



Australian Centre for HIV and Hepatitis Virology Research (ACH²)

9th Annual Scientific Workshop

**The Carrington Hotel, Katoomba
Wednesday, 5th June – Friday, 7th June 2013**



International Guests

Hepatitis

Professor Heiner Wedemeyer
Hannover Medical School

HIV

Richard Koup MD
National Institutes of Health

Workshop Organisers

Hepatitis: Karla Helbig, Andrew Lloyd

HIV: Rob Center, Andrew Harman

Secretariat: Denise Brown

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GUEST SPEAKERS

HIV

Richard Koup, MD
Vaccine Research Center
National Institutes of Health
Bethesda Maryland USA

Hepatitis

Professor Heiner Wedemeyer
Department of Gastroenterology,
Hepatology and Endocrinology
Hannover Medical School
Germany

GUEST SPEAKER

HIV



Richard Koup, MD
Vaccine Research Center
National Institutes of Health
Bethesda Maryland USA

Dr. Koup received a B.S. in Biophysics and a M.S. in Biochemistry from the University of Connecticut and his M.D. from the Johns Hopkins University School of Medicine. Dr. Koup did his internship and residency in Internal Medicine at the Rhode Island Hospital and a fellowship in Infectious Diseases at the University of Massachusetts Medical School. Dr. Koup has

held appointments at the Aaron Diamond AIDS Research Center and University of Texas Southwestern Medical Center. Eleven years ago Dr. Koup moved to the NIH to join the Vaccine Research Center where he is a tenured Senior Investigator and Chief of the Immunology Laboratory.

Dr. Koup studies the protective role of HIV-specific cellular immunity. His major discoveries include defining the temporal association between the first appearance of cytotoxic T cells and the decline in viremia during acute infection, delineating the role of the thymus in HIV pathogenesis, showing that HIV specific CD4+ T cells are preferentially infected and depleted by HIV, and determining that the quality, not just the quantity, of the T cell response to HIV is crucial for maintaining control over HIV replication. Most recently he has begun to study the role of follicular T helper cells in HIV/SIV pathogenesis and the role they will play in the development of an effective vaccine against AIDS.

Dr. Koup has trained over 35 pre- and post-doctoral students, and co-authored over 200 papers on HIV and related topics. He serves as an editor for Journal of Virology and PLoS Pathogens.

GUEST SPEAKER

HEPATITIS



Professor Heiner Wedemeyer
Principal Investigator
Department of Gastroenterology,
Hepatology and Endocrinology
Hannover Medical School
Germany

Professor Wedemeyer studied musicology and medicine and graduated in Medicine from the University of Göttingen, Germany. From 1998-2000, Professor Wedemeyer worked as a research fellow in immunology in the Liver Diseases Section at the National Institutes of Health in Bethesda, Maryland, USA. Since 2001, he has been a Senior Physician in gastroenterology and hepatology in the Department of Gastroenterology, Hepatology and Endocrinology in Hannover, where he leads a research group on T cell immunology and heads the hepatitis diagnostic laboratory. Since 2002, Professor Wedemeyer has been the Scientific Secretary of the German Network of Competence on Viral Hepatitis (funded by the German Ministry for Education and Research). His research has been supported by the Deutsche Forschungsgemeinschaft, the German Ministry for Research and Education, the European Union, the European Association for the Study of the Liver, Hep-Net and the Bill and Melinda Gates Foundation.

Professor Wedemeyer has worked on basic and clinical aspects of hepatitis viral infections since 1996. His main interests are the immunopathogenesis of hepatitis B, hepatitis C and hepatitis D and the development of novel immunomodulatory therapies, such as therapeutic vaccines for hepatitis C. He has been involved as an Investigator in several Phase I-IV clinical trials of antiviral drugs and immunotherapies for viral hepatitis and has published more than 150 articles in peer reviewed journals. Prof. Wedemeyer joined the Governing Board of the European Association for the Study of the Liver from 2008-2011 and has been appointed as EASL Secretary General from April 2009-April 2011.

