Dr Hendrik W. van Veen

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RESEARCH AND WORK EXPERIENCE

2013 – to date **Reader in Molecular Pharmacology, University of Cambridge**

2004 – 2013 **University Senior Lecturer, University of Cambridge**
Department of Pharmacology

2003 – to date **Teaching fellow, Clare College, Cambridge**

2001 – 2004 **University Lecturer, University of Cambridge**
Department of Pharmacology

1997 – 2001 **Research fellow of the Royal Netherlands Academy of Arts and Sciences (KNAW)**
Project leader of Multidrug Resistance research group, Department of Microbiology, University of Groningen.

1996 – 1997 **EMBO short-term research fellow, University of Oxford**
"Functional complementation of the human multidrug resistance P-glycoprotein by its bacterial homolog LmrA in human lung fibroblast cells". Institute of Molecular Medicine, John Radcliffe Hospital Headington (with Prof. C.F. Higgins).

1994 – 1996 **Post-doc, University of Groningen**
EC-Biotechnology (BIOTECH) programme: "Drug, antibiotic and toxin excretion in prokaryotic and eukaryotic cells". Department of Microbiology.

1987 – 1988 **Junior Scientist, E.I. DuPont de Nemours and Co., USA**
ABTAC-project (Advanced Biological Treatment for Aqueous Cyanide), Wilmington.

EDUCATION

1989 – 1994 **Doctor of Philosophy**
Microbiology, Wageningen University
Thesis: Energetics and mechanisms of phosphate and amino acid transport in *Escherichia coli* and *Acinetobacter johnsonii* (promotores: Prof. A.J.B. Zehnder & Prof. W.N. Konings).

1984 – 1988 **Master of Science**
Biochemistry, Wageningen University
Major topics: Biochemistry (Prof. C. Veeger), Molecular Genetics (Prof. J. Visser), and Microbiology (Prof. A.J.B. Zehnder). *Minor topics*: Molecular Physics,

Molecular Spectroscopy, Quantum Physics, Bio-organic and Physical Chemistry, and Mathematics.

1981 – 1984 **Bachelor of Science**
Biochemistry, Wageningen University

SPECIAL COURSES

2017 Senior Leadership Programme
2017 Teaching Disabled Students
2015 Radiation Protection Supervisors
1992 – 1998, 2017 Communication skills, management courses & presentation techniques

HONORS AND AWARDS

2019 Vice-Chair (2021) and Chair (2023) of Gordon Research Conference on Multidrug Efflux Systems
2019 Chaire Edmond de Rothschild 2019, Biennial prize from Rothschild Foundation, Institut de Biologie Physico-Chimique, CNRS, Paris
2019 Professor by Special Appointment (tokunin kyōju) at Tokyo Institute of Technology, Japan, during sabbatical leave in Cambridge
2017 Keynote Lecture. Gordon Research Seminars on Multidrug Efflux Systems, Galveston, Texas, USA
2015 Chair of Antimicrobial Resistance Conference of the British Society for Antimicrobial Chemotherapy (BSAC) in collaboration with the Royal Society of Chemistry, Birmingham, UK
2012 Keynote Lecture. 10th French-Belgian ABC meeting, Brussels, Belgium
2007 – 2016 Regional Fellow of the Royal Society of Medicine (Lond.)
2005 Symposium Chair in Bioscience 2005, “From Genes to Systems”, Biochemical Society, Glasgow, UK
2005 – 2013 Local ambassador of the Biochemical Society
2005 – 2016 Member of the Faculty of 1000 (Biology)
2004 – 2009 Member of College of Experts, Medical Research Council
2004 Chair of 4-day Summer Research Conference, “Transporter 2004: Membrane Transport and Transport Proteins”, Cambridge, UK
2003 – date Teaching Fellow of Clare College, Cambridge
1999 Recipient of travel award from the Japan Society for the Promotion of Science
1998 Max Grüber Award in Biochemistry, University of Groningen
1997 Young Investigators Award, Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease", Federation of European Biochemical Societies, Gosau, Austria
1997 – 2001 Research Fellow of the Royal Netherlands Academy of Arts and Sciences (KNAW)
1996 Kluyver Award, triennial award of the Netherlands Society of Microbiology.
1994 Doctor of Philosophy, *cum laude*

1988 Master of Science, *cum laude*
1984 Bachelor of Science, *cum laude*

TEACHING AND TEACHING-RELATED DUTIES

2019-2020 *University of Cambridge*
Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; Medical and Veterinary Sciences Tripos [MVST] Part 1B, 6 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (Natural Sciences Tripos [NST] Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug resistance" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Supervisor and **demonstrator** in practical pharmacology classes (NST Part1B).

Director of studies for 4 NST Part 1B Pharmacology students in Clare college.

2018-2019 *University of Cambridge* sabbatical leave
Lecturer at Tokyo Institute of Technology (three 90 min lectures on Mechanisms of Drug Action).

2017-2018 *University of Cambridge*
Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; Medical and Veterinary Sciences Tripos [MVST] Part 1B, 7 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (Natural Sciences Tripos [NST] Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug resistance" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Supervisor and **demonstrator** in practical pharmacology classes (NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Senior Examiner in the MVST 1B main exams in Pharmacology.

Director of studies for 4 NST Part 1B Pharmacology students in Clare college.

2016-2017 *University of Cambridge*
Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 7 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug resistance" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons).

Supervisor and **demonstrator** in practical pharmacology classes (NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Senior Examiner in the MVST 1B resit exams in Pharmacology.

Director of studies and **supervisor** for 4 NST Part 1B and 3 NST Part II Pharmacology students in Clare college.

2015-2016 *University of Cambridge*

Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 7 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Structure and function of receptors" (NST Part 1B, 7 lectures, prof. Taylor on sabbatical leave). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Examiner of the NST 1B course in Pharmacology.

Director of studies of 2 NST Part 1B Pharmacology students in Clare college. **Supervisor** of 12 MVST Part 1B students (Easter Term).

2014-2015 *University of Cambridge*

Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 5 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Senior Examiner of the NST 1B course in Pharmacology.

Director of studies of 1 NST Part 1B Pharmacology student in Clare college.

2013-2014 *University of Cambridge*
Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 5 lectures). **Lecturer** in "Anticancer, antimicrobial, antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures). **Lecturer** and **mentor** in the 2013 Cambridge Science Summer School, Department of Biochemistry.

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (NST Part1B and NST Part 1B Neurobiology). **Supervisor** for NST Part II research projects (2 students).

Examiner of the NST 1B course in Pharmacology.
Director of studies for 4 NST Part 1B Pharmacology students in Clare college.

2012-2013 *University of Cambridge*
Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 5 lectures). **Lecturer** in "Anticancer, antimicrobial, antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons).
Supervisor and **demonstrator** in practical pharmacology classes (NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Examiner of the NST Part II course in Pharmacology.

Director of studies for NST Part 1B Pharmacology students in Clare college.

2011-2012 *University of Cambridge* sabbatical leave

2010-2011 *University of Cambridge*
Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 5 lectures). **Lecturer** in "Anticancer, antimicrobial, antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons).

