



13th Annual ACH2 Scientific Workshop

Yarra Valley Lodge, Melbourne

6th – 8th June 2018

Day One: Wednesday, 6th June 2018

11:00 – 12:00 **Registration & Refreshments: Pre-Function Area**

12:00 – 13:00 **Lunch: Conservatory**

13:00 – 13:15 **Welcome: Marmion Ballroom**

Tony Cunningham (ACH²) and **Heidi Drummer** (ACHV)

13:15 – 14:00 **HIV Plenary: Marmion Ballroom**

Chair: Tony Cunningham

Associate Professor Andreas Finzi

Title: Exposing Env: Implications for antibody attack

Neutralizing Antibody Responses to Viral Infections

14:00 – 15:00 **Chairs:** Damian Purcell and Matt Parsons

Room: Marmion Ballroom

Joint Session: 1

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|---------------|---|-----|
| 14:00 – 14:15 | Heidi Drummer
Escape of Hepatitis C Virus from Epitope I Neutralization Increases Sensitivity of Other Neutralization Epitopes | [1] |
| 14:15 – 14:30 | Hannah King
A novel glycan deletion mutation in HIV-1 Env enhances bNAbs binding and the elicitation of neutralising antibodies | [2] |
| 14:30 – 14:45 | Alex Underwood
Assessing the impact of broadly neutralising antibodies in multiple HCV infection outcomes | [3] |
| 14:45 – 15:00 | Andy Pombourios
Structure and function of the MPER broad neutralization epitope of gp41 in cell-free and cell-cell HIV-1 transmission | [4] |

15:00 – 15:30 **Afternoon Tea: Conservatory**

HTLV-1 : A new focus for ACH2

15:30 – 17:30

Chair: Tony Cunningham

Room: Marmion Ballroom

Joint Session: 2

15:30 – 15:55

HTLV-1 Invited Speaker: Lloyd Einsiedel

HTLV-1, morbidity and mortality in remote Australia

15:55 – 16:20

HTLV-1 Invited Speaker: Marc Pellegrini

Testing therapeutic strategies to manage HTLV-1c transmission and infection

16:20 – 16:45

HTLV-1 Invited Speaker: Damian Purcell

Genomics and Pathogenesis of HTLV-1c Prevalent in Australian Remote Indigenous Communities

16:45 – 17:00

Ashley Hirons

Novel tax/rex and hbx mRNA species of HTLV-1c

[5]

17:00 - 18:00

ACHV AGM: Marmion Ballroom

18:00 – 19:00

Free Time

19:00

Dinner: Conservatory

Day Two: Thursday, 7th June 2018

07:00 – 08:30 **Breakfast: Bella Restaurant**

08:30 – 09:15 **Hepatitis Plenary: Marmion Ballroom**

Chair: Heidi Drummer

Professor Jens Bukh

Title: Infectious cell culture systems for hepatitis C virus and molecular studies of antivirals

Novel Viral Model Systems

09:15 – 10:15 **Chairs: Chantelle Ahlenstiel and Thomas Tu**

Room: Marmion Ballroom

Joint Session: 3

09:15 – 10:45 **Julie Nigro** [6]
Working towards a 3-dimensional model of the liver with chronic hepatitis B infection

09:30 – 09:45 **Till Boecking** [7]
Single-molecule analysis of HIV-1 capsid uncoating

09:45 – 10:00 **Mary Lor** [8]
A "RAG2" HIV-1 infected mice model for examining Nullbasic antiviral activity in vivo

10:00- 10:15 **Chuan Kok Lim** [9]
Hepatitis B and Hepatitis C Co-infection Modelling in A Liver Organoids Culture System

10:15 – 10:30 **Morning Tea: Pre-Function Area**

HIV Persistence and Latency

10:30 – 12:15 **Chairs: Jenny Anderson and Thomas Anglovich**

Room: Marmion Ballroom

Breakout Session: 1

10:30 – 10:45 **Georges Khoury** [10]
A structured RNA element in HIV tat, TIM-TAM, supports Tat-IRES translation and viral expression from latently infected T cells

10:45 – 11:00 **Bethany Horsburgh** [11]
Cellular Proliferation maintains Genetically intact and Defective HIV-1 during therapy

