

# **The Global Need for Effective Antibiotics**

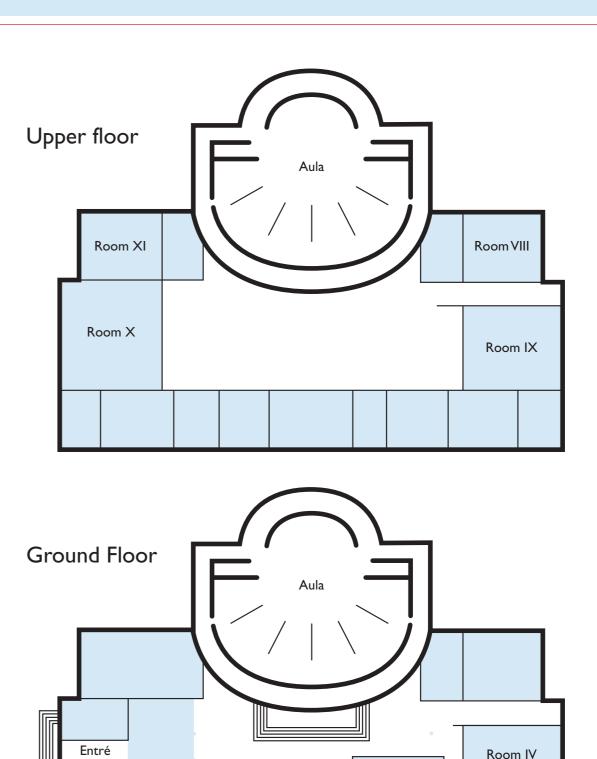
- moving towards concerted action

September 6-8 2010, Uppsala, Sweden

Conference Program



	Monday 06	Tuesday 07	Wednesday 08	
08.00				08.00
08.30			Plenary session 5	08.30
09.10		Plenary session 3		09.10
09.30			Workshop presentations	09.30
10.00		Coffee Break		10.00
10.20	Registration opens		Coffee Break	10.20
10.30		Plenary session 3		10.30
10.50			Workshop presentations	10.50
11.00				11.00
11.30				11.30
11.45	Lunch (University main	Plenary session 4		11.45
12.00	building)			12.00
12.30				12.30
12.45			Plenary session 6	12.45
12.50		Lunch (Restaurant Hyllan)		12.50
13.00				13.00
13.30			Concluding remarks	13.30
13.45				13.45
14.00			Buffet lunch	14.00
14.30	Coffee Break			14.30
15.00		Parallel workshops		15.00
15.30	Plenary session 1			15.30
16.00	Tionary session 1			16.00
16.30				16.30
17.00				17.00
17.30	Plenary session 2			17.30
18.00	•			18.00
18.15				18.15
18.30				18.30
19.00		Buffet Dinner		19.00
19.30	Dinner	(Gustavianum)		19.30
	(Uppsala Castle)			



Room IV

Registration

Main Entry Speakers pre-view

Press

# Welcome to Uppsala!

Dear Participant,

As the burden of antibiotic resistance grows, innovation and access to antibiotics demand urgent priority on the global health agenda. To address this challenge, Uppsala University and ReAct are hosting the conference "The Global Need for Effective Antibiotics - Moving towards Concerted Action" on September 6-8, 2010 in Uppsala, Sweden.

This invitational conference builds upon and deepens the discussions held at the expert meeting on "Innovative Incentives for Effective Antibacterials," organized by the Swedish EU Presidency in September 2009. Taking a global perspective on these problems, the Uppsala conference will address issues such as establishing a framework for priority setting for new products to meet the challenge of antibiotic resistance, enhancing knowledge sharing for drug discovery, and identifying potentially successful combinations of incentives to reinvigorate the innovation of new antibacterials.

It is clear that we urgently need new antibacterial drugs as well as developing other health technologies, but we also need to address the problem from a broader health system's perspective, including improved prevention of infections.

It is all our responsibility to ensure that current and future generations of people around the globe will have access to effective treatment of bacterial infections as part of their right to health. Working towards this goal means addressing both the problem of excess use to preserve the effect of existing antibiotics, but equally addressing the reverse problem of limited access in other settings to make sure these lifesaving medicines reach those who need them the most.

We are facing a global problem that requires concerted action.

Anders Hallberg

President

UPPSALA UNIVERSITY

Andreas Heddini

EXECUTIVE DIRECTOR

REACT

# **Organizing Committee**

Otto Cars Chairman, ReAct

Anna E. Hedin Conference Manager, ReAct

Anthony So Director, Program on Global Health and Technology Access,

Duke University, USA & Strategic Policy Unit, ReAct

Neha Gupta Associate in Research, Program on Global Health and

Technology Access, Duke University, USA

Andreas Heddini Executive Director, ReAct

Gunnar Alván former Director-General, Medical Products Agency, Sweden

Charlotta Edlund Clinical Assessor, Medical Products Agency, Sweden

Katarina Nordqvist Research Director, Nobel Museum, Sweden

Eva Ombaka former Director of the Ecumenical Pharmaceutical Network (EPN), Tanzania

Hajo Grundmann Department Chair, University of Groningen, the Netherlands

Johan Mouton Consultant Clinical Microbiologist, Radboud University, the Netherlands

## **Conference Funders**

This conference was made possible by generous contributions from:

The Swedish Government

AFA Insurance

The Swedish Research Council

**UU** Innovation

## **Conference objectives**

To deepen discussions held at the Swedish EU Presidency meeting "Innovative Incentives for Effective Antibacterials" in September 2009. Building on those conclusions, this conference will focus on developing frameworks for global action on issues such as improved access and affordability of antibiotics, priority-setting for R&D of new technologies; overcoming scientific, regulatory and financial bottlenecks; and reengineering the value chain to reinvigorate R&D focused on antibacterials with novel mechanisms of action.

To raise antibiotic resistance on the global health policy agenda. The conference aims to contribute to new initiatives in this area, such as the EU Council Conclusions on antibiotic resistance decided on during the EU Swedish Presidency and the Transatlantic Task Force on Antimicrobial Resistance (TATFAR), as well as to the ongoing work within the WHO. By gathering stakeholders from supranational institutions, national governments, civil society, the research community and industry, this conference aims to yield specific conclusions with broad support that address the multifaceted challenges of antibiotic resistance.

To capitalize on the potential for synergy within the burgeoning body of actors in the field of antibiotic resistance. There is greater potential than ever both to act against antibiotic resistance alongside other urgent health challenges facing the global population, and to build partnerships among stakeholders with similar goals.

