

# Genetics & Mechanisms of Susceptibility to Infectious Diseases

November 21-24, 2007

## SCIENTIFIC PROGRAMME

Wednesday November 21<sup>st</sup>, 2007

12.00-2.00 pm Registration

### 2.00–3.00 pm: Opening Ceremony

Chair: Rudi Balling

Welcome address: **Alice Dautry**, President, Institut Pasteur, Paris, France  
Opening Lecture: **Anthony Allison**, Altavita Pharmaceuticals, Mountain View, USA  
Major Genes Conferring Resistance to Malaria in Humans  
Keynote lecture: **Philippe Gros**, McGill University, Montreal, Canada  
Simple and complex genetic control of susceptibility to infectious diseases: Lessons from the laboratory mouse

### 3.00–6.30 pm: Session 1 - Primary Immunodeficiencies

Chairpersons: James di Santo and Chris Goodnow

3.00-3.30 pm **Mary Elen Conley**, Saint Jude Children's Research Hospital, Memphis, USA  
Defects in B cell development: Different infections at different ages  
3.30 – 4.00 pm **Jean-Laurent Casanova**, Hôpital Necker-Enfants Malades, Paris, France  
Herpes simplex virus encephalitis: a novel group of primary immunodeficiencies  
4.00-4.30 pm **Pause-café**  
4.30-5.00 pm **Alain Fischer**, Hôpital Necker-Enfants Malades, Paris, France  
Genetically determined susceptibility to the Epstein-Barr virus  
5.00-5.30 pm **Yoshihiro Kawaoka**, University of Wisconsin, Madison, USA/Institute of Medical Sciences, Tokyo, Japan  
Why influenza kills and will kill again  
5.30-5.45pm **Horst Von Bernuth**, Hôpital Necker-Enfants Malades, Paris, France  
Human MYD88 deficiency  
5.45-6.00pm **Felix Randow**, MRC Laboratory of Molecular Biology, Cambridge, UK  
Somatic cell genetics for the study of toll like receptors and NF-KB

6.00-8.30 pm: Poster session with wine and cheese

**9.00–12.30 am: Session 2 - Genetics of common infectious diseases**

Chairpersons: Geneviève Milon

- 9.00-9.30 am **Alexandre Alcaïs**, Hôpital Necker-Enfants Malades, Paris, France  
Anatomy of genetic predisposition to leprosy
- 9.30-10.00 am **Laurent Abel**, Hôpital Necker-Enfants Malades, Paris, France  
Human genetics of tuberculosis: a continuous spectrum of predisposition
- 10.00-10.30 am **Alain Dessein**, Faculté de Médecine la Timone, Marseille, France  
Using Genetics to understand pathogenesis in human Leishmaniasis and Schistosomiasis
- 10.30-11.00 am **Pause-café**
- 11.00-11.30 am **Etienne Pays**, Université Libre de Bruxelles, Gosselies, Belgium  
Mechanisms of human resistance and susceptibility to infection by African trypanosomes
- 11.30-11.45 am **Eileen Hoal**, Stellenbosch University and MRC, Tygerberg, South Africa  
Vitamin D receptor gene polymorphisms and sputum conversion time in pulmonary tuberculosis patients
- 11.45-12.00 am **Jacinta Bustamante**, Hôpital Necker-Enfants Malades, Paris, France  
A germline but macrophage-specific CYBB mutation in patients with X-Linked predisposition to mycobacterial diseases
- 12.00-12.15 am **Christophe Chevillard**, Faculté de Médecine la Timone, Marseille, France  
IL 13 and Stats6 gene Polymorphisms are associated with high Infection levels in urinary schistosomiasis
- 12.15-12.30 am **Frédéric Lantier**, INRA, Nouzilly, France  
Genetics of susceptibility to transmissible spongiform encephalopathies in sheep
- 12.30 **Photo of the group**
- 12.35 **Lunch**

