IMCB Invited Speaker

Speaker : **Prof. Peter Rigby**
Professor of Developmental Biology,
Division of Cancer Biology,
Institution of Cancer Research, London, England.

Date : 25 May 2012 (Friday)

Time : 11:00am - 12:00am

Venue : Level 3, IMCB Seminar Room 3-46, Proteos.

Host : Prof. Philip Ingham

Seminar :

Transcriptional Regulation of Complex Genetic Loci During Vertebrate Development

We are interested in the mechanisms that regulate transcription during the development of the embryo and have worked particularly on the determination and differentiation of skeletal muscle and on segmentation.

At the core of the transcriptional programme that controls the determination of skeletal muscle progenitors and their subsequent differentiation are the four myogenic regulatory factors, Myf5, MyoD, Mrf4 and Myogenin. We have focussed on the locus encoding Mrf4 and Myf5 and have used BAC-mediated transgenesis to define its extraordinarily complex regulatory landscape and to discover a novel mechanism for the global regulation of such loci. We have also analysed individual enhancers from the locus in order to identify the upstream signals which activate the myogenic programme. Our recent efforts have concentrated on the facial muscle precursors and we have shown that the regulatory logic in the head is quite distinct from that which operates in the trunk.

Segmental identity in the embryo is specified by the patterns of Hox gene expression and we have sought to understand how the precise anterior and posterior boundaries of expression are set. We have shown that the posterior boundary is set post-transcriptionally while the anterior boundary is set transcriptionally, and in the case of Hoxb4 have identified the regulatory element that sets the anterior boundary. We are currently trying to understand the mechanism by which this element acts.

About the Speaker :

Peter W. J. Rigby was trained as a molecular biologist at Cambridge and Stanford, California and has since worked at Imperial College, the MRC National Institute for Medical Research and the Institute of Cancer Research (ICR), all in London. From 1999 to 2011 he wasChief Executive of the ICR, where he remains as Professor of Developmental Biology, working on the regulation of gene expression during the development of the embryo. He serves as Deputy Chairman of the Wellcome Trust, the global charitable foundation, as a member of the Council of Marie Curie Cancer Care, as Chairman of the Scientific Advisory Board of Oxford Gene Technology and as a member of the Scientific Advisory Board of the Australian Regenerative Medicine Institute. He is a Fellow of the Royal Society and of the Academy of Medical Sciences and a Member of the European Molecular Biology Organisation.

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