10:00	Registration	opens (University main building)	
11:30 – 12:30	LIGHT LUNC	CH (University main building)	
12:45 – 14:25	OPENING SESSION (University Aula) In the presence of H.R.H. Victoria, Crown Princess of Sweden		
	12:45	Seats must be taken in the University Aula	
	13:00 – 13:15	Uppsala Choir School Conductor: Gunnel Haulin Introduction by Conference Moderator Niklas Ekdal	
	13:15 – 13:40	Welcome Addresses Anders Hallberg, President, Uppsala University Karin Johansson, Swedish Secretary of Health Andreas Heddini, Executive Director, ReAct	
	13:40 – 14:10	Setting the Scene: The Global Picture of Antibiotic Resistance Otto Cars, Professor, Chairman of ReAct, Sweden Zulfiqar Bhutta, Professor and Department Chair, Aga Khan University, Pakistan	
	14:10 – 14:25	Reflections from a Global Perspective Guénaël Rodier, Director, Division of Communicable Diseases, Health Security & Environment, World Health Organization, Regional Office for Europe	
14:25 – 15:15	COFFEE BRE	ZAK	
15:15 – 17:00	PLENARY S	ESSION 1 (Lecture Hall $\overline{\underline{\mathbf{X}}}$ ):	
	Policy Challe	enges to Optimizing the Use of Antibiotics	
		nbaka, Senior Consultant, former director of the ormaceutical Network (EPN), Tanzania.	
	reference to the elements as ar	sting antibiotics could be much improved. This will be reviewed with the situation in different health systems. Access and affordability are key re misalignment of economic incentives and medical rationality. Reliable d adequate diagnostic tools could much improve the situation.	
	15:15 – 15:30	Keynote 1: Reaching for Global Access and Affordability Eva Ombaka, Senior Consultant, former director of the Ecumenical Pharmaceutical Network (EPN), Tanzania	
	15:30 – 15:45	Keynote 2: Rational Use: Where Less is More Roger Finch, Professor, University of Nottingham, UK	
	15:45 – 16:40	Panel: Perspectives on Rational Use and Access	
	15:45 – 15:50	Introduction Eva Ombaka, Senior Consultant, former director of the Ecumenical Pharmaceutical Network (EPN), Tanzania	

15:50 – 16:00	An Economist's Perspective Ramanan Laxminarayan, Director, Global Antibiotic Resistance Partnership (GARP), USA
16:00 – 16:10	A Regional Perspective Niyada Kiatying-Angsulee, Director, Social Pharmacy Research Unit, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Thailand
16:10 – 16:20	A Scientist's Perspective Iruka Okeke, Professor, Haverford University, USA
16:20 – 16:30	A Physician's Perspective  Dana Hanson, President, World Medical Association, USA
16:30 – 16:55	Q & A
PLENARY S	ESSION 2 (Lecture Hall $\overline{\underline{\mathbf{X}}}$ ):
	ity-Setting for Research and Development to
Chair: Zulfiqar	Bhutta, Professor and Department Chair, Aga Khan University, Pakistan
bacterial resist pipeline and ide	ill discuss the role of vaccines, diagnostics and antibiotics in relation to ance. The interventions will also address the state of the current entified gaps and include a forward-looking discussion about f these technologies and their respective and combined potential values.
17:00 – 17:05	Introduction  Zulfiqar Bhutta, Professor and Department Chair, Aga Khan University, Pakistar
17:05 – 17:20	Controlling antibiotic resistance through the development and introduction of vaccines: the case of pneumococcal conjugate vaccines  John Clemens, Director-General, International Vaccine Institute (IVI), South Korea
17:20 – 17:35	<b>Development of diagnostics for drug resistant infections</b> Rosanna Peeling, Professor and Chair of Diagnostics Research, London School of Hygiene and Tropical Medicine, UK
17:35 – 17:50	Should the development of new antibiotics be a public health concern?  Andreas Heddini, Executive Director, ReAct, Sweden
17:50 – 18:15	Q & A
Transport to U	Jppsala Castle for all from Clarion Hotel Gillet

17:00 - 18:15

19:30

19:45

23:00

**DINNER (Uppsala Castle)** 

#### 08:30 – 11:40 PLENARY SESSION 3 (Lecture Hall $\overline{\mathbf{X}}$ ):

#### Supply-side Bottlenecks: Scientific, Regulatory and Financial Challenges

Chair: Niklas Ekdal, Conference Moderator, Sweden

The decline in R&D in antibiotics is caused by a multitude of interplaying factors. These supply-side bottlenecks critically influence the value chain along the life cycle of antibiotics and will be set in perspective. This plenary will identify the scientific, regulatory and financial bottlenecks and point out possible improvements.

08:30 - 08:35	Introduction Niklas Ekdal, Conference Moderator, Sweden
08:35 - 08:45	Challenges in bringing innovations to market Anthony So, Professor, Duke University, USA
08:45 - 09:00	Could public policies be reconciled with the objectives of the pharmaceutical industry?  Richard Bergström, Director-General, the Swedish Association of the Pharmaceutical Industry (LIF), representing the European Federation of Pharmaceutical Industries and Associations (EFPIA)
09:00 – 09:15	Q & A
09:15 – 09:35	The challenges and attrition of antibacterial discovery David Payne, Vice President, GlaxoSmithKline, USA
09:35 - 09:45	Difficulties, bottlenecks and unanswered questions in the search
	for new antibacterial drugs Ian Chopra, Professor, University of Leeds, UK
 09:45 - 10:00	Ian Chopra, Professor, University of Leeds, UK
	Ian Chopra, Professor, University of Leeds, UK
	Ian Chopra, Professor, University of Leeds, UK  Q & A  COFFEE BREAK
10:00 – 10:30	Ian Chopra, Professor, University of Leeds, UK  Q & A  COFFEE BREAK  Regulatory perspectives Tomas Salmonson, Vice Chair of CHMP, European Medicines Agency
10:00 – 10:30 10:30 – 10:50	lan Chopra, Professor, University of Leeds, UK  Q & A  COFFEE BREAK  Regulatory perspectives Tomas Salmonson, Vice Chair of CHMP, European Medicines Agency  Q&A

#### 11:30 – 12:50 PLENARY SESSION 4 (Lecture Hall $\overline{X}$ ):

# Reengineering the Value Chain for Research and Development of Antibiotics: Applying Lessons from Neglected Diseases

Chair: Anthony So, Professor, Duke University, USA

The creation of a Product Development Partnership (PDP) focused on developing new technologies for antibiotic resistance faces a number of hurdles, including the right combination of incentives to create a successful model. The panel will focus on questions such as what have been the most effective push and pull mechanisms used and why; and how can these lessons be applied to antibiotic resistance.