11:00 – 11:15 **Emma Wanicek** [12]
HIV-1 Persists in Isolated CNS Resident Cells Despite Effective Antiretroviral Therapy

11:15 – 11:30 **Jori Symons** [13]
The antiretroviral CCR5-inhibitor Maraviroc effectively reverses HIV latency by phosphorylation of Nf-κB

11:30 – 11:45	Jonathan Jacobson Optimizing an amidothiazol lead for potent and specific HIV-1 latency reversal	[14]
11:45 – 12:00	Rachel Pascoe Latency and Productive Infection in a Novel Monocyte:T-cell Model for HIV-1 Latency	[15]
12:00 – 12:15	Vincent Morcilla An HIV-infected individual on suppressive ART with a massive expansion of effector memory T cells containing a defective provirus	[16]

Viral Replication and Pathogenesis

10:30 – 12:30

Chairs: Nicholas Eyre and Julie Nigro

Room: Birrarung Room

Breakout Session: 2

10:30 – 10:45	Jared Stern HIV Transcription is Activated Through Binding of the Circadian Transcription Factors CLOCK and BMAL1 to the HIV Long Terminal Repeat	[17]
10:45 – 11:00	Thomas Tu Viral factors involved in Hepatitis B virus DNA integration	[18]
11:00 – 11:15	Rifqiyah Umami Mutations in the basal core promoter region of Hepatitis B virus affect secretion of surface antigen	[19]
11:15 – 11:30	Thao Huynh Exploring HBx, DDB1, their interactions and importance for HBV replication across genotypes	[20]
11:30 – 11:45	Zhao W HIV and hepatitis B virus (HBV) co-infection leads to an increase in intracellular hepatitis B surface antigen and HBV DNA in hepatocytes: a potential mechanism for adverse liver outcomes	[21]
11:45 – 12:00	David Harrich HIV-1 RT mutations and small molecules inhibit the RT-eEF1A interaction and highlight its importance in uncoating, reverse transcription and replication	[22]
12:00 – 12:15	KP Singh Intrahepatic CXCR3 and CXCL10 are associated with liver fibrosis in HIV-HBV co-infection	[23]
12:15-12:30	Jackie Yu Modelling chronic hepatitis B-induced hepatocellular carcinoma using ex vivo 3D liver organoids	[24]

12:30 – 13:30

Lunch: Conservatory

Lunch with International Guests: Conservatory

ACH² Executive Meeting & Working Lunch: Wortley

Vaccines

13:30 – 15:30

Chairs: Heidi Drummer and Marc Pellegrini

Room: Birrarung Room

Breakout Session: 3

13:30 – 13:45	Rob Center In vitro generation of a high molecular weight HCV E2 vaccine candidate	[25]
13:45 – 14:00	Branka Grubor-Bauk Induction of genotype-cross reactive, hepatitis C virus-specific cell mediated immunity in DNA-vaccinated mice	[26]
14:00 – 14:15	Joey McGregor Establishment of a VLP-based Hepatitis C Virus Vaccine	[27]
14:15 – 14:30	Zelalem Addis Mekonnen Pre-clinical evaluation of a vaccination strategy to elicit liver-resident memory T cells against hepatitis C virus in the liver	[28]
14:30 – 14:45	Makutiro Masavuli Novel DNA vaccine formulations encoding secreted HCV-E1/E2 fused to the IMX313P oligomerisation domain are immunogenic in mice	[29]
14:45 – 15:00	Danushka Wijesundara The development of a novel vaccination strategy to evoke a frontline defence against hepatitis C virus in the liver	[30]
15:00-15:15	Natalia Quiroz HIV-1 Env trimers eliciting antibody with neutralising and cellular-dependent functions in vaccinated cows	[31]
15:15 - 15:30	Yianni Droungas Synthesis of HBeAg-Specific Epitope-Cloned HBV Bio-Nanoparticle	[32]

