatology. 2007;46(4 Suppl 1):237A. **Principal Author**.

2007 Nov Low dose peginterferon alfa-2a and ribavirin for chronic hepatitis C, genotype 2 & 3: Viral kinetics, efficacy and safety. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Rotman Y, Borg BB, Soza A, Loomba R, Modi AA, **Feld JJ**, Rivera E, Doo E, Heller T , Ghany M, Neumann AU, Liang TJ, Hoofnagle JH. Low dose peginterferon alfa-2a and ribavirin for chronic hepatitis C, genotype 2 & 3: Viral kinetics, efficacy and safety. Hepatology. 2007;46(4 Suppl 1):252A. **Coauthor or Collaborator**.

2007 Nov Liver injury is associated with mortality in sickle cell disease. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Shields T, Gladwin MT, Hildesheim M, Nichols JS, Kleiner D, Liang TJ, Hoofnagle JH, Kato GJ, Heller T. Liver injury is associated with mortality in sickle cell disease. Hepatology. 2007;46(4 Suppl 1):786A. **Principal Author**.

2007 Nov The spectrum of liver disease in HIV-infected individuals in East Africa. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Ocama P, **Feld JJ**, Katwere M, Piloya T, Opio K, Kambugu A, Katabira E, Thomas DL, Colebunders R, Ronald A. The spectrum of liver disease in HIV-infected individuals in East Africa. Hepatology. 2007;46(4 Suppl 1):1283A. **Coauthor or Collaborator**.

2007 Nov Higher caffeine consumption is associated with milder fibrosis in patients with chronic liver diseases. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Modi AA, **Feld JJ**, Park Y, Everhart J, Liang TJ, Hoofnagle JH. Higher caffeine consumption is associated with milder fibrosis in patients with chronic liver diseases. Hepatology. 2007;46(4 Suppl 1):1341A. **Co-Principal Author**.

2006 Oct Elevated iron parameters and disease severity in hepatitis B – a more complex relationship than may be assumed. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Jazwinski AB, **Feld JJ**, Kleiner DE, Ghany MG, Liang TJ, Hoofnagle JH, Heller T. Elevated iron parameters and disease severity in hepatitis B – a more complex relationship than may be assumed. Hepatology. 2006;44(4 Suppl 1):681A. **Coauthor or Collaborator**.

2006 Oct Hepatic gene expression profiles during treatment with peginterferon and ribavirin: Identifying important molecular pathways for treatment response. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Nanda S, Huang Y, Chen W, Cam M, Pusek S, Schweigler L, Theodore D, Dougherty K, Sacks S, Shrestha R, Liang TJ, Fried MW. Hepatic gene expression profiles during treatment with peginterferon and ribavirin: Identifying important molecular pathways for treatment response. Hepatology. 2006;44(4 Suppl 1):315A. **Principal Author**.

2006 Oct Portal hypertensive thrombocytopenia predicts mortality in chronic granumlomatous disease (CGD). The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Hussain N, Kleiner D, Hoofnagle JH, Shlawat S, Anderson V, Hilligoss D, Gallin JI, Malech HL, Liang TJ, Holland SM, Heller T. Portal hypertensive thrombocytopenia predicts mortality in chronic granumlomatous disease (CGD). Hepatology. 2006;44(4 Suppl 1):448A. **Principal Author**.

2006 Oct Improvements in immunological abnormalities in patients with chronic hepatitis C who have a sustained virological response to therapy. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Modi A, **Feld JJ**, Loomba R, Borg B, Heller T, Ghany M, Doo E, Liang TJ, Hoofnagle JH. Improvements in immunological abnormalities in patients with chronic hepatitis C who have a sustained virological response to therapy. Hepatology. 2006;44(4 Suppl 1):341A. **Coauthor or Collaborator**.

2006 Oct Pilot study of metformin in patients with nonalcoholic steatohepatitis. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Loomba R, Lutchman G, Kleiner D, Borg B, **Feld JJ**, Modi A, Ghany M, Heller T, Doo E, Liang TJ, Hoofnagle JH. Pilot study of metformin in patients with nonalcoholic steatohepatitis. Hepatology. 2006;44(4):260A. Suppl 1. **Coauthor or Collaborator**.

2005 Nov Early viral kinetics in patients with chronic hepatitis C and end stage renal disease during therapy with peginterferon alfa-2a. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Lutchman GA, Neumann A, Ghany M, Heller T, Borg B, **Feld JJ**, Loomba R, Liang TJ, Hoofnagle JH. Early viral kinetics in patients with chronic hepatitis C and end stage renal disease during therapy with peginterferon alfa-2a. Hepatology. 2005;42(4). Suppl 1: Abstract #1195. **Coauthor or Collaborator**.

2005 Nov Analysis of responses to alpha and gamma interferons in hepatitis C virus infected chimpanzees. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Feld JJ, Huang Y, Sapp R, Blatt L, Murthy K, Liang TJ. Analysis of responses to alpha and gamma interferons in hepatitis C virus infected chimpanzees. Hepatology. 2005;42(4). Suppl 1: Abstract #1179. **Principal Author**.

2005 Nov Trial of low dose peginterferon alfa-2a and ribavirin for patients with chronic hepatitis C infected with genotypes 2 and 3. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Borg B, Neumann AU, Ghany M, Heller T, Kleiner DE, Lutchman GA, **Feld JJ**, Loomba R, Liang TJ, Hoofnagle JH. Trial of low dose peginterferon alfa-2a and ribavirin for patients with chronic hepatitis C infected with genotypes 2 and 3. Hepatology. 2005;42(4). Suppl 1: Abstract #1277. **Coauthor or Collaborator**.

2005 Nov Lamivudine and adefovir versus adefovir alone for HBeAg-Positive chronic hepatitis B. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:

Ghany M, Lutchman GA, Kleiner D, Borg B, Heller T, **Feld JJ**, Loomba R, Liang TJ, Hoofnagle JH. Lamivudine and adefovir versus adefovir alone for HBeAg-Positive chronic hepatitis B. Hepatology. 2005;42(4). Suppl 1: Abstract #1005. **Coauthor or Collaborator**.

2005 Nov Acute hepatitis C: Clinical presentation, laboratory findings and treatment outcomes. The Liver Meeting AASLD. San Francisco, California, United States.

Publication Details:
Loomba R, **Feld JJ**, Lutchman GA, Borg B, Rehermann B, Alter H, Liang TJ, Hoofnagle JH. Acute hepatitis C: Clinical presentation, laboratory findings and treatment outcomes. Hepatology. 2005;42(4). Suppl 1: Abstract #88. **Coauthor or Collaborator**.

2004 Nov A hepatic gene expression profile that discriminates responders and nonresponders in treatment of chronic hepatitis C viral infection. The Liver Meeting AASLD. Boston, Massachusetts, United States.

Publication Details:
Feld JJ, Chen L, Borozan I, Sun J, Coltescu C, Tannis L, Heathcote J, Edwards A, McGilvray I. A hepatic gene expression profile that discriminates responders and nonresponders in treatment of chronic hepatitis C viral infection. Hepatology. 2004;40(4). Suppl 1: Abstract #626. **Principal Author**.

2003 Nov Predicting Liver Disease Severity in e Antigen Negative Chronic Hepatitis B. The Liver Meeting AASLD. United States.

Publication Details:
Feld JJ, El-Ashri D, Ayers M, Mazulli T, Tellier R, Heathcote EJ. Predicting Liver Disease Severity in e Antigen Negative Chronic Hepatitis B. Hepatology. 2003;38(4 Suppl 1):609A. Abstract #939. **Principal Author**.

2002 Nov AMA positive autoimmune hepatitis does not equal AIH/PBC overlap syndrome. The Liver Meeting AASLD. United States.

Publication Details:
Feld JJ, Heathcote JE. AMA positive autoimmune hepatitis does not equal AIH/PBC overlap syndrome. Hepatology. 2002;36(4):506A. Pt 2 of 2: Abstract #1374. **Principal Author**.

1999 Nov Abnormal intestinal permeability in primary biliary cirrhosis. The Liver Meeting AASLD. United States.

Publication Details:
Feld JJ, Cauch-Dudek K, Meddings J, Heathcote EJ. Abnormal intestinal permeability in primary biliary cirrhosis. Hepatology. 1999;30(4):A986. **Principal Author**.

Advisory Panel Meeting

2015 Oct **Panelist**. HCV Guidance Panel Meeting. IAS-USA: International Antiviral Society - USA. Chicago, Illinois, United States.

Session Chair

2015 Oct **Chair**. Parallel Session: HCV Therapy in Substance Users. The 4th International Symposium on Hepatitis in Substance Users (INHSU 2015). Sydney, New South Wales, Australia.

2015 Sep **Chair**. Parallel Session: Q&A and discussion. The Viral Hepatitis Congress. Frankfurt, Germany.

2015 Sep **Chair**. Parallel Session: Advances in HCV Therapy. GALA GI and Liver Association of Americas. Chicago, Illinois, United States.

2015 Jun **Chair**. Parallel Session HCV. 15th International Symposium on Viral Hepatitis and Liver Disease ISVHLD. Berlin, Germany.

2015 May **Chair**. Management of Challenging HCV-Infected Patient Populations. The Annual Clinical Care Options

HIV and Hepatitis C Symposium. San Francisco, California, United States.

2015 May **Chair**. Hepatitis C for Global Health. Global Therapeutic Experts Forum (GTEF). New Jersey, United States.

2014 Nov **Chair**. Round Table Discussion: Challenges Curing Patients. 1st Hepatitis Cure & Eradication Meeting 2014. Toronto, Ontario, Canada.

2014 Nov **Chair**. American Association for the Study of Liver Disease. Boston, Massachusetts, United States.

2014 Oct **Chair**. Debating the treatment of HCV. The Viral Hepatitis Congress. Frankfurt, Germany.

2014 Sep **Chair**. Drug Discovery and Treatment. 21st International Symposium on Hepatits C Virus and Related Viruses. Banff, Alberta, Canada.

2013 Nov **Chair**. HCV Pathogenesis. American Association for the Study of Liver Disease (AASLD). Washington, District of Columbia, United States.

2013 Nov **Chair**. HBV SIG Program - Challenges in Diagnosis and Management of Chronic Hepatitis B Virus (HBV) Infection in Endemic Countries. American Association for the Study of Liver Disease (AASLD). Washington, District of Columbia, United States.

2013 Nov **Chair**. HCV Pathogenesis. American Association for the Study of Liver Disease (AASLD). Washington, District of Columbia, United States.

2013 Oct **Chair**. Antivirals and Clinical Session 1. International Symposium on Hepatitis C and Related Viruses. Melbourne, Victoria, Australia.

2013 Sep **Chair**. Hepatitis C Epidemiology, Screening and Diagnosis. The Viral Hepatitis Congress. Frankfurt, Germany.

2013 May **Chair**. Research 101: From trial design to high impact publication. Hepatology Live. Athens, Greece.

2012 Nov **Chair**. HBV Virology & Pathogenesis. American Association for the Study of Liver Disease (AASLD). Boston, Massachusetts, United States.

2012 Sep **Chair**. New directions in treatment monitoring and delivery. 8th Australasian Conference on Viral Hepatitis. Auckland, New Zealand.

2012 May **Chair**. Viral Hepatitis. Hepatology Live. Vienna, Austria. Session Chair.

2012 May **Chair**. Navigating the Evidence. Hepatology Live. Vienna, Austria. Session Chair.

2011 Nov **Chair**. HCV: Genomics to virology. American Association for the Study of Liver Disease. San Francisco, California, United States.

2011 Sep **Chair**. Genomics and Genetics. 18th International Symposium on hepatitis C and related viruses. Seattle, Washington, United States.

2010 Nov **Chair**. HCV Virology. American Association for the Study of Liver Disease (AASLD). Boston, Massachusetts, United States.

2009 Nov **Chair**. Innate immunity in HCV infection. American Association for the Study of Liver Disease (AASLD).

2. NATIONAL

Invited Lectures and Presentations

2015 Nov **Invited Speaker**. The Toronto Declartion: Where are we now? 2nd International Hepatitis Cure & Eradication Meeting. Vancouver, British Columbia, Canada.

2015 Nov **Invited Speaker**. New Treatment in HCV: Is there need for more therapies? 2nd International Hepatitis Cure & Eradication Meeting. Vancouver, British Columbia, Canada.

2015 Oct **Keynote Speaker**. Making it work: Improving the continuum of care in the new era of hepatitis C. CATIE: Canada's Source for HIV and Hepatitis C Information. Toronto, Ontario, Canada.

2015 Oct **Keynote Speaker**. You Should Be Treating Hepatitis C. The 28th International Course on Therapeutic Endoscopy. Toronto, Ontario, Canada.

2015 Sep **Invited Speaker**. "Working with industry: Remember you're in charge". National GI Fellow Hepatology Symposium. Toronto, Ontario, Canada.

2015 Sep **Invited Speaker**. HBV in Non-hepatic Solid Organ Transplantation. 2015 Canadian Transplant Fellows Symposium. Toronto, Ontario, Canada.

2015 Jul **Invited Speaker**. Implementation of modern HCV therapy into clinical practice. 2nd International HIV/Viral Hepatitis Co-infection Meeting. Vancouver, British Columbia, Canada.

2015 Mar **Invited Speaker**. Hepatology 101: Liver Function. Radiation Medicine Program Princess Margaret Hospital. Toronto, Ontario, Canada.

2015 Mar **Invited Speaker**. What's new in Hepatitis C: Therapies and the Relevance of SVR. Government Affairs and Canadian Society for International Health in Toronto. Toronto, Ontario, Canada.

2015 Feb **Invited Speaker**. Clinical conundrums in IgG4 Disease. CAG/CDDW. Banff, Alberta, Canada.

2015 Feb **Invited Speaker**. The New HCV Treatments. Canadian Association of Hepatology Nurses (CAHN) /Canadian Association for the Study of the Liver and the Canadian Association of Gastroenterology. Banff, Alberta, Canada.

2014 Nov **Invited Speaker**. Parliamentary Educational Session for MPs on Hepatitis C. Minister of Health. Ottawa, Ontario, Canada.

2014 Sep **Invited Speaker**. Clinical Applications of the Hepatitis C Guidelines. GI and Liver Association of the Americas (GALA). Montreal, Quebec, Canada.

2014 Sep **Invited Speaker**. HCV: Latest Treatment Updates for GT 1,4,5 and 6 Patients. GI and Liver Association of the Americas (GALA). Montreal, Quebec, Canada.

2014 Feb **Invited Speaker**. Will difficult to treat patients remain difficult to treat with the new generation of treatments? Canadian Association for the Study of Liver Disease (CASL). Toronto, Ontario, Canada.

2014 Feb **Invited Speaker**. HCC Surveillance: Evidence and Populations. Canadian Consensus Conference on Hepatocellular Carcinoma. Toronto, Ontario, Canada.

2014 Jan **Invited Lecturer**. New paradigms for Genotype 1. CARE Continuing Medical Education. Vancouver, British Columbia, Canada.

2013 Jul **Invited Speaker**. The changing landscape of HCV treatment. Canadian Treatment Action Coalition (CTAC). Toronto, Ontario, Canada.

2013 Jun **Invited Speaker**. Hepatitis C: Insurable or uninsurable? Canadian Life Insurance Medical Officers Association (CLIMOA). Toronto, Ontario, Canada.

2013 Jun **Invited Speaker**. Treating now: Practical considerations for managing HCV. Alberta Digestive Disease Society. Banff, Alberta, Canada.

2013 Jun **Invited Speaker**. Important papers in Hepatology in 2012-13. Alberta Digestive Disease Society. Banff, Alberta, Canada.

2013 Mar **Invited Speaker**. Clinical dilemmas in HCV: Should all G1 patients be treated with 1st generation

protease inhibitors. Canadian Association for the Study of Liver Disease (CASL). Victoria, British Columbia, Canada.

2013 Mar **Invited Speaker**. The end of interferon: Direct acting antivirals for HCV. National CIHR Research Training Program in Hepatitis C Annual HCV Symposium. Victoria, British Columbia, Canada.

2013 Mar **Invited Speaker**. Current Status of HCV Research in Canada & around the world 2013. National CIHR Research Training Program in Hepatitis C Annual Curriculum. Toronto, Ontario, Canada. Presenter(s): International Symposium on Hepatitis C and Related Viruses.

2012 Sep **Invited Speaker**. Wilson Disease in Adults. Canadian Wilson Disease Family Symposium. Toronto, Ontario, Canada.

2012 Aug **Invited Lecturer**. HCV: The Future Has Arrived. National Infectious Disease Fellow Review Course. Toronto, Ontario, Canada.

2012 May **Invited Speaker**. CASL Practice Guidelines: Viral Hepatitis - New Canadian Recommendations. Hepatology Update. Toronto, Ontario, Canada.

2012 Feb **Invited Lecturer**. HCV: A Pharmacogenomics Success Story. Canadian Association of Gastroenterology: GRIT Course. Montreal, Quebec, Canada.

2012 Feb **Invited Speaker**. CASL Practice Guidelines: Viral Hepatitis - New Canadian Recommendations. Canadian Association for the Study of Liver Disease (CASL). Montreal, Quebec, Canada.

2011 Apr **Visiting Professor**. Ribavirin: Still necessary but how does it work? University of Montreal Liver Research Group. Montreal, Quebec, Canada.

2011 Mar **Lecturer**. The science behind HCV. National GI Trainee Basic Science Research Lectures. Toronto, Ontario, Canada.

2011 Feb **Invited Speaker**. Resistance to direct-acting antivirals: All just hype? Canadian Digestive Week. Vancouver, British Columbia, Canada.

2010 Aug **Invited Lecturer**. Viral Hepatitis for the ID Physician. National Infectious Disease Fellow Review Course. Toronto, Ontario, Canada.

2010 Feb **Invited Speaker**. HCV 2010 and Beyond. Canadian Association of Hepatology Nurses. Toronto, Ontario, Canada.

2010 Feb **Invited Speaker**. Future Therapies for HCV. Canadian Liver Transplant Forum. Toronto, Ontario, Canada.

2010 Feb **Invited Speaker**. Tenofovir disoproxil fumarate versus adefovir dipivoxil for chronic hepatitis B. Canadian Association for the Study of Liver Disease. Toronto, Ontario, Canada.

2009 Aug **Invited Lecturer**. Viral Hepatitis for the ID Physician. National Infectious Disease Fellow Review Course. Toronto, Ontario, Canada.

2009 May **Invited Speaker**. HCV: What happens after non-response? Canadian Life Insurance Medical Officers Association (CLIMOA). Toronto, Ontario, Canada.

2009 Mar **Invited Speaker**. Viral kinetics in HCV: Do they help us? Toronto Liver Update. Toronto, Ontario, Canada.

2008 Feb **Invited Speaker**. Understanding HBV Resistance. Canadian Association for the Study for the Liver. Montreal, Quebec, Canada.

Presented Abstracts

2006 Feb **Presenter**. Hepatic gene expression discriminates responders and nonresponders in treatment of chronic Hepatitis C viral infection. Canadian Association of Gastroenterology. Banff, Alberta, Canada.

2005 Feb **Presenter**. Hepatic gene expression discriminates responders and nonresponders in treatment of chronic Hepatitis C viral infection. Canadian Association of Gastroenterology. Banff, Alberta, Canada.

2003 Mar **Presenter**. AT 130: A Novel Inhibitor of HBV Replication. Canadian Association of Gastroenterology. Banff, Alberta, Canada.

2001 Feb **Presenter**. Abnormal Intestinal Permeability in Primary Biliary Cirrhosis. Canadian Association of Gastroenterology. Banff, Alberta, Canada.

1999 Nov **Presenter**. Development of acute spontaneous tumor lysis syndrome in a patient with adenocarcinoma of the lung. Royal College of Physicians & Surgeons of Canada Annual Meeting. Montreal, Quebec, Canada.

Presented and Published Abstracts

2015 Mar Cost-effectiveness analysis of hepatocellular carcinoma surveillance in patients with hepatitis C related cirrhosis after sustained virological response. CAG/CDDW. Banff, Alberta, Canada.

Publication Details:
Feld JJ, Farhang Zangneh H, Wong W, Sander B, Bell CM, Mumtaz K, Kowgier M, van der Meer AJ, Cleary SC, Chan K. Cost-effectiveness analysis of hepatocellular carcinoma surveillance in patients with hepatitis C related cirrhosis after sustained virological response. 2015 Mar. Abstract # 18. **Co-Principal Author**.

2015 Mar Feasibility of hepatitis C virus disease elimination in Canada within two decades.

Publication Details:
Myers RP, Krajden M, Ramji A, Peltekian KM, Kaita K, Marotta PJ, Borgia S, Shafran S, Bilodeau M, Swain MG, Shah H, **Feld JJ**, Estes C, Razavi H, Sherman M. Feasibility of hepatitis C virus disease elimination in Canada within two decades. CAG/CDDW. 2015 Mar. Abstract # 22. **Coauthor or Collaborator**.

2015 Mar Safety and Efficacy of Ombitasvir-ABT-450/R and Dasabuvir +RBV in HCV Genotype 1-Infected Canadian Patients: Results from Phase 3 Trials.

Publication Details:
Feld JJ, Yoshida E, Ramji A, Tam E, Bain V, Ackad N, Baloukas J, Shulman N, Cooper C. Safety and Efficacy of Ombitasvir-ABT-450/R and Dasabuvir +RBV in HCV Genotype 1-Infected Canadian Patients: Results from Phase 3 Trials. CAG/CDDW. 2015 Mar. A168. **Principal Author**.

2015 Mar An Integrated Safety and Efficacy Analysis of >500 Patients with Compensated Cirrhosis Treated with Ledipasvir/Sofosbuvir with or without Ribavirin.

Publication Details:
Feld JJ, Bourliere M, Sulkowski M, Zeuzem S, Lawitz E, Marcellin P, Omata M, Ding X, Yang J, Knox S, Pang P, Subramanian M, Symonds W, McHutchison J, Mangia A, Gane E, Reddy R, Mizokami M, Pol S, Afdhal N. An Integrated Safety and Efficacy Analysis of >500 Patients with Compensated Cirrhosis Treated with Ledipasvir/Sofosbuvir with or without Ribavirin. CAG/CDDW. 2015 Mar. A169. **Principal Author**.

2015 Mar Non-Response to Interferon-Based Therapy is the Result of Interferon-Stimulated Gene Activation Through a Novel Interaction Between IFNL4 and IFNL1.

Publication Details:
Hansen T, Cherepanov V, Anand N, MacParland S, Chen L, McGilvra I, **Feld JJ**. Non-Response to Interferon-Based Therapy is the Result of Interferon-Stimulated Gene Activation Through a Novel Interaction Between IFNL4 and IFNL1. CAG/CDDW. 2015 Mar. A191. **Co-Principal Author**.