#### 11:30 - 11:35 **Introduction**

Anthony So, Professor, Duke University, USA

# 11:35 – 11:50 Global Alliance for TB: Streamlining Regulatory Approval for Combination Therapies: The Critical path to TB Regimens

Mel Spigelman, President and CEO, Global Alliance for TB Drug Development (TB Alliance), USA

# 11:50 – 12:05 Developing drugs in the absence of market: can PDP business model(s) for Neglected Tropical Diseases be transposed to antibiotic R&D?

Jean-Pierre Paccaud, Director Business Development, Drugs for Neglected Diseases Initiative (DNDi), Switzerland

#### 12:05 – 12:20 India's Open Source Drug Discovery Initiative

Samir Brahmachari, Director-General, Council of Scientific and Industrial Research (CSIR) & Secretary, Department of Scientific & Industrial Research, Government of India

12:20 - 12:50 **Q & A** 

#### 12:50 – 14:00 LUNCH (Saluhallen, Restaurant Hyllan)

#### **14:00 – 18:00** *Parallel WORKSHOPS*

#### WORKSHOP 1 (Lecture Hall $\overline{\mathbb{IV}}$ ):

Developing a Framework for Priority Setting for New Antibiotics.

Chair: Hajo Grundmann, Professor and Department Chair, University of Groningen, the Netherlands Co-chair: Ramanan Laxminarayan, Director, Global Antibiotic Resistance Partnership (GARP), USA

Global antibiotic resistance and its consequences for health as well as economic burden are immense and dynamically changing. The development of new antibiotics has been neglected and driving forces have been scarce, insufficient and not structured for efficacy. This has sometimes been called a "market failure". The consequence is that there is not sufficient treatment available in many compelling medical situations. An involvement by the

public sector to reinvigorate the R&D of new antibiotics should be rationally based on the global needs. A new framework for priority setting is thus required and a system has to be developed for how to set new priorities. There are at least three elements that need to be included in this context; magnitudes and trends on antibiotic resistance, access to antibiotics and their utilization, and the societal and economic burden of infections caused by antibiotic resistant bacteria. This information seen together with the current pipeline of antibiotic development and a continuous global gap analysis shall provide the momentum for a needsdriven and thus prioritized R&D process. The workshop is expected to deliver concrete suggestions for how to provide a technical framework for policy decisions that can be presented to competent authorities and other decision makers.

#### WORKSHOP 2 (Lecture Hall VIII):

Towards New Business Models for Research and Development for Novel Antibiotics
Chair: Anthony So, Professor, Duke University, USA

Despite the growing threat of antibiotic resistance, the R&D pipeline for antibacterial drugs has failed to keep pace. The pipeline faces a range of bottlenecks, from low yields of high-throughput screening to relatively low return on investment. Yet where traditional R&D models have faltered in other therapeutic areas, such as rare and neglected diseases, the pipeline has been bolstered by initiatives that enable collaboration and data sharing, reduce the risks of R&D, or delink R&D costs from price. This workshop will focus on several promising points where reengineering the value chain of R&D might make a leveraged difference. Participants will also consider innovative financing and incentive approaches that might support such innovation of novel classes of antibiotics. How might these efforts add up to a new business model?

#### WORKSHOP 3 (Lecture Hall $\overline{XI}$ ):

#### Mobilizing for the Development of New Diagnostics

Chair: Katarina Nordqvist, Research Director, Nobel Museum, Sweden

Co-chair: Iruka Okeke, Professor, Haverford College, USA

A very important barrier to the rational use of antibiotics is the lack of rapid, reliable and affordable diagnostic tools to inform clinical decision-making. This barrier exists in high income as well as low income environments. It means that in high-income countries the vast majority of antibacterial treatment is based *only* on clinical experience regarding the likelihood of causative agent and its possible sensitivity to the antibiotics available. In the absence of surveillance data, even experiential decisions lack any kind of evidence base in many developing countries. New diagnostics have thus been identified as a key factor in the array of new approaches to antibiotic treatment in all settings. The workshop will discuss a vast array of diagnostics-related topics – from the focus and priorities of companies for developing and marketing diagnostics to their clinical potential to limit antibacterial resistance. There will also be discussions on funding and PDPs. New diagnostics will extend the life of existing antibiotics and are crucial for inclusion of patients in clinical trials. They will also increase the applicability of new antibacterial technologies, particularly those that

have narrow spectra. The development of new diagnostics must be efficiently targeted to disease burden and the settings in which they are needed. The intention is for the workshop is to report and suggest a framework for diagnostics priority-setting and developing a strategy for the implementation of target product profiles for new diagnostics.

#### WORKSHOP 4 (Lecture Hall $\overline{IX}$ ):

Conserving Antibiotics for the Future: New Ways to Use Old and New Drugs
Chair: Johan Mouton, Consultant Clinical Microbiologist, Radboud University, the Netherlands

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This workshop will explore innovative mechanisms for extending the efficacy and life of existing and future antibiotics. The drug efficacy is strongly dependent on factors such as dose size, dose schedule, duration of treatment and drug combinations. Cycling, sequential therapy etc are other aspects in this field. Optimizing drug usage according to pharmacokinetic/pharmacodynamic (PK/PD) based dosing principles could minimize the emergence of resistance. These factors should be studied and peer reviewed conclusions should be made available and utilized in the global medical care. The purpose of the workshop includes developing a knowledge pool for of these aspects and will furthermore work towards defining a research agenda for clinical trials and mechanisms for sharing such data. That could mean a global data base of clinical efficacy to guide treatment for multi-resistant organisms, in particular for combination therapy. Significant attention will be given to policy issues, including regulatory aspects. This includes mechanisms for removing and adding indications for drugs and changing labels (including duration of treatment and dosing), prescription policies and education.

15:30 - 16:00 COFFEE BREAK

18:00 REFRESHMENTS AND GROUP PHOTO (Outside of Lecture Hall  $\overline{X}$ )

18:45 BUFFET DINNER (Gustavianum)

# 08:30 – 09:10 PLENARY SESSION 5 (Lecture Hall $\overline{\mathbf{X}}$ ): Future Treatment Options - Balancing Antibiotics with Other **Treatment Concepts** 08:30 – 08:50 **Keynote:** Staffan Normark, *Professor*, *Karolinska Institutet*, Sweden 08:50 - 09:10 **Q & A** 09:10 – 12:00 WORKSHOP PRESENTATIONS (Lecture Hall $\overline{X}$ ): 09:10 - 09:25 **WORKSHOP 1:** Developing a Framework for Priority Setting for New Antibiotics 09:25 - 09:45 **Q & A** 09:45 - 10:00 **WORKSHOP 2:** Towards New Business Models for Research and Development for **Novel Antibiotics** 10:00 - 10:20 **Q & A** 10:20 - 10:50 **COFFEE BREAK** WORKSHOP PRESENTATIONS cont'd 10:50 – 11:05 **WORKSHOP 3:** Mobilizing for the Development of New Diagnostics 11:05 – 11:25 **Q & A** 11:25 - 11:40 **WORKSHOP 4:** Conserving Antibiotics for the Future: New Ways to Use Old and **New Drugs**