Further information can be found at <http://www.mh-hannover.de/index.php?id=12513&L=1>

WORKSHOP SPONSORS AND AWARDS

We acknowledge and thank our generous sponsors



We thank the following organisations for their generous support of the 2013 ACH² Scientific Workshop:

Diamond Support	Australian Government, Department of Health and Ageing Australian Centre for HIV and Hepatitis Virology Research (ACH ²)
Bronze Support	Roche Diagnostics Australia Pty. Ltd.
Young Achiever Support	Australian Centre for Hepatitis Virology (ACHV) Gilead Sciences Pty. Ltd. Westmead Millennium Institute for Medical Research

This support means that Early Career Investigators and students who give oral presentations will each be eligible for one of the following awards in 2013:

Australian Centre for Hepatitis Virology Robert Dixon Award	\$500.00
Gilead Sciences Pty. Ltd. Educational Grant (HIV)	\$750.00
Gilead Sciences Pty. Ltd. Educational Grant (Hepatitis)	\$750.00
Roche Diagnostics Australia Pty Ltd. Educational Grant (HIV)	\$500.00
Roche Diagnostics Australia Pty Ltd. Educational Grant (Hepatitis)	\$500.00
Westmead Millennium Institute for Medical Research Young Achiever Award (HIV)	\$500.00
Westmead Millennium Institute for Medical Research Young Achiever Award (Hepatitis)	\$500.00

Award Recipients 2012

HIV Awards

American Society for Microbiology	Valerie Marsden	\$300.00
Gilead Sciences Pty. Ltd. Educational Grant (HIV)	Anupriya Aggarwal	\$750.00
Victorian Infectious Diseases Reference Laboratory	Tom Wright	\$500.00

HCV Awards

Early Career Award

Gilead Sciences Pty. Ltd. Educational Grant (Hepatitis)	Julianne Bayliss	\$750.00
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Student Awards

MSD Hepatology Young Achiever Award	Kate Muller	\$500.00
Biota Holdings Limited Young Achiever Award	Edmund Tse	\$500.00
Westmead Millennium Institute for Medical Research Young Achiever Award (Hepatitis)	Mahsa Shahidi	\$500.00

ACHV Travel Awards

HCV	Sumudu Narayana
HBV	Elizabeth Bannister

Robert Dixon Award	Guillaume Fiches	\$500.00
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PROGRAM

9th Annual Scientific Workshop

The Carrington Hotel, Katoomba, New South Wales
5th - 7th June 2013

Day One: Wednesday, 5th June 2013

Lounge

10:00 – 11:00 **Registration and Morning Tea**

Ballroom

11:00 – 11:15 **Welcome**
Tony Cunningham (ACH²) and Peter White (ACHV)

11:15 – 12:00 **HIV Plenary**

Chair: Stephen Kent

Dr. Richard Koup

Title: **Immunopathogenesis of HIV/SIV Infection**

12:00 – 13:00 **Joint Session 1**

Early Infection / Viral Evolution

Chairs: Miles Davenport and Silvana Gaudieri

12:00 – 12:15 **Janka Petracic** [43]
How much HIV comes from the gut?

12:15 – 12:30 **Sarah Palmer** [42]
Longitudinal analysis of infection frequencies and genetic makeup of intracellular HIV-1 from tissue compartments during long-term suppressive therapy

12:30 – 12:45 **Rowena Bull** [11]
Evolutionary trajectory of the HCV founder virus in individuals with different disease progression

12:45 – 13:00	Behzad Hajarizadeh Early HCV RNA dynamics and factors associated with high early HCV RNA level during acute HCV infection	[27]
13:00 – 14:00	Grand Dining Room Lunch	
14:00 – 15:30	Ballroom Concurrent Session 1a HIV latency / replication Chairs: Con Sonza and Stuart Turville:	
14:00 – 14:15	Fiona Wightman The safety and effect of multiple doses of Vorinostat on HIV transcription in HIV-infected patients receiving combination antiretroviral therapy	[59]
14:15 – 14:30	Alison Castley Expression of cell surface monocyte activation markers on CD14pos/CD16pos monocytes show increased activation in HIV patients	[14]
14:30 – 14:45	Jonathan Jacobsen High throughput chemical screening to find compounds that exploit a novel mechanism of HIV-1 gene expression during post integration latency	[30]
14:45 – 15:00	Wendy Winnall Simian immunodeficiency virus infection of the pigtail macaque testes	[60]
15:00 – 15:15	Deborah Cromer Estimating the in-vivo HIV recombination rate	[17]
15:15 – 15:30	Nitin Saksena First evidence for disease stage, cell type- and virus-specific microRNAs during human immunodeficiency virus type-1 infection	[49]