2014 Sep Intereferon Stimulated Gene Preactivation is Driven by Type III Interferon Production Only in IFNL4 Non-

TT Patients.

Publication Details:
Feld JJ, Cherepanov V, Anand N, Hansen T, MacParland S, Ma M, McGilvray I. Intereferon Stimulated Gene Preactivation is Driven by Type III Interferon Production Only in IFNL4 Non-TT Patients. 21st International Symposium on Hepatitis C Virus and Related Viruses. 2014 Sep. **Principal Author**.

2014 Sep HIV Infection is Associated with Increased Levels of the Pro-fibrogenic Chemokines Eotaxin and Monocyte Chemoattractant Protein-1 During Recent HCV Infection.

Publication Details:
Lamoury F, Haharizadeh B, Keoshkerian E, **Feld JJ**, Teutsch S, Amin J, Bull R, Luciani F, Matthews G, Hellard M, Dore G, Lloyd A, Applegate T, Grebely J. HIV Infection is Associated with Increased Levels of the Pro-fibrogenic Chemokines Eotaxin and Monocyte Chemoattractant Protein-1 During Recent HCV Infection. 21st International Symposium on Hepatitis C Virus and Related Viruses. 2014 Sep. **Coauthor or Collaborator**.

2014 Sep Adverse Event Profile of the Interferon-free All-oral ABT-450/r/Ombitasvir, Dasabuvir, and Ribavirin Regimen in HCV Patients.

Publication Details:
Jensen DM, Baykal T, Lawitz E, **Feld JJ**, Angarano G, Jayakumar S, Welzel TM, Coakley E, Fu B, Da Silva-Tillmann B, Larsen L. Adverse Event Profile of the Interferon-free All-oral ABT-450/r/Ombitasvir, Dasabuvir, and Ribavirin Regimen in HCV Patients. Gastroenterology. 2014 Sep. **Coauthor or Collaborator**.

2014 Jun An Electronic Prompt Prior to Myelosuppressive Therapy to Improve Hepatitis B Virus Screening.

Publication Details:
Feld JJ, Hicks LK, Juan J, Truong J, Zurawska U, Giotis A, Chan KK. An Electronic Prompt Prior to Myelosuppressive Therapy to Improve Hepatitis B Virus Screening. J Clin Oncol. 2014 Jun. Abstract, ASCO, Chicago, IL. **Principal Author**.

2014 Mar The effectiveness of ultrasound surveillance for hepatocellular carcinoma in a Canadian center and determinants of its success.

Publication Details:
The effectiveness of ultrasound surveillance for hepatocellular carcinoma in a Canadian center and determinants of its success. Canadian Journal of Gastroenterology & Hepatology. 2014 Mar. **Coauthor or Collaborator**.

2014 Cell-type specific interferon stimulated gene expression is predictive of response to protease-inhibitor-based
therapy.

Publication Details:
Feld JJ, Duarte-Rojo A, Fischer SE, Adeyi O, Zita D, Deneke MG, Selzner N, Cotler S, McGilvray I. Cell-type specific interferon stimulated gene expression is predictive of response to protease-inhibitor-based therapy. Can J Gastroenterology. 2014. **Principal Author**.

2014 Poor recognition of risk factors for chronic hepatitis B virus infection among physicians who prescribe immunosuppressive therapy.

Publication Details:
Visram A, Boro J, Chan K, Hicks LK, **Feld JJ**. Poor recognition of risk factors for chronic hepatitis B virus infection among physicians who prescribe immunosuppressive therapy. Can J Gastroenterology. 2014. **Senior Responsible Author**.

2014 Reliable prediction of clinical outcome in patients with chronic HCV infection and compensated advanced

hepatic fibrosis: a validated model using objective and readily available clinical parameters.

Publication Details:
van der Meer AJ, Hansen BE, Fattovich G, **Feld JJ**, Wedemeyer H, Dufour JF, Lammert F, Duarte-Rojo A, Manns MP, Leluzzi D, Zeuzem S, Hofmann WP, de Knegt RJ, Veldt BJ, Janssen HL. Reliable prediction of clinical outcome in patients with chronic HCV infection and compensated advanced hepatic fibrosis: a validated model using objective and readily available clinical parameters. Gut. 2014. 2014 May 9. doi: 10.1136/gutjnl-2013-305357. [Epub ahead of print]. **Coauthor or Collaborator**.

2012 Feb The USP18 cysteine protease promotes HCV independent of its protease activity – Implications for treatment.

Publication Details:
Chen L, Ma MX, Qin B, Sun J, Lin LT, Richardson C, Edwards AM, Selzner N, **Feld JJ**, McGilvray ID. The USP18 cysteine protease promotes HCV independent of its protease activity – Implications for treatment. Canadian Association of Gastroenterology. 2012 Feb. **Coauthor or Collaborator**.

2011 Feb Cell-Type Specific Gene Expression Signature in Liver Underlies Response to Interferon Therapy in Chronic Hepatitis C Infection.

Publication Details:
Chen L, Borozan I, Sun J, Guindi M, Fischer S, **Feld JJ**, Anand N, Heathcote J, Edwards AM, McGilvray ID. Cell-Type Specific Gene Expression Signature in Liver Underlies Response to Interferon Therapy in Chronic Hepatitis C Infection. Canadian Association of Gastroenterology. 2011 Feb. **Coauthor or Collaborator**.

2005 Does HBV DNA level predict outcome in HBeAg Negative chronic hepatitis B?

Publication Details:
Feld JJ, Tellier R, Ayers M, El-Ashry D, Arenovich T, Mazzulli A, Heathcote EJ. Does HBV DNA level predict outcome in HBeAg Negative chronic hepatitis B? Can J Gastroenterology. 2005;128(4). Suppl 2: Abstract #M920. **Principal Author**.

2005 Does HBV DNA level predict outcome in HBeAg negative chronic HBV?

Publication Details:
Feld JJ, Tellier R, Ayers M, El-Ashri D, Arenovich T, Mazzulli A, Heathcote EJ, et al. Does HBV DNA level predict outcome in HBeAg negative chronic HBV? Can J Gastroenterology. 2005;19(3). Abstract #33. **Principal Author**.

2005 Danger signals in hepatitis B.

Publication Details:
Feld JJ, Lutchman GA, Arenovich T, Heller T, Ghany M, Liang TJ, Hoofnagle JH. Danger signals in hepatitis B. Gastroenterology. 2005;128(4). Suppl 2: Abstract #M919. **Principal Author**.

2002 Autoimmune hepatitis; asymptomatic and AMA+ variants.

Publication Details:
Feld JJ, Dinh H, Wanless IR, Heathcote EJ. Autoimmune hepatitis; asymptomatic and AMA+ variants. Can J Gastroenterology. 2002;16(A):76A. **Principal Author**.

2001 Autoimmune Hepatitis; features of asymptomatic and AMA positive variants.

Publication Details:
Feld JJ, Dinh H, Heathcote JE, Wanless IR. Autoimmune Hepatitis; features of asymptomatic and AMA positive variants. Gastroenterology. 2001;120(5):A410. **Principal Author**.

2000 Apr Abnormal Intestinal Permeability in Primary Biliary Cirrhosis. University of Toronto Liver Research Day.

Toronto, Ontario, Canada.

Publication Details:
Abnormal Intestinal Permeability in Primary Biliary Cirrhosis.

Media Appearances

2015 Jun **Interviewer**. The Cost of Misperceptions with Hepatitis C. Canadian Health & Family. Ontario, Canada. End date: 2015 Jun. Available from: http://www.healthandfamily.ca/show/the-cost-of-misperceptions-with-hepatitis-c/ http://www.liver.ca/liver-disease/types/viral_hepatitis/Hepatitis_C.aspx.

Debate

2015 Mar **Chair**. The Best Anti-HCV Treatment Should be Available to All Patients. CAG/CDDW. Banff, Alberta, Canada.

Session Chair

2015 Nov **Chair**. The Toronto Declaration - Where are we now? 2nd International Hepatitis Cure & Eradication Meeting. Vancouver, British Columbia, Canada.

2015 Mar **Chair**. Difficult to Eradicate HCV Infection. CAG/CDDW. Banff, Alberta, Canada.

2014 Feb **Chair**. Viral Hepatitis Plenary 1. Canadian Association for the Study of Liver Disease (CASL). Toronto, Ontario, Canada.

2012 Feb **Chair**. Viral Hepatitis Plenary 1. Canadian Association for the Study of Liver Disease (CASL). Montreal, Quebec, Canada.

2010 Feb **Chair**. Advances in HBV Therapy. Canadian Association for the Study of Liver Disease (CASL). Toronto, Ontario, Canada.

3. PROVINCIAL / REGIONAL

Invited Lectures and Presentations

2016 Feb **Invited Speaker**. Hepatitis B reactivation: A preventable problem. Sunnybrook Hospital GI rounds. Toronto, Ontario, Canada.

2015 Apr **Invited Speaker**. New Treatment Paradigms in Hepatitis C. Drug Plan Sustainability in an Era of Specialty Drugs - An Evolving Landscape. Mississauga, Ontario, Canada.

2015 Jan **Invited Speaker**. Refining the regimens: AASLD 2014. GI Rounds - Trillium Health Care. Mississauga, Ontario, Canada.

2015 Jan **Invited Speaker**. AASLD 2014: An update. Southlake Gut Club Rounds. Newmarket, Ontario, Canada.

2015 Jan **Invited Speaker**. Hepatitis C Update: Time for the GI to start treating again? 8TH Annual International Symposium on Liver &IBD: Ontario Association of Gastroenterology (OAG). Collingwood, Ontario, Canada.

2014 Nov **Invited Speaker**. Hepatitis C: A unique opportunity. Queen's Park - MPP Legislative Dining Room. Toronto, Ontario, Canada.

2014 Nov **Invited Speaker**. Refining the regimens: AASLD 2014. Virtual Medzone. Toronto, Ontario, Canada.

2014 Oct **Invited Speaker**. The Moving Target of Hepatitis C Therapy. Ontario Association of Gastroenterology 18th Annual Conference (OAG). Niagara on the Lake, Ontario, Canada.

2014 Jan **Invited Speaker**. HCV in 2014: The Final Days of Interferon. Virtual Medzone. Toronto, Ontario, Canada.

2014 Jan **Invited Speaker**. How emerging therapies for Genotype 1 will impact your practice. Ontario Association of Gastroenterology. Collingwood, Ontario, Canada.

2012 Oct **Visiting Professor**. HCV Therapy: The devil is in the details. Queen's University GI Grand Rounds. Toronto, Ontario, Canada.

2012 Oct **Visiting Professor**. Interferon non-response: New Pieces to a very complicated puzzle. Queen's University GI Research Rounds. Toronto, Ontario, Canada.

2012 Jun **Invited Speaker**. New HCV Therapy: The devil is in the details. Oshawa GI Speaker Series. Oshawa, Ontario, Canada.

2012 May **Invited Speaker**. PIs for HCV: Cases and Therapeutic Strategies. Windsor GI Speaker Series. Windsor, Ontario, Canada.

2012 Feb **Invited Speaker**. New Therapies for Hepatitis C – The Nuts and Bolts of Use in Your Clinical Practice. Ontario Association of Gastroenterology. Collingwood, Ontario, Canada.

2011 Apr **Invited Speaker**. Viral hepatitis in refugee populations. Ontario Focus Group on Refugee & Immigrant Health. Toronto, Ontario, Canada.

2010 Nov **Invited Speaker**. Chemotherapy related hepatitis B reactivation: Can we do better? Princess Margaret Hospital Oncology Grand Rounds. Toronto, Ontario, Canada.

2010 Sep **Invited Speaker**. Chemotherapy related hepatitis B reactivation: Can we do better? Odette Cancer Centre Oncology Grand Rounds. Toronto, Ontario, Canada.

4. LOCAL

Invited Lectures and Presentations

2016 Feb **Invited Speaker**. Hepatitis C: A revolution in our times. University of Toronto/St. Michael's Hospital/ Division of Nephrology. Toronto, Ontario, Canada.

2016 Jan **Invited Speaker**. Curing Hep C: Implications for oncology. U of T Oncology CE rounds, Princess Margaret Cancer. Toronto, Ontario, Canada.

2015 Dec **Invited Speaker**. Review new Developments in Hepatitis C. City Wide Rounds. Toronto, Ontario, Canada.

2015 Nov **Invited Speaker**. Post AASLD Update. U of T Hepatobiliary Rounds. Toronto, Ontario, Canada.

2015 Nov **Distinguished Speaker**. The evolution of treatments in Hep C. Womens College Hospital: Refugee Health Network. Toronto, Ontario, Canada.

2015 Oct **Invited Speaker**. Update about treatment on Hepatitis C. Toronto General Hospital: Toronto Congenital Cardiac Centre for Adults. Toronto, Ontario, Canada.

2015 Sep **Keynote Speaker**. What to expect when you age with Wilson's: Transition to adulthood. The Big WOW Event for Wilsons Disease Patients, Hospital of Sick Children. Toronto, Ontario, Canada.

2015 Aug **Keynote Speaker**. Update on Hepatitis C and B. FRAT Core: Family Medicine Core Day. Toronto, Ontario, Canada.

2015 Jun **Invited Speaker**. Update on Viral Hepatitis Management in Hemodialysis Patients. The Annual Uldall Dinner:University of Toronto Chestnut Residence and Conference Centre. Toronto, Ontario, Canada.

2015 Jun **Invited Speaker**. Hepatitis C: A revolution in our times. OR Nurses - In service:Surgical Services – TGH & PM University Health Network. Toronto, Ontario, Canada.

2015 Jun **Invited Speaker**. Post EASL Update. West End Journal Club. Toronto, Ontario, Canada.

2015 May **Invited Speaker**. Managing HCV in 2015. Hepatology Update 2015. Toronto, Ontario, Canada.

2015 Apr **Invited Speaker**. HCV: A revolution in our times. St. Joseph's Health Centre. Toronto, Ontario, Canada.

2015 Feb **Invited Speaker**. Hep C in 2015 and beyond. Anesthesia Rounds: Toronto General Hospital (TGH). Toronto, Ontario, Canada.

2015 Jan **Invited Speaker**. Liver health and raising awareness about liver disease at the University of Toronto. Canadian Liver Foundation University of Toronto. Toronto, Ontario, Canada.

2014 Nov **Invited Speaker**. Refining the regimens: AASLD 2014. University of Toronto Citywide GI Rounds. Toronto, Ontario, Canada.

2014 Nov **Invited Speaker**. Refining the regimens: AASLD 2014. University of Toronto Hepatobiliary Rounds. Toronto, Ontario, Canada.

2014 Sep **Invited Speaker**. What is new on HCV: Annual General Meeting. Prisoner HIV/AIDS Support Action Network (PASAN). Toronto, Ontario, Canada.

2014 Sep **Invited Speaker**. New HCV Therapies. GI Research Rounds: St. Michael's Hospital. Toronto, Ontario, Canada.

2014 Sep **Invited Speaker**. HBV Reactivation. Princess Margaret Hospital. Toronto, Ontario, Canada.

2014 Jan **Lecturer**. Hepatitis C: A silent epidemic. Toronto Western Hospital Noon Rounds. Toronto, Ontario, Canada.

2013 Dec **Invited Speaker**. The final days of Interferon: AASLD 2013. University of Toronto City-Wide GI Rounds. Toronto, Ontario, Canada.

2013 Dec **Invited Speaker**. Viral hepatitis in 2014: The final days of interferon. Trillium Medical Grand Rounds. Toronto, Ontario, Canada.

2013 Nov **Invited Speaker**. The final days of Interferon: AASLD 2013. University of Toronto Hepatobiliary Rounds. Toronto, Ontario, Canada.

2013 Oct **Invited Lecturer**. What's new in HBV therapy: Relevance for the ID physician. Infectious Disease Residency Program Half Day. Toronto, Ontario, Canada.

2013 Oct **Invited Speaker**. An update on hepatocellular carcinoma: New thoughts about screening. University of Toronto Hepatobiliary Rounds. Toronto, Ontario, Canada. Presenter(s): Suraj Sharma. (Trainee Presentation).

2013 Aug **Invited Speaker**. Viral Hepatitis: A silent epidemic. Family Medicine Residents' Association of Toronto. Toronto, Ontario, Canada.

2013 May **Invited Speaker**. Will future therapies overcome current gaps? Toronto Hepatology Update. Toronto, Ontario, Canada.

2013 Feb **Invited Speaker**. AASLD Update. North Toronto Gut Club. Toronto, Ontario, Canada.

2013 Jan **Invited Speaker**. Sorting out HCV: The future is almost here. West Toronto Gut Club. Toronto, Ontario, Canada.

2012 Sep **Invited Speaker**. A Primer to the Future of HCV Therapy. Virtual Medzone. Toronto, Ontario, Canada.

2012 Sep **Lecturer**. Liver Failure. Regenerative Medicine, University of Toronto. Toronto, Ontario, Canada.

2012 May **Invited Speaker**. EASL 2012: An update. University of Toronto Hepatobiliary Rounds. Toronto, Ontario, Canada.

2012 May **Invited Speaker**. The New HCV Guidelines: The Canadian Version. Toronto Gut Club. Toronto, Ontario,

Canada.

2011 Oct **Invited Speaker**. PI Therapy: Case Discussion. West Toronto Gut Club. Toronto, Ontario, Canada.

2011 Oct **Invited Speaker**. HCV Therapy - some challenging cases. Virtual Medzone. Toronto, Ontario, Canada.

2011 Oct **Invited Speaker**. PI Therapy: The devil is in the details. Scarborough Gut Club. Toronto, Ontario, Canada.

2011 Oct **Lecturer**. Pancreatic & Liver Failure. Regenerative Medicine, University of Toronto. Toronto, Ontario, Canada.

2011 Sep **Invited Speaker**. PI Therapy: The devil is in the details. Virtual Medzone. Toronto, Ontario, Canada.

2011 Jun **Invited Speaker**. Putting together the PI puzzle. East Toronto Gut Club. Oshawa, Ontario, Canada.

2011 May **Invited Lecturer**. Barriers to organ donation in the Jewish community. National Council of Jewish Women. Toronto, Ontario, Canada.

2011 May **Invited Speaker**. The subtleties of IL28B. University of Toronto Citywide GI Rounds. Toronto, Ontario, Canada.

2011 Apr **Invited Speaker**. The dawn of a new era in HCV: The Phase 3 Clinical Trials. East Toronto Gut Club. Toronto, Ontario, Canada.

2011 Apr **Invited Speaker**. EASL 2011: An update. University of Toronto Hepatobiliary Rounds. Toronto, Ontario, Canada.

2011 Apr **Invited Speaker**. Protease inhibitors: Dawn of a new era. Toronto Gut Club. Toronto, Ontario, Canada.

2011 Mar **Lecturer**. Viral Hepatitis: What the pharmacist needs to know. Faculty of Pharmacy, University of Toronto. Toronto, Ontario, Canada.

2010 Dec **Invited Speaker**. The Future has Arrived: AASLD 2010 Update. University of Toronto Citywide Rounds. Toronto, Ontario, Canada.

2010 Jun **Invited Speaker**. Hepatitis B: Understanding the virus to guide clinical care. Scarborough Gut Club. Toronto, Ontario, Canada.

2010 May **Lecturer**. Hepatitis B: A very clever virus. Mt. Sinai Hospital Noon Rounds. Toronto, Ontario, Canada.

2010 Apr **Invited Speaker**. How do interferon and ribavirin really work? West Toronto Gut Club. Toronto, Ontario, Canada.

2010 Mar **Invited Lecturer**. Hepatitis C: Treat now or treat later? Anticipating 1st & 2nd generation STAT-C agents. Toronto Hepatology Update. Toronto, Ontario, Canada.

2009 Dec **Invited Speaker**. Questions my patients ask: Answers from AASLD 2009. Toronto Gut Club. Toronto, Ontario, Canada.

2009 Jun **Invited Lecturer**. Interferon: How Does It Really Work? Infectious Disease Research Day, University of Toronto. Toronto, Ontario, Canada.

2009 May **Invited Speaker**. What I learned at EASL 2009. Toronto Gut Club. Toronto, Ontario, Canada.

2008 Nov **Invited Speaker**. Hepatitis C: Can we make non-responders respond? Medical Grand Rounds, University Health Network. Toronto, Ontario, Canada. (Continuing Education).

2008 Mar **Invited Speaker**. Overlooking the obvious: Primary Biliary Cirrhosis. Medical Grand Rounds, National Institutes of Health Clinical Center. Bethesda, Maryland, United States. (Continuing Education).

Presented Abstracts

2010 Mar **Presenter**. How does interferon really work? University of Toronto Liver Research Day. Toronto, Ontario, Canada.

2010 Mar **Presenter**. A novel mechanism of action for ribavirin. University of Toronto Liver Research Day. Toronto, Ontario, Canada.

2003 Jun **Presenter**. AT 130: A Novel Inhibitor of HBV. Hollenberg University of Toronto Research Day. Toronto, Ontario, Canada.

2002 Apr **Presenter**. AT 130: A Novel Inhibitor of HBV Replication. University of Toronto Liver Research Day. Toronto, Ontario, Canada.

2001 Apr **Presenter**. Autoimmune Hepatitis: Features of Asymptomatic and AMA + Variants. University of Toronto Liver Research Day. Toronto, Ontario, Canada.

Presented and Published Abstracts

2015 Jun Combination therapy with UDCA and fenofibrate in patients with primary biliary cirrhosis with incomplete response to UDCA. The Annual GI Research Day: University of Toronto Faculty of Medicine. Toronto, Ontario, Canada.

Publication Details:
Cheung AC, Lapointe-Shaw L, Kowgier M, Meza-Cardona J, Hirschfield G, Janssen HL, **Feld JJ**. Combination therapy with UDCA and fenofibrate in patients with primary biliary cirrhosis with incomplete response to UDCA. **Coauthor or Collaborator**.

2015 May Investigating renal impairment associated with Sofosbuvir therapy. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Almarzooqi S, Maan R, Emery J, Kowgier M, Cerrochi O, **Feld JJ**. Investigating renal impairment associated with Sofosbuvir therapy. **Coauthor or Collaborator**.

2015 May Risk Factors Associated With Viral Blipping In Chronic Hepatitis B Patients Treated With Nucleos(T)Ide Analogues. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Brahmania M, Brouwer WP, Hanson T, Mazulli T, **Feld JJ**, Wong DK, Kowgier M, Janssen HL. Risk Factors Associated With Viral Blipping In Chronic Hepatitis B Patients Treated With Nucleos(T)Ide Analogues. **Coauthor or Collaborator**.