11:40 - 12:00 **Q & A** 

#### 12:00 – 13:30 PLENARY SESSION 6 (Lecture Hall $\overline{X}$ ):

#### **Moving towards Concerted Action**

Bernardus Ganter, Senior Adviser, Antimicrobial Resistance,

Communicable Diseases, Health Security and Environment, World Health Organization, Regional Office for Europe

Mario Nagztaam\*, Policy Officer, EU Commission, Belgium

Dominique Monnet\*, Senior Expert and Programme Coordinator, European Centre for Disease Prevention and Control (ECDC)

Anna Lönnroth\*, Acting Head of Unit, EU Commission, Belgium,

Dennis Dixon\*, Chief, Bacteriology and Mycology Branch, National Institute of Allergy and Infectious Diseases, USA,

J. Todd Weber\*, CDC Liaison at the European Centre for Disease Prevention and Control.

\*Members of the Transatlantic Taskforce on Antimicrobial Resistance (TATFAR)

#### 13:30 - 13:45 Concluding remarks

Otto Cars, Professor, Chairman of ReAct, Sweden

#### 13:45 BUFFET LUNCH (University Main Building)

**End of Conference** 

## **Speakers**



#### Richard Bergström

Richard Bergström is a pharmacist by training. He received his MScPharm degree from the University of Uppsala, Sweden in 1988. Until 1992 he worked at the Medical Products Agency as Assistant Head of Registration. He moved to Switzerland where he worked for nine years in regulatory affairs at Roche and Novartis. Before returning to Sweden in 2002, he was Director, EU Regulatory Strategy at Roche Basel. Currently, he is Director-General of LIF, the Swedish Association of the Pharmaceutical Industry, Member of the Board of EFPIA, the European association and of the Council of IFPMA, the international association. Mr Bergström is particularly involved in policies relating to health technology assessment

(HTA) and marketing codes. In the latter area he serves as chair of the IFPMA Code Compliance Network and chair of the EFPIA Code Steering Committee. In Sweden, he has been appointed by the Government to the Board of the Karolinska Institute. He has also been appointed advisor to the World Health Organization in Geneva in the project for good governance in the health sector.



#### Zulfiqar Bhutta

Dr Zulfiqar A. Bhutta is Husein Laljee Dewraj Professor and the Founding Chair of the Division of Women and Child Health, Aga Khan University, Karachi, Pakistan. He also holds adjunct professorships in International Health & Family and Community Medicine at the departments of International Health at the Boston University and Tufts University (Boston) respectively. He was designated a Distinguished National Professor of the Government of Pakistan in 2007. He is also the Dean of the faculty of Paediatrics of the College of Physicians & Surgeons, Pakistan and the Chairman of the National Research Ethics Committee of the Government of Pakistan. Dr Bhutta heads a large research team working on issues of

maternal, newborn and child survival and nutrition globally and regionally, with a special interest in research synthesis, scaling up evidence based interventions in community settings and health systems research.



#### Samir K. Brahmachari

Professor Samir K. Brahmachari pioneered functional genomics initiative in India and led the Indian Genome Variation Consortium project as the Director, Institute of Genomics and Integrative Biology, CSIR. His core expertise is in structural and computational biology. Since November 2007, he has assumed the office of the Director General of Council of Scientific and Industrial Research (CSIR), which is the largest publicly-funded organization involved in scientific and industrial research, with 37 constitutional laboratories across India. He is a member of the HUGO Council and the Advisory Board of the X Prize in Genomics. As a member of the expert group on Human Rights and Biotechnology Commission of United

Nations, he has addressed issues of unethical exploitation of genetic resources of the Third World and has championed the concept of rights of patients in benefit sharing in the development of genomic medicine. He has successfully led the Indian team in the Pan Asia SNP Project. Currently he is leading India's Open Source Drug Discovery (OSDD) initiative focussed on M Tuberculosis with global participation and Pharmacogenomics for Affordable Health Programme in India. He is the recipient of a large number of National and International awards and elected member of all four National Academies of Sciences and Engineering in India. In 2009, the Week magazine has identified him as one of the twenty-five most valuable Indians.



#### **Otto Cars**

Otto Cars became a specialist in infectious diseases in the early 1970's at the Medical Faculty, Uppsala University where he holds a position as Professor of Infectious Diseases since 2003. His research has focussed on pharmacokinetics and pharmacodynamics of antibiotics, optimal antibiotic dosing regimens, rational use of antibiotics and resistance epidemiology. He was one of the founders and the second president of the International Society of Anti-infective pharmacology (ISAP). Otto Cars is the chair of Strama (the Swedish strategic programme against antibiotic resistance) since its inception in 1995. He has been actively involved in numerous European and international initiatives in the area of antimicrobial

resistance. Since 2004 Otto Cars has been engaged in building an international network with focus on the global aspects and consequences of antibacterial resistance React, Action on Antibiotic Resistance (www. reactgroup.org).



#### Ian Chopra

Professor Ian Chopra read bacteriology at Trinity College, Dublin. Subsequently he obtained PhD and DSc degrees from the University of Bristol, and was recently awarded an honorary MD degree from the University of L'Aquila in Italy in recognition of his work on antibiotics. Professor Chopra's career has been conducted in industry and academia both in the UK and USA. Prior to joining the University of Leeds, UK in 1996 as a Professor of Microbiology he was Director and Vice President of Microbiology Research in SmithKline Beecham, UK. During an earlier appointment at Lederle Laboratories, New York, USA he co-discovered tigecycline, a new broad spectrum tetracycline antibiotic of the glycylcycline

class, that has recently been introduced into the clinic in the fight against infections caused by bacteria multiply resistant to earlier antibiotics. He has published over 200 research papers, reviews and patents dealing with antibiotics.



#### John David Clemens

Dr. John D. Clemens, Director General of the International Vaccine Institute (IVI), is an international expert on the evaluation of vaccines in developing countries. In 1999 he became the first Director-General of the IVI, a position which he continues to hold. During his tenure at the IVI, the IVI has grown from 10 to over 160 staff, its annual budget has increased from under \$2 million to over \$30 million, and the IVI has established field research programs on vaccines against enteric infections, invasive encapsulated bacterial infections, Japanese encephalitis, and dengue fever, and on vaccine safety in 28 developing countries of Asia, Africa, and Latin America. Over the past 15 years he has served on

several WHO Steering Committees, including committees for enteric vaccines, vaccine epidemiology, and vaccine safety. He served as a member of the Board of the GAVI Alliance from 2007 to 2009, and in 2010 was the recipient of the Sabin Gold Medal.