Antivirals and Microbicides

13:30 – 15:30

Chairs: Gilda Tachedjian and Jori Symons

Room: Marmion Ballroom

Breakout Session: 4

13:30 – 13:45	David Diaz Immune modulatory effects of vaginal microbiota organic acid metabolites on ectocervical epithelial cells	[33]
13:45 – 14:00	Hongpin Jin Nullbasic inhibits HIV replication in vivo	[34]
14:00 – 14:15	Haoming Liu Permanent Silencing of HIV Transcription in latently infected T Cells by Triplex Formation Oligonucleotides	[35]
14:15 – 14:30	Lu Wang Purification of mutant HIV-1 Tat for analytical and in vitro anti-HIV-1 testing	[36]
14:30 – 14:45	Michaela Lucas Drug hypersensitivity reactions to direct acting hepatitis C virus antiviral drugs	[37]
14:45 – 15:00	Jack Edwards HIV neutralising monoclonal antibodies with optimised antibody effector functions	[38]
15:00-15:15	Chantelle Ahlenstiel RNA-induced Epigenetic Silencing Inhibits HIV-1 Reactivation from Latency	[39]
15:15 - 15:30	Katherine Ognenovska Diaphanous Related Formin 3 disrupts nuclear localization of HIV-1 latency-inducing siRNA	[40]

15:30 – 16:00

Afternoon Tea: Conservatory

Diagnostics and assay development

16:00 – 18:00

Chairs: George Khoury and Sarah Palmer

Room: Marmion Ballroom

Breakout Session: 5

16:00 - 16:15	Beth Catlett Evaluation of the Xpert® HCV Fingerstick Viral Load Point-of-care-assay	[41]
16:15 – 16:30	Beth Catlett Evaluation of the Hologic Aptima HCV Quant Dx assay for detection of HCV RNA from dried blood spots	[42]
16:30 – 16:45	Jake Rhodes Developing flow cytometry based in situ hybridisation (PrimeFlow™) to determine early interactions between HIV and its target cells in human tissue	[43]
16:45 – 17:00	Hugh Mason Optimisation of Ultra-Sensitive Droplet Digital Polymerase Chain Reaction to Detect Hepatitis B Virus Minichromosome Reservoir to Progress Pan-Genotypic HBV Cure Research	[44]

17:00 – 17:15	Beth Catlett Evaluation of a hepatitis C virus core antigen assay in dried-blood-spots: a cohort study	[45]
17:15-17:30	Chantal Marquez A new platform to visualise the effects of host proteins on HIV-1 capsid uncoating at the single-particle level	[46]
17:30-17:45	Tomas Sadauskas Development of a qPCR assay to detect a greater range of HBV spliced variants	[47]
17:45-18:00	Derrick Lau Discovery of novel HIV-1 capsid binders using single molecule spectroscopy	[48]

Antiviral immune responses

16:00 -18:00

Chairs: Branka Grubor-Bauk and Vaibhav Shah

Room: Birrarung Room

Breakout Session: 6

16:00 - 16:15	Wen Shi-Lee Killing a moving target: ADCC against HIV-1-infected cells in the process of CD4-downregulation	[49]
16:15 – 16:30	Caroline Royle Tissue Derived Dendritic Cells and the IFN Pathway	[50]
16:30 – 16:45	Bing-Ru Wu Characterisation of HCV-specific B cells during primary infection and reinfection	[51]
16:45 – 17:00	Nick Brasher Understanding the immunodominance of B cell epitopes in primary hepatitis C virus infection	[52]
17:00 – 17:15	Kevin Selva Seminal plasma compromises the anti-HIV-1 antibody-dependent responses of phagocytes	[53]
17:15-17:30	Ebony Monson The role the Lipid Droplet plays in the early innate immune response to viral infections	[54]
17:30-17:45	David Jacques Capsid dependent evasion of innate sensing in macrophages distinguishes pandemic HIV-1(M) and non-pandemic HIV-1(O)	[55]
17:45-18:00	Orion Tong Characterising the role and responses of ‘bona-fide’ plasmacytoid and Axl+ Siglec6+ dendritic cells in initial HIV infection	[56]

18:00-18:45	Free Time
18:45-19:30	Pre-Dinner Wine Tasting
19:30	Dinner

Day Three: Friday, 8th June 2018

07:00 – 08:30 **Breakfast: Bella Restaurant**

08:30 – 10:30 **Genomics of viral infections**
Chairs: Rowena Bull and Michaela Lucas
Room: Birrarung Room
Breakout Session: 7