2015 May Combination therapy with UDCA and fenofibrate in patients with primary biliary cirrhosis with incomplete response to UDCA. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Cheung AC, Lapointe-Shaw L, Kowgier M, Meza-Cardona J, Hirschfield G, Janssen HL, **Feld JJ**. Combination therapy with UDCA and fenofibrate in patients with primary biliary cirrhosis with incomplete response to UDCA. **Coauthor or Collaborator**.

2015 May Treatment of mixed cryoglobulinemic vasculitis with direct acting HCV therapy. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Emery J, Kuczynski M, La D, Almarzooqi S, Maan R, Janssen HL, **Feld JJ**. Treatment of mixed cryoglobulinemic vasculitis with direct acting HCV therapy. **Coauthor or Collaborator**.

2015 May Implementation of an automated prompt to improve the rate of hepatitis B virus screening prior to initiating myelosuppresive therapy to prevent HBV reactivation. The 30th Annual Sheila Sherlock Day. Toronto,

Ontario, Canada.

Publication Details:
Juan J, Hicks L, Lapointe-Shaw L, Truong J, Zurawska U, Giotis A, Chan KK, **Feld JJ**. Implementation of an automated prompt to improve the rate of hepatitis B virus screening prior to initiating myelosuppresive therapy to prevent HBV reactivation. **Coauthor or Collaborator**.

2015 May Mucosal-Associated Invariant T (MAIT) Cell Depletion and Exhaustion in HCV infection and HIV/HCV Coinfection. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
MacParland S, Fawaz A, Chan W, Kovacs C, **Feld JJ**, Wong D, Ostrowski M. Mucosal-Associated Invariant T (MAIT) Cell Depletion and Exhaustion in HCV infection and HIV/HCV Coinfection. **Coauthor or Collaborator**.

2015 May Panvalent HCV Vaccine. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Mosa A, **Feld JJ**, AbouHaidar M, Tavis J. Panvalent HCV Vaccine. **Coauthor or Collaborator**.

2015 May Toronto Hepatocellular Carcinoma Risk Index: Development of a clinical scoring system to predict 10-year risk of HCC in patients with cirrhosis. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Sharma S, Kowgier M, Hansen BE, Wong D, Shah H, Acarsu U, Khalili K, Yim C, Heathcote JE, Janssen HL, Sherman M, Hirschfield GM, **Feld JJ**. Toronto Hepatocellular Carcinoma Risk Index: Development of a clinical scoring system to predict 10-year risk of HCC in patients with cirrhosis. **Principal Author**.

2015 May Cost-Effectiveness Analysis Of Hepatocellular Carcinoma Surveillance In Patients With Hepatitis C-Related Cirrhosis After Sustained Virological Response. The 30th Annual Sheila Sherlock Day. Toronto, Ontario, Canada.

Publication Details:
Zangneh HF, Wong WL, Sander B, Bell CM, Mumtaz K, Kowgier M, van der Meer AJ, Cleary SP, Chan K, **Feld JJ**. Cost-Effectiveness Analysis Of Hepatocellular Carcinoma Surveillance In Patients With Hepatitis C-Related Cirrhosis After Sustained Virological Response. **Coauthor or Collaborator**.

Media Appearances

2015 Jul 7 **Distinguished Speaker**. Hepatitis C and the availability of treatment for people living in Ontario. http://www.zoomerradio.ca/uncategorized/podcast-goldhawk-fights-back/gfb-podcast-dr-jordan-feld-july-7th/. Toronto, Ontario, Canada. End date: 2015 Jul 7.

Session Chair

2012 Jun **Chair**. Basic Science Research Session. University of Toronto GI Research Day. Toronto, Ontario, Canada. Session Chair.

2011 May **Chair**. Basic Science Research Session. University of Toronto GI Research Day. Toronto, Ontario, Canada. Session Chair.

Teaching and Design

1. INNOVATIONS AND DEVELOPMENT IN TEACHING AND EDUCATION

2013 Feb - present HepMD: A clinical decision making tool for treatment of viral hepatitis, Faculty Development, MeshMD

Development of a web-based application for healthcare practitioners to assist with clinical decision making for the treatment of hepatitis C virus infection.
The application is in final stages of testing and will be available for clinical use shortly in Canada and eventually internationally.

2010 Jul - present — Toronto Addis Ababa Collaboration (TAAC) Gastroenterology Curriculum Committee Chair, Postgraduate MD, Faculty of Medicine, Dept of Medicine, Gastroenterology, University of Toronto - University of Addis Ababa
Development of curriculum to train Ethiopia Internal Medicine residents in clinical Gastroenterology and research methods.

Research Supervision

1. PRIMARY OR CO-SUPERVISION

Undergraduate Education

2014 May - 2014 Aug — **Primary Supervisor**. B. Sc. Gregory Heymann. Supervisee Position: 3rd Year Life Sciences, Supervisee Institution: Guelph University. *Development of a plasmonic ELISA to detect hepatitis C virus core antigen and antibody.*

2014 May - 2014 Aug — **Primary Supervisor**. B. Sc. Vikash Chawa. Supervisee Position: 3rd Year Life Sciences, Supervisee Institution: McMaster University. *Characterization of the innate antiviral immune response in ubiquitin-specific protease 18 (USP18) deficient mice.*

2013 May - 2013 Aug — **Primary Supervisor**. B. Sc. Nicholas Anand. Supervisee Position: 1st Year Life Sciences, Supervisee Institution: Western University. *Measurement of interferons including novel interferon lambda 4 in liver biopsy tissue from patients with chronic hepatitis C virus (HCV) infection.*

2011 May - 2011 Aug — **Primary Supervisor**. B. Sc. Alana Sherker. Supervisee Position: PhD candidate, Supervisee Institution: University of Toronto. *The antiviral effects of alpha defensin against hepatitis C virus.* Awards: Canadian Liver Foundation Summer Studentship, American Gastroenterological Association (AGA) Stuart Brotman Research Fellowship.

2010 May - 2010 Dec — **Primary Supervisor**. B. Sc. Alana Sherker. Supervisee Position: PhD candidate, Supervisee Institution: University of Toronto. *The antiviral effects of alpha defensin against hepatitis C virus.* Awards: Toronto General Research Institute Student Research Prize.

Graduate Education

2013 Sep - present — **Co-Supervisor**. MSc. Alexander Mosa, Cell and Systems Biology. *Development of a panvalent protective hepatitis C vaccine.* Collaborator(s): Mounir Abou-Haidar.

2012 May - present — **Primary Supervisor**. MSc. Hooman Zangneh. Supervisee Position: Masters Student, Supervisee Institution: University of Toronto. *Using modelling to determine cost-effectiveness of current hepatitis B vaccination strategy in Ontario and hepatoma screening after hepatitis C eradication.* Collaborator(s): Kelvin Chan.

2010 Nov - 2011 Nov — **Primary Supervisor**. MSc. Zahra Alvandi. Supervisee Position: MSc candidate, Supervisee Institution: University of Toronto. *Mechanisms of interferon refractoriness: relevance to treatment non-response.*

Undergraduate MD

2012 May - 2012 Aug — **Primary Supervisor**. Year 1. Danny Zita. Supervisee Position: Year 1 Medical Student, Supervisee Institution: Saint Andrew's University. *Liver biopsy ISG immunostaining as a predictor of treatment outcome with protease inhibitors.* Completed 2012.

2012 May - 2012 Aug — **Primary Supervisor**. Year 3. Alissa Visram. Supervisee Position: Year 3 Medical Student, Supervisee Institution: University of Toronto. *Physician knowledge about hepatitis B screening prior to immunosuppression.* Awards: Canadian Liver Foundation Summer Studentship Award. Collaborator(s): Kelvin Chan.

2011 May - 2011 Aug — **Primary Supervisor**. Year 2. Alissa Visram. Supervisee Position: Year 2 Medical Student, Supervisee Institution: University of Toronto. *Physician knowledge about hepatitis B screening prior to immunosuppression.* Awards: Canadian Liver Foundation Summer Studentship Award. Collaborator(s): Kelvin Chan.

Postgraduate MD

2013 Nov - present — **Primary Supervisor**. Research Fellow. Saeed Almarzooqi. *Evaluation of hepatitis C core antigen as an alternative tool for pre, on and post-treatment monitoring of patients with hepatitis C infection.*

2013 Jul - present — **Co-Supervisor**. Clinical Fellow. Joshua Juan. *Randomized controlled trial of pre-emptive tenofovir therapy to prevent hepatitis B reactivation in patients who are HBsAg negative but anti-HBc antibody positive receiving rituximab-based chemotherapy for Non-Hodgkin's lymphoma.* Collaborator(s): H Shah, D Wong.

2013 Jul - present — **Primary Supervisor**. Clinical Associate/MSc Candidate. Lauren Lapointe-Shaw. *Evaluation of failures in diagnosis and linkage to care of patients with hepatitis B and C infections in Ontario.*

2012 Jul - present — **Primary Supervisor**. Core Program. Jenna Tessolini. Supervisee Position: GIM Resident (PGY3). *Evaluation of alpha-defensin serum levels as a predictor of spontaneous viral clearance in patients with acute hepatitis C infection.*

2011 Nov - present — **Primary Supervisor**. Core Program. Suraj Sharma. Supervisee Position: Gastroenterology trainee, Supervisee Institution: University of Toronto. *Development of scoring system to predict hepatocellular carcinoma in patients with cirrhosis.*

2010 Jul - present — **Primary Supervisor**. Core Program. Suraj Sharma. Supervisee Position: Gastroenterology Trainee, Supervisee Institution: University of Toronto. *Incidence of hepatocellular carcinoma by etiology of cirrhosis.* Collaborator(s): Gideon Hirschfield. Completed 2013.

2014 Oct - 2015 Oct — **Co-Supervisor**. Clinical Fellow. Lise Bondy. Collaborator(s): H Shah, D Wong.

2014 Aug - 2015 Aug — **Co-Supervisor**. Clinical Fellow. Lucy Lim. Collaborator(s): H Shah, D Wong.

2014 Jun - 2015 Jun — **Co-Supervisor**. Clinical Fellow. Aman Arya. Collaborator(s): H Shah, D Wong.

2013 Nov - 2014 Jun — **Co-Supervisor**. Clinical Fellow. Javier Meza Cordona. *Evaluation of health utilities in patients with chronic liver disease.* Collaborator(s): H Shah, D Wong.

2013 Jul - 2014 Jun — **Co-Supervisor**. Clinical Fellow. Melissa Kelley. Collaborator(s): H Shah, D Wong.

2012 Jul - 2014 Jun — **Primary Supervisor**. Clinical Fellow. Mahmoud Abu-Marra. *Evaluation of hepatoma risk scores for patients with hepatitis B.*

2012 Jul - 2013 Jun — **Co-Supervisor**. Clinical Fellow. Mahmoud Abu-Marra. Collaborator(s): H Shah, D Wong, H Janssen, EJ Heathcote. Completed 2013.

2012 Jul - 2013 Jun — **Co-Supervisor**. Clinical Fellow. Joshua Juan. Collaborator(s): H Shah, D Wong.

2012 Jul - 2013 Jun — **Co-Supervisor**. Clinical Fellow. Majd Al-Sayb. Collaborator(s): H Shah, D Wong.

2012 Jul - 2013 Jun — **Co-Supervisor**. Clinical Fellow. Oscar de la Cruz. Collaborator(s): H Shah, D Wong.

2012 Jan - 2012 Jul — **Co-Supervisor**. Clinical Fellow. Lay-Lay Win. *Rapid lamivudine resistance causing liver failure in patients on prophylaxis for immunosuppression.* Collaborator(s): D Wong. Completed 2012.

2011 Jul - 2012 Jun — **Co-Supervisor**. Clinical Fellow. Jeffrey So. Collaborator(s): H Shah, D Wong. Completed 2012.

2011 Jul - 2012 Jun — **Co-Supervisor**. Clinical Fellow. Lay-Lay Win. Collaborator(s): H Shah, D Wong. Completed 2012.

2011 Jul - 2012 Jun — **Co-Supervisor**. Clinical Fellow. Harshna Patel. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2012.

2011 Jul - 2012 Jun — **Co-Supervisor**. Clinical Fellow. Khalid Nabrawi. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2012.

2011 Jan - 2014 Jun — **Primary Supervisor**. Core Program. Gurtej Malhi. Supervisee Position: PGY3 GIM, Supervisee Institution: University of Toronto. *Factors associated with outcome in HBeAg-*

negative chronic hepatitis B.

2010 Jul - 2011 Jun — **Co-Supervisor**. Clinical Fellow. Amreen Dinani. Supervisee Position: Gastroenterology Trainee, Supervisee Institution: McMaster University, Hamilton, ON. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2011.

2010 Jul - 2011 Jun — **Co-Supervisor**. Clinical Fellow. Derek Yu. Supervisee Position: Staff Gastroenterologist, Supervisee Institution: York Central Hospital, Thornhill, ON. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2011.

2010 Jul - 2011 Jun — **Co-Supervisor**. Clinical Fellow. Badr Aljarallah. Supervisee Position: Staff Gastroenterologist, Supervisee Institution: Jeddah, Saudi Arabia. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2011.

2010 Jul - 2011 Jun — **Co-Supervisor**. Clinical Fellow. Hani Jawa. Supervisee Position: Staff Gastroenterologist, Supervisee Institution: Riyadh, Saudi Arabia. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2011.

2010 Jul - 2011 Jun — **Co-Supervisor**. Clinical Fellow. Hin Hin Ko. Supervisee Position: Staff Hepatologist, Supervisee Institution: St. Paul's Hospital, Vancouver, BC. Collaborator(s): D Wong, H Shah, EJ Heathcote. Completed 2011.

2009 Nov - 2012 Mar — **Primary Supervisor**. Core Program. Urszula Zurawska. Supervisee Position: PGY5 Medical Oncology Residency Program, Supervisee Institution: University Health Network. *Cost-effectiveness of hepatitis B screening prior to chemotherapy*. Collaborator(s): Murray Krahn, Kelvin Chan. Completed 2012.

2009 Nov - 2010 Jan — **Primary Supervisor**. Core Program. Urszula Zurawska. Supervisee Position: PGY4 Medical Oncology Residency Program, Supervisee Institution: University of Toronto. *Hepatitis B screening prior to chemotherapy: A quality improvement project*. Awards: Grant Miller Cancer Research Grant. Collaborator(s): Kelvin Chan.

2009 Jul - 2010 Jun — **Co-Supervisor**. Clinical Fellow. Andres Duarte-Rojo. Supervisee Position: Faculty, Hepatology, Supervisee Institution: University of Arkansas, Little Rock. *Effect of lifestyle modifications on insulin resistance and subsequent response to antiviral therapy for hepatitis C virus infection*. Collaborator(s): EJ Heathcote. Completed 2011.

2009 Jul - 2010 Jun — **Co-Supervisor**. Clinical Fellow. Adnan Alzanbagi. Supervisee Position: Staff Gastroenterologist, Supervisee Institution: Riyadh, Saudi Arabia. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2010.

2009 Jul - 2010 Jun — **Co-Supervisor**. Clinical Fellow. Andres Duarte-Rojo. Supervisee Position: Faculty, Hepatology, Supervisee Institution: University of Arkansas, Little Rock. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2010.

2008 Jul - 2009 Jun — **Co-Supervisor**. Clinical Fellow. Venessa Pattullo. Supervisee Position: Faculty, Hepatology, Supervisee Institution: University of Sydney. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2009.

2008 Jul - 2009 Jun — **Co-Supervisor**. Clinical Fellow. Marilyn Zeman. Supervisee Position: Faculty, Hepatology, Supervisee Institution: University of Alberta. Collaborator(s): H Shah, D Wong, EJ Heathcote. Completed 2009.

Other

2013 Jun - present — **Primary Supervisor**. Mia Biondi. Supervisee Position: Post-Doctoral Fellow. *Development of a plasmonic ELISA for rapid, point-of-care diagnosis of hepatitis C virus (HCV).*

2012 Jan - present — **Primary Supervisor**. Sonya MacParland. *Determination of the antiviral mechanism of human neutrophil peptide-1 (defensin).*

2011 Feb - 2011 Nov — **Primary Supervisor**. Bahareh Vali. Supervisee Position: Position in industry. *Identification of novel interferon-stimulated genes (ISGs).*

2. OTHER SUPERVISION

Undergraduate Education

Secondary Supervisor

2007 Jun - 2008 Sep — **B. Sc**. Ramy El-Diwany. Supervisee Position: MD/PhD Student, Supervisee Institution: Johns Hopkins University. *Role of S-adenosyl methionine in augmenting interferon-signaling in HCV*. Collaborator(s): TJ Liang.

2006 Jun - 2006 Sep — **B. Sc**. Amy Cantilena. Supervisee Position: Medical Student, Supervisee Institution: University of Maryland. *Functional characterization of lamivudine-resistant hepatitis B mutants*. Collaborator(s): TJ Liang. Completed 2006.

Graduate Education

Secondary Supervisor

2012 May - present — **MSc**. Kenneth Blahut. Supervisee Position: Masters Student, Supervisee Institution: Ryerson University. *Development of mathematical models of hepatitis C virus spread in cell culture*. Collaborator(s): Catherine Beauchemin.

2011 Nov - present — **PhD**. Raoel Maan. Supervisee Position: PhD candidate, Supervisee Institution: Erasmus University. *Rate of complications in patients with hepatitis C virus infection with advanced fibrosis treated in with interferon-based therapy*. Collaborator(s): HLA Janssen.

2011 Nov - 2013 Jul — **PhD**. Adriaan van der Meer. Supervisee Position: PhD candidate, Supervisee Institution: Erasmus University. *Long-term follow-up of patients with hepatitis C virus infection with advanced fibrosis*. Collaborator(s): EJ Heathcote, HLA Janssen. Completed 2012.

2010 Jan - 2011 Sep — **MSc**. Shabnam Shamloo. Supervisee Position: Masters Student, Supervisee Institution: Ryerson University. *Modifications to existing viral kinetic modeling in HCV therapy under interferon treatment*. Collaborator(s): Catherine Beauchemin.

Thesis Committee Member

2013 Nov - 2014 Nov — **PhD**. Katherine Schwenger. *Evaluation of the metabloic mechanisms involved in non-alcoholic fatty liver disease*.

2010 Nov - 2011 Mar — **PhD**. Bahareh Vali. Supervisee Position: Position in industry. *Determinants of disease outcome in HCV/HIV co-infection*.

Thesis Examiner

2011 Jul - 2012 Aug — **MSc**. Shabnam Shamloo. Supervisee Position: MSc Student, Supervisee Institution: Ryerson University. *Modifications to existing viral kinetic modeling in HCV therapy under interferon treatment*. Completed 2012.

2011 Jul - 2012 Jun — **MSc**. Michael Velic. *Deformable dose reconstruction to optimize the planning and delivery of liver cancer therapy*.

2011 Jul - 2012 Jun — **MSc**. Lucy Shin. Supervisee Position: PhD, Supervisee Institution: University of Toronto. *Role of JAK3 in non-alcoholic fatty liver disease*.

Postgraduate MD

Secondary Supervisor

2008 Jul - 2009 Jun — **Subspecialty**. Venessa Pattullo. Supervisee Position: Faculty, Hepatology, Supervisee Institution: University of Sydney. *Effect of insulin resistance on response to antiviral therapy in patients with hepatitis C virus infection and cirrhosis*. Collaborator(s): EJ Heathcote. Completed 2011.

2008 Jul - 2009 Jun — **Subspecialty**. Venessa Pattullo. Supervisee Position: Faculty, Hepatology, Supervisee Institution: University of Sydney. *Development of liver biopsy score to evaluate regression of cirrhosis*. Collaborator(s): Maha Guindi. Completed 2011.

2007 Jun - 2008 Nov — **Clinical Fellow**. Mazen Noureddin. Supervisee Position: Post-Doctoral Fellow, Supervisee Institution: National Institutes of Health. *Effect of ribavirin therapy on HCV viral kinetics and*

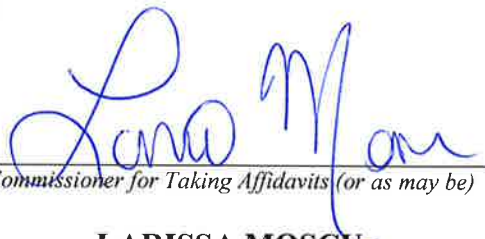
hepatic gene expression. Collaborator(s): TJ Liang.

Other

Secondary Supervisor

2011 Oct - present	Chitra Nayak. Supervisee Position: Post-Doctoral Fellow, Supervisee Institution: University of Toronto. *Development of mathematical models of interferon signalling to understand interferon refractoriness.* Collaborator(s): Anton Zilman.
2007 Jun - 2008 Nov	Emmanuel Thomas. Supervisee Position: Post-Doctoral Fellow, Supervisee Institution: National Institutes of Health. *Mechanism of antiviral action of ribavirin in HCV infection.* Collaborator(s): TJ Liang.

This is Exhibit "B" referred to in the Affidavit of Jordan Feld sworn March 16, 2016



Commissioner for Taking Affidavits (or as may be)

LARISSA MOSCU

A National Initiative to

Transform the Management of Hepatitis C

in Canada

Cover image: Representation of spherical hepatitis C viruses

Canada can lead the way in the global quest to eradicate hepatitis C

400,000[1]

hepatitis C-infected persons in Canada

7,729[2]

annual years of life lost due to hepatitis C in Ontario

534[3]

deaths due to hepatitis C in Canada in 2012

Statistics: (1) and (3) are estimates from Remis et al., "Modelling the Incidence and Prevalence of Hepatitis C Infection and its Sequelae in Canada", 2007. Public Health Agency of Canada; (2) estimate from The Ontario Burden of Infectious Disease Study, 2010.

TABLE OF CONTENTS

Executive Summary

Individuals inadvertently infected by hepatitis C virus through contaminated blood products before 1992 in Canada have suffered consequences to their health and well-being. Those aware of their infection joined a Class Action against the Government of Canada and were awarded financial compensation for their losses. The remaining, unused funds from monies set aside for compensation should directly or indirectly benefit individuals harmed by tainted blood products, including recognized members of the Class, as well as those who may not have joined the legal action due to lack of awareness of their infection or of the legal proceedings, or for other reasons. These individuals and their family members are still affected by the consequences of infection with this potentially deadly virus.