14:00 – 15:30

Library

Concurrent Session 1b Vaccines

Chairs: Rose Ffrench and Fabio Luciani

14:00 – 14:15

Michiko Hyakumura

Variation of immunogenicity by biochemically modified virus-like particles

[66]

14:15 – 14:30

Tamsin Garrod

Inducing necrosis to enhance DNA vaccination

[22]

14:30 – 14:45

Suzy Teutsch

Incident hepatitis B infection and immunisation uptake in Australian prison inmates

[53]

14:45 – 15:00

Renaë Walsh

Epitope mapping the anti-HBs neutralisation domain of HBsAg

[55]

15:00 – 15:15

Wenbo Yu

A novel challenge model to evaluate the efficacy of hepatitis C virus vaccines in mice

[61]

15:15 – 15:30

Sukanya Raghuraman

Restoration of HCV-specific immune responses after sustained virological response to anti-viral treatment

[44]

15:30 – 16:00

Lounge

Afternoon Tea

16:00 – 17:30

Library

Concurrent Session 2a Hepatitis Pathogenesis

Chairs: Michael Beard and Sukanya Raghuraman

16:00 – 16:15

Benny Baharuddin

Impaired T cell glucose metabolism during chronic hepatitis C virus infection

[4]

16:15 – 16:30

Mosleh Abomughaid

Using lipidomics to identify new drug targets against the hepatitis C virus

[1]

16:30 – 16:45

Nadia Warner

The Hepatitis B surface proteins may promote the development of liver cancer via upregulation of Wnt/ β -catenin signalling

[57]

16:45 – 17:00	Magdalene Budzinska The role of hepatitis B virus (HBV)-host cell fusion proteins in the role of hepatocarcinogenesis	[10]
17:00 – 17:15	Julianne Bayliss Hepatitis B splicing is enhanced prior to development of hepatocellular carcinoma	[5]
17:15 – 17:30	Mark Gorrell Host proteases in HCV infection and as liver injury markers	[24]

16:00 – 17:45

Ballroom

Concurrent Session 2b HIV Vaccines

Chairs: Hans Netter and Wendy Winnall

16:00 – 16:15	Rose Ffrench Immunogenicity of a novel HIV-Gag MicroCube vaccine	[65]
16:15 – 16:30	Tamsin Garrod Evaluating the Immunomodulatory effect of natural adjuvants as a novel vaccine strategy	[21]
16:30 – 16:45	Chris Gonelli The influence of N-linked glycosylation on recombinant HIV-1 Env immunogenicity	[63]
16:45 – 17:00	Sri Ramarathinam A peptidomics strategy to identify naturally presented HIV-1 gp140 epitopes	[64]
17:00 – 17:15	Shayarana Goeratna To escape or not to escape: pigtail-macaque MHC class I haplotypes that drive CTL escape in SIV infection	[23]
17:15 – 17:30	Niamh Keane Evaluation of HLA-restricted HIV-specific CD8 T cell responses and viral adaptation in acutely infected HIV patients prior to full seroconversion	[31]
17:30 – 17:45	Charani Ranasinghe HIV-1 pox viral-based vaccination: The role of IL-10 vs IL-13 transient inhibition in modulating CD8 T cell immunity	[69]
17:45 – 18:00	Kerrie Sandgren Innate mechanisms by which vaccine adjuvants influence HIV-1 Env immunity	[70]

18:00 – 19:00

Recreation

17:45 – 18:45

Library

ACHV Annual General Meeting

18:45 – 19:00

Recreation

19:00 – 19:30

Lounge

Pre-Dinner Drinks

19:30 – 22:30

Grand Dining Room

Dinner

Day Two: Thursday, 6th June 2013

07:30 – 08:45

Grand Dining Room

Breakfast with international guests

Breakfast

08:45 – 09:30

Ballroom

HCV Plenary

Chairs: Peter White and Michaela Lucas

Professor Heiner Wedemeyer

Title: HCV and NK cells

09:30 – 10:00

Joint Session 2

Host immunity and Infection outcomes

Chairs: Peter White and Michaela Lucas

09:30 – 09:45

Stephen Kent

Latent SIV turns over surprisingly quickly off therapy: implications for HIV cure studies