#### **Dennis Dixon**

Dr. Dixon is Chief of the Bacteriology and Mycology Branch of the Division of Microbiology and Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health. Focus areas include antimicrobial resistance, nosocomial infections, vector borne and zoonotic bacterial diseases, and fungal diseases. Goals are to address public health needs through research that will improve diagnosis, prevention or treatment. Dr. Dixon serves as on numerous federal advisory panels on Select Agents, the National Science Advisory Board for Biosecurity, and the domestic and international task force on antimicrobial resistance. He received his doctorate in microbiology from the Medical

College of Virginia in 1978. He held academic positions at Loyola College in Baltimore, the University of Maryland Medical School and Albany Medical College. He served as a Visiting Scientist at Hoffman LaRoche in Switzerland, and as Director for the Mycology Reference Laboratory at the New York State Department of Health.



#### Niklas Ekdal

Niklas Ekdal is a Swedish journalist and author. He started his newspaper career at Vimmerby Tidning in 1980, served as a UN officer at field hospitals in Lebanon between 1984 and 1986, and in Saudi Arabia in 1991. He has worked as a foreign policy analyst and editor-in-chief at the Swedish Defence Headquarters. Between 1994 and 1999 he was political editor-in-chief at the newspaper Expressen in Stockholm, between 2000 and 2009 at Dagens Nyheter. In 1995 he was an intern at The Economist, London. As a historian and political scientist, Niklas Ekdal was Reuter's fellow in Oxford 2004-2005, where he did research into the repercussions of the First World War. Since 2006 he has done talk shows and interviews

on the TV channel Axess. He has published several books, both fact and fiction, the most recent being a biography on the Swedish prime minister Per Albin Hansson and a novel on the theme of medicine.



#### Roger Finch

Roger Finch is Professor of Infectious Diseases at Nottingham University. His is a registered specialist in internal medicine, microbiology and infectious diseases. He currently chairs the UK Advisory Committee on Antimicrobial Resistance & Healthcare Associated Infections (ARHAI). His publications include some 350 articles covering the fields of antimicrobial chemotherapy, respiratory tract infections and the pathogenesis of staphylococcal disease. He is co-editor of "Antibiotic and Chemotherapy" (9th edition); European Editor of Current Opinion in Infectious Diseases and formerly Editor-in-Chief of the Journal of Antimicrobial Chemotherapy. He also advises the UK Medicines and Healthcare products Regulatory

Agency, European Commission and the European Centre for Disease Prevention & Control.



#### Hajo Grundmann

Hajo Grundmann studied Sinology, Nursing and Human Medicine at the Universities of Bochum and Freiburg, Germany. He specialised in Clinical Tropical Medicine, Medical Microbiology and Hygiene & Environmental Medicine and received his PhD at the University of Freiburg, Germany and an MSc in Epidemiology of Communicable Diseases at the London School of Hygiene. He worked clinically as a medical doctor at university hospitals in Freiburg, Berlin, and Nottingham and carried out extensive field studies in Taiwan, Venezuela and Tanzania. He was the former Head of Department Bacteriology at the Dutch National Institute for Public Health and the Environment (RIVM) where for eight years

he was in charge of the European Antimicrobial Resistance Surveillance System (EARSS). He holds the Chair for Infectious Diseases Epidemiology at the University of Groningen and is Special Professor at the University of Nottingham, UK. His major research interests are the molecular evolution, epidemiology, population dynamics and health impact of emerging antimicrobial resistance and health care associated infections, malaria and tuberculosis. – Address: University Medical Centre Groningen, Hanzeplein 1, 9713 GZ Groningen, The Netherlands.



#### Andreas Heddini

Dr. Andreas Heddini is a medical doctor with a PhD in infection biology from Karolinska Institutet, Stockholm, Sweden. His research concerned the pathogenesis of severe malaria, and he worked as a physician and malaria researcher in Kenya and Tanzania. Prior to joining ReAct he held a position as Deputy State Epidemiologist at the Swedish Institute for Infectious Disease Control (SIIDC) where he worked with preparedness and epidemiological monitoring of emerging infectious diseases. Before joining the SIIDC, Andreas worked as Research Advisor to the Swedish International Development Cooperation Agency (Sida) at the Department of Research Cooperation (SAREC) with several areas of health research. During the years 2003-

2005 he was the Secretariat Coordinator of the Multilateral Initiative on Malaria (MIM).



#### Niyada Kiatying-Angsulee

Dr. Niyada Kiatying-Angsulee is currently Director of Chulalongkorn University Social Research Institute, The other tasks are manager of Drug System Monitoring and Development Program, and head of Social Pharmacy Research Unit, both at the Faculty of Pharmaceutical Sciences, Chulalongkorn University. She got her Ph.D. from London School of Hygiene and Tropical Medicine. With emphasize on public health and consumer protection she serves in many committees both in Thailand and international institutions. The one related to ABR is Committee on Surveillance and Control of Antimicrobial Resistance, Thai Ministry of Public Health.



#### Ramanan Laxminarayan

Ramanan Laxminarayan is a senior fellow at Resources for the Future, where he directs the Center for Disease Dynamics, Economics, and Policy, and a visiting scholar and lecturer at Princeton University. His research deals with the integration of epidemiological models of infectious diseases and drug resistance into the economic analysis of public health problems. He has worked to improve understanding drug resistance as a problem of managing a shared global resource. Laxminarayan has worked with the World Health Organization (WHO) and the World Bank on evaluating malaria treatment policy, vaccination strategies, the economic burden of tuberculosis, and control of non-communicable diseases. He has served on a

number of advisory committees at WHO, Centers for Disease Control and, Prevention, and the Institute of Medicine. In 2003-04, he served on the National Academy of Science/Institute of Medicine Committee on the Economics of Antimalarial Drugs and subsequently helped create the Affordable Medicines Facility for malaria, a novel financing mechanism for antimalarials. His work has been covered in major media outlets including Associated Press, BBC, CNN, the *Economist*, *LA Times*, NBC, NPR, Reuters, *Science*, *Wall Street Journal*, and *National Journal*.



#### Anna Lönnroth Sjödén

Anna Lönnroth Sjödén is Acting Head of Unit for Infectious Diseases in the Health Directorate of the Directorate-General for Research at the European Commission. She joined the Commission in 1994 and has been involved in EU funding of research on infectious diseases since 1995 with special emphasis on antimicrobial drug resistance. In March 2007 she was nominated Deputy Head of Unit for Infectious Diseases and in September 2010 Acting Head of Unit. Her responsibilities cover research support on antimicrobial drug resistance, HIV/AIDS, tuberculosis, malaria, neglected infectious diseases, emerging epidemics with pandemic potential (SARS, influenza etc.). Her main tasks comprise research policy development and

priority setting, programme management, proposal evaluation and project assessment. She holds a PhD in molecular genetics from the Karolinska Institute in Stockholm.