Hepatitis C is an enormous public health problem affecting 170 million people worldwide, including 1–2% of the Canadian population. The virus infects the liver and causes progressive damage that may ultimately lead to liver cirrhosis, putting individuals at risk of dying from liver failure or liver cancer. It also causes many other non-liver diseases such as blood cell cancers (lymphomas) and kidney disease. This infection causes a huge health burden in Canada, resulting in more years of life lost than any other infectious disease in the country. Because liver disease often remains asymptomatic until very advanced stages, the majority of Canadians infected with hepatitis C—likely including a significant proportion of Class members—remains undiagnosed. Unlike other chronic viral infections, hepatitis C is curable; however, to translate these improvements in therapy into reduced death and disease from hepatitis C, a national program for early identification and treatment is needed.

To address this important public health challenge, Canada's leaders in hepatitis C care and research propose a comprehensive program (Figure 1) that will provide tangible benefits for Class members—with the additional advantage of putting programs into place that will benefit all Canadians affected by hepatitis C. This pan-Canadian initiative will achieve two overarching Goals: 1) develop a strategy to increase treatment uptake and optimize delivery of care for Class members and all Canadians living with hepatitis C, including underserved rural and First Nations populations; and 2) further improve future hepatitis C care through the development of focused, highly relevant areas of research. The proposal is structured to provide a background on hepatitis C infection followed by a detailed discussion of how the national treatment network will develop and implement a suite of research priorities that focus on how best to deliver disease prevention, diagnosis, care and treatment, as well as manage disease complications. An outline of the governance structure, proposed targets and tangible metrics of the program is also provided.

The first Goal is to develop a national treatment network based on the successful Extension for Community Health Outcomes (ECHO) model. This model leverages a structured hub and spoke model where multidisciplinary clinical experts support primary care providers to deliver the same high quality care across urban, rural and remote communities. Videoconferencing and ongoing local and distance educational training are used to connect multidisciplinary teams of experts with primary healthcare providers to support and deliver comprehensive state-of-the-art prevention, care and treatment to all Class members and all Canadians no matter where they live. The program will enhance all aspects of hepatitis C care by increasing treatment capacity, improving the ability to manage complicated cases and decreasing the need for patient travel to urban centres. The structured network will also allow for the collection of epidemiological and outcomes data to guide clinical management decisions and inform health policy toward the ultimate goal of eliminating hepatitis C in Canada.

Figure 1. Conceptual map showing ECHO connectivity and the central Clinical and Research Program activities.

To achieve national elimination, additional tools and new knowledge will be required to complement the delivery of optimal care to all infected individuals. As such, the national program will also achieve a second Goal: develop research foci to overcome gaps in current knowledge to improve clinical outcomes. These research priorities will have direct or indirect benefits to Class members all Canadians affected by hepatitis C and will include four focus areas:

a. Vaccine development to prevent spread and reinfection by hepatitis C

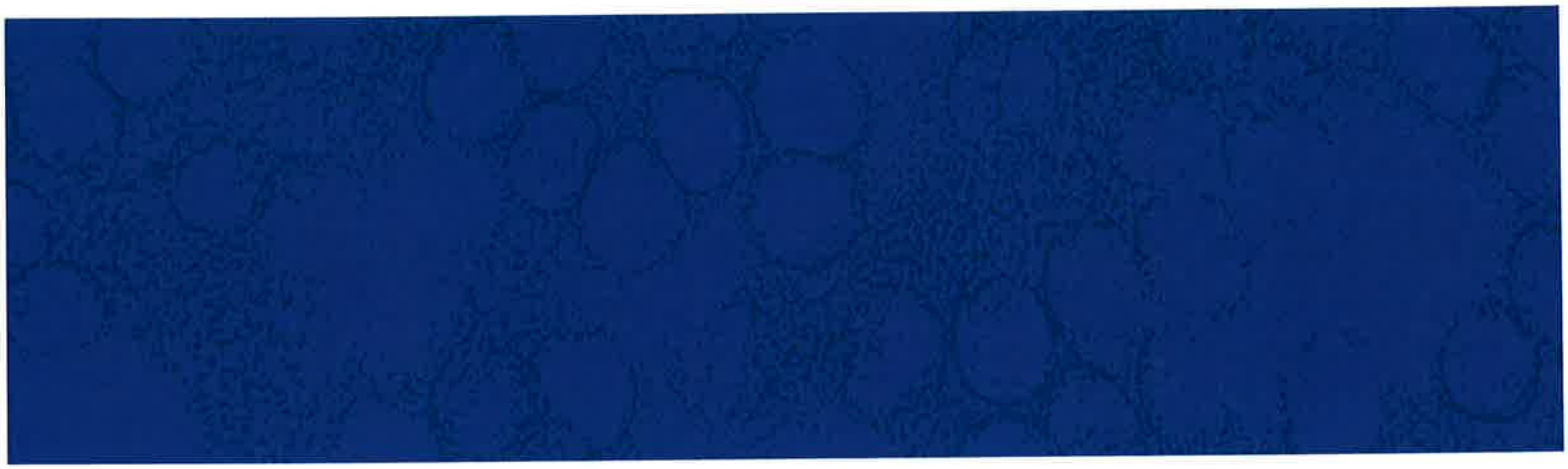
b. Development of point-of-care diagnostics for screening and on-treatment monitoring to overcome the enormous under-diagnosis and under-treatment of hepatitis C

c. Outcomes research to assess the effectiveness of the ECHO program and the changing epidemiology of the disease and its complications

d. Development of screening tests and new therapies for liver cancer

These proposed research priorities not only address all aspects of hepatitis C—from disease prevention, diagnosis, care and treatment to management of complications of the disease—but will also build the capacity to reach all Canadians, including Aboriginal People and other under-serviced populations who are disproportionately affected by hepatitis C.

This project will advance an innovative healthcare delivery model to ensure that all Class members have equal access to the best available hepatitis C care in the country. The program goes further by using research to fill important knowledge gaps. Advances from these research efforts will help Class members and their families and will have the added advantage of benefitting all Canadians living with this deadly disease. Collectively this proposal will transform the management of hepatitis C in Canada and bring us one step closer to eliminating the disease within the country and beyond.



Background: The scope of the problem

The Class

Hepatitis C is a virus that is transmitted through blood-to-blood contact. Exposure to blood products that contained the virus has resulted in hepatitis C infection in millions of people worldwide. To prevent this mode of infection, methods to screen blood were developed after the discovery of the virus in 1989; however, due to delays in the implementation of these optimal screening tests, additional people continued to be infected with hepatitis C through contaminated blood products.

The failure of the government to implement appropriate screening tests after the discovery of the virus led to a large Class Action law suit, which found the government culpable; as such, the government allocated money into a compensation fund for the affected individuals. These 'Members of the Class' were awarded different levels of financial compensation based on the degree of illness and disability that they suffered due to hepatitis C infection. After all claims had been made for compensation, monies allocated to the compensation fund

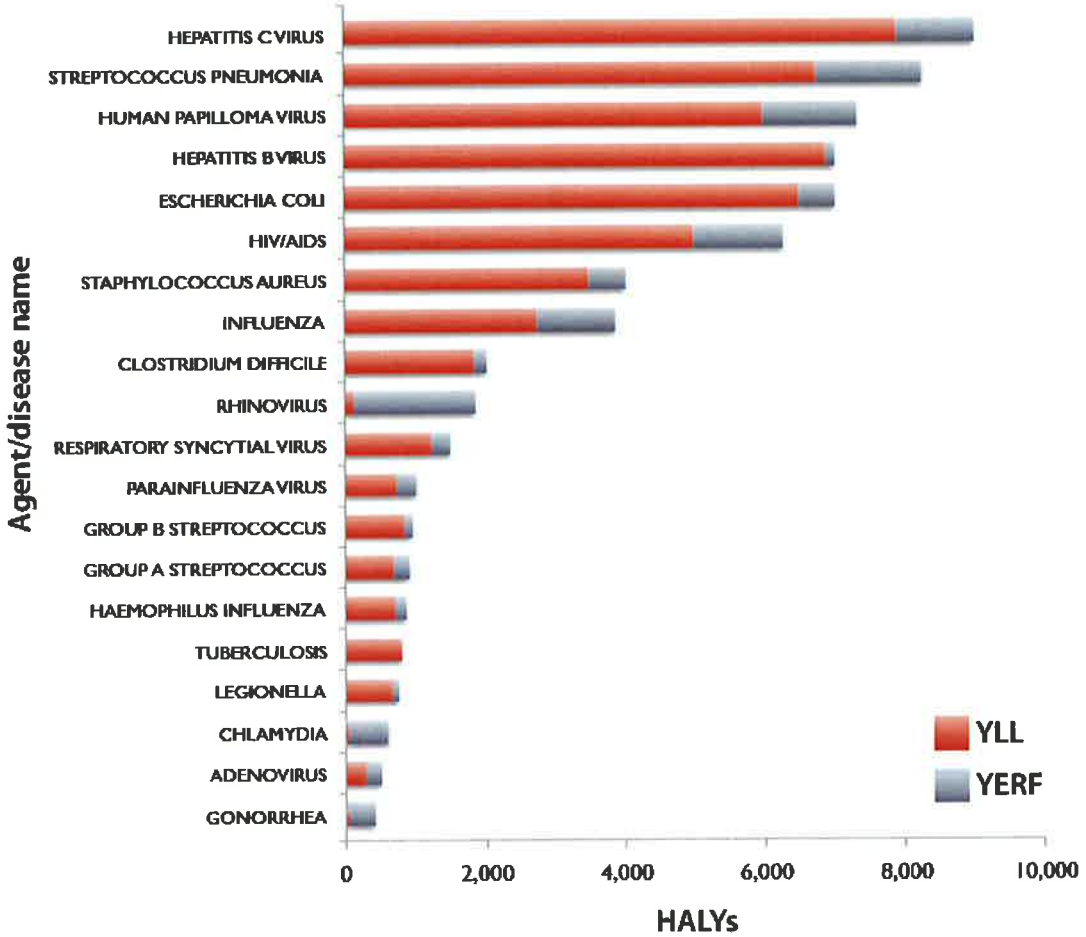


Figure 2. Years of life lost (YLL) due to premature mortality, year-equivalents of reduced function (YERF) and health-adjusted life years (HALYs) for the top 20 pathogens, ranked by disease burden. [figure from the Ontario Burden of Infectious Disease Study, 2010]

remained. The reason for the excess funds relates in part to the fact that some members of the Class died prematurely of diseases for which they initially received the tainted transfusions, as well as from other causes. In addition, it is likely that many Class members did not make claims at all because they were never aware of the fact that they had been infected with hepatitis C, as the infection typically does not cause symptoms until very advanced liver damage is present—a process that may take decades. Other eligible Class members may not have been aware of the legal proceedings, or did not participate for other reasons. Although these individuals were not formally members of the original Class, they should still benefit from the compensation equally to those who were initially identified

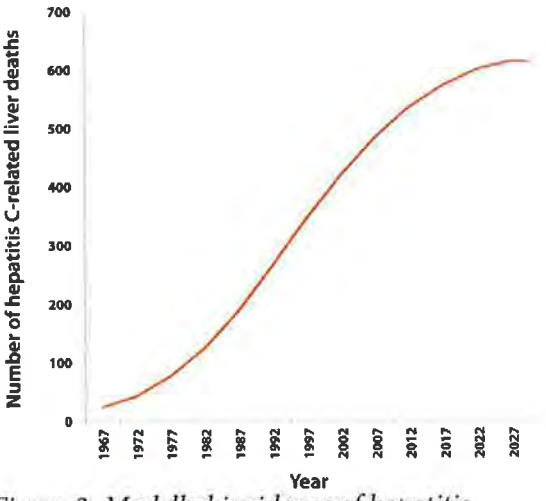


Figure 3. Modelled incidence of hepatitis C-related death in Canada. Image reproduced from Remis et. al. Modelling the incidence and prevalence of hepatitis C infection and its sequela in Canada. PHAC, 2007.

as Class members. Throughout this proposal, 'members of the Class' will refer to those who were part of the original Class Action, as well as 'potential members of the Class' who would have been eligible but were not included for any reason.

The original goal of the compensation fund was to mitigate the potential hardships or consequences from the inadvertent hepatitis C infections that occurred. While financial compensation may reduce the hardships for Class members and their families, avoiding complications of the disease is perhaps even more important. For example, if individuals are diagnosed, treated and cured before the infection causes any significant disease, many consequences of the disease can be avoided. Similarly, if consequences of the disease such as liver cancer can be avoided or treated more effectively, this is of greater benefit than financial compensation by avoiding the potentially devastating consequences that may ensue. Given these opportunities, the remaining, unused monies from this compensation fund **should be used to directly or indirectly benefit individuals harmed by the tainted transfusions.**

As such, this pan-Canadian proposal—formulated by experts in hepatitis care and research from across the country—outlines strategies to improve access to the recently developed highly effective therapies that cure hepatitis C in most treated individuals. The program involves the development of a comprehensive hepatitis C management program and outlines specific research priorities that will benefit Class members and other Canadians living with hepatitis C.

Hepatitis C Virus Infection

Hepatitis C virus infection is an enormous public health problem affecting over 170 million individuals worldwide, including 1–2% of Canadians. The virus infects the liver and slowly causes progressive damage over many years or even decades. Chronic infection leads to fibrosis or scarring of the liver, which may eventually progress to cirrhosis and ultimately to liver failure or liver cancer. Among those who suffer minimal liver damage, even the knowledge of being infected itself can be traumatic, with many of those infected feeling anxious, depressed and socially isolated

because of their fear of spreading the infection as well as the stigma related to it. Hepatitis C can also cause a number of other illnesses such as blood cancers (lymphomas) and kidney disease. As most infected individuals have few or no symptoms until the disease process is very advanced, many are often completely unaware of their infection, only presenting to medical attention when the complications of end-stage liver disease develop. Individuals infected decades ago through blood transfusions are only now starting to develop disease complications.

The disease burden from hepatitis C is huge. Not only does hepatitis C cause more premature deaths (Figure 3)—surpassing pneumonia, influenza and even HIV, it also has enormous social and economic implications (Figure 2). It has been conservatively estimated that liver-related hepatitis C hospitalizations will cost the Canadian healthcare system $240 million annually by 2020. Despite these sad statistics, in the next few years virtually everyone infected by hepatitis C could be cured, but this will only happen if they are reached, diagnosed and engaged into care and treatment.

Trends from the US and Canada clearly show that complications of hepatitis C are on the rise. Because of the slow progression of liver injury, infections that occurred decades ago—such as those acquired by Class members through infected blood products—are only now causing health problems. Initial estimates had suggested that only a minority of infected individuals developed complications from hepatitis C; however, as the population ages, it is becoming increasingly clear that disease progression is a common, albeit slow, process. As a result, the projections from studies in the late 1990s significantly underestimated the recent precipitous rise in healthcare utilization due to hepatitis C. Healthcare utilization by itself, is a poor measure of the benefits of curative treatment. That is because cured people are not only at a reduced risk of dying from liver disease, but they are also at a reduced risk of dying prematurely from any cause. Changing these trends will require a comprehensive approach to enhance the early identification and treatment of infected individuals. As this proposal will demonstrate, this is an achievable goal.

Hepatitis C Treatment & Cure

Unlike most chronic viral infections, hepatitis C is curable: the virus can be completely eradicated with effective treatment. For those without advanced liver disease, viral eradication is truly a cure with no long-term complications. For those with liver cirrhosis, viral eradication prevents liver failure entirely and greatly reduces the risk of liver cancer. Importantly, the clearance of hepatitis C from the liver reduces not only liver-related problems, but also reduces mortality from all causes. This critical finding, documented by Canadian and European researchers, clearly demonstrates the need to increase treatment efforts (Figures 4, 5).

Remarkable advances in understanding

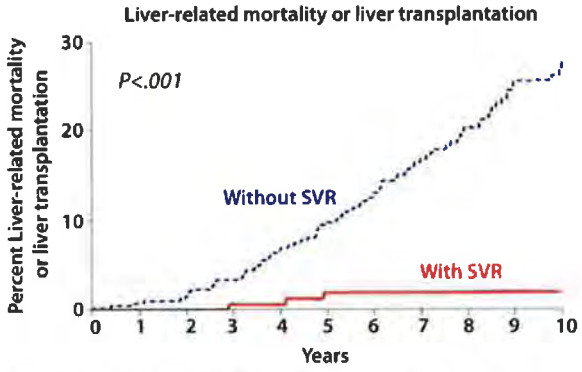


Figure 4. The rate of liver-related deaths or liver transplantation is markedly reduced in patients who achieve viral clearance (With SVR) compared to those who do not (Without SVR) after a course of antiviral therapy. Adapted from van der Meer AJ et al., JAMA 2012 Dec.

the biology of the virus have led to the development of highly effective, extremely well-tolerated antiviral medications. Canadian researchers have pioneered the development and testing of these new hepatitis C agents, helping to move the field forward at a dramatic pace. Treatment has evolved from therapies requiring a year of weekly injections combined with multiple pills that caused debilitating side effects and led to cure rates of under 50%, to regimens as simple as one pill a day for 12 weeks or less with few or no side effects and cure rates surpassing 95%. This transformation in therapy has occurred in just the past three years. The new treatments are game changers. The revolution in hepatitis C therapy creates a unique opportunity: the possibility to eliminate hepatitis C infection in Canada. However, such an ambitious goal can not be achieved without providing access to these curative antiviral therapies.

Complications of Hepatitis C

Despite the progress in treatment, many individuals will not be cured before they develop complications of hepatitis C–related liver disease. The most dreaded consequence of hepatitis C is liver cancer, which may still occur in people who are cured of the infection but had severe liver damage prior to being cured. Because all Class members have been infected for many years, many already have advanced liver damage, putting them at risk for liver cancer or liver failure. Liver cancer is often curable if found early through screening, but it has a dismal prognosis for those with late stage liver cancer or those with symptoms. Improved screening tests are needed to identify liver cancer when it is still in a curable stage, ideally in the form of simple blood tests that would enable early diagnosis and would be accessible anywhere in the country. In addition, new therapies for advanced liver cancer are desperately needed.

Eliminating Hepatitis C in Canada: Diagnosis, Treatment, Prevention

More effective drugs are already available—but for people to realize the benefits of curative treatments, they need to be reached, diagnosed and engaged into care and treatment. Only an estimated 15% of Canadians infected with hepatitis C have ever received therapy for their disease, and given the poor treatment effectiveness of older drugs about 7% of Canadians have been cured and 93% remain

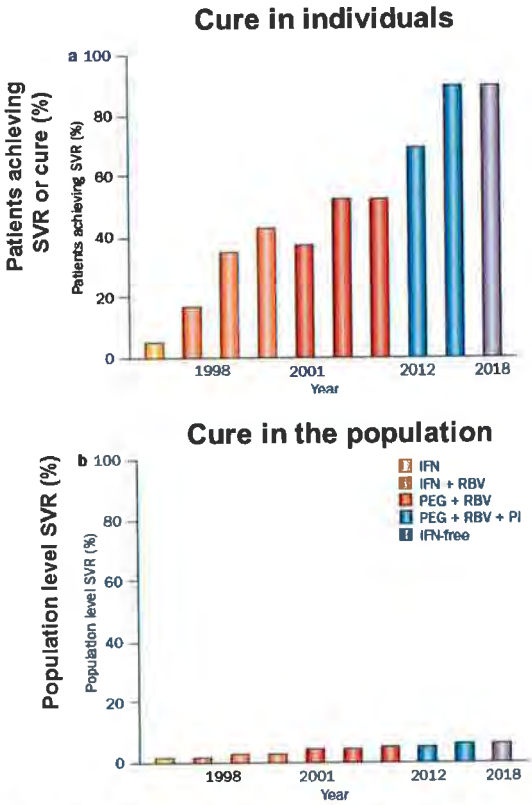


Figure 5. Progress in hepatitis C treatment. Cure (sustained viral response; SVR) rates for heptatitis C virus infection have increased over time leading to cure reates of over 95% in individuals with current regimens. (a) Because of low treatment uptake, the impact of even highly effective therapies is minimal in terms of reducing the overall burden of hepatitis C virus in the population. Increased treatment uptake will be required for new therapies to have an effect at the population level. Adapted from Thomas DL, Lancet, 2010.

Figure 6. ECHO Canada hubs (local hepatitis C specialists) will connect with local providers (community clinics, rural clinics and nurse practitioners) and ECHO academic hospitals through video-conferencing.

infected. While the poor tolerability and limited effectiveness of the older therapies have certainly limited uptake, a huge challenge is the extremely low diagnosis rate. The most recent study from Statistics Canada found that only 30% of Canadians living with hepatitis C were aware of their diagnosis. Even treatment that is universally effective cannot cure those who remain undiagnosed. There are almost certainly many individuals who would be eligible Class members who have not accessed treatment or made other claims because they remain unaware of their infection. Unfortunately, this means that they may have also unwittingly passed the infection to their family members or other intimate contacts, who likely remain unaware of their infection. Now that almost everyone can be cured, strategies to identify all infected individuals must become a key priority.

Although under-diagnosis of hepatitis C is an enormous problem, treatment rates are low even among those who know of their infection. Accurate statistics are not available on treatment rates specifically among Class members; however, they are likely in keeping with those in the broader population of people living with hepatitis C. The difficulty and poor success of prior therapies led most individuals to either refuse therapy if offered, or worse yet, have no access to therapy at all because of a lack of local expertise required to oversee treatment. Healthcare providers with specialty training are concentrated in urban centres across the country, but hepatitis C is equally common in rural and remote communities, with particularly high rates of infection among First Nations communities living in the north. For many in rural and remote communities, repeated travel to a city for frequent on-treatment and post-treatment monitoring is simply not an option. Even the highly effective new therapies require expert oversight. As

such, novel approaches to deliver hepatitis C care and treatment outside of urban centres need to be incorporated into any strategy that attempts to address the problem at a national level.

To achieve the ambitious goal of eliminating hepatitis C in Canada, diagnosis and treatment of all currently infected individuals will be required, but it will also be necessary to prevent new infections. Unlike hepatitis A and B, there is no vaccine for hepatitis C. Even those who receive therapy and are cured from hepatitis C can be reinfected if they are re-exposed to the virus. A hepatitis C vaccine is therefore a major medical need in order to protect Class members who have been cured, family members and contacts of Class members who have not yet been treated, and ideally all Canadians.

A Comprehensive Plan for Care and Research

To translate the gains in drug development into improved health outcomes for Canadians, substantially improved access to the expertise needed to treat hepatitis C infections and to manage the complications of the disease is required. For those with advanced liver disease, improved screening tests for liver cancer are desperately needed, as are improved treatments for those with late-stage liver tumours. Better diagnostics are required for population screening to identify those infected, and ultimately, a vaccine to prevent infection altogether must be developed.