[32]

09:45 – 10:00

Elizabeth Keoshkerian

HCV specific effector and regulatory CD4+ T-cells predict primary infection outcomes

[33]

10:00 – 10:30

Lounge

Morning Tea

10:30 – 12:00

Ballroom

Concurrent Session 3a

Drugs and Drug Resistance

Chairs: Peter Revill and Amanda Aloia

10:30 – 10:45

David Harrich

Stacking inhibitor checkpoints to inhibit HIV replication

[29]

10:45 – 11:00	Lilly Yuen Progress of an online genotypic drug resistance testing and monitoring program for chronic hepatitis C	[62]
11:00 – 11:15	Michael Roche A common mechanism of clinical HIV-1 resistance to Maraviroc despite divergent resistance levels and lack of common gp120 resistance mutations	[46]
11:15 – 11:30	Nadia Warner The selection and persistence of an immune escape, drug-resistant, defective HBV strain	[56]
11:30 – 11:45	Scott Read HCV infection promotes the expression of AXL and may contribute to interferon treatment non-response	[45]
11:45 – 12:00	Kieran Cashin CoRSeq _{V3-C} : a novel HIV-1 subtype C specific V3 sequence based coreceptor usage prediction algorithm	[13]

10:30 – 12:00

Library

Concurrent Session 3b Epidemiology

Chairs: Jason Grebely and Margaret Littlejohn

10:30 – 10:45	Daniel Bradshaw Combined social network and phylogenetic analysis identifies HCV transmission through specific sexual networks in HIV-infected MSM in Australia	[8]
10:45 – 11:00	Neil Bretana Molecular epidemiology and social network analysis to track HCV transmission in high-risk communities: injecting drug users in New South Wales prisons	[9]
11:00 – 11:15	Alison Castley Monitoring HIV-1 subtype diversity and mobility in the Western Australia HIV cohort- Where are HIV infections coming from and are there forward transmissions?	[15]
11:15 – 11:30	Francois Lamoury Use of a novel sequence analysis method of the 5'UTR-HVR1 region for genotyping and molecular epidemiology for the ATAHc study	[34]
11:30 – 11:45	Rosalind Edwards Molecular epidemiology of hepatitis B in Indigenous populations across the Asia-Pacific Region	[18]
11:45 – 12:00	Melanie Walker Genotype distribution in a NSW prison setting	[54]

12:00 – 13:15

Grand Ballroom

Lunch

Grand Ballroom

Lunch with international guests

Chifley Room

ACH² Executive Meeting & Working Lunch

13:15 – 15:00

Ballroom

Concurrent Session 4a

Title: HIV Pathogenesis

Chairs: David Harrich and Najla Nasr

13:15 – 13:30

Rachel Botting

Maturation of Dendritic cells by HIV and microvesicles

[7]

13:30 – 13:45

Alexandra Feetham

Determining the mechanism by which HIV blocks interferon induction in Dendritic cells

[68]

13:45 – 14:00

Amber Campbell

Dominant/negative expression of HIV integrase domains inhibits viral assembly and infection at early stages prior to integration

[12]

14:00 – 14:15

Sarah Lloyd

Impact of the Q151N mutation in SIV reverse transcriptase on SIV infection of macaques

[38]

14:15 – 14:30

Dongsheng Li

HIV reverse transcriptase directly binds to the eEF1A1 subunit of the elongation factor 1 complex

[36]

14:30 – 14:45

Amanda Rose

The interaction of HIV-1 genomic RNA and translation elongation factor 1A

[47]

14:45 – 15:00

Samantha McAllery

Resolving the post-entry effects of SIV Vpx in macrophages and Dendritic cells

[40]

13:15 – 14:45

Library

Concurrent Session 4b

Title: Hepatitis Therapeutics

Chairs: Andrew Lloyd and Rowena Bull

13:15 – 13:30

Nicholas Eyre

[20]