Supervisor and **demonstrator** in practical pharmacology classes (NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Examiner of the MVST Part 1B course in Pharmacology.

2009-2010 *University of Cambridge*

Lecturer in "Chemotherapy" (Anticancer, antimicrobial, antiviral drugs; MVST Part 1B, 5 lectures). **Lecturer** in "Anticancer, antimicrobial, antiviral drugs" (NST Part 1B, 6 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Senior Examiner of the MVST Part 1B main exams in Pharmacology.

2008-2009 *University of Cambridge*

Lecturer in "Chemotherapy" (anticancer, antimicrobial, antiviral drugs; Medical and Veterinary Sciences Tripos [MVST] Part 1B, 5 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (Natural Sciences Tripos [NST] Part 1B, 4 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes on drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for NST Part II research projects (2 students).

Examiner of the MVST Part 1B course in Pharmacology.

Director of studies and **supervisor** for 14 MVST Part1B pharmacology students in Clare college. **Admission interviews for Natural Science students** in Clare College (24 students)**.**

2007-2008 *University of Cambridge*

Lecturer in "Chemotherapy" (anticancer, antimicrobial, antiviral drugs; Medical and Veterinary Sciences Tripos [MVST] Part 1B, 5 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (Natural Sciences Tripos [NST] Part 1B, 4 lectures). **Lecturer** in "Molecular aspects of multidrug transport" (NST Part II, Molecular and Cellular Pharmacology, 5 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for NST Part II research projects (2 students).
Senior Examiner in the NST Part II BBS course in Pharmacology.

Director of studies and **supervisor** for 14 MVST Part1B, 2 NST Part1B and 1 NST Part II Pharmacology students in Clare College. **Admission interviews for Medical Students** in Clare College (72 students)**.**

2006-2007 *University of Cambridge*

Lecturer in "Chemotherapy" (anticancer, antimicrobial, antiviral drugs (MVST Part 1B, 5 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (NST Part 1B, 4 lectures). **Lecturer** in "Resistance to antibacterial, antiparasitic and anticancer drugs" (NST Part II, Pharmacology of Integrated Systems, 3 lectures). **Lecturer** in "Carriers and pumps as targets for drug discovery and development" (NST Part II, Molecular and Cellular Pharmacology, 4 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for MVST PartII research projects (2 students).

Examiner in the NST Part II course in Pharmacology.

Director of studies and **supervisor** for 14 MVST Part1B, 2 NST Part1B and 1 NST Part II Pharmacology students in Clare college. **Admission interviews for Medical Students** in Clare College (78 students)**.**

2005-2006 *University of Cambridge*

Lecturer in "Chemotherapy (MVST Part 1B, 5 lectures). **Lecturer** in "Antimicrobial and antiviral drugs" (NST Part 1B, 4 lectures). **Lecturer** in "Resistance to antibacterial, antiparasitic and anticancer drugs" (NST Part II, Pharmacology of Integrated Systems, 3 lectures). **Lecturer** in "Carriers and pumps as targets for drug discovery and development" (NST Part II, Molecular and Cellular Pharmacology, 4 lectures).

Departmental Course Organiser NST Part 1B. **Organiser and supervisor** of practical classes in drug resistance in NST Part 1B miniprojects (5 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for MVST Part II research projects (2 students).

Examiner in the NST Part II course in Pharmacology.

Director of studies and **supervisor** for 14 MVST Part1B and 2 NST1B Pharmacology students in Clare college. **Admission interviews for Medical Students** in Clare College (43 students).

2004-2005 *University of Cambridge*

Lecturer in "Synaptic pharmacology" (NST Part 1B, 5 lectures). **Lecturer** in "Resistance to antibacterial, antiparasitic and anticancer drugs" (NST Part II, Pharmacology of Integrated Systems, 3 lectures). **Lecturer** in "Carriers and pumps as targets for drug discovery and development" (NST Part II, Molecular and Cellular Pharmacology, 4 lectures). **Lecturer** in two NST Part 1B seminars, in the "Autonomic nervous system" and the "Neuromuscular junction" (1 h each).

Supervisor of practical classes in drug resistance in NST Part 1B miniprojects (9 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for MVST Part II research projects (3 students). **Organiser of departmental TeaClub seminars** during Michaelmas and Lent term.

Examiner in the MVST Part 1B course in Pharmacology.

Director of studies and **supervisor** for 14 MVST Part1B, 4 NST Part 1B and 2 NST Part II Pharmacology students in Clare college. **Admission interviews for Natural Science students** in Clare College (12 students).

2003-2004 *University of Cambridge*

Lecturer in "Synaptic pharmacology" (NST Part 1B, 5 lectures). **Lecturer** in "Resistance to antibacterial, antiparasitic and anticancer drugs" (NST Part II, Pharmacology of Integrated Systems, 3 lectures). **Lecturer** in "Carriers and pumps as targets for drug discovery and development" (NST Part II, Molecular and Cellular Pharmacology, 4 lectures). **Lecturer** in two NST Part 1B seminars, on the "Autonomic nervous system" and the "Neuromuscular junction" (1 h each).

Supervisor of practical classes in drug resistance in NST Part 1B miniprojects (9 afternoons). **Supervisor** and **demonstrator** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for MVST PartII research projects (2 students). **Organiser of departmental TeaClub seminars** during Michaelmas and Lent term.

Senior Examiner in the MVST Part1B course in Pharmacology.

Director of studies and **supervisor** for 12 MVST Part1B, 4 NST Part 1B and 3 NST Part II Pharmacology students in Clare college.

2002 – 2003 *University of Cambridge*

Lecturer in "Resistance to antibacterial, antiparasitic and anticancer drugs" (NST Part II, Pharmacology of Integrated Systems, 3 lectures). **Lecturer** in "Carriers and pumps as targets for drug discovery and development" (NST Part II, Molecular and Cellular Pharmacology, 4 lectures). **Lecturer** in "Antibiotics: veterinary use and bacterial drug resistance" (MVST Part 1B, Veterinary Pharmacology Option, 3 lectures). **Lecturer** in MODA seminar on "DNA-drug interactions" (MVST Part1B, 1 lecture).

Organiser of new practical classes in drug resistance in the Veterinary Pharmacology Option (MVST 1B, 2 afternoons) and in NST Part 1B miniprojects (9 afternoons). **Demonstrator and supervisor** in practical pharmacology classes (MVST Part1B and NST Part1B). **Supervisor** for NST Part II research projects (2 students). **Organiser of departmental TeaClub seminars** during Michaelmas and Lent term.

Examiner in the MVST Part 1B course in Pharmacology.
Supervisor for 12 MVST Part1B Pharmacology students in Clare College.

2001 – 2002 *University of Cambridge*

Lecturer in "Carriers and pumps as targets for drug discovery and development" (NST Part 1I, Molecular and Cellular Pharmacology, 4 lectures). **Lecturer** in "Antibiotics: veterinary use and bacterial drug resistance" (MVST Part 1B, Veterinary Pharmacology Option, 3 lectures).