By uniting skilled clinicians and researchers across the country, a combined approach to target all aspects of hepatitis C–related disease will position Canada to become a global leader in eliminating hepatitis C.

The current proposal will address these challenges through two primary Goals:

1. ***Provide access to effective treatment for all Canadians:*** To address the need for greater awareness and access to treatment, an innovative knowledge translation and treatment support program will be designed and implemented to educate the public, infected individuals and their healthcare providers about hepatitis C. Moreover, the program will expand treatment capacity across the country to ensure that every Class member and every infected individual in Canada is diagnosed and managed in the most effective way possible. Epidemiological and outcomes data will be collected to guide future policy and clinical management decisions.

2. ***Engage in fundamental biomedical research to overcome gaps in hepatitis C prevention and care:*** Through supporting basic, translational, clinical and epidemiological science, the second Goal will address four major gaps in the current knowledge and understanding of hepatitis C:

    a. Vaccine development to prevent spread and reinfection by hepatitis C

    b. Development of point-of-care diagnostics for screening and on-treatment monitoring to overcome the enormous under-diagnosis and under-treatment of hepatitis C

    c. Outcomes research to assess the effectiveness of the ECHO program and the changing epidemiology of the disease and its complications

    d. Development of screening tests and new therapies for liver cancer

Successful implementation of the Goals of this proposal will have direct benefits for Class members, their families as well as for eligible Class members who were unaware of their infection. The broad nature of the strategy

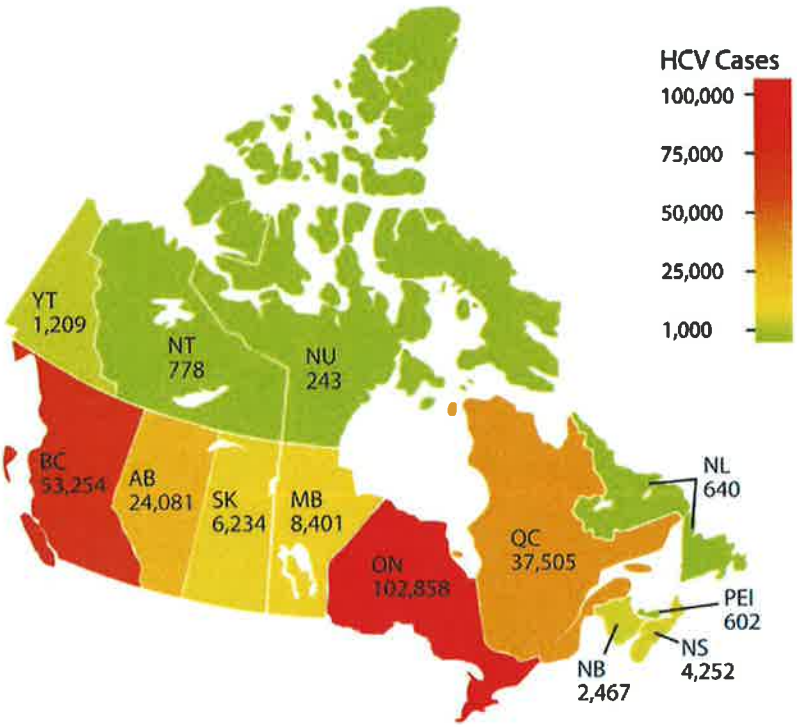


Figure 7. Total HCV cases per province (2007). Data from the Government of Canada, Public Health Agency report titled "Modelling the Incidence and Prevalence of Hepatitis C Infection and its Sequelae in Canada, 2007".

will extend beyond the Class to transform the care of patients with hepatitis C across the country, and it will ultimately serve as a model for addressing the challenges of any chronic disease in Canada. To achieve these goals, nation-wide collaboration across multiple disciplines will be required. The proposal will detail how each Goal will be specifically addressed, including implementation, participants and metrics of success.

Goal#1: Provide access to effective treatment for all class members across Canada – ECHO Canada

Canada is a vast country with a widely dispersed population. Hepatitis C affects individuals in every community across the country (Figure 7), presenting a significant challenge to the delivery of care. The traditional models of care relying on local healthcare provider expertise are inadequate to manage hepatitis C, particularly outside urban centres. Most primary care providers are unaware of who is at risk for hepatitis C and how to proceed if hepatitis C is diagnosed. Even if the disease is appropriately recognized, reaching regional experts for advice on hepatitis C management may require significant

travel across great distances. If treatment is considered, correct regimens must be selected and arrangements must be made for on-treatment monitoring. The consequence is that many individuals who need treatment simply do not access care, and those who do are at higher risk of poor outcomes. Innovation is needed in the way hepatitis C care is delivered.

To overcome distances, many regions in Canada have developed telehealth networks that enable individuals in isolated communities to access expert care via video-conferencing. Although potentially effective, this approach is very inefficient. Telehealth 'visits' take considerably more time than regular office visits, meaning that experts—who already have long waiting times to be seen—see even fewer patients. Therefore, although telehealth may offer individuals in rural areas improved access to care, the total number of patients that can be evaluated and managed by hepatitis C experts across the region is actually diminished.

Project ECHO

In 2002, a team of investigators at the University of New Mexico developed a program to greatly improve the efficiency of telehealth networks. Rather than use video-conferencing for physicians to see individual patients, Project ECHO (Extension for Community Health Outcomes) uses video-conferencing networks to connect healthcare providers. Rural healthcare providers connect with academic providers who have expertise in all aspects of hepatitis C care: hepatologists, infectious disease specialists and pharmacists. Weekly meetings of the providers are held which include a short educational session, followed by case discussions. All participants are able to present patients being managed locally and for whom expert opinions are needed in real-time. The interactions between healthcare providers are much more efficient, allowing many more patients to benefit from expert advice than could be achieved during regular office or conventional telehealth visits. As community providers gain experience, they receive accreditation and eventually become local experts in their region. This is essentially a train-the-trainer approach to disseminate knowledge and improve the quality of care.

Project ECHO has demonstrated that enabling community providers in this way can result in hepatitis C cure rates in rural and remote areas that are identical to those in urban/academic centres. Project ECHO is now being expanded to other regions in the US with formal backing from the Centers for Disease Control and Prevention (CDC) and the federal government. In addition, the model has been successfully applied to numerous other chronic medical conditions, including arthritis, asthma, depression and chronic pain.

In mid-2011, the Toronto Western Hospital Liver Clinic introduced a program called "HepCNET", which is supported by the Ontario Ministry of Health and Long-Term Care and is based on the Project ECHO model. The program uses weekly web-based video-conferencing to connect academic hepatologists with 15 inter-disciplinary hepatitis C treatment teams located across the Province. In addition to supporting family doctors and general internists, the program supports nurse-led care, greatly reducing the costs associated with hepatitis C management.

Feedback from the participating healthcare providers has been unanimously positive. The program has allowed initially inexperienced providers to manage more patients, treat more complicated individuals and decrease the need for patient travel to urban centres. A number of the initially inexperienced providers are now local experts, able to manage uncomplicated hepatitis C cases without any further need for expert oversight. Patients managed through the program have also expressed their satisfaction, preferring to be managed locally

with healthcare providers they know and trust. The developers of ECHO, Dr. Arora and his colleagues, are supportive of these initial efforts and have offered to help expand HepCNET to become a national program called "ECHO Canada".

The establishment of ECHO Canada will raise awareness of hepatitis C among patients and providers, and more importantly, it will expand access to expert treatment to every Canadian infected with hepatitis C. ECHO Canada will extend beyond the enhanced delivery of antiviral medications to improve all aspects of hepatitis C care, including recognition and management of advanced liver disease. For example, a simple ultrasound-based technology called transient elastography or 'FibroScan' allows healthcare providers with minimal training to identify individuals with significant liver fibrosis. In addition to helping to prioritize patients for hepatitis C treatment, FibroScan can be used to identify patients with cirrhosis who require screening for liver cancer to ensure it is found at a curable stage. Mobile FibroScan testing can be delivered directly to rural and remote communities, bringing screening directly to the individuals who need it. The addition of clinical tools such as FibroScan to the ECHO Canada infrastructure will add great value to the program. In addition to improving clinical care, the linkages provided by ECHO offer an invaluable tool to collect data to answer critical research questions to optimize clinical care.

Clearly, there are multiple benefits to the ECHO approach. With a staged implementation, the program can be developed in a sustainable way that will serve as a model for the management of chronic disease in Canada and other countries with geographic barriers to healthcare access. ECHO Canada will be implemented in the following manner:

Stage 1: Recruitment of Regional Experts

Leading high-volume and expert hepatitis C care providers across the country have already been approached and engaged to participate in this program. These individuals will serve as local champions of ECHO Canada at their respective institutions, which will become ECHO Canada hubs. Each hub will be connected to multiple local providers using existing and newly developed telemedicine infrastructure for weekly ECHO Canada conferences. The hubs have been strategically established across the country to ensure coverage in all regions, with a greater concentration of hubs and nodes in areas with a higher prevalence of hepatitis C (See Figure 6 and Appendix B).

Stage 2: Recruitment of Local Providers and Public Awareness Campaign

Model of Care: The ECHO model is based upon the recruitment of local providers who currently do not treat hepatitis C patients. Recruitment efforts for the ECHO Canada model will initially focus on the engagement of practitioners—including registered nurses, nurse practitioners and primary care physicians—who work in regions or with populations with an increased prevalence of hepatitis C. Class members are widely spread across the country, making them difficult to specifically target as a group. To ensure that Class members benefit from ECHO Canada, the program will ultimately need to cover all under-serviced geographic areas. Benefits of the program will extend beyond the Class to populations who currently have limited access to specialty care, such as Aboriginal communities and immigrants to Canada. Not only will these populations receive expert management of hepatitis C, but they will do so in environments in which they may be more comfortable accessing care with providers they know and trust, avoiding language and cultural barriers that may limit uptake of prevention, care and treatment services.

Local providers will gain initial experience in hepatitis C management through short face-to-face meetings and preceptorships with regional experts, and will then improve and maintain competency through weekly ECHO Canada conferences. As the program grows, recruitment will extend to providers with less concentrated exposure to people with hepatitis C. Even practitioners who may have few patients with hepatitis C in their individual practices can gain experience through ECHO Canada and become local hepatitis C experts, potentially treating significant numbers of patients by serving as a referral site for other providers in their region. For each local provider, a needs assessment will be administered to determine the existing level of expertise, infrastructure and access to technology.

The ECHO model requires engagement of existing practitioners; however, many areas of the country, including some with a high burden of hepatitis C, are significantly underserviced. In these communities, it will be difficult to draw on existing capacity for care. Thus, the proposed comprehensive implementation strategy includes hiring and training nurse practitioners who can be deployed in high need, low service regions. In addition, a registered nurse will be hired at each ECHO Canada hub to increase treatment capacity.

The Need for Hepatitis C Screening: In addition to improving treatment capacity, a critical component of the ECHO model is to increase hepatitis C diagnosis in the community. The majority of people living with hepatitis C are completely unaware of their infection. To date, hepatitis C screening has relied on physicians testing those at risk of hepatitis C acquisition or those with signs of liver disease. This risk-based screening approach has been largely ineffective. Primary care practitioners are not always aware of risk factors for hepatitis C infection and may not recognize early signs of liver injury. Many members of the Class have indicated that it was only through their own initiative that hepatitis C testing was performed, sometimes requiring significant efforts to convince their caregivers of the requirement for testing.

An alternative approach to risk-based screening is targeted population level screening, the simplest and most effective of which is age-based screening. Hepatitis C is concentrated in individuals born between the years of 1945 and 1975, accounting for 75% of all hepatitis C infections in the country. This population was more likely to be exposed to tainted blood products and may have acquired the infection through other exposures before the virus was discovered in 1989. In 2012, the CDC advocated for one-time hepatitis C testing in all individuals born between 1945 and 1965. The epidemiology differs slightly in Canada, with some younger individuals (those born between 1965 and 1975) also showing an increased prevalence of infection, suggesting that age-based screening should target those born between 1945 and 1975. Age-based screening is simple for primary care practitioners to implement and modelling data from Canada shows that it would be a cost-effective approach. With the high success of current treatments, diagnosis is a key gap that needs to be addressed to engage those affected into care and treatment. One time age-based screening is also highly acceptable to the public. If properly implemented, it will identify most—if not all—remaining eligible Class members, ensuring that they too benefit from this program.

The ECHO Canada program will implement age-based screening under the guidance of the Public Health Agency of Canada and Provincial and Territorial partners. In addition to population screening, it will be critical to engage the public as well. A public awareness

campaign will be linked to ECHO Canada to increase knowledge about hepatitis C, its associated risks and the potential for curative treatment.

Stage 3: Implementation of Technology and Diagnostic Tools

Each regional ECHO Canada hub will require the installation of a complete teleconference suite as well as connectivity for the local and rural providers in their region. The simplest model will be a web-based connection using a webcam and audio line, while those with greater infrastructure and larger patient volumes will require more sophisticated video-conferencing technology.

In addition to the equipment required for ECHO conferences, each hub will require a FibroScan unit to provide accurate, safe and inexpensive evaluation of liver disease severity for patients with hepatitis C. FibroScan technology is improving, including the development of portable units, which will allow all centres in the network to utilize this or similar liver fibrosis screening tools.

Stage 4: Treatment Registry, Database and Biobank

To date, Canadian investigators have struggled to collect data on the burden of hepatitis C and its complications, as well as on the levels of treatment uptake and treatment outcomes, that accurately reflect the situation at provincial, territorial and national levels. Without high quality Canadian data, the development of appropriate hepatitis C policies has been a major challenge.

Although the ECHO Canada model will focus on hepatitis C awareness and improved access to treatment, the national network will also create a very useful tool to gather nation-wide data for epidemiological, clinical and outcomes research. The span of the network will allow for a properly devised cluster sampling seroprevalence study to accurately determine the number of infected Canadians, the regional prevalence including specific at-risk populations, and the number of people who are unaware of their diagnosis—data that will be critical to guide future resource allocation.

In addition, although each ECHO Canada hub will function independently, data on all aspects of the program will be collected in a unified manner using common data collection tools to enable project evaluation and facilitate clinical and health outcomes research. This will provide real-world data on the effectiveness and tolerability of new treatments for hepatitis C and will help to develop models to predict disease progression and treatment success and failure. Given the high costs of therapy, it will be important to ensure that treatments are delivering the expected benefits not only in terms of cure rates, but also in terms of preventing long-term complications of hepatitis C. Linking data from the ECHO Canada network to administrative databases in each province will allow for a detailed examination of health outcomes and resource utilization related to hepatitis C infection in Canada. Moreover, the network can be used as a platform for clinical research to study new treatments for hepatitis C, providing a unique opportunity for individuals from rural areas to be included in pivotal clinical trials.

Finally, the network will enable the creation of a national repository of biological samples by banking blood and tissue (liver biopsy) samples from selected patients treated through the ECHO Canada program who agree to participate. Major breakthroughs have occurred in hepatitis C and other fields through the careful evaluation of samples stored during clinical care. Such a national effort will have the additional advantage of including individuals that are often excluded from research such as rural and Aboriginal populations. Because of their social and political disadvantages,

members of these communities who may be eligible Class members may not have been included in the Class to date, due to their reduced healthcare access and thus lower likelihood of being diagnosed with hepatitis C, and possibly due to their reduced awareness or access to participate in the Class. The database and biobank will also be of major benefit to the researchers involved in the second Goal of the proposal. The insights gained into novel therapies and models of disease progression as well as the discovery of biomarkers or a vaccine will directly or indirectly benefit Class members and would be impossible to achieve without a broad clinical treatment network.

Stage 5: Ongoing Project Maintenance and Evaluation

Once the ECHO Canada network is established, significant efforts will be required to ensure that it continues to function optimally. This will require regular communication between the hubs and the central data coordinating centres at the University of Toronto and University of British Columbia. An annual virtual ECHO Canada conference will be critical to maintain engagement of all participants and to share experience and best-practices across the country, particularly given the rapid developments in hepatitis C treatment. This virtual meeting will include a formal evaluation of ECHO Canada to ensure that it is achieving specific goals and to review strategic planning for the program. The program will be evaluated by the specific metrics included in Appendix A.

ECHO Canada: Hepatitis C and Beyond

While the goal of ECHO Canada is first and foremost to ensure that Class members and all Canadians living with hepatitis C receive optimal care for their disease, the program will have other major benefits. It is difficult to overstate the enormous potential of a national clinical care network for clinical and epidemiological research. This type of program can be truly transformative. There will clearly be major gains in treatment capacity and access to care, which will only increase further as hepatitis C treatment continues to improve. Although ECHO Canada is designed to improve the management of hepatitis C, the infrastructure established for this program can easily be expanded with minimal modification for the management of any chronic disease. For example, Project ECHO in New Mexico has expanded across multiple disease areas, including diabetes, arthritis, pulmonary disease and psychiatry, with remarkable success. With Canada's expansive geography and comprehensive universal healthcare, the ECHO approach is the ideal model for delivering care across the country. The additional potential to collect epidemiological data and facilitate research at the national level will be extremely valuable for informing health policy and resource allocation. Establishing the infrastructure will lead to better hepatitis C outcomes, and expanding the program will transform the way chronic disease is managed across the country.

Goal 1: Benefits to the Class

There will be direct benefits to Class members including those who have yet to be diagnosed through improved hepatitis C management. Accessing care locally from trusted providers improves patient and provider satisfaction and reduces the huge burden on caregivers who might also need to travel to specialty consultations. In addition, the ECHO model improves the quality of care to all Class members by ensuring that local providers are following state-of-the-art and standardized treatment protocols and other recommendations that are updated to ensure that best practices are delivered independent of where people live. Finally, the establishment of a broad ECHO platform for chronic disease management is likely to benefit Class members and their families through the management of other chronic conditions, a number of

which may be directly attributable to hepatitis C infection. For example, arthritis, chronic kidney disease and even diabetes may result from hepatitis C and could be managed more efficiently using an ECHO model of care.

Goal#2: Fundamental biomedical research to overcome challenges in hepatitis C care

Although great strides have been made in the treatment of hepatitis C, many gaps remain. The ECHO model will ensure that Class members and all other Canadians receive the best hepatitis C care available, but unfortunately, this alone will not conquer hepatitis C for members of the Class or in Canada. Overcoming gaps in knowledge to improve clinical outcomes will require focused research efforts with significant collaboration across disciplines.

Over the last decade, networks of basic scientists and clinical researchers within and between the Liver Research Centres at several Canadian Universities have been established—making Canadian investigators uniquely poised to study hepatitis C and its complications. Several Canadian scientists have made seminal observations leading to important advances in different areas of hepatitis C research. The breadth of expertise across the country is impressive, covering the full spectrum from basic science and translational research to clinical, epidemiological and health outcomes investigations (see Appendix C). By combining these strengths strategically, research priorities with the greatest potential impact for Class members and the broader hepatitis C-infected population will be targeted:

a. Vaccine development to prevent spread and reinfection by hepatitis C

b. Development of point-of-care diagnostics for screening and on-treatment monitoring to overcome the enormous under-diagnosis and under-treatment of hepatitis C

c. Outcomes research to assess the effectiveness of the ECHO program and the changing epidemiology of the disease and its complications

d. Development of screening tests and new therapies for liver cancer

1. Research Priorities

a. Vaccine development

The development of vaccines for many infectious diseases has been a critical advance in the last century. The prevention of disease complications is best achieved by preventing the infection altogether. The success of the hepatitis B vaccine is a clear example of the power of this approach. Universal vaccination of babies for hepatitis B was instituted in the early 1980's in Taiwan. Within a decade, not only had hepatitis B rates diminished markedly, but liver cancer—the most dreaded complication of the disease—was reduced as well. As hepatitis B vaccination rates increase, the rate of liver cancer globally continues to decrease.

A vaccine for hepatitis C would have similar impact: it is a key component of a hepatitis

C national elimination strategy and indeed an effective vaccine could be used to even eradicate hepatitis C globally; as such, hepatitis C vaccine development must be a research priority. To date, the development of a vaccine has proven very difficult but Canadian researchers are in a strong position to overcome this challenge. Canadian researchers at the University of Alberta, Université de Montréal and the University of Toronto are well poised to lead these efforts.

Initial attempts to develop a vaccine have been thwarted by the remarkable diversity of the hepatitis C virus. The virus is continually changing to adapt to its surroundings, allowing it to escape attack from the body's immune system and similarly to evade immune responses developed from the first vaccine candidates. However, hepatitis C has a unique feature. Some people spontaneously clear the infection shortly after exposure to the virus. By carefully studying how the immune system clears the virus in these fortunate individuals, one can learn the key components of a successful immune response to the virus. Work from Dr. Naglaa Shoukry and Dr. Julie Bruneau from the Université de Montréal has greatly informed the understanding of how the immune system successfully clears hepatitis C in some individuals.

In addition to studying the immune response, it is also important to study the virus itself. Dr. Michael Houghton—who led the team that discovered hepatitis C—is leading the global effort to develop a vaccine against the virus in collaboration with Dr. Lorne Tyrrell and others at the University of Alberta's Li Ka Shing Institute of Virology. Dr. Houghton's team has identified regions of the virus that are conserved across different strains of the virus. These conserved regions are critical to the virus and cannot be easily altered. The researchers have exploited this fact and have carefully engineered a vaccine candidate that incorporates these important conserved regions of the virus. The results of laboratory testing have shown that antibodies made against these important regions can prevent infection from a wide variety of strains of the virus, holding great promise for future human trials.

Researchers at the University of Toronto are approaching the problem slightly differently by focusing on generating a very diverse vaccine directly from virus samples from infected individuals. With this approach, the vaccine generates a very diverse array of immune responses, so that the immune system is prepared to respond the virus' attempts to evade the immune response. The researchers have been successful in generating the initial elements necessary for this type of broad vaccine and will move to animal studies shortly.

Combining the knowledge from these three internationally recognized groups holds great promise for the development of an effective vaccine, which would be an enormous public health triumph.