#### **Dominique L. Monnet**

Dominique L. Monnet, PharmD, PhD is a senior expert and the programme coordinator for the Programme on Antimicrobial Resistance and Healthcare-Associated Infections at the European Centre for Disease Prevention and Control (ECDC), a European Union agency based in Stockholm, Sweden. He received his degrees in pharmacy and clinical microbiology from the University of Lyon (France), and then obtained further education as a hospital infection control specialist and epidemiologist. He has worked in French hospitals, at the U.S. CDC and at the Danish Statens Serum Institut where he coordinated surveillance of antimicrobial resistance and antimicrobial consumption in humans in Denmark as part of the

Danish Integrated Antimicrobial Resistance Monitoring and Research Programme (DANMAP) between 1999 and 2007. He joined ECDC in October 2007 to coordinate the disease-specific programme on antimicrobial resistance and healthcare-associated infections. He is also a member of the Transatlantic Task Force on Antimicrobial Resistance (TATFAR). His research interests include surveillance of antimicrobial resistance and antimicrobial consumption, the relationship between consumption of antimicrobials and resistance, and the factors that affect antimicrobial usage, both in hospitals and in primary care.



#### Johan W. Mouton

Dr Johan W. Mouton is a consultant clinical microbiologist at the Radboud University Nijmegen Medical Centre, The Netherlands. His major area of research is focussed on pharmacodynamics and anti-infective pharmacology in particular in relation to optimising efficacy and reducing the emergence of resistance. He chairs the Dutch Committee of Antimicrobial Susceptibility Testing (CRG) and is secretary of the Dutch Working Party on Antibiotic Policy. He is a member of the European Steering Committee of Antimicrobial Susceptibility Testing (EUCAST). Between 2002 and 2004 he was President of the International Society of Anti-infective Pharmacology. Dr Mouton is editor and/or a member

of the editorial board of a number of Journals focused on infectious diseases and antimicrobial chemotherapy. He has published over 190 papers in peer-reviewed journals and over 300 abstracts at scientific meetings.



#### **Bernard Munos**

Bernard Munos is a former Advisor for corporate strategy at Eli Lilly and Company, who is now helping private clients and public institutions embrace a better evidence-based innovation model. While at Lilly, he published a series of papers that have stimulated a broad rethinking of the pharmaceutical business model by the industry and its stakeholders. He is a frequent speaker on disruptive innovation, new business models, and open-source drug R&D, and has addressed meetings sponsored by the National Academies, the Institute of Medicine, the OECD, the Kauffman Foundation, the French Academy of Sciences, Genome Canada, the American Chemical Society, and leading universities in the US and Europe. He

received his MBA from Stanford University, and holds other graduate degrees in economics and animal science from the University of California at Davis, and the Institut National Agronomique in Paris, France.



#### Martinus Nagtzaam

Martinus (Mario) Nagtzaam is administrator at the pharmaceuticals unit in DG Health and Consumers of the European Commission. He works on the review of the legal framework for veterinary medicinal products, the establishment of maximum residue limits of veterinary medicines and the action plan to develop new effective antimicrobials. He is the representative of the EC in the co-ordination group for mutual recognition and decentralized procedure (CMDv) for authorizations of veterinary medicines and is member of the transatlantic taskforce on antimicrobial resistance. Previously, he worked in the Commission at DG Agriculture as administrator on competition and state aid subjects

and as desk officer for rural development. He started his career at the Product Board for Agriculture in the Netherlands, he then moved to Wageningen University to do a PhD-thesis on the biological control of a soilborne disease. Subsequently, he joined the Dutch Ministry of Agriculture, Nature and Food Quality, where he worked on organic farming, biotechnology, biodiversity, environmental issues, rural development and international affairs.



#### Katarina Nordqvist

Katarina Nordqvist received her PhD in Molecular Biology at the Karolinska institutet in 1992 and in 1998 she became Associate Professor in Developmental Biology, working as researcher as well as teacher for medical students at the Karolinska Institutet. In 2001 Dr. Nordqvist joined AstraZeneca and worked with discovery research as Head of the Molecular Neurobiology section. In 2004 she was recruited to head the Biotechnology/ Life Science department at VINNOVA (The Swedish Governmental Agency for Innovation Systems), one of the major research and innovation funders in Sweden. During this time she was responsible for several governmental and international missions, including being

the Swedish representative in the IMI member state group (2005-2009) as well as being responsible for the VINNOVA background document for the EU conference on Effective Antibacterials Sept 2009; Innovations under development that can supplement the traditional use of antibiotics. Dr. Nordqvist is currently Research Director at the Nobel Museum and also affiliated with ReAct.



#### Staffan Normark

Staffan Normark is Professor of Medical Microbiology at Karolinska Institutet and was recently appointed Permanent Secretary for the Royal Swedish Academy of Sciences. His previous appointments include Professor of Medical Microbiology at Umeå University, Professor and Chairman of Molecular Microbiology at Washington University, Head of Clinical Bacteriology at the Swedish Institute for Infectious Disease Control in Sweden and Director for the Strategic Foundation for Research. His research has concerned the pathogenic properties of bacteria, especially *E.coli, Helicobacter pylori* (the "ulcer bacterium"), gonococci, salmonella and pneumococci, and the corresponding immune defence responses

these organisms evoke in the host. Antibiotic resistance has been another line of research and has included mechanisms of intrinsic resistance and beta-lactamase mediated resistance. Recently, he has also been engaged in the analyses of small molecules targeting bacterial virulence.



#### Iruka N Okeke

Iruka Okeke trained in pharmacy and microbiology. She is presently Associate Professor of Molecular Microbiology at Haverford College, PA, USA, and a 2010-11 fellow of the Institute for Advanced Studies, Berlin. Okeke's research is focused on diarrheal pathogens, laboratory practice in Africa and bacterial drug resistance. As a Branco Weiss Fellow of the Society-in-Science, Switzerland, she has engaged in collaborative research to determine the genetic basis for resistance emergence and spread in West Africa. Okeke has consulted on drug resistance for a number of organizations including the Alliance for Prudent Use of Antibiotics and the Center for Global Development. She is a co-editor of Antibiotic Resistance

in Developing Countries (Springer) and author of a forthcoming book that makes The Case for Strengthening Laboratory Medicine in Africa (Cornell Univ. Press).