Demonstrator in practical classes for MVST Part1B and NST Part1B students.

Supervisor for 2 NST Part II students. **Supervisor** for 6 MVST 1B students at Christ's College, Pembroke College and Fitzwilliam College.

1995 – 2000 *University of Groningen*

Guest lecturer for undergraduate students in "Energy Transduction in Biological Membranes" (6 lectures, up to 50 participants), University of Hokkaido, Japan. **Lecturer for Master class** in "Bacterial Transport Proteins and Protein Transport" (92 participants) organised by the Groningen Biomolecular Sciences and Biotechnology Institute. **Member of the University Library Committee**. Responsible for the financial management & the acquisition of books and journals.

1989 – 1994 *Wageningen University*
Co-organiser of an annual practical class for undergraduate students (up to 40 participants, full time for 4 weeks) at the Department of Microbiology. **PhD student representative** in the Management Committee of the Department of Microbiology.

STUDENT EVALUATIONS

Following my talk at Cambridge Science Festival 2019, 85% of respondents to the feedback request rated my presentation as good or very good. Between 2017 and 2005, my **MVST1B** lectures on "Chemotherapy" were highly appreciated: lectures were interesting [>80%], lectures were helpful [>76%], handout complemented the lectures [>86%]. My **NST1B** lectures on "Antimicrobial and Antiviral drugs" were considered to be very good: lectures were interesting [81%], lectures were helpful [89%], handout was useful [89%]. My **NST Part II lectures** were well received, with an average score of 4.5 out of 5 (1 poor – 5 excellent). In 2015/216, the students rated the **NST1B** lectures on "Structure and Function of Receptors" as excellent, very clear and interesting. In 2004, the general consensus for my **NST Part 1B** lectures in Synaptic Pharmacology was that the lectures were good, clear and concise: clarity [12% excellent, 48% good], speed [48% about right], level of material [30% challenging, 67% good], help you learn [73% yes], interesting [80% yes]. In 2002 and 2003, my **lectures for MVST 1B** students in the Veterinary Pharmacology Option were considered to be "highly relevant" by the students. The students also thought that the lectures "fitted in well with the pathology and MODA courses". The lectures received the following rating by the students: clarity [25% excellent, 50% good], speed [88% about right], level of material [25% challenging, 50% OK], help you learn [75% yes], interesting [75% yes]. On a scale from 1 – 5, students in my **NST Part II lectures** in Molecular and Cellular Pharmacology marked these lectures with a 4 in 2002. The **NST Part II research projects** offered in my research group during these years were popular among the students, and the students mostly received a first or high 2(i) for their projects.

RESEARCH GROUP

Hendrik van Veen is a group leader of a research group aiming at the molecular mechanisms of drug recognition and transport by multidrug transporters in prokaryotic and eukaryotic cells. He has expertise in the elucidation of structure-function relationships in drug transporters. The group has extensive experience with the overexpression and functional analysis of bacterial and mammalian membrane transporters using expression systems ranging from bacteria, yeast and insect cells to mammalian cells. The interaction of transporters and a variety of ligands (drugs, ions, nucleotides) are analysed in his laboratory by electrophysiological techniques, in equilibrium binding assays, and by studying association and dissociation kinetics of radioligand binding. Drug binding is also assessed by fluorescence spectroscopic techniques (e.g. fluorescence anisotropy, tryptophan fluorescence) and other biophysical methods. Protein-ligand and protein-protein interactions are also deduced from photoaffinity labelling and protein cross-linking using chemical and thiol-reactive cross-linkers and substrate analogues. Transport (flux) measurements are carried out in intact cells, membrane vesicles, and proteoliposomes containing purified and functionally reconstituted proteins. In addition to the biochemical and molecular biological techniques in his laboratory, crystallographic, NMR, EPR techniques and mass spectrometry are being applied on the proteins of interest in direct collaborations with others. Hence, the VanVeen group integrates a wide range of techniques in studies on the mechanisms of membrane transporters.

ACQUISITION AND FUNDING OF RESEARCH PROJECTS

University of Cambridge
Over the past years, my research group was mostly composed of 2 to 4 post-doctoral fellows, 3 to 6 PhD students, and up to 2 MPhil students. The research was funded by the Association for International Cancer Research (AICR), British Society for Antimicrobial Chemotherapy (BSAC), Biotechnology and Biological Sciences Research Council (BBSRC), Cancer Research UK, Human Frontier Science Programme Organisation (HFSPO), Medical Research Council (MRC), the Royal Society (UK), and by Molecular Devices Ltd. PhD students received funding from the Herchel Smith Fund, GATES Foundation, NIH Oxbridge Scholars Programme, Nehru Trust, Cambridge Commonwealth, European and International Trust, and the Croucher Foundation. One postdoc received a Dorothy Hodgkin Research Fellowship of the Royal Society.

University of Groningen
As a research fellow of the Royal Netherlands Academy of Arts and Sciences, I supervised post-docs, PhD and MSc students, and a technician in research projects on bacterial multidrug transporters, the human multidrug resistance P-glycoprotein, and the human multidrug resistance-associated protein (MRP1). These projects were funded by the Dutch Cancer Society (KWF), EU, the Groningen University Research Fund, the Royal Netherlands Academy of Arts and Sciences (KNAW), and the Netherlands Council for Earth and Life Sciences (NWO).

REVIEW ACTIVITIES

Grants: Medical Research Council (MRC), Biotechnology and Biological Sciences Research Council (BBSRC), Cancer Research UK, Netherlands Organisation of Scientific Research (NWO), Dutch Applied and Technical Sciences (TTW), Association for International Cancer Research (AICR), Merieux Research Grants by Institut Mérieux (France), Agence d'Evaluation de la Recherche et de l'Enseignement Supérieur (AERES, France), Swiss National Science Foundation (SNSF), Austrian Science Fund (ASF), Danish Council for Independent Research (DCIR), Danish Agency for Science and Higher Education.

Journals: Nature, Science, PNAS, Nature Communications, Nature Structural and Molecular Biology, FASEB Journal, EMBO Journal, EMBO Reports, Journal of Biological Chemistry, Journal of Molecular Biology, Molecular Microbiology, Biochemistry, Biochimica et Biophysica Acta, British Journal of Pharmacology, Molecular Pharmacology, Journal of Bacteriology, Current Issues in Molecular Biology, Expert Opinion journals, FEMS Microbiology Letters

MEMBERSHIP OF REVIEW AND ADVISORY BOARDS

2020	Member of Grant Review Panel "CE44 - Biochimie du Vivant" of the Agence Nationale de la Recherche, Paris, France.
2018	Member of Selection Panel for CAMS fellowships, Cambridge Academy of Therapeutic Sciences.
2015 to date	Member of Scientific Advisory Board of *ABC 2016, ABC 2018 and ABC 2020* meetings on ATP-binding cassette proteins, Gosau, Austria.