Vaccines: Benefits to the Class

In addition to clear public health benefits, a vaccine would have direct and indirect benefits for members of the Class. Even after being successfully cured of hepatitis C infection, individuals can be reinfected by the virus if they are exposed again. Although blood screening has improved dramatically, there is still a small risk of hepatitis C infection from medical exposures in Canada. In addition, Class members may be exposed to other infected individuals, possibly even undiagnosed family members, after curative treatment. The virus can be spread through sexual contact or through sharing of common household implements like toothbrushes and razors. As such, a vaccine would also protect family members and intimate contacts of Class members who have yet to be treated or have

not been cured by currently available therapies. An effective vaccine would not only protect all Canadians who have never been infected with hepatitis C, but would also ensure that Class members and their family members do not become reinfected after successful treatment.

b. Development of point-of-care diagnostics for screening and on-treatment monitoring

The first step in addressing hepatitis C is making the diagnosis. Currently, the diagnosis of hepatitis C requires two tests. An initial test looks for the presence of antibodies to the virus, indicating that someone has been exposed to the infection. However, up to 30% of people spontaneously clear hepatitis C at the time of infection; these individuals still have antibodies to the virus but have no detectable virus in their blood or liver, rendering the antibody test inadequate for a diagnosis of active hepatitis C infection. The second, much more expensive test is one that directly measures the level of virus in the bloodstream and determines the viral load (ie, the quantity of virus present). Viral load testing is too costly to be used as a first-line test at the population level because the majority of people tested will be negative. As such, all individuals first have an antibody test; if that test is positive, they have a subsequent test for viral load to determine if there is evidence of ongoing infection.

This two-step approach to testing is problematic, particularly for efforts to significantly increase the testing and diagnosis rate. Multiple studies have shown that many individuals never receive viral load testing after a positive antibody test, leaving their diagnosis uncertain. Patients may not follow-up with their healthcare providers, and in some cases, physicians may not recognize the need for the second test. Furthermore, in some remote regions of the country, the ability to send the viral load test for analysis—which requires maintaining the sample frozen across great distances—precludes testing at all. In addition, some communities, such as those of many First Nations people, do not have facilities for blood collection; as a result, there are no facilities for hepatitis C testing at all.

In order for widespread screening to be effective, testing must be simplified—ideally with the development of a single, so called point-of-care test that gives immediate results. This type of test can be performed anywhere, from a screening campaign in a shopping mall to a university hospital, greatly improving access to diagnosis. Infected individuals would immediately learn of their diagnosis and be linked to care. Preferably, the test would also determine the hepatitis C genotype, or strain of the virus, because treatment strategies differ across different viral genotypes. Immediate confirmation of diagnosis with genotype information would allow for immediate treatment planning, greatly improving the efficiency of hepatitis C management, as well improving patient and provider satisfaction.

In addition to the benefits in terms of screening for the disease, point-of-care of testing would also be extremely helpful for on-treatment monitoring. Because of its high cost, viral load testing is currently performed in batches. While this approach saves money on testing, it causes significant delays in the reporting of results. Aside from being frustrating and stressful for patients to wait for test results, the delays can impact treatment because on-treatment testing of viral load may be required to guide therapy in difficult-to-cure cases. Therefore, delays in receiving results lead to delays in treatment decisions, with potentially adverse consequences. Furthermore, the cost of repeated viral load testing before, during and after treatment adds significantly to the overall costs of hepatitis C treatment.

The development of point-of-care diagnostics

for hepatitis C would greatly facilitate population screening programs and would improve on-treatment monitoring. Optimal tests would identify active hepatitis C infection (ie, confirm the presence of virus); have a rapid (<1 hour) turnaround time; and avoid the need for blood collection or storage. Researchers at the University of Toronto, the University of British Columbia and the National Microbiology Laboratory in Winnipeg are working on novel hepatitis C diagnostic approaches with promising initial results. Systems to detect not only hepatitis C, but also other viruses including hepatitis B and HIV, have been developed that can be applied rapidly and economically with high accuracy. The tests are currently being optimized to use dried blood spot samples, which would allow people to be tested with a simple finger prick rather than collection of a blood sample. These dried blood spot samples can be transported across distances without the need for freezing or other preservation, which would expand diagnostic capacity to regions lacking trained healthcare personnel. These systems would also provide real-time results to aid in rapid decision-making during therapy.

Improved diagnostics: Benefits to the Class

The development of improved diagnostics has important implications for addressing the under-diagnosis and under-treatment of hepatitis C infection across Canada. Class members would directly benefit from these developments through the increased diagnosis of unrecognized Class members, particularly those in remote communities. In addition, all Class members would benefit from improved on-treatment monitoring to optimize treatment decision-making and to confirm a cure in those who have been treated in the past.

c. Outcomes research to assess the effectiveness of the ECHO Canada program and the changing epidemiology of the disease and its complications

The remarkable improvements in hepatitis C therapy hold great promise for reducing the public health consequences of this infection. Cure rates of over 95% have been reported in clinical trials with simple, well-tolerated treatment regimens. While these data are incredibly promising, it is important to document that the treatments are equally effective in the 'real world', outside of the strict, controlled setting of clinical trials. The first antivirals developed for hepatitis C provide a cautionary note on this front: clinical trial results initially reported cure rates of over 75%, a significant improvement from previous therapies; however, reports from the real world showed much less optimistic results with cure rates that were lower than in clinical trials with greater toxicity of the drugs.

The newer treatments are much simpler to administer and initial reports suggest excellent results in the real world in terms of cure rates and tolerability. However, to date, treatment with these new regimens has largely occurred in highly experienced centres in large urban centres. The ECHO Canada model promises to deliver care to all Class members and ultimately all Canadians, including those in regions with limited healthcare infrastructure. It will be critical to determine whether treatment is equally as effective in harder-to-reach populations, such as Aboriginal communities living in remote regions of the country. The ECHO platform, with its data collection infrastructure, provides an ideal opportunity to collect real world data in diverse clinical settings.

In addition to documenting the immediate treatment outcomes and tolerability of the new therapies, it is important to assess the effect of hepatitis C treatment on longer-term health outcomes. If diagnosis and treatment are expanded, the dire trends in complications from hepatitis C should start to reverse. Given the extraordinary costs of hepatitis C therapies,

it will be critical to document that successful treatment is leading to expected health benefits in terms of reduced consequences of liver disease from hepatitis C. Tracking rates of hospitalization, liver cancer, liver failure and liver transplantation will help determine whether treatments and the ECHO delivery model are successful. By reviewing such data, areas for improvement can be identified to optimize future efforts.

Existing provincial databases already record population-level administrative data with specific information about complications and mortality from hepatitis C; however, administrative data are limited in terms of the level of detail stored. For example, laboratory test results are not available and there is variable linkage to information about treatments. As a result, while high-level trends in hepatitis C morbidity and mortality can be tracked, the current systems do not provide the level of detail required to improve care delivery systems. In contrast, clinical databases are useful for their high level of detail but they do not capture long-term outcomes because people are not tracked after their treatment is finished.

The ECHO model, with its common comprehensive clinical database, will address these challenges and allow for linkage of detailed clinical information to outcomes information in administrative databases. This type of linkage is incredibly powerful. Past efforts of this kind have led to the first documentation that cure of hepatitis actually leads to reduced rates of mortality from all causes. This finding by Canadian and European researchers was critical in terms of prioritizing hepatitis C treatment development. It also confirmed that hepatitis C affects health outside the liver, making an important case for treating this infection irrespective of the degree of liver damage. For example, research studies have shown that by curing hepatitis C, the risk of diabetes, certain types of non-liver cancer and potentially even heart disease are reduced. It is only through these types of large epidemiological data linkages that such benefits from hepatitis C therapy can be identified.

These well-established administrative databases have been used extensively in Ontario and British Columbia, with Dr. Mel Krajden's team at the British Columbia Centre for Disease Control developing novel tools to track and recognize all new infections and their consequences across the province. Now that treatment success is so much greater, it will be critical to determine the effects of hepatitis C elimination at the population level, both in terms of liver and non-liver-related outcomes.

In addition to the detailed clinical information that will be provided by the ECHO Canada database, the biobank and tissue repository will be of great value to researchers, Class members, other hepatitis C patients and the general population. Stored samples from individuals with known outcomes are incredibly useful. Efforts to develop a vaccine, new hepatitis C diagnostics and new screening tests for liver cancer would all be aided by a well pedigreed clinical database matched to blood and tissue samples. For example, it is very challenging for researchers to identify new markers to diagnose liver cancer early because at the time of sample collection, it is not known who will develop liver cancer, leaving the researchers unsure which samples were and were not associated with the outcome of interest. Moreover, individuals may not continue follow-up in the same setting over time. The comprehensive linked data and biobank in this proposal would ensure that researchers could carefully study samples from individuals who did and did not develop liver cancer, greatly enhancing their ability to make new discoveries. Similar benefits would be seen in other areas of research on the sequelae of hepatitis C infection.

Outcome data & biobank: Benefits to the Class

The ECHO model will greatly enhance the delivery of optimal hepatitis C care to all known Class members, as well as to those who have yet to be diagnosed. Careful study of the short-and long-term outcomes of therapy will help to inform clinical decision making to ensure that treatment is optimized for all infected individuals. In addition, documentation of the long-term outcomes of hepatitis C treatment may lead to recognition of other health benefits and/or health concerns from past infection with direct or indirect benefits for Class members. The comprehensive database linked to a rich biobank has the potential to lead to significant research discoveries that will directly impact the lives of Class members. For example, the recognition of who needs screening for liver cancer after hepatitis C cure or the identification of markers of early liver cancer could have direct, and even lifesaving, impact on Class members.

d. Development of screening tests and new therapies for liver cancer as well as improved outcomes from liver transplantation

Hepatitis C causes slow progressive damage to the liver. Scar tissue develops in the damaged liver, eventually progressing to cirrhosis. Once cirrhosis has developed, liver cancer rates increase markedly. In fact, liver cancer is one of the few cancers with increasing incidence in Canada, almost exclusively due to cancers related to longstanding hepatitis C infection. Cure of hepatitis C infection significantly reduces the risk of liver cancer, but unfortunately in those with cirrhosis at the time of treatment, cancer may still develop even after the virus is gone.

If found very early, liver cancer is treatable and often curable; however, if liver cancer is diagnosed late, it has a dismal prognosis. Treatments of advanced liver cancer are very ineffective, with most people surviving less than a year from diagnosis. Therefore, early diagnosis of liver cancer is absolutely critical to ensure favourable outcomes.

Currently, detecting early stages of liver cancer is very challenging. Guidelines recommend a liver ultrasound every six months in all patients with cirrhosis, with the hope of identifying small cancers at a time when they are still curable. However, ultrasound is far from a perfect test: small cancers are easily missed, particularly in centres that do not routinely see patients with liver disease. Ultrasound capabilities (particularly high quality ultrasound) are also not widely available outside of urban centres. Even when performed optimally, ultrasound may not identify cancers early enough for intervention. Moreover, it is an expensive test, requiring interpretation by highly specialized radiologists. It also lacks specificity: many nodules seen on ultrasound turn out not to be cancers once they are more thoroughly examined with expensive technologies such as CAT scan, MRI or biopsy. Clearly, better screening tests are needed.

The quest to discover biomarkers of early liver cancer has been greatly hampered by the limited access to samples from individuals who progress to develop cancer in the future. The ECHO model, with its well-characterized clinical database and biobank linked to administrative databases to capture all cases of cancer, would largely overcome this problem. Researchers would have access to samples from large groups of individuals who do and do not develop liver cancer over time, which would greatly facilitate the identification of markers in the blood that would predict the future occurrence or presence of an early cancer.

With the huge volumes of liver cancer seen or expected to be seen in Class members, Canada has developed internationally recognized clinicians and researchers leading the quest to

identify novel biomarkers and new treatments for liver cancer. Researchers at the Princess Margaret Cancer Centre in Toronto and Université de Montréal in Montréal have well-established and successful biomarker discovery programs that are now starting to be applied to liver cancer. In addition, Dr. Morris Sherman at the University of Toronto is a world leader in liver cancer screening research and will guide efforts to develop new approaches to this problem.

Until optimal screening tests are developed, some individuals will present with advanced liver cancer that has few available treatment options. The development of new therapeutic approaches for liver cancer is therefore desperately needed. Although multiple centres in Canada are involved in research on new therapies for liver cancer, success has been limited to date. More support for research from basic science in the laboratory through to clinical trials is required. Researchers at the University of Toronto and Université de Montréal have established basic science programs to better understand the biology of liver cancer with the hope of developing novel treatments. In addition, researchers at the University of Toronto, University of Calgary and University of British Columbia are pioneering efforts in developing new therapeutic modalities. Specifically, the development of nanoparticle delivery technology holds great promise for delivering targeted liver cancer therapy to established advanced liver tumours. The establishment of the ECHO Canada network would greatly aid in understanding the epidemiology and risk factors for liver cancer and could serve as a platform for conducting clinical trials in patients who develop this complication. In addition, the biobank and tissue repository would provide clinical materials to enhance laboratory investigations of novel treatment approaches.

Liver cancer screening & treatment: Benefits to the Class

All Class members who have not yet received curative therapy are at risk of liver cancer. For those with cirrhosis, even if their treatment is or was successful, the risk of cancer is diminished but not eliminated. At a minimum, those with cirrhosis require lifelong ultrasound screening, and outcomes are dismal for those who develop this dreaded complication. Improvements in screening and treating liver cancer will have direct benefits for Class members, making it a major priority for future research.

2. Resource Utilization

The four priorities outlined above will comprise the focus of the research efforts across the country. The focus for each area will combine basic and translational research, along with clinical- and outcomes-based approaches where appropriate. Each centre across the country will build on existing expertise to address problems within each theme. Resources allocated to the research aspect of the proposal and to ECHO Canada will be used for the following:

i. Development of infrastructure for ECHO Canada

ii. Support research infrastructure and operating costs

iii. Development of a national database and biobank linked with ECHO Canada

i. Development of infrastructure for ECHO Canada

With its pilot ECHO model based at the University Health Network (HepCNET), the hepatology team from the University of Toronto is well poised to oversee the implementation and maintenance of ECHO Canada (see Governance section below). Moreover, clinicians at the University of British Columbia and University of Calgary have also

developed small ECHO-style projects locally. Data will be stored on servers at the University of Toronto and the University of Calgary, and managed by a database coordinator at each site. A statistician will also be required to evaluate the data collected as the program is implemented. In addition to an overall project manager for ECHO Canada, regional directors will be required to help engage new care providers and to oversee the implementation and maintenance of the ECHO model at a local level. As noted, nurse practitioners specializing in liver disease will be hired to work along with nurses to deliver hepatitis C care in areas without adequate medical staff. For rural sites without access to liver biopsy or FibroScan, portable FibroScan units will be made available for assessing liver disease severity.

ii. Support research infrastructure and operating costs

Edmonton, Montréal and Toronto have the largest and most established hepatitis C research groups; as such, they will guide the national research efforts. Shared common facilities at research institutes maximize the use of expensive equipment, but also promote regular interaction between investigators to enhance collaborative research efforts. The well-established, state-of-the-art Li Ka Shing Institute of Virology in Edmonton leads the basic science efforts in hepatitis C in Canada. This Institute has been highly productive and will require ongoing support to maintain and expand its current facilities. This group will continue to work primarily on the goal of developing a hepatitis C vaccine, supported by the immunology team at Université de Montréal. Based on the successful Edmonton model, a state-of-the-art interdisciplinary liver laboratory at the University of Toronto will be established, which will continue to work on novel hepatitis C diagnostics, liver cancer biomarker discovery and treatments for liver cancer. In addition to infrastructure costs, ongoing operating costs for researchers focusing on the four major research priorities will be required.

Other than the groups in Edmonton, Montréal and Toronto, there are numerous other individuals and groups of scientists doing outstanding hepatitis C research across the country. These are focused under the umbrella of a Canadian Institutes of Health Research (CIHR)–funded team grant on hepatitis C that has established a comprehensive team of researchers known as the CanHepC Network. The team focuses on clinical, basic science, epidemiological and social/behavioural aspects of hepatitis C research in Canada. The grant primarily provides funding for infrastructure and training of young scientists, with very limited funds for operating costs for the research projects of the network. The research priorities outlined in this proposal are well aligned with those of the CanHepC Network and funding through the current program would be used to augment research efforts of the Network. Specifically, funding for operating costs would be diverted to projects led by CanHepC researchers working on the areas outlined in this proposal—adding significant value to ongoing federal investment.

iii. Development of a national database and biobank linked with ECHO Canada

In addition to laboratory facilities, successful research with clinical relevance requires access to precious patient samples. Currently, all sites across the country store blood and tissue samples from their own patient populations. The development of a national biobanking system would greatly enhance the ability to pool resources, enabling important translational research. The ECHO treatment model with central hubs in various regions across the country provides an ideal opportunity to develop a national biobank of samples from consenting patients. Blood and tissue samples will be stored at each hub with a standardized set of collection and storage

protocols, as well as a common organizational database. A national biobank and database will give researchers access to critical patient samples that can be used for a wide range of research, from understanding the immune response required for a protective vaccine to developing biomarkers for the prediction of disease complications. The development of a common national biobanking system for hepatitis C—particularly when linked to a clinical treatment network using the ECHO model as well as administrative databases with outcome data—provides the foundation for a wide range of exciting discoveries.

3. Governance

A large national program will require a strong organizational structure (Figure 8) to ensure the most efficient and productive use of resources. A National Steering Committee will oversee the program, and will be composed of leading hepatitis C clinicians and researchers from across the country. Dr. Harry Janssen, Chief of Hepatology at the University of Toronto, will serve as the first Chair of the Steering Committee based on his extensive experience both in the field of clinical and translational hepatitis C research, and in leading large international consortia. The Chair will have a fixed, non-renewable term as determined by the Steering Committee. Other members of the steering committee will include the following leaders:

- Dr. Lorne Tyrrell (University of Alberta)
- Dr. Michael Houghton (University of Alberta)
- Dr. Jordan Feld (University of Toronto)
- Dr. Naglaa Shoukry (Université de Montréal)
- Dr. Julie Bruneau (Université de Montréal)
- Dr. Mel Krajden (University of British

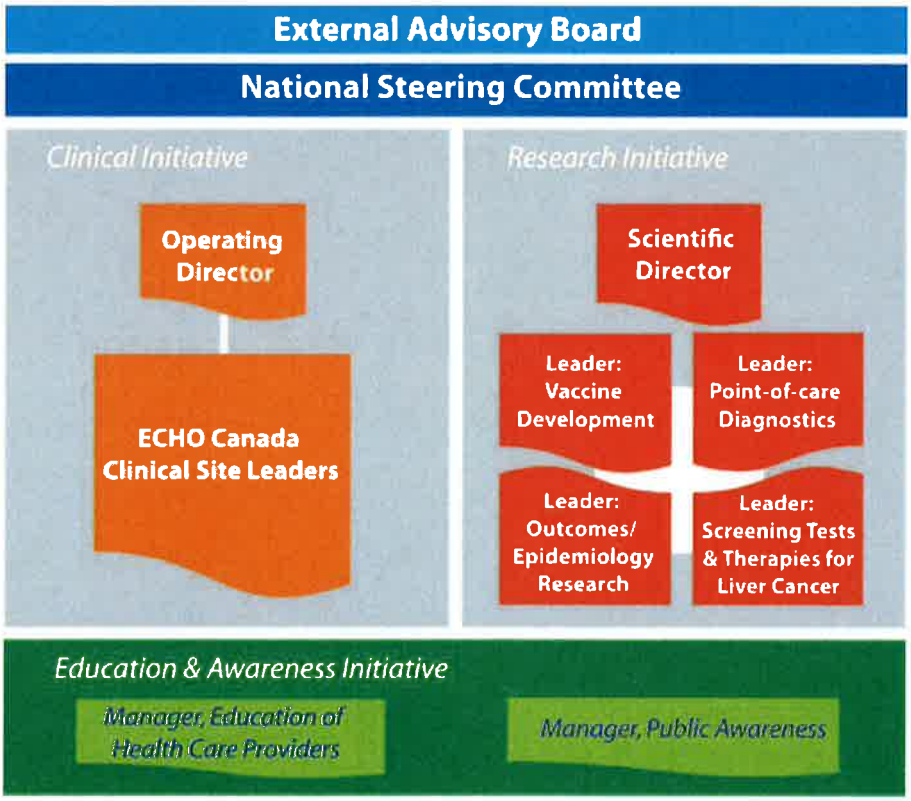


Figure 8. Governance structure

Columbia and British Columbia Centre for Disease Control) (see Appendix D).

This team provides a solid representation of basic, translational, clinical and epidemiological aspects of hepatitis C care and research, as well as wide regional representation. Dr. Shoukry also leads the CanHepC Network, ensuring the seamless coordination of research efforts with this group. The Steering Committee will develop a formal governance structure with a set of institutional bylaws to oversee all aspects of the program from the implementation of ECHO Canada to the disbursement of research funds. Committee members will have fixed 2–4 year renewable term limits to allow staggered rotation off the committee. New members will apply to the Steering Committee based on their clinical and research track records. Funding allocation will follow the accompanying proposed budget and specific research projects will be reviewed and approved by the External Scientific Advisory Board and the Steering Committee before being approved for funding. The Steering Committee will have monthly conference calls to discuss progress of the network projects and will have a face-to-face annual meeting.

An External Scientific Advisory Board will be assembled to include external experts in various aspects of hepatitis C as well as lay membership from the Canadian public. The Board will review research proposals and meet biannually to guide the long-term vision of the program. They will also receive input from university leadership from across the country.

Working closely with the Steering Committee and the External Scientific Advisory Board will be managing directors for each of the major components of the program. There will be a director in charge of the ECHO Canada program, who will oversee all logistical and operational aspects to ensure the high quality delivery of care. There will be a research director of the ECHO Canada program, who will oversee the development and maintenance of the national database and biobank, including guidelines to govern access to data and biological samples. There will also be individual research directors for each of the four research priorities who will oversee resource allocation and research productivity. Finally, there will be two additional managers in charge of educational aspects of the program: one manager will focus on the education of healthcare providers linked with ECHO Canada, and the other will focus on the public awareness campaign.