**2.00–6.30 pm: Session 3 - Genetic and functional studies of resistance to viruses**

Chairpersons: Fernando Arenzana-Seisdedos and Philippe Despres

- 2.00-2.30 pm **Michael Malim**, King's College London, London, UK  
APOBEC proteins, cytidine deamination and intrinsic resistance to HIV infection
- 2.30-3.00 pm **Mary Carrington**, SAIC-Frederick, Bethesda, USA  
The influence of genetic variation at the HLA and KIR loci on HIV disease
- 3.00-3.30 pm **Philip Goulder**, University of Oxford, Oxford, UK  
Control of HIV-1 mediated by HLA class I
- 3.30-4.00 pm **Gérard Orth**, Institut Pasteur, Paris, France  
Genetics of epidermodysplasia verruciformis: clues to host responses to papillomaviruses
- 4.00-4.30 pm **Pause-café**
- 4.30-5.00 pm **Otto Haller**, University of Freiburg, Freiburg, Germany  
Interferon induced GTPases in anti viral resistance
- 5.00-5.30 pm **Lennart Svensson**, University of Linköping, Linköping, Sweden  
Mendelian resistance to human norovirus infections: genetic and functional studies
- 5.30-6.00 pm **Anavaj Sakuntabhai**, Institut Pasteur, Paris, France  
Genetics Susceptibility to Dengue viral infection
- 6.00-6.15 pm **Edward Wright**, University College London, London, UK  
Effect of duffy antigen receptor For chemokine (DARC) polymorphisms on susceptibility to HIV infection and progression to AIDS
- 6.15-6.30 pm **Michel Favre**, Institut Pasteur, Paris, France  
Possible role of ever proteins in infection with cutaneous oncogenic human papillomaviruses

**6.30-8.30 pm: Poster session with wine and cheese**

**9.00-12.30am: Session 4 - Non mammalian models to study host genetics of infections**

Chairpersons: Jonathan Ewbank and Bruno Lemaitre

- 9.00-9.30 am **Jean-Luc Imler**, IBMC, Strasbourg, France  
Antiviral defenses in Drosophila
- 9.30-10.00 am **Sara Cherry**, University of Pennsylvania, Philadelphia, USA  
Identification of antiviral innate immune pathways in Drosophila
- 10.00-10.30 am **Jonathan Hodgkin**, University of Oxford, Oxford, UK  
Susceptibility to bacterial disease in the nematode *C. elegans*
- 10.30-11.00 **Pause-café**
- 11.00-11.30 am **Paul Schulze-Lefert**, Max-Planck-Institut für Züchtungsforschung, Köln, Germany  
Signal integration in the plant immune system
- 11.30-11.45 am **Dominique Ferrandon**, IBMC, Strasbourg, France  
Dual detection of fungal infections in drosophila through recognition of microbial structures and sensing of virulence factors
- 11.45-12.00 am **Petros Ligoxygakis**, University of Oxford, Oxford, UK  
The e3 ubiquitin-ligases hakai and ari-2 are negative regulators of imd pathway signalling and act to regulate drosophilasurvival and apoptosis
- 12.00-12.15 am **Nicolas Buchon**, Global Health Institute EPFL, Lausanne, Switzerland  
Prevalence of the gut immune response and its subversion in a drosophila/pseudomonas oral model of infection
- 12.15-12.30 am **Cypowyj**, Centre d'Immunologie de Marseille-Luminy, Marseille, France  
a tribbles-like kinase defines distinct innate immune responses to infection and wounding in the *c. elegans* epidermis
- 12.30 **Lunch**