2015 and 2016	Member of Grant Review Panel for the Danish Council for Independent Research, Medical Sciences, Copenhagen, Denmark.
2014	Member of Review Board for Longitude Prize 2014 "Antibiotics", Paper for open review, Innovation Foundation NESTA (UK)
2014	Member of Grant Review Panel, Austrian Science Fund, Special Research Programme SFB F35-B20 "Transmembrane transporters in health and disease", Vienna, Austria.
2013 – 2018	Panel Member for recruitment of BBSRC Doctoral Training Partnership Programme students at the University of Cambridge in 2013, 2014, 2016, 2017 and 2018.
2011	Member of Review Panel for French Evaluation Agency for Research and Higher Education (AERES) with site visits to universities in South France
2010 to date	Member of Annual Review Panel for NCCR "TransCure" (membrane transporters as drug targets). Speaker in 2011. Berne, Switzerland.
2009	Member of Swiss National Science Foundation Selection Panel for Swiss National Centre of Competence in Research (NCCR) funding, Berne, Switzerland.
2005 – 2009	Member of College of Experts of the Medical Research Council (MRC)

MEMBERSHIP OF EDITORIAL BOARDS

2005 – 2016 Faculty member of Faculty of 1000 (Biology), Section Membranes & Sorting
2009 to date: Academic Editor of Plos One
2011 to date: Editorial Board member of Nature Scientific Reports, Section Microbiology.

MEMBERSHIP OF SOCIETIES

Member of Biochemical Society; British Pharmacology Society, British Society for Antimicrobial Chemotherapy, Microbiology Society, International Transmembrane Transporter Society.

Senior Treasurer of Cambridge Society - Students for Global Health Cambridge (2018 to date).

MEMBERSHIP OF UNIVERSITY and DEPARTMENTAL COMMITTEES

Faculty of Biology:

Member of Biological Sciences Committee (2019 to date), Degree Committee (2015 to date), Appointments Committee (2014 – 2018).

Department of Pharmacology:

- Chair of Teaching Committee (2019 to date)
- Academic Radiation Protection Supervisor (2015 to date)
- Web Liaison Officer (2013- 2015)
- NST1B Course Organiser (2005 – 2017): Registration of students, Contents of course handbook, Overall organiser of course and mini-projects, Introductions in mini-projects and preparation of mini-project posters, Organiser of Pharmacology Open Day and Student Feedback Meetings.

- Organiser of Departmental TeaClub Seminars (2002 - 2005).

Member of Finance Committee (2018 to date), Safety Committee (2015 to date), Curriculum Consultative Committees for NST1B and MVST1B (2001 to date), Teaching Committee (2005 to date), Strategy Committee (2017 – 2018)

Member of Selection Committees for Lectureship Positions 2005 (Cooper), 2006 (Burdakov), 2007 (Heisler), 2015 (Ladds & Lindon), 2016 (Rahman), 2017 (Bulmer) and for Departmental Administrator 2016 (Boucher).

Examiner NST1B (2014, 2016), Senior Examiner NST1B (2015), Examiner MODA MVST1B (2003, 2005, 2009, 2011, 2017, 2020), Senior Examiner MODA MVST1B (2004, 2010, 2018), Examiner NST Part II (2006, 2007, 2013), Senior Examiner NST Part II (2008).

Examiner for 1st-year PhD candidates (2002 [2x], 2003, 2004, 2005 [2x], 2006, 2007 [2x], 2008 [2x], 2009, 2010, 2011 [2x], 2014 [2x], 2015, 2016 [2x], 2017, 2018, 2019, 2020 [2x]), MPhil candidates (2001, 2014, 2017) and final-year PhD candidates (2002, 2004, 2005, 2007, 2008 [2x], 2009, 2010 [2x], 2013 [2x], 2015 [2x], 2017, 2018, 2019 [2x], 2020).

Clare College:
Member of Governing body (2003 - date), Finance Committee (2019 - date), IT Committee (2013 - 2017), Old-Court Working Party (2017 - 2018), Estates Committee (2017 - 2018) and Mellon Committee (fellowship committee for exchange of students with Yale University) (2011 - 2012). Evaluator of Junior Research Fellowship applications.

SCIENTIFIC COLLABORATIONS OVER THE YEARS
Dr. Susan Bates, National Institutes of Health, Bethesda MD (USA); Prof. Jean-Marie Ruysschaert, University of Brussels (Belgium); Prof. Clemens Glaubitz and Prof. Thomas Prisner, Goethe University, Frankfurt (Germany); Prof. Satoshi Murakami, Tokyo Institute of Technology (Japan); Dr. Luca Federici, University of Chieti (Italy); Dr. Bernadette Byrne, Department of Biological Sciences, Imperial College London (UK); Prof. Adrian Walmsley, Centre for Infectious Diseases, University of Durham (UK); Prof. Laura Piddock, Division of Immunity and Infection, University of Birmingham (UK); Prof. Ben Luisi, Department of Biochemistry, Cambridge (UK); Prof. David Spring, Department of Chemistry, Cambridge (UK); Dr. Mike Deery, Cambridge Centre for Proteomics; Dr. Janneke Balk, John Innes Centre (UK); Dr. Kostas Beis, Imperial College London (UK); Prof. Peter Chiba and Prof. Gerhard Ecker, Medical University Vienna (Austria); Dr. Dominic Williams, Drug Safety, AstraZeneca (UK); Prof. Adrian Walmsley, University of Durham (UK); Dr. Mark McAlister and Dr. Phil Rawlings, Structure & Biophysics Discovery Sciences, AstraZeneca (UK); Dr. Jose Faraldo-Gomez, Division of Intramural Research of the National Heart, Lung and Blood Institute, NIH (USA).

PUBLICATIONS (* corresponding author)

2019 (sabbatical leave)

Van Veen*, H.W., Singh, H., Agboh, K., Fagg, L.A., Guo, D., Swain, B., de Kruijf, R.F., Guffick, C. (2019) Energy coupling in ABC exporters. Res. Microbiol. pii: S0923-2508(19)30087-7.

2018

Agboh, K., Lau, C.H.F., Khoo, Y.S.K., Singh, H., Raturi, S., Nair, A.V., Howard, J., Chiapello, M., Feret, R., Deery, M.J., Murakami, S., **Van Veen***, H.W. (2018) Powering the ABC multidrug exporter LmrA: How nucleotides embrace the ion-motive force. Science Adv. 4, eaas9365.

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Van Veen*, H.W. (1996) Mechanisms and energetics of phosphate transport in *Acinetobacter johnsonii* and *Escherichia coli*. Treatise which was awarded the Kluyver Prize 1996 by The Netherlands Society for General Microbiology.

1995

Bolhuis, H., Poelarends, G., **Van Veen**, H.W., Poolman, B., Driessen, A.J.M., and Konings, W.N. (1995) The lactococcal *lmr*P gene encodes a proton motive force-dependent drug transporter. J. Biol. Chem. 270: 26092-26098.

Bolhuis, H., Molenaar, D., Poelarends, G., **Van Veen**, H.W., Poolman, B., Driessen, A.J.M., and Konings, W.N. (1994) Proton motive force-driven and ATP-dependent drug extrusion systems in multidrug-resistant *Lactococcus lactis*. J. Bacteriol. 176: 6957-6964.