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Appendix A

Metrics to assess efficacy of ECHO Canada

The efficacy of the ECHO Canada program will be assessed with clearly defined metrics:

Clinical

- Number of patients initiated on treatment
- Treatment completion and success rates (compare community to academic and region-to-region)
- Number of providers prescribing treatment for hepatitis C
- Number of patients treated per provider

Educational metrics

- Number of ECHO participants, frequency of participation
- Use of hepatitis C forum (hits on site, activity of forum, etc.)
- Hepatitis C knowledge of participants assessed by questionnaire
- Self-assessment of hepatitis C competence
- Patient satisfaction with portal and forums

Research metrics

- Health care utilization of patients treated in the ECHO Canada program
- Outcome of patients treated in ECHO Canada versus standard care
- Cost-effectiveness of the ECHO model

Appendix B

Proposed Regional Experts at ECHO Canada Hubs

Atlantic Provinces
Lisa Barrett
Jennifer Leonard
Lisa McKnight
Kevork Peltekian
Frank Schweiger
Daniel Smyth

Quebec City
Marie-Louise Vachon

Montréal
Marc Bilodeau
Julie Bruneau
Christina Greenaway
Marina Klein
Marc Polican

Ottawa
Curtis Cooper
Shauna Duigenan
Gary Garber
Linda Scully
Alex Sorisky

Port Colborne
Craig Kuhn

Toronto
Jordan Feld
Harry Janssen
Keyur Patel
Jeff Powis
Hemant Shah
Morris Sherman
David Wong

London
Mark Levstick
Paul Marrotta

Northern Ontario
David Gregory Gamble
Roger Sandre

Sioux Lookout Zone
Kathy Pouteau

Winnipeg
Jaik Josephson
Kelly Kaita
Lewis Ludwig
Gerald Minuk
Julia Rempel
Stephen Wong

Saskatchewan
James McHattie
Thomas Sylwestrowic
Kurt Williams
Lawrence Worobetz

Calgary
Kelly Burak
Carla Coffin
Sam Lee
Mark Swain

Edmonton
Ryan Cooper
Karen Doucette
Stephen Shafran
Lorne Tyrrell

Northwest Territories
Erin Currie

Vancouver
John Farley
Alnoor Ramji
Edward Tam
Eric Yoshida

Appendix C

Proposed Committees for Research Aims

1. Vaccine Development

Michael Houghton (chair), *University of Alberta*
Naglaa Shoukry (co-chair), *Université de Montréal*

University of Alberta
Lorne Babiuk
David Evans
Matthias Gotte
Norman Knetteman
Lorne Tyrrell
Richard Wozniak

Université de Montréal
Julie Bruneau

University of Toronto
Munir AbouHaider
Jordan Feld
Adam Gehring

2. Point-of-care Diagnostics

Jordan Feld (chair), *University of Toronto*
Lorne Tyrrell (co-chair), *University of Alberta*

University of Alberta
Matthias Gotte

National Microbiology Laboratory/University of Manitoba (Winnipeg)
Mia Biondi
Julia Rempel

University of Toronto
Warren Chan
Tony Mazzulli
Anton Zilman

3. Outcomes/Epidemiology Research

Mel Krajden (chair), *University of British Columbia*
Harry Janssen (co-chair), *University of Toronto*

University of British Columbia
Naveed Janjua

University of Ottawa
Gary Garber

McGill University
Christina Greenaway
Marina Klein

Université de Montréal
Julie Bruneau

University of New Brunswick
Daniel Smyth

University of Toronto
Jordan Feld
Bettina Hansen
Jeff Kwong

4. Screening Tests & Therapies for Liver Cancer

Ian McGilvray (chair), *University of Toronto*
Marc Bilodeau (co-chair), *Université de Montréal*

University of Alberta
Khaled Barakat
David Evans
Michael Houghton
Jack Tuszyanski

University of Calgary
Kelly Burak

McGill University
Peter Ghali

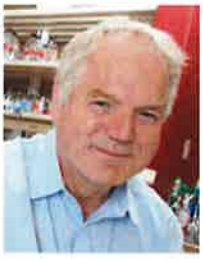
University of Toronto
Sean Cleary
Laura Dawson
Adam Gehring
Anand Ghanekhar
Gonzalo Sapochin
Morris Sherman
Jennifer Knox

Appendix D

Steering Committee Membership

Harry L.A. Janssen, MD, PhD is a Professor in Medicine at the University of Toronto and is the Director of the Toronto Centre for Liver Disease at the University Health Network (Toronto). He obtained his MD from Radboud University (NL) followed by his PhD from Rotterdam University (NL). Following his training as a gastroenterologist, Dr. Janssen completed a research fellowship in hepatology at the Mayo Clinic. In addition to his longstanding expertise in antiviral therapy of chronic viral hepatitis, Dr. Janssen is a leading scientist in the field of vascular disorders of the liver. He has coordinated numerous European and global multicenter studies on antiviral treatment for chronic viral hepatitis B and C. He has published over 360 articles, many of them in prestigious journals including the *New England Journal of Medicine*, *Lancet Gastroenterology*, *Hepatology* and *Gut*, and he has mentored over 40 PhD students. He was the chairman of the Dutch Association of Hepatology and was elected as Rising Star in Gastroenterology and Hepatology by the Association of the National European Societies of Gastroenterology.

D. Lorne J. Tyrrell, MD, PhD, FRCPC is a world leader in hepatitis research and treatment. He is a Professor in the Department of Medical Microbiology & Immunology and Director of the Li Ka Shing Institute of Virology at the University of Alberta. His research program examines therapeutic approaches for the treatment of chronic viral hepatitis caused by either hepatitis B virus (HBV) or hepatitis C virus (HCV). His work led to the licensing of the first oral antiviral for HBV, lamivudine, which is now prescribed worldwide. Dr. Tyrrell was awarded the Prix Galien Canada, the most prestigious award in the field of Canadian pharmaceutical research and innovation, and a Gold Medal by the Canadian Liver Foundation and the Canadian Association for the Study of Liver, and the Killam Prize in Health Sciences (2015). Presently, he is examining the viral and host genetic factors that lead to chronic HBV and HCV infections, and working on an HCV vaccine. To date, he has published over 200 articles in peer-reviewed journals including *Vaccine*, *Gastroenterology*, *Hepatology*, *Nature Medicine*, *Journal of Virology*, and *PLoS Pathogens*. He is an Officer of the Order of Canada, a member of the Alberta Order of Excellence, Fellow of the Royal Society of Canada, and an inductee of the Canadian Medical Hall of Fame.



Michael Houghton, PhD holds the Canada Excellence Research Chair in Virology in the Li Ka Shing Institute of Virology at the University of Alberta. He received his PhD from King's College, University of London (UK) and went on to elucidate the structure of the anti-viral human beta-interferon gene. His laboratory discovered HCV and characterized the hepatitis D viral genome. His research goals include developing a vaccine and novel drugs against HCV and studying other inflammatory diseases. Dr. Houghton has received numerous awards for his contributions to the HCV field including the Gold Medal from the Canadian Liver Foundation, the Clinical Lasker Award, the Robert Koch Award and the

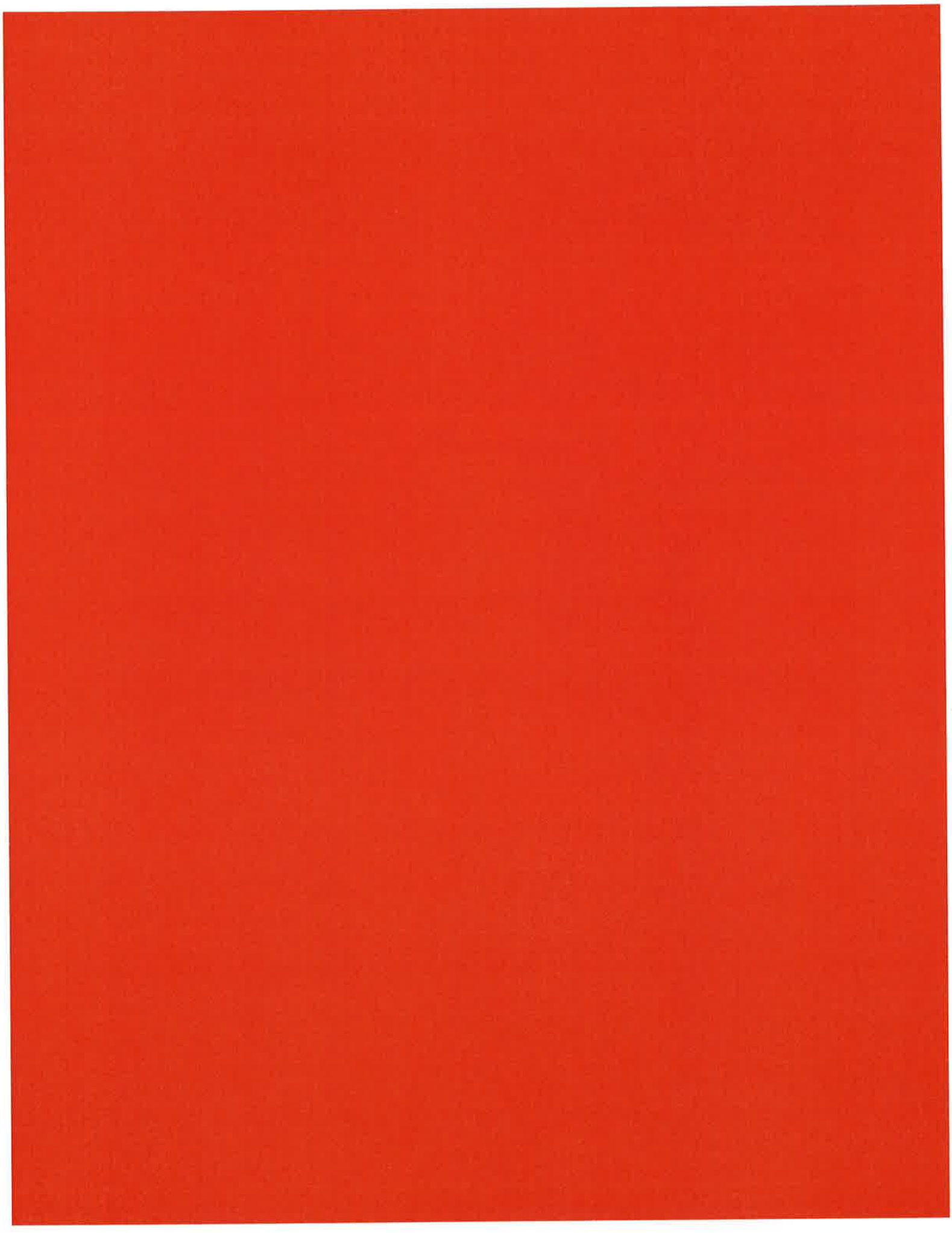
Karl Landsteiner Award. In 2013, he was selected for the Gairdner Award but chose to decline it. He has published more than 200 articles spanning topics critical to human health and holds numerous patents on diagnostics, drug targets and vaccines for HCV.

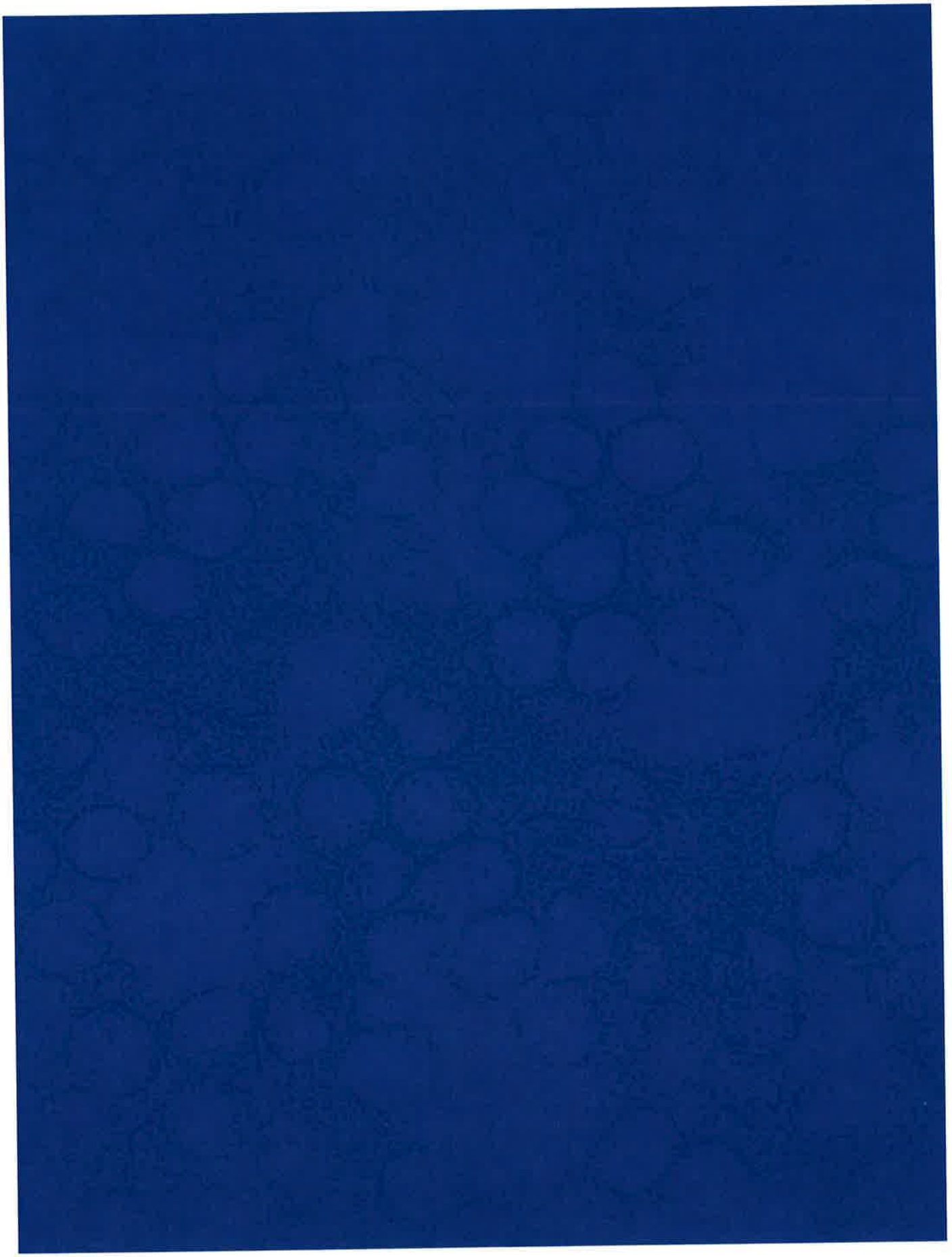
Jordan Feld, MD, MPH is a Scientist at the Toronto General Research Institute (University Health Network) and the Sandra Rotman Centre for Global Health; Research Director for the Francis Family Liver Clinic; and Associate Professor of Medicine at the University of Toronto. Following his clinical training at the University of Toronto, Dr. Feld completed a clinical research fellowship in hepatology and then spent four years performing clinical and laboratory research in the Liver Diseases Branch of the National Institutes of Health, as well as receiving a Masters of Public Health from Johns Hopkins University. Dr. Feld is already internationally recognized for his research and clinical expertise in hepatitis C management. He leads a large clinical research program that has been at the forefront of evaluating new therapies for hepatitis C and his laboratory focuses on understanding the antiviral immune response with the goal of developing new strategies for the treatment of viral hepatitis. To date, Dr. Feld has published 127 articles and clinical trials which have garnered over 3000 citations. He has published in prestigious and widely read journals including the *New England Journal of Medicine*, *Gut* and *Gastroenterology*.

Naglaa Shoukry, BPharm, PhD is a Principal Scientist and the Director the Viral Hepatitis Research Group at the Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM). She is an Associate Professor in the Department of Medicine at Université de Montréal (UM) and an Accredited Professor in the Department of Microbiology and Immunology (UM). Since joining the CRCHUM in 2005, she has established a translational research program focused on studying immunity to HCV and to understand the underlying mechanisms in failure of the innate and adaptive immune response during the majority of HCV infections. In collaboration with clinicians from the Hepatology and Addiction Medicine divisions at the CRCHUM, she has established a unique cohort of patients at different stages of HCV infection and an associated sample bank. Her research involves the use of cellular, molecular and genomic methods to study immunological and virological determinants of HCV clearance directly on samples from patients acutely and chronically infected with HCV, patients under antiviral therapy and patients who have already eliminated one infection but are still at risk of re-infection. To date, Dr. Shoukry has published 50 articles in peer-reviewed journals including *Gastroenterology*, *Hepatology*, *PLoS Pathogens* and the *Journal of Virology*. She has received multiple awards from American Liver Foundation, CIHR and FRQS. In 2015, she became the nominated principal applicant and director of the Canadian Network on Hepatitis C (CanHepC).

Julie Bruneau, MD, MSc is a Principal Scientist at CRCHUM, a Physician in the Drug Addiction Service at Centre Hospitalier de l'Université de Montréal (CHUM) and Professor in the Department of Family Medicine and Emergency Medicine at UM. She is recognized as a leader in the development of addiction medicine in Canada. She was one of the founding members of the Canadian Society of Addiction Medicine, and implemented the largest University-based Addiction Medicine Facility in Quebec. For the past twenty years, Dr. Bruneau's research program has examined individual and environmental factors that contribute to the transmission of HIV and HCV among injection drug users (IDUs). Her findings have informed the development of more effective strategies to prevent new infections in these vulnerable populations. To date, she has published 76 articles which have been cited over 2000 times. Dr. Bruneau leads the Québec – Maritimes team of Canadian Research Initiative in Substance Misuse (CRISM), which includes 61 researchers and played an instrumental role in the development of the Opiate Substitution treatment (OST) and Syringe Distribution Program networks in Quebec.

Mel Krajden, MD, FRCPC is the Medical Head of Hepatitis - Clinical Prevention Services; Acting Medical Director of BC's Public Health Laboratory at the British Columbia Centre for Disease Control. He is also a Professor of Pathology and Laboratory Medicine at the University of British Columbia. He obtained his BSc and MD (1973-80) and received Internal Medicine training at McGill University (1980-83). He did a fellowship in Infectious Diseases at Stanford University (1983- 86). He then trained as a Medical Microbiologist at the University of Toronto (1986-87). Dr. Krajden's clinical research involves integration of hepatitis prevention and care. His laboratory research involves the application of molecular techniques to diagnose viruses; assess correlates between infection and clinical disease; monitor antiviral efficacy and track microbial infections for epidemiological purposes. To date, he has co-authored 187 articles which have garnered over 6100 citations. His work has been published in well-respected journals including *Hepatology, The Journal of Infectious Diseases, Vaccine* and the *Journal of Clinical Virology*. He has extensive clinical trials expertise and serves as a laboratory coordinator for a number of industry sponsored clinical trials.





Appendix

Budget

The National ECHO Project

Canada program will allow all Class Members and other Canadians infected with hepatitis C to receive optimal management and ultimately treatment of their disease. It is anticipated that with widespread screening and treatment, the complications of hepatitis C across the country will markedly diminish with the goal that hepatitis C will eventually cease to be an important public health problem in Canada. It is particularly important to diagnose and treat difficult-to-reach populations like rural and Aboriginal communities. Increased treatment rates will lead to reduced healthcare utilization, fewer diagnoses of liver cancer and liver failure and fewer liver transplants for hepatitis C across the country.

Undiagnosed patients

We estimate that across the 8 provinces and territories there are 242,524 HCV cases. Forty percent of these cases have been diagnosed already and sixty percent are currently undiagnosed. Of the sixty percent undiagnosed cases, we estimate that one third will never be reached and remain undiagnosed and untreated. Our aim is therefore to diagnose and treat forty percent of the total HCV population in Canada (i.e. approximately 97,000 patients which is two-third of the undiagnosed population) over the next five years i.e. by 2021.

Clinics

To achieve this goal of treating 97,000 patients by 2021, our plan is to set up 90 clinics across the 8 provinces and territories according to the estimated number of patients per province. Each clinic will be set up and equipped with a part-time nurse practitioner, administrative assistant and a fibroscan to diagnose and treat more than 90,000 patients over 5 years (i.e. more than 1000 patients per clinic). Personnel will also be involved in the organization and implementation of point-of care testing to diagnose new HCV patients. The estimated costs for this part of the ECHO project are $ 89.5 M. We estimate that central coordination of this clinical hub and spoke model will cost an additional $6.7 M.

The total proposed budget for the ECHO project is **$96,260,000.00**

The National ECHO Project

A National Initiative to Transform the Management of Hepatitis C in Canada

Overall Coordination Costs

	Annual Salary	FTE	FTE qty	1 year	5 year
Echo Director	$180,000	1.0	1	$180,000	$900,000
Database Manager	$64,000	1.0	4	$256,000	$1,280,000
Programmers	$86,000	0.5	2	$86,000	$430,000
Project Managers	$98,000	1.0	6	$588,000	$2,940,000
User Support Analysts	$56,000	1.0	2	$112,000	$560,000
Administrative Assitants	$60,000	1.0	2	$120,000	$600,000
				$1,342,000	**$6,710,000**

Costs per Clinic

Administrative Secretary	$60,000	0.5	1	$30,000	$150,000
Nurse Practitioner	$130,000	0.5	1	$65,000	$325,000
Office Space				$25,000	$125,000
Supplies & organisation of POC testing				$55,000	$275,000
Fibroscan				$24,000	$120,000
Cost per clinic =				**$199,000**	**$995,000**
Cost for 90 clinics =				**$17,910,000**	**$89,550,000**

Grand Total = $96,260,000

Clinical testing of a HCV Vaccine

Introduction

A team at the University of Alberta (Houghton, Tyrrell labs) has developed a vaccine against HCV and is manufacturing it under GMP conditions at the University. It uses a CHO-derived heterodimer of envelope glycoproteins 1 & 2 (E1E2) with an approved adjuvant. Previous work by Houghton and colleagues in the USA, in collaboration with Novartis & NIH, has shown this vaccine to be efficacious in the chimpanzee challenge model (and is the only vaccine for which pre-clinical efficacy has ever been demonstrated) and safe, well-tolerated and immunogenic in humans. Further work performed at the University of Alberta has demonstrated that this vaccine elicits broadly neutralising antibodies against most of the HCV genotypes and that a cocktail of 3, E1E2 antigens provides optimal coverage against this highly diverse virus. Furthermore, this team has greatly improved the purification process such that the vaccine can now be manufactured and delivered at the large scale required for global delivery (patent applications filed). The Alberta team is funded to produce this vaccine under GMP and to perform pre-clinical toxicity testing to enable clinical testing but further funds are required to perform safety testing in humans and to demonstrate efficacy in the human population.

HCV Vaccine clinical testing program

A phase 1 trial will be initiated in early 2018 using 3 doses of the vaccine (4ug, 20ug & 100ug) administered intramuscularly on months 0, 1, and 6 respectively. Groups of 20 healthy seronegative volunteers per dose will be recruited at the University of Alberta and the vaccine's effects will be analysed for cellular and humoral responses to E1E2.

In parallel, 6 clinical sites throughout Canada (Ontario, BC, Alberta, and Quebec) will recruit HIV & HCV seronegative PWIDs (people who inject drugs) into a cohort to test the efficacy of the vaccine in a phase 2 clinical trial. The phase 2 efficacy trial will begin at the start of year 3 and conclude at the end of year 5 and will involve the recruitment of a total of 500 PWIDs, randomised and double-blinded into a vaccine or a placebo group. The anticipated outcome is a statistically-significant vaccine efficacy of at least 66% in reducing the chronicity rate of HCV infection.

