

Scientific Programme of ABC2014

Saturday

March 8

Meeting Registration & Hotel Check-In	10:00 am - 6:00 pm
Opening Ceremony Karl Kuchler, Susan P.C. Cole, Susan Michaelis, Kazumitsu Ueda, Richard Callaghan & Robert Tampé	6:30 pm - 7:00 pm
Keynote Opening Lecture Joe Chen (Introduced by Karl Kuchler) Amy Davidson and the maltose transporter	7:00 pm - 8:00 pm
<i>Dinner</i>	<i>8:00 - 9:30 pm</i>
Poster Mounting & Informal Mixer	9:30 pm

Sunday

March 9

<i>Breakfast</i>	<i>7:00 - 8:30 am</i>	
Symposium 1		8:30 am - 12:00 pm
Structural Studies on ABC Proteins		
Chair & Introduction: Lutz Schmitt		8:30 - 8:45
Kaspar Locher Transport mechanism of bacterial vitamin B12 transporter BtuCD-F		8:45 - 9:25
Emad Tajkhorshid Capturing a dynamic, atomic-detailed view of large-scale structural transitions in ABC transporters		9:25 - 10:05
Atsushi Kodan High-resolution crystal structure of an ABC multidrug exporter from <i>Cyanidioschyzon merolae</i> , a thermophilic unicellular eukaryote		10:05 - 10:30
<i>Coffee & Refreshment Break</i>	<i>10:30 - 10:55 am</i>	
Markus Seeger Nucleotide binding sites of heterodimeric ABC exporters cross-communicate by asymmetric D-loops		10:55 - 11:35
Konstantinos Beis Structure of an antibacterial peptide ABC exporter in an outward occluded state		11:35 - 12:00
<i>Lunch Break</i>	<i>12:00 - 2:30 pm</i>	
Speed Dating		2:30 pm - 4:00 pm
<i>Coffee & Refreshment Break</i>	<i>4:00 - 4:30 pm</i>	
Poster Bullets Chair: Robert Tampé & Bert Poolman		4:30 pm - 7:00 pm
Session 1		4:30 - 5:30
PP-01 K. Kanonenberg - Functional characterisation of the HlyA type I secretion system in <i>E. coli</i>		
PP-02 F. Finkenwirth - Substrate translocation through ECF transporters		
PP-03 P.-C. Wen - Dual membrane-compatible conformations of an ECF substrate-binding component		

- PP-04 **K. Stefan** - The combination of quinazoline and chalcone moieties leads to novel potent inhibitors of Breast Cancer Resistance Protein (BCRP/ABCG2)
 PP-05 **K. Wong** - Resolving the oligomeric state of ABCG2 using spectral imaging FRET and single molecule imaging TIRF
 PP-06 **A. Szollosi** - Conformational changes in the catalytically inactive nucleotide binding site of CFTR
 PP-07 **T. Zollmann** - The lysosomal ABC transporter TAPL: Deciphering the translocation mechanism by fluorescence based assays
 PP-08 **H. Kaur** - Solid-state NMR on the ABC Lipid Flippase MsbA
 PP-09 **S. Srikant** - Dissecting the substrate selectivity and phylogenetic diversity in the Ste6-family of ABC transporters involved in fungal mating
 PP-10 **C. Özvegy-Laczka** - Tyrosines in potential cholesterol recognition amino acid consensus sequences (CRAC) of the ABCG2 multidrug transporter modify protein folding and substrate recognition
 PP-11 **K. Goda** - Dissection of the catalytic cycle of Pgp using Walker A mutants
 PP-12 **E.D. de Araujo** - Regulation of SUR2 NBD1 by phosphorylation

Break 5:30 - 6:00 pm

Session 2

6:00 - 7:00

- PP-13 **A. Karpinski** - The ABC of drugs: How host plant toxins influence gene expression
 PP-14 **F. Toussaint** - Heterologous expression, transport activity and purification of plant pleiotropic drug resistance transporters involved in (a)biotic stress response
 PP-15 **R.M. Francisco** - ABCC1, an ATP Binding Cassette Protein from Grape Berry involved in the vacuolar sequestration of anthocyanins
 PP-16 **S. Yim** - Abscisic acid transporters cooperate to control seed germination
 PP-17 **A.L. Gori Lusa** - Functional and structural analysis of the putative glutamine ATP-Binding Cassete transporter from *Mycobacterium tuberculosis*.
 PP-18 **M. Šarkan** - Addressing the role of the putative ABC transporter MSMEG_3119-MSMEG_3118-MSMEG_3117 in mycobacteria
 PP-19 **H. Fischbach** - Antigen presentation at its best – Modulation of TAP during maturation of dendritic cells
 PP-20 **L.M. Orrego** - Characterization of *Tb*ABCG6, an essential ABC transporter from *Trypanosoma brucei*, the etiological agent of sleeping sickness.
 PP-21 **Iain S. Haslam** - Do ABC transporters protect human hair follicles and their epithelial progenitor populations from xenobiotic insult?
 PP-22 **K. Kawaguchi** - Subcellular localization of ABC transporter ABCD4 is regulated by a lysosomal membrane protein, LMBD1
 PP-23 **M. Tomioka** - Different substrate specificity of ABCA1 and ABCA7
 PP-24 **T. Falguières** - Phosphorylation of N-terminal residues of ABCB4/MDR3 is necessary for phosphatidylcholine secretion: insights from disease-causing variants