Towards a mechanism of action for hepatitis C virus (HCV) NS5A-targeting antivirals

13:30 – 13:45

Auda Eltahla

[19]

Cross genotypic inhibition of hepatitis C virus by leading polymerase inhibitors

13:45 – 14:00

Amanda Aloia

[2]

Development of a genotype 1b/6a NS3 chimeric replicon for testing of direct acting antivirals against the HCV NS3 protease

14:00 – 14:15

Gholamreza Haqshenas

[67]

HCV p7 protein: A novel antiviral target

14:15 – 14:30

Meifang Han

[28]

New treatment strategy: switching from long-term entecavir to peginterferon alfa-2a induces HBeAg seroconversion/HBsAg clearance in patients with HBeAg-positive chronic hepatitis B

14:30 – 14:45

Mahsa Shahidi

[50]

The mechanism of the antiviral effect of CB1 Antagonist (AM251) on hepatitis C virus Infection

14:45 – 15:00

Recreation

15:00 – 15:30

Lounge

Afternoon Tea

15:30

Buses depart The Carrington Hotel

17:00

Jenolan Caves Tour

19:00

Jenolan Caves House

Dinner

Day Three: Friday, 7th June 2013

07:30 – 08:30

The Grand Ballroom

Breakfast

08:30 – 09:45

Ballroom

Joint Session 3

Title: Genomics

Chairs: Damian Purcell and David Bowen

08:30 – 08:45

Nitin Saksena

[48]

Parallel genomewide mRNA and miRNA profiling of HIV-infected brains HIV shows the role of axon guidance pathways in HIV-mediated neurodegeneration

08:45 – 09:00

Priyanka Gupta

[26]

Genome-wide mRNA and miRNA profiling from HCV, HIV and HIV+HCV co-infected peripheral blood mononuclear cells (PBMC) reveal distinct micro-RNAs regulating HIV+HCV co-infection

09:00 – 09:15

Mark Watson

[58]

Accurate Identification of HCV sequence variants using deep sequencing with a primer ID

09:15 - 09:30

Preston Leung

[35]

The complexity of hepatitis C virus genome: Insights from the distribution of co-inherited mutations

09:30 – 09:45

Abha Chopra

[16]

High throughput HLA sequence-based typing using next generation sequencing

09:45 – 10:30

Lounge

Morning Tea

10:30 – 12:00

Ballroom

Joint Session 4 Virus – Host Interaction

Chairs: Mark Douglas and Fiona Wightman

10:30 – 11:00

Margaret Bassendine
HCV – lipid interactions

11:00 – 11:15

Valerie Marsden [39]
HSV-2 Increases CCR5 expression levels and the HIV-1 Infectivity of Dendritic cells via a soluble factor

11:15 – 11:30

Enoch Tay [52]
Examining the role of endoplasmic reticulum membrane modifications in establishing the HCV replication complex

11:30 – 11:45

Zunaira Awan [3]
Role of Calsyntenin-1 in hepatitis C virus pathogenesis

11:45 – 12:00

Katharina Borm [6]
Envelope glycoprotein determinants of macrophage tropism during progressive HIV-1 subtype C infection

12:00 – 13:00

Grand Ballroom

Lunch

13:00 – 14:00

Ballroom

Joint Session 5 Highlights

Chairs: Rob Center and David Anderson

13:00 – 13:15

Najla Nasr [41]
Blocking two phase transfer of HIV-1 in primary langerhan cells

13:15 – 13:30

Con Sonza [51]
Role of HIV RNA regulation in latently infected T cells

13:30 – 13:45

Margaret Littlejohn [37]
Molecular epidemiology of Hepatitis B in indigenous Australian populations

13:45 – 14:00

Jason Grebely [25]
The effects of female sex, viral genotype and *IL28B* genotype on spontaneous clearance of acute hepatitis C virus infection

14:00 – 14:30

Awards Presentation

14:30 – 14:45

Closing Remarks

Tony Cunningham

15:00

Buses depart the Carrington Hotel for Sydney Domestic Airport

16:30 – 17:00

Buses arrive Sydney Domestic Airport

We acknowledge and thank our generous sponsors