In addition, a study defining correlates of cellular and humoral immunity in PWIDs will be performed in years 1 through 3 which will then be applied to the conduct of the phase 2 trial such that immunological correlates of protection will emerge along with assessments of the vaccine-mediated reduction of chronic infection, thus strengthening conclusions from the phase 2 efficacy trial.

Impact

The studies above are critical to getting a vaccine approved for use in Canada and throughout the world. Completion of the phase 1 & 2 trials outlined above will facilitate the acquisition of further public and corporate funding to perform phase 3 testing which will then result in regulatory approval of the vaccine around 2024/5. The Canadian PHA estimates that there around 10,000 new HCV infections per year in the country, most of which occur in PWIDs. The WHO estimates that there are several million new infections per year around the globe. The consequences of these infections are a devastatingly high incidence of end-stage liver disease and liver cancer, most of which we consider will be preventable using this Canada-generated prophylactic HCV vaccine.

Total 5 year Budget Requested for Testing of a vaccine against HCV = **$18,901,025**

Clinical Testing of a HCV Vaccine

	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotals
Program PI	$240,000	$244,800	$249,696	$254,690	$259,784	**$1,248,970**
Co-Program PI & Clinical Lead	$280,000	$285,600	$291,312	$297,138	$303,081	**$1,457,131**
Phase I Clinical Trial + immunogenicity analyses						
Personel						
RA Neutralising Ab assays (50% effort)	$40,000	$40,000				**$80,000**
Technician Neutralising Ab assays (50% effort)	$30,000	$30,000				**$60,000**
Technician Neutralising Ab assays (50% effort)	$30,000	$30,000				**$60,000**
RA Cellular Immunogist (50% effort)	$40,000	$40,000				**$80,000**
Technician Cellular Immunologist (50% effort)	$30,000	$30,000				**$60,000**
Technician Cellular Immunologist (50% effort)	$30,000	$30,000				**$60,000**
NACTRC (CRO)	$800,000	$400,000				**$1,200,000**
Operating costs & Laboratory supplies						
Neut Ab assay reagents	$20,000	$20,000				**$40,000**
Peptides for T cell assays	$20,000	$20,000				**$40,000**
Reagents for T cell assays	$30,000	$30,000				**$60,000**
PWID cohort at 6 Canadian Sites						
Personnel						
Site Phlebotomist (x6)	$360,000	$360,000				**$720,000**
Site PI (x6)	$400,000	$400,000				**$800,000**
Operating costs & Laboratory supplies						
HCV PCR & Ab assays	$300,000	$300,000				**$600,000**
Reagents	$40,000	$40,000				**$80,000**
Define cellular & humoral correlates of immunity in PWIDs						
Personnel						
PI (U Montreal)	$40,000	$40,000	$40,000	$164,520		**$284,520**
PhD student (U Montreal)	$26,000	$26,000	$26,000			**$78,000**
Technician (U Alberta)	$60,000	$60,000	$60,000			**$180,000**
Operating costs & Laboratory supplies						
Reagents (U Montreal)	$20,000	$20,000	$20,000			**$60,000**
Reagents (U Alberta)	$20,000	$20,000	$20,000			**$60,000**
Phase II efficacy Clinical Trial in 500 PWID						
Personel						
Clinical Site Staff - 4 per site (x6)			$1,440,000	$1,440,000	$1,440,000	**$4,320,000**
Site PIs (x6)			$600,000	$600,000	$600,000	**$1,800,000**
Neutralising Ab assays (1 RA + 3 technicians)				$240,000	$240,000	**$480,000**
Cellular T cell assays (1 RA + 3 techs)				$240,000	$240,000	**$480,000**
CRO trial management & documentation			$400,000	$400,000	$400,000	**$1,200,000**
Operating costs & Laboratory supplies						
HCV PCR & Ab assays			$500,000	$500,000	$500,000	**$1,500,000**
Assay reagents				$100,000	$100,000	**$200,000**
Sample Courier			$4,000	$4,000	$4,000	**$12,000**
Equipment						
Plate reader	$40,000					**$40,000**
Equipment for sample storage & software retrieval (x6)			$500,000	$250,000		**$750,000**
Assay reader equipment				$80,000	$60,000	**$140,000**
Administrative support						
Administrative support x2	$100,000	$102,000	$104,040	$106,121	$108,243	**$520,404**
Travel and publication costs	$30,000	$30,000	$30,000	$30,000	$30,000	**$150,000**
Subtotals	**$3,026,000**	**$2,598,400**	**$4,285,048**	**$4,706,469**	**$4,285,108**	
						Total $18,901,025

All salaries include benefits and a 2% adjustment for inflation

Year one budgets are subject to recruitment lags

HCV Point-of-Care Diagnostics Development

Diagnosis of HCV infection

The current two-step approach for diagnosis of HCV infection involves a) detection of HCV specific antibody in blood followed by b) detection of viral load combined with HCV sequence. This procedure can be a road block for increasing the testing and diagnosis rates since: many individuals never receive viral load testing after a positive antibody test, or may not follow-up with their healthcare providers. In some cases, physicians may not recognize the need for the second test. Furthermore, the facilities that perform the tests do not exist in remote places, so testing cannot be done or takes a long time. Therefore, development of a rapid, accessible diagnostic test for HCV infection is important to identify patients and get them access to treatment to clear the HCV infection

Development of point-of care diagnostics for HCV

Point-of-care diagnostics are medical tools or devices that can diagnose diseases in the community, generally outside of a formal clinic setting. By shifting disease diagnosis to the community level, POC diagnostics can: reduce cost of diagnosis and unnecessary travel to clinics, improve early detection by catching more illnesses, and improve access in low resource settings.

The main objective for POC development is to apply minimum amount of blood (finger prick) or saliva (to avoid blood processing) to detect antibody, viral nucleic acid, and other biological markers using a portable device in a short amount of time (<1h). Development of POC tests involves the combination of clinical, biological, chemical, and engineering expertise. It is a labor intensive process that requires a fully outfitted BSL-II laboratory (0.5M), specialized research equipment (Viruscounter (73k); Confocal microscope (0.24M); Ultracentrifuge (46k) and clean laboratory environment (Hard wall clean room (0.24M

Assay development/discovery

The best possible immunologic reactions for detection of HCV antigens with the minimum amount of blood or saliva are identified. In parallel, optimized isothermic amplification reactions for identifying HCV specific sequences with gold nanoparticles will be developed. These processes (that substitute the two steps of the traditional testing) will be combined on a microchip and will be optimized for microfluidics systems. This part required immunology, biochemistry, and bioengineering expertise.

Test validation

The device/test's sensitivity and accuracy needs to be verified. Thousands of blood/serum samples (Biorepository) will be analyzed by the new POC test and the results must be confirmed by the traditional HCV diagnostics. Troubleshooting will be done if there are discrepancies in the results achieved by POC test. This process requires the involvement of clinical staff for patient recruitment and testing

Total 5 year Budget Requested for HCV-POC Development = **$10,972,671**

HCV Point-of-Care Diagnostics

Component	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Principal Investigator	$180,000	$183,600	$187,272	$191,017	$194,838	**$936,727**
Assay Development, testing and production						
Personel						
Bioengineer (PhD)	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
Biochemist (PhD)	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
Biotatistician (PhD)	$0	$0	$140,000	$153,875	$156,953	**$450,828**
Research Technician	$60,000	$61,200	$62,424	$63,672	$64,946	**$312,242**
Bioengineer Technician x3, 2 will be recruited for production in the 3rd year	$60,000	$61,200	$182,424	$186,072	$189,794	**$679,490**
Laboratory technologist starting at 50,000/year each	$50,000	$51,000	$52,020	$53,060	$54,122	**$260,202**
Assay Development						
Reagents						
Cemicals and antibodies	$50,000	$50,000	$50,000	$50,000	$50,000	**$250,000**
Gold Nanoparticles x 100 @ 500/ 25ml unit	$50,000	$50,000	$50,000	$50,000	$50,000	**$250,000**
Cells, culture media	$20,000	$20,000	$0	$0	$0	**$40,000**
Isothermic Amplification kit x 100 at 400/pack	$10,000	$10,000	$10,000	$10,000	$10,000	**$50,000**
Test Development	$100,000	$125,000	$50,000	$25,000	$25,000	**$325,000**
Test Validation on biorepository samples			$100,000	$50,000		**$150,000**
Molecular Biology Services						
Sequncing @ 100 /sample for 3000 tests	$10,000	$40,000	$50,000	$100,000	$100,000	**$300,000**
Point of Care Testing						
Personnel						
Medical lab technologist x2 starting at 75,000 each	$0	$0	$150,000	$153,000	$156,060	**$459,060**
Clinical Coordinator **x3** starting at 50,000/year each	$0	$0	$150,000	$153,000	$156,060	**$459,060**
Hepatologist (MD) x2 h	$0	$0	$500,000	$510,000	$520,200	**$1,530,200**
Test production			$50,000	$150,000	$100,000	**$300,000**
Field Test Validation				$50,000	$150,000	**$200,000**
Specialized BSL-II lab for Diagnostic Development						
Full Service BSL-II lab	$500,000					**$500,000**
Specialized equipment and infrastructure						
Hard-wall clean room @ 10,000 per sqm, x2 size 12sqm	$240,000	$0	$0	$0	$0	**$240,000**
Ultracentrifuge	$46,000	$0	$0	$0	$0	**$46,000**
Virus Counter 3100	$73,000	$0	$0	$0	$0	**$73,000**
Leica TCS SP8 confocal system with Hybrid Detector	$240,000	$0	$0	$0	$0	**$240,000**
Administrative support						
Computer hardware, analytical software (e.g., SAS) database software	$40,000	$40,000	$40,000	$40,000	$40,000	**$200,000**
Sample shipping, storage and maintenance	$50,000	$51,000	$52,020	$53,060	$54,122	**$260,202**
Phones, printers, office supplies	$20,000	$20,000	$20,000	$20,000	$20,000	**$100,000**
Administrative support x2	$120,000	$121,400	$125,800	$128,360	$130,927	**$626,487**
Travel and publication costs	$35,000	$40,000	$45,000	$50,000	$55,000	**$225,000**
Total	**$265,000**	**$272,400**	**$282,820**	**$291,420**	**$300,049**	
Subtotals	**$2,064,000**	**$1,036,600**	**$2,181,404**	**$2,356,851**	**$2,397,089**	
					Total	**$10,972,671**

Epidemiology and ECHO Outcomes

To document that ECHO truly delivers the benefits of reduced long-term complications, it will be critical to collect prospective data on all those who are managed in the ECHO Canada program to ensure that the outstanding results seen in clinical trials are replicated in clinical practice, particularly among difficult-to-reach populations. Perhaps more important than the immediate cure rates will be documentation of reduced healthcare utilization in terms of reduced hospitalizations, fewer liver cancer and liver failure and fewer liver transplants for hepatitis C in all provinces. The platform of coordinated linked treatment centres with common data collection tools will allow for collection of data as treatment is rolled out and linkage to existing Provincial and National registries will allow for collection of long-term follow-up data.

Prospective Data Collection

Data collection within the ECHO Canada program will require development of synchronized data collection tools applicable to the various healthcare settings involved in the program. A huge volume of data will be generated, which will require management, cleaning and analysis. Extensive statistical expertise will be needed to analyze the early and late outcomes of treatment.

Data Linkage

Comprehensive health records are stored in Provincial and National Administrative databases like the Institutes for Clinical and Evaluative Sciences (ICES) in Ontario and the BC Cancer registry. Linkage of primary heath data with records held in administrative databases is a complicated process. Data must be de-identified to ensure complete confidentiality of all health records. Data sources must then be merged after which huge quantities of data across multiple areas of health information must be analyzed. Extensive data management and statistical expertise are required to handle the large datasets involved.

Sample Storage & Analysis

In addition to providing important information about health outcomes, detailed long-term follow-up data will be invaluable as a tool to develop the other research aims. Well pedigreed cohorts of individuals with and without complications of hepatitis C, such as liver cancer, will aid in biomarker discovery. Samples will be collected in the ECHO Canada hubs and stored in a standardized manner to allow for future biological research. Careful analysis of the sequence of the hepatitis C virus from different populations in the country will also provide critical information about the spread of the virus across the country and particularly about the emergence of resistance to the new hepatitis C therapies. The virological analysis will be carried out the BC Centres for Disease Control, which has led the world in similar work in other viral infections.

The total proposed budget for Outcomes/Epidemiology research is **$ 13,843,524**

Epidemiology and ECHO Outcomes

Component	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotals
Principal Investigator	$180,000	$183,600	$187,272	$191,017	$194,838	**$936,727**
Personel						
Scientific Associate - PhD Epidemiologist	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
Masters level Epidemiologist	$98,000	$99,960	$101,959	$103,998	$106,078	**$509,996**
Scientific Associate - PhD Statistician	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
Masters level Statistician	$98,000	$99,960	$101,959	$103,998	$106,078	**$509,996**
Scientific Associate - PhD Health Economist	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
Masters level Health Economist	$98,000	$99,960	$101,959	$103,998	$106,078	**$509,996**
Scientific Associate - PhD Mathematical Modeler	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
Masters level Mathematical Modeler	$98,000	$99,960	$101,959	$103,998	$106,078	**$509,996**
Data Architect (50% after 2 years)	$175,000	$178,500	$91,035	$92,856	$94,713	**$353,500**
Buisness analyst (50%)	$70,000	$71,400	$72,828	$74,285	$75,770	**$364,283**
Data manager	$60,000	$61,200	$62,424	$63,672	$64,946	**$312,242**
Tissue Repository Coordinator	$60,000	$61,200	$62,424	$63,672	$64,946	**$312,242**
Biorepository						
sample collection and harmonized storage protocol development	$125,000	$225,000	$250,000	$150,000	$150,000	**$900,000**
Sample Tracking Software	$20,000	$4,000	$4,000	$4,000	$4,000	**$36,000**
shipping	$40,000	$50,000	$60,000	$70,000	$70,000	**$290,000**
Freezers -80 C x 15 @ 12,000 each	$36,000	$36,000	$36,000	$36,000	$36,000	**$180,000**
storage, operational cost, and maintenance	$30,000	$50,000	$75,000	$100,000	$100,000	**$355,000**
Database Development & Management						
development, deployment maintenance of clinical databases	$175,000	$250,000	$150,000	$125,000	$125,000	**$825,000**
Data storage hardware, analytical software (e.g., SAS, R,) database software	$150,000	$300,000	$300,000	$120,000	$120,000	**$990,000**
Development of harmonized data sharing protocols and agreements, privacy impact assessments, harmonized ethics approvals, harmonized biobanking protocols	$200,000	$250,000	$100,000	$100,000	$100,000	**$750,000**
Molecular Analysis						
Molecular phylodynamics and testing for drug resistance in treatment failures	$150,000	$350,000	$400,000	$400,000	$400,000	**$1,700,000**
Administrative support						
Computers, phones, printers, office supplies	$50,000	$51,000	$52,020	$53,060	$54,122	**$260,202**
Administrative support x 3	$180,000	$183,600	$187,272	$191,017	$194,838	**$936,727**
Travel and publication costs	$35,000	$40,000	$45,000	$50,000	$50,000	**$220,000**
Subtotals	**$2,528,000**	**$3,153,340**	**$2,959,272**	**$2,725,057**	**$2,756,458**	
					Total	**$13,843,524**

All salaries include benefits and a 2% adjustment for inflation

Year one budgets are subject to recruitment lags

Liver Cancer Detection and Treatment

Hepatitis C is the primary cause of liver cancer in Canada and is the only cancer in Canada for which the incidence is increasing. The progressive damage to the liver caused by HCV infection leads to cirrhosis, which markedly increases the risk of developing liver cancer. If identified at an early stage, liver cancer is treatable. However, treatment efficacy declines at later stages. Main contributors to the poor prognosis at late stages are related to genetic, metabolic, environmental and immunological factors that have been imprinted by the tumors and are difficult to revert. Thus, the goal of the proposed Liver Cancer Screening and Treatment research arm are to identify robust biomarkers in the blood to facilitate screening, early detection and cancer prediction and novel therapeutics that allow us to treat patients diagnosed with late stage liver cancer.

Detection and Screening

Detecting early stages of liver cancer is very challenging. Current guidelines use ultrasound to identify small cancers at a time when they are still curable but numerous practical challenges limit this strategy. A robust biomarker in the blood would provide a discrete quantitative target. The liver is the primary metabolic organ in the body, responsible for the vast majority of proteins in the serum, lipid production/storage and glucose storage/metabolism. Thus, alterations in the composition of serum proteins, lipids and metabolites may indicate developing tumors. The ECHO biorepository will provide an exceptional cohort of samples in which to identify changes in these physiological processes using Proteomic (0.43M), Lipidomic (0.43M) and Metabolomic (0.43M) screens. Serum from patients with and without liver cancer will be analyzed using these three different methods. Data obtained from the samples will be analyzed by bioinformatics scientists to identify significant changes in the protein/lipid/metabolic profile that will serve as a biomarker for early stage cancer detection. The resulting data will be modeled by a mathematician to develop algorithms that predict liver cancer development, allowing us to predict who is at the highest risk for cancer and identify patients at early stages of disease.

Treatment

Treatment for any late stage cancer remains extremely challenging. The genetic diversity and the immune-suppressive environment that arises in solid tumors likely means a multifaceted approach will be necessary. Fundamentally understanding the biology of liver cancer tumors is key. This will require a concerted proteomic, genomic and immunological approach. Drug targets, neoantigens or mechanisms of innate immune suppression identified through these efforts will be investigated in model systems to develop novel targeted chemo- and immunotherapies. Support for the pioneering efforts in nanoparticle technology will allow for specific delivery of the newly developed drugs or immune boosting agents directly to tumors. These efforts will require significant staff and a fully outfitted BSL-II laboratory (0.5M) with specialized equipment for cellular isolation and imaging (Laser Microdissection (0.5M); Flow cytometry cell sorter (0.75M); small animal MRI (0.6M); Confocal microscope (0.25M); Imaging flow cytometer (0.5M)). The goal is to translate these discoveries to patient care, increasing our ability to fight late stage tumors and provide quality of life for the class and wider HCV/liver cancer patient community.

Total 5 year Budget Requested for Liver Cancer and Screening = **$14,912,628**

Liver Cancer Detection and Treatment

	Year 1	Year 2	Year 3	Year 4	Year 5	Subtotals
Prinicpal Investigator	$180,000	$183,600	$187,272	$191,017	$194,838	**$936,727**
Biomarker Discovery & Validation						
Personel						
Ph.D. Scientist	$105,000	$107,100	$109,242	$111,427	$113,655	**$546,424**
Ph.D. Scientist	$105,000	$107,100	$109,242	$111,427	$113,655	**$546,424**
Rsearch Technician	$60,000	$61,200	$62,424	$63,672	$64,946	**$312,242**
Scientific Associate - Statistician/Bioinformatics	$145,000	$147,900	$150,858	$153,875	$156,953	**$754,586**
PhD Statistician/Bioinformatics	$105,000	$107,100	$109,242	$111,427	$113,655	**$546,424**
PhD Mathematical Modeler (50% effort)			$75,000	$76,500	$78,030	**$229,530**
Operating costs & Laboratory supplies						
Laboratory consumables (3 people) - Cell culuture material, plastics, chemicals, biological media, molecular biology reagents, antibodies	$90,000	$92,700	$95,481	$98,345	$101,296	**$477,822**
Biomarker Discovery						
Proteomics	$150,000	$154,500	$159,135			**$463,635**
Lipidomics	$150,000	$154,500	$159,135			**$463,635**
Metabolomics	$150,000	$154,500	$159,135			**$463,635**
Biomarker Validation						
Proteomics				$100,000	$103,000	**$203,000**
Lipidomics				$100,000	$103,000	**$203,000**
Metabolomics				$100,000	$103,000	**$203,000**
Novel Therapeutics						
Personel						
Ph.D. Scientist	$105,000	$107,100	$109,242	$111,427	$113,655	**$546,424**
Ph.D. Scientist	$105,000	$107,100	$109,242	$111,427	$113,655	**$546,424**
Rsearch Technician	$60,000	$61,200	$62,424	$63,672	$64,946	**$312,242**
Medicinal/Organic Chemist				$145,000	$145,000	**$290,000**
Target Identification						
Genomics	$100,000	$103,000	$30,000			**$233,000**
Proteomics	$100,000	$100,000	$30,000			**$230,000**
Target Evaluation & Therapeutic Development						
Nanoparticle development	$20,000	$50,000	$60,000	$50,000	$51,000	**$231,000**
Immunotherapy targets - vaccine/innate/gene therapy	$20,000	$50,000	$60,000	$61,200	$62,424	**$253,624**
Chemotherapy screening assay development	$20,000	$60,000	$60,000			**$140,000**
Small molecule chemotherapy drug screening			$100,000	$102,000	$104,040	**$306,040**
Lead optimization				$60,000	$60,000	**$120,000**
Therapeutic production for in vivo testing				$100,000	$100,000	**$200,000**
In vivo efficacy & toxicity						
Animal costs, housing & Veterinary services		$120,000	$160,000	$180,000	$189,000	**$649,000**
Specialized BSL-II Lab for HCC						
Full service BSL-II lab	$500,000					**$500,000**
Isolatoion/analysis of tumors, Therapy development						
Specialized Equipment						
target identificaton and testing						
Small animal MRI	$600,000					**$600,000**
Imaging flow cytometer	$500,000					**$500,000**
Flow cytometry cell sorter with BSL-II containment	$750,000					**$750,000**
Confocal Microscope	$250,000					**$250,000**
Laser Microdissection	$500,000					**$500,000**
Tissue Dissociation equipment	$50,000					**$50,000**
Elispot Analyzer	$120,000					**$120,000**
Administrative support						
Computers, phones, printers, office supplies	$50,000	$51,000	$52,020	$53,060	$54,122	**$260,202**
Administrative support x2	$120,000	$122,400	$124,848	$127,345	$129,892	**$624,485**
Travel and publication costs	$35,000	$40,000	$45,000	$50,000	$50,000	**$220,000**
Sample shipping	$25,000	$25,500	$26,010	$26,530	$27,061	**$130,101**
Subtotals	**$5,270,000**	**$2,267,500**	**$2,404,952**	**$2,459,353**	**$2,510,823**	
					Total	**$14,912,628**

All salaries include benefits and a 2% adjustment for inflation

Year one budgets are subject to recruitment lags

DIANNA LOUISE PARSONS, et al.

Plaintiffs

-and- THE CANADIAN RED CROSS SOCIETY, et al.
Defendants

-and- HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA, et al.
Intervenors

Court File No. 98-CV-141369 CP00

ONTARIO
SUPERIOR COURT OF JUSTICE

PROCEEDING COMMENCED AT
TORONTO

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