



Press release

**“Epigenetic Dynamics in the Immune System”**  
**The seventh meeting in the “Emergence & Convergence” series jointly**  
**organized by *Nature Immunology*, *Nature Reviews Molecular Cell Biology***  
**and *La Fondation IPSEN***

**Paris (France), 19 February 2010** – The seventh meeting in the “Emergence and Convergence” series jointly organized by *La Fondation IPSEN* and *Nature* brings together today in San Antonio (Texas, USA) leading experts to discuss concepts emerging from gene regulation studies in immune cells that have led to insights into the initiation and maintenance of epigenetic chromatin marks necessary for proper differentiation and function of these cells in the immune system. The meeting was arranged by Laurie Dempsey (*Nature Immunology*, USA), Arianne Heinrichs (*Nature Reviews Molecular Cell Biology*, UK), Yves Christen (*La Fondation IPSEN*, France) and Jacqueline Mervillie (*La Fondation IPSEN*, France).

Every individual possesses a unique genetic blueprint that is found in every cell of the body. Despite this common set of genetic instructions, developmental- and tissue-specific gene expression occurs, which allows specialization in cellular function. Such specialization in gene expression is regulated by epigenetic chromatin modifications and remodeling events that influence the accessibility of genes to the transcriptional machinery and other regulators that activate or silence gene activity. Studies of hematopoietic cells, for example, have been especially insightful in elucidating how a common ‘undifferentiated’ cell undergoes specific epigenetic chromatin changes as the cell differentiates and acquires unique functional capacities.

The meeting starts with the identification of specific epigenetic histone modifications found in chromatin and the enzymatic machinery that introduces or maintains such marks and how exposure to microbes activates temporal changes necessary to combat the invaders and then return to a quiescent state necessary to avoid collateral tissue damage. Another session focuses on lymphocytes, which undergo a precise program of developmentally regulated genetic rearrangements in their antigen receptor loci. This regulated process generates a diverse population of cells capable of responding to a vast array of potential microbial threats. Epigenetic modifications contribute to locus accessibility and influence how lymphocytes specifically target the DNA recombination machinery to the antigen receptor genes, they specifically rearrange and express only one functional allele. This process dictates allelic exclusion and ensures only one unique antigenic specificity is displayed per cell.

Speakers at the meeting are leading international experts: Yehudit Bergman (*The Hebrew University, Israel*), Anne Corcoran (*The Babraham Institute, UK*), Katia Georgopoulos (*Harvard Medical School, USA*), Michael Krangel (*Duke University, USA*), Matthias Merkenschlager (*MRC Clinical Sciences Centre, UK*), Cornelis Murre (*University of California, San Diego, USA*), Stephen Smale (*University of California, Los Angeles, USA*), Alexander Tarakhovsky (*The Rockefeller University, USA*), Keji Zhao (*National Heart, Lung and Blood Institute, NIH, USA*).



### **“Emergence and Convergence” series**

*La Fondation IPSEN* and Nature Publishing Group share the same desire to help new scientific knowledge emerge and facilitate the exchange of the most promising ideas from a variety of different research areas. In 2007, the two organizations came together to create a new series of scientific events – the Emergence & Convergence mini-symposia - one-day meetings highlighting some of the most dynamic sectors in biological and medical research. Each meeting brings together a group of speakers to address a topic of strong current interest and one which has elements both of new advances in the field – 'emergence' – and a developing consensus on the importance and integration of the new advances with existing understanding – 'convergence'. Where applicable, meetings are cross-disciplinary in nature to facilitate and promote collaboration. The first six mini-symposia in the series discussed: *Small RNAs in Development, Immunology and Cancer* (New York, October 2007), *Genome Evolution and Structural Variation: Next Steps in Natural Human Genetic Variation* (Seattle, November 2007), *Epigenetics and Behavior* (Houston, March 2008), *Multiple Sclerosis: From Pathogenesis to Therapy* (Paris, June 2008), *Cell Shape and Polarity: Lymphocytes and Beyond* (Chicago, September 2008), and *Mitochondrial Dysfunction in Neurological Disease* (Durham, December 2008).

### **La Fondation IPSEN**

Established in 1983 under the aegis of the *Fondation de France*, the mission of *La Fondation IPSEN* is to contribute to the development and dissemination of scientific knowledge. The long-standing action of *La Fondation IPSEN* is aimed at furthering the interaction between researchers and clinical practitioners, which is indispensable due to the extreme specialization of these professions. The ambition of *La Fondation IPSEN* is not to offer definitive knowledge, but to initiate a reflection about the major scientific issues of the forthcoming years. It has developed an important international network of scientific experts who meet regularly at meetings known as *Colloques Médecine et Recherche*, dedicated to six main themes: Alzheimer's disease, neurosciences, longevity, endocrinology, the vascular system and cancer science. In 2007, *La Fondation IPSEN* started three new series of meetings. The first is in partnership with the Salk Institute and *Nature* which focuses on aspects of Biological Complexity; the second is the “Emergence and Convergence” series with *Nature*, and the third is with *Cell* and the Massachusetts General Hospital entitled “Exciting Biologies”. Since its beginning, *La Fondation IPSEN* has organized more than 100 international conferences, published 70 volumes with renowned publishers and 208 issues of a widely distributed newsletter *Alzheimer Actualités*. It has also awarded more than 100 prizes and grants.

### **About Nature Publishing Group**

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