**2.00-6.00pm: Session 5 - Mouse models to study host genetics of infections**

Chairpersons: Jean-Jacques Pantier and Philip Avner

- 2.00-2.30 pm **Dirk Heinz**, Helmholtz Centre for Infection Research, Braunschweig, Germany  
Structural basis of bacterial invasion
- 2.30-3.00 pm **Sylvia Vidal**, McGill Center for Host Resistance, Montréal, Canada  
Molecular mechanisms of innate resistance to mouse cytomegalovirus infection
- 3.00-3.30 pm **Simon Foote**, Menzies Research Institute, Melbourne and Hobart, Australia  
Early host events in the Chabaudi model of malarial infection
- 3.30-3.45 pm **Vanessa Sancho Shimizu**, McGill University, Montreal, Canada  
Genetic dissection of two loci (*ity2* and *ity3*) controlling host response to salmonella typhimurium infection in wild-derived mice
- 3.45-4.00 pm **Laura Boubbane**, Harwell, Oxon, UK  
The genetics of susceptibility to systemic pneumococcal infection
- 4.00-4.30m **Pause-café**
- 4.30-4.45 pm **Bastian Pasche**, Helmholtz Centre for Infection Research, Braunschweig, Germany  
The "infection challenge platform" for mutant mice: a site for standard immune phenotyping
- 4.45-5.00 pm **Eva Medina**, Helmholtz Centre for Infection Research, Braunschweig, Germany  
Genetic control of susceptibility to staphylococcus aureus infection in the mouse model
- 5.00-5.15 pm **Charlène Blanchet**, Institut Pasteur, Paris, France  
Interspecific recombinant congenic strains between *c57bl/6* and mice of the *mus spretus* species: a powerful tool to identify loci involved in susceptibility to infectious diseases
- 5.15-5.30 pm **Gundula Min-Oo**, General Hospital Research Institute, Montreal, Canada  
The role of pantetheinase and cysteamine in modulating the host response to blood-stage malaria
- 5.30-5.45 pm **Tania Di Pietrantonio**, McGill University, Montreal, Canada  
The genetic architecture of host responsiveness to low dose infection with different strains of *bcg*
- 5.45-6.00 pm **Eva Mertens**, Institut Pasteur, Paris, France  
Escape of west nile virus variant from *oas1b*-mediated antiviral defense in mice
- 6.00-6.15 pm **Jean François Bureau**, Institut Pasteur, Paris, France  
Role of a cluster of cytokines on theiler's virus induced neurological diseases

**9.00-12.30am: Session 6 - Infections, chronic inflammation and autoimmune diseases**

Chairpersons : Jean-Pierre Hugot and Philippe Sansonetti

- 9.00-9.30 am **Philippe Sansonetti**, Institut Pasteur, Paris, France  
Deciphering how pathogenic bacteria modulate host immune responses
- 9.30-10.00 am **Chris Goodnow**, Australian National University, Canberra, Australia  
Cellular and genetic mechanisms of self tolerance and autoimmunity
- 10.00-10.30 am **Anthony W. Segal**, University College London, London, UK  
Crohn's is an immunodeficiency disease
- 10.30-11.00 am **Pause-café**
- 11.00-11.30 am **Silvia Bolland**, NIAID, Bethesda, USA  
TLR gene dosage and its effect on autoimmune disease
- 11.30-11.45 am **Frédéric Barreau**, Hôpital Robert Debré, Paris, France  
Card15/nod2 is required for peyer's patches homeostasis in mice
- 11.45-12.00 am **Yan ching ken Chow**, Institut Pasteur, Paris, France  
Role of cxcl12-dependent signalling pathways in human papillomavirus (hpv) pathogenesis: insight into the chronic and malignant hpv infections in whim syndrome
- 12.00-12.15 am **Shen-Ying Zhang**, Hôpital Necker-Enfants Malades, Paris, France  
Impaired ex vivo interferon production in a patient with severe varicella
- 12.15 am **Lunch**

**2.00-6.00pm: Session 7 - The impact of pathogens on human evolution and their diseases**

Chairpersons: Simon Wain-Hobson

- 2.00-2.30 pm **Dominic Kwiatkowski**, University of Oxford, Oxford, United Kingdom  
Malaria and human evolution - new genomic approaches
- 2.30-3.00 pm **Luis Quintana-Murci**, Institut Pasteur, Paris, France  
Human genome variability, natural selection and infectious disease
- 3.00-3.30 pm **Michael Bamshad**, University of Washington, Seattle, USA  
Race, ancestry, and genetic risk factors for infectious disease
- 3.30-3.45 pm **Bryndis Yngvadottir**, The Wellcome Trust Sanger Institute, Cambridge, UK  
When is less more? investigating gene loss in recent human evolution
- 3.45-4.00 pm **Luis Barreiro**, Institut Pasteur, Paris, France  
Searching for the footprints of natural selection in the human genome
- 4.00-4.30 pm **Pause-café**
- 4.30-4.45 pm **Martin Sikora**, Universitat Pompeu Fabra, Barcelona, Spain  
Searching for signatures of selection in genes of two pathways implicated in placental malaria infection
- 4.45-5.00 pm **Pedro Ferreira**, Karolinska Institute, Stockholm, Sweden  
Polymorphism of antimalaria drug metabolizing, nuclear receptor and drug transport genes among malaria patients in zanzibar, east africa
- 5.00-5.30 **Concluding remarks**  
Jean-Louis Guenet, Institut Pasteur, Paris, France