Korststee, G.J.J., Appeldoorn, K.J., Van Niel, E.W.J., Bonting, C.F.C., and **Van Veen***, H.W. (1995) The anaerobic Pi efflux during biological phosphate removal: its mechanism and the mode of action of nitrogen oxides. Proc. Int. Meeting on Anaerobic Processes for Bioenergy and Environment 25: 1-10.

1994

Van Veen*, H.W., Abee, T., Kleefsman, A.W.F., Melgers, B., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1994) Energetics of alanine, lysine, and proline transport in cytoplasmic membranes of the polyphosphate-accumulating *Acinetobacter johnsonii* strain 210A. J. Bacteriol. 176: 2670-2776.

Konings, W.N., Poolman, B., and **Van Veen**, H.W. (1994) Solute transport and energy transduction in bacteria. Antonie van Leeuwenhoek 65: 369-380.

Van Veen*, H.W. (1994) Energetics and mechanisms of phosphate transport in *Acinetobacter johnsonii*. Ph.D. thesis, Agricultural University Wageningen, the Netherlands.

Van Veen*, H.W., Abee, T., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1994) Phosphate inorganic transport (Pit) system in *Escherichia coli* and *Acinetobacter johnsonii*, p. 43-49. *In* Torriani-Gorini, A.M., Silver, S., and Yagil, Y. (eds.), Phosphate in microorganisms: cellular and molecular biology. American Society for Microbiology, Washington, DC.

Van Veen*, H.W., Abee, T., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1994) Generation of a proton motive force by the excretion of metal-phosphate in the polyphosphate-accumulating *Acinetobacter johnsonii* strain 210A. J. Biol. Chem. 269: 29509-29514.

Van Veen*, H.W., Abee, T., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1994) Translocation of metal phosphate via the phosphate inorganic transport system of *Escherichia coli*. Biochemistry 33: 1766-1770.

Van Veen*, H.W., Abee, T., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1994) Substrate specificity of the two phosphate transport systems of *Acinetobacter johnsonii* 210A in relation to phosphate speciation in its aquatic environment. J. Biol. Chem. 269: 16212-16216.

Korststee, G.J.J., Appeldoorn, K.J., Van Niel, E.W.J., Bonting, C.F.C., and **Van Veen***, H.W. (1994) Biology of polyphosphate-accumulating bacteria involved in enhanced biological phosphorus removal. FEMS Microb. Rev. 15: 137-153.

1993

Korststee, G.J.J., Appeldoorn, K.J., Van Niel, E.W.J., Bonting, C.F.C., and **Van Veen***, H.W. (1993) Transport of Pi and metabolism of polyphosphate in Acinetobacter johnsonii 210A and activated sludge. Biol. Abwasserrein. 3: 223-242.

Van Veen*, H.W., Abee, T., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1993) Mechanism and energetics of the secondary phosphate transport system of *Acinetobacter johnsonii* 210A. J. Biol. Chem. 268: 19377-19383.

Van Veen*, H.W., Abee, T., Kortstee, G.J.J., Konings, W.N., and Zehnder, A.J.B. (1993) Characterization of two phosphate transport systems in *Acinetobacter johnsonii* 210A. J. Bacteriol. 175: 200-206.

1992

Bonting, C.F.C., **Van Veen**, H.W., Taverne, A., Korststee, G.J.J., and Zehnder, A.J.B. (1992) Regulation of polyphosphate metabolism in *Acinetobacter* strain 210A grown in carbon- and phosphate-limited continuous cultures. Arch. Microbiol. 158: 139-144.

INVITED LECTURES, and LECTURES and POSTER PRESENTATIONS by GROUP MEMBERS

2020

Van Veen, H.W. (2020) Energy coupling in ABC transporters. FEBS Special Meeting 2020. ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease.

Guo, D., Singh, H., **Van Veen**, H.W. (2020) Energy coupling in the transport of phospholipids by the ABC exporter MsbA. FEBS Special Meeting 2020. ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease.

2019

Van Veen, H.W. (2019) Structure, function and mechanisms of multidrug transporters. Queen's University Belfast.

Van Veen, H.W. (2019) Mechanisms of multidrug transporters. Pharmacology Away Day, University of Cambridge.

Van Veen, H.W. (2019) On the trail of understanding antibiotic resistance: molecular mechanisms of multidrug transporters. Prize Lecture "Chaire Edmond de Rothschild", CNRS, Paris.

Van Veen, H.W. (2019) Towards a mechanistic understanding of multidrug transporters. Institut de Chimie & Biologie des Membranes & des Nano-Objets, Université de Bordeaux.

Van Veen, H.W. (2019) Mechanisms of multidrug transporters. Institut de Biologie Physico-Chimique, Paris.

Van Veen, H.W. (2019) Towards a mechanistic understanding of mammalian multidrug transporters. Faculté de Pharmacie, Université Paris Descartes.

Van Veen, H.W. (2019) Energetics of ABC exporters: a changing perspective on the power to change. Gordon Research Conference on Multidrug Efflux Systems, Renaissance Tuscany Il Ciocco, Lucca, Italy.

Van Veen, H.W. (2019) Energy coupling in ABC exporters. NCCR TransCure Lecture in Biology. ETH Zürich, Switzerland.

Van Veen, H.W. (2019) Antibiotic Resistance and the Bad Bug Challenge. Cambridge Science Festival. (150 attendants)

Van Veen, H.W., Agboh, K., Lau, C.H.F., Khoo, Y.S.K., Singh, H., Raturi, S., Nair, A.V., Howard, J., Chiapello, M., Feret, R., Deery, M.J., Murakami, S. (2019) Powering the ABC multidrug exporter LmrA: How nucleotides embrace the ion-motive force. Annual Meeting of the Biophysical Society, Baltimore USA.

Van Veen, H.W. (2019) Studies on the Lipid-A transporter MsbA and its homologue LmrA. Presentations on our current research at Tokyo Institute of Technology, University of Tokyo, University of Kyoto, University of Osaka, and Hokkaido University.

Singh, H. (2019) ATP-dependent substrate transport by the ABC transporter MsbA is proton-coupled. Gordon Research Seminars on Multidrug Efflux Systems, Renaissance Tuscany Il Ciocco, Lucca, Italy.

Singh, H., Nair, A.V., Raturi, S., Neuberger, A., Tong, Z., Ding, N., Agboh, K., Van Veen, H.W. (2019) Relocation of active site carboxylates in major facilitator superfamily multidrug transporter LmrP reveals plasticity in proton interactions. Pharmacology Away Day, University of Cambridge.

Swain, B. Rawlings, P., McAllister, M., Van Veen, H.W. (2019) Structure-function relationships in the multidrug transporter ABCG2. Pharmacology Away Day, University of Cambridge.

2018

Van Veen, H.W. (2018) ABC transporters in bacterial drug resistance. Program Spotlight Microbiology Meeting 2018**,** University of Tübingen, Germany.

Van Veen, H.W. (2018) *Session Chair.* Antibiotic Resistance and Mechanisms Workshop. British Society for Antimicrobial Chemotherapy, Birmingham, UK.