8:30 – 8:45	Silvana Gaudieri Pathogen effects on human TCR diversity and function	[57]
8:45 – 9:00	Chaturaka Rodrigo Host IFN λ 3 genotype and viral genotype are key determinants of within-host HCV genomic variation in early infection	[58]
9:00-9:15	Xiao Qian Wang Full-length sequencing of HIV proviruses in HIV-HBV co-infected individuals from Thailand	[59]
9:15 – 9:30	Arunasingam Abayasingam Challenges in characterizing hepatitis C virus founder variants with deep sequencing	[60]
9:30 – 9:45	Fei K IgG1 allotypes G1m3 and G1m1 affect IgG subclass distribution in HIV and influenza	[61]
9:45 – 10:00	Mark Douglas Hepatitis C virus resistance associated substitutions in patients failing direct acting antiviral therapy – how does the Sentosa [®] automated next-generation sequencing platform compare to Sanger-based sequencing?	[62]
10:00 – 10:15	Cynthuja Thilakanathan Is the Correlation between Quantitative HBsAg and Maternal HBV Viral Load affected by Genotype?	[63]
10:15 – 10:30	Magdalena Budzinska Sequence Analysis of Integrated Hepatitis B Virus DNA during HBeAg-Seroconversion	[64]

HIV Persistence, Latency and Host Interactions

Chairs: Andrew Harman and Caroline Royle

Room: Marmion Ballroom

Breakout Session: 8

8:30 – 8:45	Michelle Wong In vitro modelling of the fate of different macrophage populations during HIV infection	[65]
8:45 – 9:00	Yuri Kim Getting the “kill” into “shock and kill”: the role of PI3K inhibitors	[66]
9:00-9:15	C Tumpach Diverse coreceptor tropism suggests differential modes of infection in the long lived CD4+ T cells that comprise the HIV-1 latent reservoir in individuals on ART	[67]
9:15 – 9:30	Hans Kek Targeting HIV-infected macrophages as part of a strategy to achieve HIV cure	[68]
9:30 – 9:45	Sarah Bynes Characterising the immunological phenotype of macrophages during stages of HIV-associated neurocognitive disorders (HAND)	[69]
9:45 – 10:00	Matt Gartner Clade C HIV Envs Isolated from Therapy-Naïve Subjects Preferentially Infect T Central Memory Cells In Vitro	[70]
10:00 – 10:15	Jennifer Currenti Effect of pre-adapted HIV on disease outcome following vertical transmission	[71]
10:15 – 10:30	Annemarie Laumiaea HIV glycoprotein adaptation to chemokine receptor switching during the transition to AIDS	[72]

10:30 – 10:45 **Morning Tea: Conservatory**

Virus host interactions

Chairs: Karla Helbig and Lloyd Einsiedel

Room: Marmion Ballroom

Joint Session: 4

10:45 – 11:00	Anupriya Aggarwal Resolving the mechanisms of cell to cell spread of HIV	[73]
		[74]
11:00 – 11:15	Alberto Stella Dissecting manipulation of the actin cytoskeleton by HIV	
11:15 – 11:30	Sakthi Selvamani Effect of Hepatitis C Virus Infection on Mitochondrial Function	[75]
11:30 – 11:45	Keaton Crosse Viperin enhances the dsDNA response to HBV infection	[76]

11:45 – 12:00	Hafsa Rana Identification and characterization of HIV Transmitting CD11chi Epidermal Dendritic Cells	[77]
12:00 – 12:15	Najla Nasr Characterising the role of plasmacytoid dendritic cells during initial HIV infection	[78]
12:15 – 12:30	Vaibhav Shah Combined proteomics-RNAi screens to identify novel HIV-1 capsid-binding host factors	[79]
12:30 – 12:45	Andrew Harman HIV and the Colorectal Mucosa - Investigating the Early Interactions of HIV with Mucosal Target Cells In Situ	[80]
12:45 – 13:30	Lunch: Conservatory	
13:30 – 14:00	Awards Presentation & Closing Remarks Tony Cunningham	
14:00 14:15	Collect 'on the go' afternoon tea: Pre Function Area Board Coaches Coaches depart for Melbourne Airport	