Welcome Dinner 7:30 - 9:00 pm

Poster Session 1

Odd Numbers

9:00 pm - 12:00 pm

Monday	March 10
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Breakfast 7:00 - 8:30 am

Symposium 2

8:30 am - 12:30 pm

Regulation of ABC Protein Activity and Expression

Chair & Introduction: Victor Ling

8:30 - 8:45

Tsuneo Imanaka

8:45 - 9:25

New insights into ABC protein subfamily D: Substrate transport of ABCD1 and targeting of ABCD4 to lysosome

Frederica Theodoulou

9:25 - 10:05

Peroxisomal ABC transporters: flexible and unusual

Franck Duong

10:05 - 10:45

Biochemistry of the maltose transporter: role of ATP, MalK, MalE, MalFG, EIIa, lipids

Coffee & Refreshment Break 10:45 – 11:10 am

Kazumitsu Ueda 11:10 - 11:50
Monomer-dimer conversion of ABCA1 during HDL formation

Christine Bear 11:50 - 12:30
The major Cystic Fibrosis mutant exhibits defective phosphorylation

Lunch & Afternoon Break 12:30 – 5:00 pm

Afternoon Talks Selected from Abstracts 5:00 pm – 7:00 pm

Chair: Karl Kuchler

ST01 - Alice Rothnie 5:00 - 5:15
Study of the structure and function of ABC transporters encapsulated in an SMA lipid particle

ST02 - Megan L. O'Mara 5:15 - 5:30
Powering the transport cycle: molecular dynamics investigations of ATP and substrate binding in P-glycoprotein

ST03 - Thomas Stockner 5:30 - 5:45
Identification of physiologically important conformations of P-glycoprotein

ST04 - Rupert Abele 5:45 - 6:00
Structure and function of TMD0 of the lysosomal peptide transporter TAPL

ST05 - Jinrang Kim 6:00 - 6:15
Mechanistic studies of the *E. coli* vitamin B12 importer, BtuC₂D₂-F using fluorescence resonance energy transfer (FRET) measurements

ST06 - Thorben Cordes 6:15 - 6:30
Closing upon binding or binding upon closing? – the mechanism of substrate binding in ABC importers

ST07 - A. Licht 6:30 - 6:45
The maltose ABC importer - interaction with accessory proteins

ST08 - Amro Hamdoun 6:45 - 7:00
Ancestral functions of the MDR ABC transporters ABCB1 and ABCC5 in embryonic development

Women's Career Dinner 7:30 pm - 9:00 pm

Dinner 7:30 - 9:00 pm

Poster Session 2 **Even Numbers** 9:00 pm - 12:00 pm

Tuesday **March 11**

Breakfast 7:00 - 8:30 am

Symposium 3 8:30 am - 12:00 pm

Molecular Mechanisms of ABC Proteins

Chair & Introduction: Richard Callaghan 8:30 - 8:45

Michael Otto 8:45 - 9:25
Essential *Staphylococcus aureus* toxin export system

Frances J. Sharom 9:25 - 10:05
Complex interactions between the P-glycoprotein multidrug efflux pump and membrane lipids

Christopher McDevitt 10:05 - 10:30
Imperfect coordination chemistry facilitates metal ion release in the Psa permease

Coffee & Refreshment Break 10:30 – 10:55 am

Robert S. Molday 10:55 - 11:35
Purification and functional characterization of ABCA proteins as phospholipid transporters

Gregory Boel 11:35 - 12:00
Elucidation of the physiological function and molecular mechanism of a novel ABC-F translation factors that regulate commitment of energetic resources to protein synthesis

Lunch & Afternoon Break 12:00 – 5:00 pm

Afternoon Talks Selected from Abstracts 5:00 pm – 7:00 pm
Chair: Frederica Theodoulou

ST09 - Jan Koenderink 5:00 - 5:15
The role of ABC transport proteins in malaria drug resistance and vaccine development

ST10 - Yasuhisa Kimura 5:15 - 5:30
Substrate recognition of human ABCG1 and ABCG4

ST11 - Siu Tim Cheung 5:30 - 5:45
Genetic variants regulating ABCB5 expression and associated with liver cancer recurrence

ST12 - Michinori Matsuo 5:45 - 6:00
Regulation of HMG-CoA reductase activity by ABCG1