#### Eva M.A. Ombaka

Born in Moshi, Tanzania, Dr Eva M.A. Ombaka trained as a pharmacist in England and has had a chance to experience the profession from hospital practice, academia, and manufacturing. For seventeen years she was involved in issues of pharmaceutical policy development and capacity building for better pharmacy practice. Her main areas of interest are in access to and the promotion of rational use of medicines (RUM). She has been involved in several RUM and drugs and therapeutic committee (DTC) courses and was the winner of Olle Hansson award for 2007 for her work in RUM. She has participated in committees addressing different aspects of access and use of medicines in organizations

such as WHO, MSH and HAI. In her former capacity as coordinator of Ecumenical Pharmaceutical Network and as founder and board member of Sustainable Health Care Foundation, Dr Ombaka actively supported networking as an effective way of learning and sharing best practices. She has brought this interest in her engagement with the work of ReAct to address antibacterial resistance in Africa.



#### Jean-Pierre Paccaud

Jean-Pierre Paccaud is a member of the executive team of DNDi since 2007. He is responsible for the business development activities of the foundation, including opportunity identification, contract structure and negotiations, IP and alliance management. Prior to joining DNDi, he served as Head of Business Development for R&D products at OM Pharma. In 2002, he founded and led Athelas SA, a startup company active in the field of anti-bacterial drug discovery, until its merger with Merlion Pharmaceuticals in 2006. Before taking on entrepreneurial challenges in industry, Dr. Paccaud spent more than 18 years in academia, working in immunology, diabetes, and cell biology, and was tenured at

the University of Geneva School of Medicine. He is the author of more than 40 peer-reviewed articles. Trained as a molecular and cellular biologist, Jean-Pierre Paccaud completed his post-doctoral studies at the University of California at Berkeley, and earned his PhD at the University of Geneva School of Medicine. Since 2001, he also consults for Swiss biotech investment funds.



#### **David J Payne**

Dr Payne holds a BSc in Biochemistry from Brunel University, UK, and a PhD and DSc from The Medical School, University of Edinburgh, UK. Dr Payne has 20 years of experience in antibacterial drug discovery and is currently Vice President and Head of the Antibacterial Discovery Performance Unit (DPU) within the Infectious Diseases Centre of Excellence in Drug Discovery (ID CEDD) where he is responsible for GSK's antibacterial research effort from discovery to clinical proof of concept (up to Phase II clinical trials). At GSK, Dr Payne has played a leading role in redesigning the strategy for antibacterial research and has helped create long-term alliances with innovative biotechnology companies which has

expanded GSK's discovery pipeline. Furthermore, he has created industry-leading partnerships with the Wellcome Trust and the Defense Threat Reduction Agency (US Department of Defense) to accelerate GSK's antibacterial programmes. To date, Dr Payne has been involved with the progression of a broad diversity of novel mechanism antibacterial agents into development. Dr Payne has authored more than 190 papers and conference presentations.



#### Rosanna W. Peeling

Dr. Peeling is currently Professor and Chair of Diagnostics Research at the London School of Hygiene and Tropical Medicine. Trained as a medical microbiologist, Dr. Peeling had been acting Research Coordinator and head of Diagnostics Research at the UNICEF/UNDP/World Bank/WHO Special Programme on Research and Training in Tropical Diseases (TDR), based in the World Health Organization in Geneva, Switzerland, and the Chief of the Canadian National Laboratory for Sexually Transmitted Diseases before assuming her current position. She is the author of over 100 peer-reviewed publications, authoritative reviews and book chapters. She has a strong interest in ethical issues associated with

conducting research in developing countries and was appointed the Chair of the WHO Research Ethics Review Committee 2004-6. Dr. Peeling has been listed in Who's Who in Canada since 2003. She was the recipient of a YM-YWCA Women of Distinction Award, a 5NR Award for Canadian Leaders of Sustainable Development. Her research was featured in a Discovery Channel documentary on Chlamydia infection and infertility, and in Fighting Syphilis, a documentary in the highly acclaimed BBC Kill or Cure series.



#### Guénaël Rodier

Dr Guénaël Rodier is Director, Communicable Diseases, Health Security, & Environment, at the World HealthOrganization (WHO), Regional Office for Europe, Copenhagen. From 2000 to 2010, he was Director, Communicable Disease Surveillance and Response, then Director, International Health Regulations Coordination, WHO, Geneva. Dr Rodier holds an MD from René Descartes University, Paris, a MSc in Clinical Tropical Medicine from the London School of Hygiene and Tropical Medicine (recipient of the Frederick Murgatroyd Award), and a Public Health Certification from the French Ordre des Médecins, Paris. He has been actively involved in the development of new WHO strategies, tools and

guidelines for communicable disease surveillance and response and supervised the successful revision of the International Health Regulations. He has coordinated numerous international disease surveillance initiatives, research projects and outbreak responses. Dr Rodier has specific experience in the international control of communicable diseases including influenza, SARS, drug-resistant tuberculosis, HIV infection, viral haemorrhagic fevers (Ebola, Marburg), arboviruses (Rift valley fever, dengue, yellow fever), malaria, plague, cholera, and Hantavirus. Dr Rodier has contributed to more than 80 scientific peer review publications and book chapters.



#### Tomas Salmonson

Tomas Salmonson is a qualified pharmacist from University of Uppsala, Sweden. He did post graduate research at School of Pharmacy, UCSF, San Francisco and obtained a PhD from Uppsala University in 1991. Following this, Dr Salmonson worked for 9 months as a visiting assessor at the TGA, Canberra. Upon returning to Sweden he was appointed Head of section, Pharmacokinetics at the MPA. He joined the pharmaceutical industry (SmithKline Beecham) for a short period 1994-95. Back at the MPA he was appointed Head, Pre-clinical and Clinical unit II. He is currently Director, Scientific and Regulatory Strategies at the MPA. He became member of the Committee for medicinal products for human use, CHMP, at the European

Medicines Agency in 1999 and was elected vice-chair of CHMP 2007. In that capacity he is also a member of the ICH (International Conference on Harmonisation) Steering Committee, representing the EU.



#### **Anthony So**

Dr. Anthony So serves as Professor of the Practice of Public Policy Studies at Duke University, where he directs the Program on Global Health and Technology Access (GHTA). His work on ReAct's Strategic Policy and Advocacy efforts grows out of the Program's research and policy convenings on ownership of knowledge and how it might be best harnessed to improve innovation and enhance access to health technologies. Dr. So chaired the WHO / World Alliance for Patient Safety R&D Working Group on Antimicrobial Resistance, wrote the background paper on "Sharing Knowledge for Global Health" for the Institute of Medicine's U.S. Commitment to Global Health report, and is a member of the IOM's Committee on

Accelerating Rare Disease Research and Orphan Product Development. A general internist by training, he also earned his M.P.A. from Princeton University, was a Robert Wood Johnson Clinical Scholar at UCSF/ Stanford, and formerly served as Associate Director of Health Equity at the Rockefeller Foundation.