Van Veen, H.W. (2018). Biochemical mechanisms of antibiotic resistance. Antimicrobial Resistance Awareness week, Students for Global Health – St John's College, Cambridge UK.

2017

Van Veen, H.W. (2017) *Keynote Lecture*. Deciphering the molecular details of substrate transport and energy coupling in bacterial multidrug efflux pumps. Gordon Research Seminars on Multidrug Efflux Systems, Galveston, Texas, USA.

Van Veen, H.W. (2017) *Session Chair.* Introduction in microbial genomics and antimicrobial resistance. **C**ambridge Infectious Diseases Annual Meeting of Minds. Cambridge, UK.

Van Veen, H.W. (2017) *Discussion Leader.* Introduction into microbiome in health and diseases. Gordon Research Conference on Multidrug Efflux Systems, Galveston, Texas, USA.

2016

Van Veen, H.W. (2016) Role of multidrug transporters in drug toxicity. British Toxicology Society Annual Congress 2017, Liverpool, UK.

Van Veen, H.W. (2016) Mechanisms of substrate selection and transport by multidrug transporters. National Institutes of Health, Bethesda MD, USA.

Van Veen, H.W. (2016) Mechanisms and inhibition of multidrug transporters in health and disease. Department of Chemistry, University of Durham.

Van Veen, H.W. (2016) Mechanisms and inhibition of multidrug transporters in health and disease. Integrative Toxicology Training Partnership Programme, MRC Toxicology Unit, University of Leicester.

Van Veen, H.W. (2016) How do drug efflux pumps operate? Shionogi, Cambridge.

Nair, A.V., Jin, Y., Raturi, S. and **Van Veen**, H.W. (2016) NorM- the MATE Transporter from *Vibrio cholerae* simultaneously Couples to Sodium and Proton-Motive Force. Gordon Research Conference on Membrane Transport Proteins. Renaissance Tuscany Il Ciocco, Lucca, Italy.

Neuberger, A., **Van Veen**, H.W. (2016) Molecular defense mechanisms in bullet-proof microbial killers: on the role of multidrug resistance-causing efflux pumps in bacteria. Membrane Proteins from A to Z: Symposium around the life and work of Professor Stephen Baldwin. University of Leeds, UK.

Singh, H. Guo, D., **Van Veen**, H.W. (2016) ATP-dependent substrate transport by the ABC transporter MsbA is proton-coupled. Antibiotic Resistance and Mechanisms Workshop. British Society for Antimicrobial Chemotherapy, Birmingham, UK.

De Kruijf, R., Haughan, K., Regan, S. L., Foster, A., Hilgendorf, C., Williams, D., **Van Veen**, H. W. (2016) Molecular mechanisms of inhibition of the bile salt export pump during drug-induced liver injury. British Toxicology Society Annual Congress 2017, Liverpool, UK.

2015

Van Veen, H.W. (2015) Antibiotic resistance: on the importance of antibiotic efflux pumps. EuroSciCon. Antibiotic resistance and antibiotic alternatives: Looking towards the future. O2, London.

Van Veen, H.W. (2015) Molecular mechanisms of multidrug transporters. 8th SFB35 Symposium, Vienna, Austria.

Van Veen, H.W. (2015) Multidrug transporters as drug targets. School of Life Sciences. University of Warwick.

Van Veen, H.W. (2015) *Memorial Lecture* for Prof. Wil Konings (passed away July 2014). Gordon Research Conference on Multidrug Efflux Systems, Renaissance Tuscany Il Ciocco, Lucca, Italy.

Van Veen, H.W. (2015) Towards a mechanistic understanding of the lipid A/ multidrug exporter MsbA. Biochemical Society's Annual Symposium - Recent Advances in Membrane Biochemistry. Robinson College, Cambridge.

Van Veen, H.W. (2015) *Chair* of Antimicrobial Resistance Conference of the British Society for Antimicrobial Chemotherapy, Birmingham (UK) in collaboration with the Royal Society of Chemistry.

Neuberger, A., Singh, H., Tong, Z., Raturi, S., Fagg, L., Nair, A., Agboh, K., **Van Veen**, H.W. (2015) Structure-function relationships of multidrug transporters: Implications for novel drug design. Gordon Research Conference on Multidrug Efflux Systems, Renaissance Tuscany Il Ciocco, Lucca, Italy.

Singh, H., Neuberger, A., Tong, Z., Raturi, S., Fagg, L., Nair, A., Agboh, K., **Van Veen**, H.W. (2015) Multidrug transporters as drug targets. Biochemical Society's Annual Symposium - Recent Advances in Membrane Biochemistry. Robinson College, Cambridge.

Singh, H., Neuberger, A., Tong, Z., Raturi, S., Fagg, L., Nair, A., Agboh, K., **Van Veen**, H.W (2015) Multidrug transporters as drug targets. BBSRC-NIBB Crossing Biological Membranes (CBMNet). University of Sheffield, UK.

2014

Nair, A.V., Jin, Y., **Van Veen**, H.W. (2014) Multidrug transport protein NorM from *Vibrio cholerae* simultaneously couples to sodium- and proton-motive force. Antibiotic Resistance and Mechanisms Workshop. British Society for Antimicrobial Chemotherapy, Birmingham, UK.

2013

Van Veen, H.W. (2013) *Discussion Leader*. Introduction into the latest news on drug efflux pumps. Gordon Research Conference on Multidug Efflux Systems. Ventura, California, USA.

Tong, Z., Jin, Y., Shi, W., Wang, H., **Van Veen**, H.W. (2013) Critical carboxylate and basic residues affect the conformational dynamics of the Major Facilitator Superfamily Multidrug Transporter LmrP. Gordon Research Conference on Multidug Efflux Systems. Ventura, California, USA.

2012

Van Veen, H.W. (2012) *Keynote Lecture*. Molecular mechanisms of ABC transporters and beyond. 10th French-Belgian ABC meeting, Brussels, Belgium.

Van Veen, H.W. (2012) Mechanisms of multidrug transporters in the Major Facilitator Superfamily. Institute for Cell and Molecular Biosciences. University of Newcastle, UK.

Schaedler, T.A., Ainsworth, C., Bernard, D., **Van Veen**, H.W., Balk, J. (2012) Towards the substrate specificity of mitochondrial ATM transporters involved in Fe-S cluster assembly. Gordon Research Conference on Membrane Transport Proteins, Les Diablerets Conference Center, Switzerland.

2011

Van Veen, H.W. (2011) Energy coupling and substrate sensing in bacterial multidrug ABC exporters. Biozentrum. University of Basel, Switzerland.

Van Veen, H.W. (2011) Multidrug transporters: from bacteria to man. Biochemical Society's Annual Symposium - Recent Advances in Membrane Biochemistry. Robinson College, Cambridge, UK.

Van Veen, H.W. (2011) Molecular mechanisms of multidrug transporters. Symposium "Combating the Emergence of Drug Resistance", University of Birmingham, UK.

Van Veen, H.W. (2011) Molecular mechanism of drug transport by the multidrug resistance transporter LmrP. Gordon Research Conference on Multidrug Efflux Systems. Les Diablerets Conference Center, Switzerland.