ST13 - Liudmila Cebotaru 6:00 - 6:15
Treating Stargardt disease with correctors and gene therapy

ST14 - András Váradi 6:15 - 6:30
Chemical chaperon-assisted folding of ABCC6 mutants: an animal model for allele-specific therapy of PXE and GACI

ST15 - Carlo van Roermund 6:30 - 6:45
A key role for human peroxisomal half transporter ABCD3 in oxidation of dicarboxylic acids

ST16 - Gergely Szakacs 6:45 - 7:00
Targeting and function of ABCB6 in the endolysosomal compartment of cells

Dinner 7:30 - 9:00 pm

ABC2014 Keynote Plenary Lecture

Gergely Lukacs (Introduced by Piet Borst) 9:00 - 10:00
From cooperative domain folding towards structural defect targeted corrector strategy of mutant CFTR

Wednesday

March 12

Breakfast 7:00 - 8:30 am

Symposium 4 8:30 am - 11:50 pm

Impact of ABC Proteins on Diseases

Chair & Introduction: Alfred Schinkel 8:30 - 8:45

Uwe Tietge - Solvo Lecture 8:45 - 9:25
Role of ABC transporters in the regulation of hepatic and intestinal sterol metabolism

William Guggino 9:25 - 10:05
Processing mutations similar to those in ABCC7, in ABCG2 are associated with high plasma urate and gout

Coffee & Refreshment Break 10:05 – 10:30 am

- Robert Tampé** 10:30 - 11:10
The INs and OUTs of adaptive immunity and viral evasion
- Lydia Aguilar-Bryan** 11:10 - 11:50
CFTR in Human Islets: Implications for Cystic Fibrosis Related Diabetes (CFRD)

Lunch & Afternoon Break 11:50 - 5:00 pm

Afternoon Talks Selected from Abstracts 5:00 pm - 7:00 pm
Chair: Frances Sharom

- ST17 - Toshihisa Ishikawa** 5:00 - 5:15
5-Aminolevulinic acid (ALA)-based photodynamic therapy of malignant brain tumors and glioma stem cells: From basic research to clinical applications of an ABCG2 inhibitor
- ST18 - Peter Chiba** 5:15 - 5:30
Active site pharmacochaperones assist folding of ABCB1 by long range interactions between substrate binding sites and nucleotide binding domains
- ST19 - Pierre Falson** 5:30 - 5:45
Enzymatic characterization of the QZ59 enantiomers for understanding the polyspecificity of the human P-glycoprotein
- ST20 - Heidi Kidron** 5:45 - 6:00
Profiling MRP2 inhibition with a vesicular transport assay
- ST21 - Dominik Strapagiel** 6:00 - 6:15
Influence of SNPs in promoter region of ABCB1 gene on its activity
- ST22 - Olivier Le Saux** 6:15 - 6:30
ABCC6 deficiency promotes atherosclerosis
- ST23 - Ingrid Gelissen** 6:30 - 6:45
Cholesterol sensing domains in ABCG lipid half-transporter
- ST24 - John D. Schuetz** 6:45 - 7:00
Abcb11 deficiency during pregnancy produces neonatal lethality

Dinner 7:30 - 9:00 pm

Poster Session 3 Odd & Even Numbers 9:00 pm - 12:00 pm

Thursday **March 13**

Breakfast 7:00 - 8:30 am

Symposium 5 8:30 am - 12:15 pm

ABC Proteins and Drug Disposition
Chair & Introduction: Susan PC Cole 8:30 - 8:45

Reina Bendayan 8:45 - 9:25
Regulation of ABC drug efflux transporters in HIV-1 associated brain inflammation

Paul Lehner 9:25 - 10:05
Downregulation of a plasma membrane ABC transporter presents a therapeutic target for latent human cytomegalovirus infection

Coffee & Refreshment Break 10:05 - 10:30 am

- Ingolf Cascorbi** 10:30 - 11:10
Impact of genetic variants of ABC transporters on drug disposition
- Hiroyuki Kusunaga** 11:10 - 11:50
In vivo evaluation of transporter activities using positron emission tomography (PET)
- Koen van de Wetering** 11:50 - 12:15
ABCC6 provides the circulation with the mineralization inhibitor pyrophosphate via the release of nucleoside triphosphates

Lunch & Afternoon Break 12:15 – 5:30 pm

ABC2014 Summary & Perspectives Lecture

Robert Ford (Introduced by Richard Callaghan) 5:30 pm - 6:30 pm
ABC Transporters: Structure from the bottom up

Concluding Remarks 6:30 pm - 7:30 pm
ABC2014 Organizers

ABC2014 Young Investigator Awards 7:30 pm - 8:00 pm

Dinner & Farewell Party 8:00 pm - open end

Friday

March 14

Breakfast

7:00 - 9:30 am

End of ABC2014

Check-out - Shuttles to Airport and Main Train Station