#### Mel Spigelman

Mel Spigelman has been the President and Chief Executive Officer of the Global Alliance for TB Drug Development (Alliance) since January 2009. Prior to that, he served for five years as the Director of Research and Development. An expert in international drug research and development, Mel previously spent a decade managing drug R&D at Knoll Pharmaceuticals (a division of BASF Pharma), overseeing all R&D activities from basic discovery to regulatory approval and medical affairs. He established global R&D processes as part of Knoll's senior R&D management team, oversaw a marked increase in regulatory filings and approvals, and supervised joint programs with multiple other pharmaceutical companies. He received

his undergraduate degree from Brown University and his medical degree from the Mt. Sinai School of Medicine. He then specialized in Internal medicine, Medical Oncology and Preventive Medicine, holding board certifications in each of these areas. He was the recipient of the American Cancer Society Clinical Oncology Career Development Award in 1985.



#### J. Todd Weber

J. Todd Weber, M.D. is the U.S. Centers for Disease Control and Prevention (CDC) Liaison to the European Centre for Disease Prevention and Control (ECDC) in Stockholm, Sweden (since June 2007). He works on the influenza and antimicrobial resistance programs at ECDC as well as promoting collaboration and ensuring communication between CDC and ECDC on all issues of common interest, including global disease detection, health communications and other infectious diseases. He is a member of the recently formed Transatlantic Task Force on Antimicrobial Resistance. Dr. Weber received his A.B. from Princeton University and his M.D. from the College of Physicians and Surgeons of Columbia University. After

completing his residency in internal medicine at Bellevue Hospital and New York University Medical Center in 1990, Dr. Weber joined CDC as an Epidemic Intelligence Officer in the Foodborne and Diarrheal Diseases Branch. He has also worked in the divisions of Sexually Transmitted Disease Prevention and HIV and in the Office of the Director, National Center for Infectious Diseases. Before joining the Influenza Division, he was Director of CDC's Office of Antimicrobial Resistance in the Division of Healthcare Quality Promotion. He is a fellow in the American College of Physicians and the Infectious Diseases Society of America.



**Dana Hanson**President of the World Medical Association

# **Uppsala University**



#### **An Internationally Competitive University**

Uppsala University is an international research university. Comprehensive peer reviews and university rankings show that our research is of the highest international standard. Uppsala University is made up of dynamic and independent disciplines at nine faculties, creating conditions for multi-disciplinary research and education.

The University offers both breadth and depth in its subject areas. With a tradition of research and education stretching back over 500 years, Uppsala University is constantly seeking new approaches. The University's tradition of renewal is one of its strengths.

Uppsala is the oldest university in the Nordic countries-founded in 1477. Today's advances in research and education are based on traditions of learning with deep historical roots.

Carl Linnaeus, Anders Celsius, Olof Rudbeck, and Erik Gustaf Geijer are some of Uppsala's renowned figures from the past. Eight Nobel laureates have also helped make the University known all over the world.

## **About ReAct**



ReAct is an international network linking a wide range of individuals, organisations and networks committed to respond to antibiotic resistance as a global health problem.

Our vision is that current and future generations of people around the globe will have access to effective treatment of bacterial infections.

ReAct's value proposition is to catalyse important processes and to act as a steward in order to bring about change and improve management of antibiotic resistance.

The profound changes sought by ReAct have been found to be most likely to occur through an interaction between social movements engaging civil society, community and consumer organisations, health policy reformers, academia and those individuals, networks or institutions that generate and analyse health-related knowledge. ReAct aims to catalyse and coordinate action with these groups in ways most likely to make these changes.

### **General** information

#### Conference venue

Uppsala University main building Address: The intersection of S:t Olofsgatan and Övre Slottsgatan

#### Coffee

Coffee will be served in the foyer of the venue, according to the program.

#### Lunches

Lunches will be served in the foyer of the venue on Monday and Wednesday, while the lunch on Tuesday will be served at the Market hall (Saluhallen / Restaurant Hyllan).

#### **Social** events

#### Conference dinner at Uppsala Castle, Monday September 6

The conference dinner will be held at Uppsala Castle on Monday at 19.45. Buses will leave from Clarion Hotel Gillet at 19.30. Pre registration is required.

#### Buffet dinner at Museum Gustavianum, Tuesday September 7

The buffet dinner will be held at Gustavianum on Tuesday at 18.45.

#### Money exchange, currency

Swedish Krona (SEK) is the official currency in Sweden. An exchange office is available next to the tourist office (Forex).

There are plenty of cash dispensers in Uppsala. Major international credit cards are accepted in most hotels, shops and restaurants.

#### Shopping in Uppsala

Most stores in Uppsala are open 10.00-19.00 on weekdays and 10.00-17.00 on Saturdays. Some stores are open on Sundays as well. Grocery stores usually have longer opening hours.

# Transport to Stockholm Arlanda International Airport

#### Taxi

You can pre book a taxi at (+46 18) 100 000 as well as at (+46 18) 123 456 or at www.uppsalataxi.se. The price to get to Stockholm Arlanda International Airport is about SEK 435 (43 Euro).

#### Bus

Bus 801 runs between Uppsala Central Station and Arlanda twice/hour from about 4 am until midnight and once/hour from midnight until 4 am. The journey takes about 45 minutes and costs 100 SEK (10 Euro). You can buy your ticket from the driver (cash only and SEK).

#### **Train**

Trains leave Uppsala Central Station for Arlanda Airport 1-3 times/hour from 5.00 until 23.00. The journey takes 15-20 minutes and costs 95-140 SEK (10-14 Euro) if purchased in advance at Uppsala Central Station.

If you need help to get to another airport, please see the secretariat for information.

#### **Emergency calls**

You should call 112 if anything happens which means that an ambulance, the police or the fire department need to be called out. 112 is a special emergency number you can call wherever you may find yourself from a fixed or a mobile telephone.

#### International calls

Dial 00 + country code + area code + phone number.

For example to the US 001, to Germany 0049

#### **Electricity**

In Sweden the electrical voltage used is 220/230V.

#### **Pharmacy**

There are several pharmacies in Uppsala. They are called 'Apotek'.

#### **Medical services**

Uppsala University Hospital, Akademiska sjukhuset, is located in central Uppsala. Telephone: +46 18 611 0000. The emergency room is in Swedish called "Akuten".

#### **S**moking

Smoking is not allowed in the conference venue, nor in any other public indoor establishments such as restaurants and bars etc.