2010

Van Veen, H.W. (2010) Molecular pharmacology of the breast cancer resistance protein (ABCG2). 16th World Congress of Basic and Clinical Pharmacology & WorldPharma2010. Copenhagen, Denmark.

2009

Hellmich, U.A., Lyubenova, S., Moenkemeyer, L., Kaltenborn, E., **Van Veen**, H.W., Prisner, T., Glaubitz, C. (2009) Investigation of the multidrug ABC transporter LmrA by multinuclea MAS-NMR and EPR. Biophysical Society 53rd Annual Meeting, Boston, Massachusetts, USA.

Tan, M., Lea, J., **Van Veen,** H.W., Venter, H. (2009) A cytoplasmic entrance for drugs into multidrug transporters. British Pharmacological Society Winter Meeting, London, UK.

2008

Van Veen, H.W. (2008) Modulation of Multidrug Transport. Ehrlich II: Magic Bullets. Conference organized on the occasion of the 100th Anniversary of the Nobel Prize awarded to Prof. Paul Ehrlich, Nuremberg, Germany.

Van Veen, H.W. (2008) Chemiosmotic coupling in bacterial ABCB1 homologues. 2nd FEBS Special Meeting on ABC Proteins, ABC2008: ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Diseases. Innsbruck, Austria.

2007

Van Veen, H.W. (2007) FASEB Summer Research Conferences. Transport ATPases: Structure, Mechanisms, Genomics and Disease, Vermont Academy, Saxtons River, Vermont, USA.

Van Veen, H.W. (2007) Summer School. Transport across membranes. Bremen, Germany.

Siarheyeva, A., Mason, A. J., Haase, W., **Van Veen**, H.W., and Glaubitz, C. (2007) Solid-state NMR and the multidrug ABC transporter LmrA. German Society of Biochemistry, Giessen, Germany.

2006

Van Veen, H.W. (2006) New light on multidrug transporters. School of Biological Sciences, University of Cambridge, UK.

Van Veen, H.W. (2006) New light on multidrug transporters. School of Biological Sciences, University of Reading, UK.

Van Veen, H.W. (2006) Drug recognition by multidrug transporters. CR-UK meeting on Medicinal Chemistry, Cambridge, UK.

Van Veen, H.W. (2006) Drug recognition by multidrug transporters, Pfizer, Cambridge, UK.

Van Veen, H.W. (2006) New light on ABC multidrug transporters, Wolfson Research Institute, University of Durham, Stockton-on-Tees, UK.

Woebking, B., Reuter, G., Shilling, R.A., Velamakanni, S., Shahi, S., Venter, H., Balakrishnan, L., and **Van Veen**, H.W. (2006) Drug/free Lipid A interactions on the Escherichia coli ABC-transporter MsbA. ABC2006, FEBS Special Meeting on ABC Proteins. Innsbruck, Austria.

Velamakanni, S., Janvilisri, T., Venter, H., Shahi, S. and **Van Veen**, H.W. (2006) A sterol-binding element in ABC transporters of the G subfamily. ABC 2006, FEBS Special Meeting on ABC Proteins. Innsbruck, Austria.

2005

Van Veen, H.W. (2005) *Chair* of a mini-symposium (6 speakers) on mechanisms of ABC transporters in Bioscience 2005, “From Genes to Systems”, Biochemical Society, Glasgow, UK.

Van Veen, H.W. (2005) *Chair* of a session in the annual meeting of the British Pharmacology Society, “Transporters and Drug Resistance - A suitable target for drug development?” in Cambridge, together with Prof. Brian Burchell (University of Dundee).

Van Veen, H.W. (2005) Molecular mechanisms of multidrug transporters. Institute & Graduate School of Biomembranes, University of Utrecht, the Netherlands.

Van Veen, H.W. (2005) ABC transporters in bacteria. Gordon Research Conference on Multidrug resistance, Oxford, UK.

Van Veen, H.W. (2005) Novel insights into the mechanisms of ATP-binding cassette multidrug transporters, International Symposium on Membrane Transport Nanomachines, Osaka, Japan.

Van Veen, H.W. (2005) Prokaryotic LmrA as a model for human ABC transporters. FASEB Summer Research Conference. Transport ATPases: Genomics, Mechanisms and Relevance to Diseases, Vermont, USA.

Van Veen, H.W. (2005) ABC transporters: ATP-dependence and chemi-osmotic coupling. Department of Pharmacology, Johannes Gutenberg University Mainz, Germany.

Van Veen, H.W. (2005) New light on multidrug transport in bacteria. Biosciences 2005, Glasgow, UK.

Siarheyeva, A., Mason, A.J., Haase, W., **Van Veen**, H.W., and Clemens Glaubitz (2005) First solid-state NMR experiments on ABC multidrug transporter LmrA. 1st. Joint German/British Bioenergetics Conference in Cooperation with the GBM study group Bioenergetics "Mechanisms of Bioenergetic Membrane Proteins: Structures and Beyond" Naurod (Wiesbaden), March 20-24, 2005.

Cooray, H.C., Shahi, S., Cahn, A.P., **Van Veen**, H.W., Hladky, S.B., and Barrand, M.A. (2005) Evidence for interactions of exogenous steroids with P-glycoprotein and the breast cancer resistance protein (bcrp). Annual Meeting of the Pharmacological Society, Cambridge, UK.

Bapna, A., Venter, H., and **Van Veen**, H.W. (2005) Identification of a proton translocation pathway in the secondary-active lactococcal multidrug transporter LmrP. Gordon Research Conference, Mechanism of Membrane Transport, Tilton School, New Hampshire, USA.

2004

Van Veen, H.W. (2004) *Chair* of a 4-day Summer Research Conference, “Transporter 2004: Membrane Transport and Transport Proteins” in Cambridge, UK. I gave a presentation on “Mechanisms of ABC multidrug transporters”.

Van Veen, H.W. (2004) An ABC transporter with a secondary-active multidrug translocator domain. Transporters and Drug resistance, Joint Meeting of The Belgian Society of Biochemistry and Molecular Biology, and The Belgian Society of Microbiology, Université Libre de Bruxelles, Belgium.

Lekshmy Balakrishnan, B., Velamakanni, S., Kleijn, A.-B., and **Van Veen**, H.W. (2004) Reversed transport by the ABC multidrug efflux pump LmrA couples drug uptake to ATP synthesis. European Bioenergetics Conference, Pisa, Italy. BBA-BIOENERGETICS 1658: 29-29 Suppl. S 200.

Reuter, G., Janvilisri, T., Venter, H., Shahi, S., Balakrishnan, L., and **Van Veen**, H.W. (2004) The ATP-binding cassette multidrug transporter LmrA and lipid transporter MsbA have overlapping substrate

specificities. Experimental Biology 2004, American Physiological Society, Washington DC, USA. FASEB J 18 (4): A696-A696 Suppl. S MAR 23 2004.

Janvilisri, T., Shahi, S., Venter, H., Balakrishnan, L., and **Van Veen**, H.W. (2004) The transport of antibiotics, lipids and bile salts by BCRP suggests a role in hepatobiliary secretion. Experimental Biology 2004, American Society for Pharmacology and Experimental Therapeutics, Washington DC, USA. FASEB J 18 (5): A1201-A1201 Suppl. S MAR 24 2004.

Janvilisri, T., Shahi, S., Venter, H., Balakrishnan, L., **Van Veen**, H.W. (2004) The transport of antibiotics, lipids and bile salts by BCRP suggests a role in biliary secretion. Transporters and Drug resistance, British Pharmacology Society, Cambridge, UK.

2003

Van Veen, H.W. (2003) The homodimeric transmembrane domain of the ATP-binding cassette half-transporter LmrA mediates reversible multidrug transport in a proton motive force-dependent fashion. Gordon Research Conference, Holderness School, Plymouth, NH, USA.

Van Veen, H.W. (2003) Proton motive force-dependent multidrug transport by an ABC transporter domain. Institute for Biophysical Chemistry, J.W. Goethe Universität, Frankfurt am Main, Germany.

Cooray, H., Janvilisri, T., **Van Veen**, H.W., Hladky, S., and Barrand, M. (2003) Interaction of the breast cancer resistance protein (BCRP/ABCG2) with flavanoids. British Pharmacology Society, Kings College, London. pA_2 online: http://www.pa2online.org/Vol1Issue4abst115P.htm

Mason, A.J., Siarheyeva, A., **Van Veen**, H.W., and Glaubitz, C. (2003) Residue specific isotope labelling and first solid-state NMR experiments on the *Lactoccous* ABC multidrug transport LmrA, a functional homologue of the human P-glycoprotein. 4th European Biophysics Congress, Alicante, Spain.

Van Veen, H.W. (2003) Towards the molecular mechanism of the bacterial P-glycoprotein homologue LmrA. 4th Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

Venter, H., Shilling, R., Walas, F., Federici, L., Luisi, B., Velamakanni, S., Balakishnan, L., and **Van Veen**, H.W. (2003) The homodimeric transmembrane domain of the ATP-binding cassette half-transporter LmrA mediates reversible multidrug transport in a proton motive force-dependent fashion. 4th Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

Janvilisri, T., Venter, H., Shahi, S., Balakrishnan, L., and **Van Veen**, H.W. (2003) Sterol transport by the human breast cancer resistance protein (ABCG2) expressed in *Lactococcus lactis*. 4th Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

Reuter, G., Shahi, S., Venter, H., Balakrishnan, L., and **Van Veen**, H.W. (2003) The lactococcal multidrug transporter LmrA complements an *Escherichia coli* MsbA mutant defective in lipid export. 4th Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

2002

Van Veen, H.W. (2002) Towards the molecular mechanisms of multidrug transporters. Department of Biochemistry, University of Cambridge, UK.

Van Veen, H.W. (2002) What can we learn from molecular studies on the lactococcal multidrug transporter LmrA? Cost B16, European Union, Invited Expert Lecture, Paris, France.

Van Veen, H.W. (2002) Towards the molecular mechanisms of multidrug transporters. School of Biochemistry and Molecular Biology, University of Leeds, UK.

Van Veen, H.W. (2002) Drug resistance mediated by multidrug transporters. Ninewells Hospital & Medical School, University of Dundee, UK.

Van Veen, H.W. (2002) Transport of antibiotics by multidrug transporters in prokaryotic and eukaryotic cells. European Congress on Chemotherapy and Infectious Diseases (ECC4), Palais de Congres, Paris, France.

Grimard, V., Vigano, C., **Van Veen**, H.W., Konings, W.N., Ruysschaert, J.-M., Goormaghtigh, E. (2002) A new method coupling polarized ART-FTIR spectroscopy and $^{1}H/^{2}H$ exchange to study the dynamics of the membrane embedded domain of LmrA during its catalytic cycle. Biophysical Society, 46th Annual Meeting, San Francisco, USA.

2001

Van Veen, H.W. (2001) Antibiotic resistance: era of the multidrug pump. Gordon Research Conference. Mechanisms of membrane transport.

Van Veen, H.W. (2001) Antibiotic resistance: era of the multidrug pump. University of Copenhagen. Danish Biochemical Society.

Van Veen, H.W. (2001) Multidrug transporters in bacteria and man. European Symposium on the molecular investigations of metabolism and transport of drugs-from animal to human tissue. Deutsche Akademie der Naturforscher Leopoldina & European Society of Biochemical Pharmacology (ESBP).

Van Veen, H.W. (2001) Multidrug transporters in prokaryotic and eukaryotic cells. Biophysical Chemistry 2001, Royal Society, London, UK.

Van Veen, H.W., Poelarends, G., Margolles, A., and Konings, W.N. (2001) LmrA, a P-glycoprotein homologue in *Lactococcus lactis* confers resistance to a broad spectrum of antibiotics. EMBO Workshop on Pumps, channels and transporters: structure and function, Madrid, Spain.

Van Veen, H.W., Poelarends, G., Margolles, A., and Konings, W.N. (2001) LmrA, a P-glycoprotein homologue in *Lactococcus lactis* confers resistance to a broad spectrum of antibiotics. 3rd Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

Grimard, V., Vigano, C., Margolles, A., Wattiez, R., **Van Veen**, H.W., Konings, W.N., Ruysschaert, J.-M., and Goormaghtigh. (2001) Structure and dynamics of the membrane embedded domain of LmrA investigated by a new methood coupling polarized ATR-FTIR spetroscopy and $^{1}H/^{2}H$ exchange. 3rd Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

Vigano, C., Grimard, V., Margolles, A., Goormaghtigh, E., **Van Veen**, H.W., Konings, W.N., and Ruysschaert, J.-M. (2001) Long-range conformational changes transmitted between the membrane and cytosolic domains of LmrA are involved in the mechanism coupling ATP hydrolysis to drug transport. 3rd Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

Cool, R., Veenstra, M., Van Klompenburg, W., Heijne, R., Müller, M., De Vries, E.G.E., and **Van Veen**, H.W. (2001) Characterisation of the nucleotide binding domains of thhe multidrug transporter MRP1. 3rd Advanced Lecture Course "ATP Binding Cassette (ABC) Transporters: From Multidrug Resistance to Genetic Disease". Federation of European Biochemical Societies, Gosau, Austria.

2000

Van Veen, H.W. (2000) Antibiotic resistance; era of the multidrug pump. Transporters 2000. Federation of American Societies for Experimental Biology (FASEB). Barcelona, Spain.

Van Veen, H.W. (2000) The homodimeric ATP-binding cassette transporter LmrA mediates multidrug transport by an alternating two-site (two-cylinder engine) mechanism. Membrane Protein Conference, Committee for Biochemistry and Biophysics, the Royal Netherlands Academy of Arts and Sciences.

1999

Van Veen, H.W. (1999) Molecular mechanisms and clinical relevance of multidrug transport system in Lactococcus lactis. Universities of Hokkaido, Horoshima, Osaka, Kyoto and Tokyo, Japan.

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