THE CRM APPLIED MATHEMATICAL AND PHYSICS (CAMP) SEMINARS

CENTRE DE RECERCA MATEMÀTICA

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Modelling red blood cell development

Abstract:

Haematopoietic Stem cells have the ability to produce any cell type of the haematopoietic system. The path the stem cell follows to become a specialized cell type is characterized at the molecular level by the mRNA and the proteins that are expressed during differentiation. We are going to focus on red blood cell diferentiation. The structure of the Gene Regulatory Network that determines this process is not known. Understanding this process is crucial to deal with genetic diseases. For instance, the haemoglobin requires α-globin and β-globin to be created in adults and α-globin and γ-globin in embryos (this gene is not activated in adults). In thalassemia patients the β-gene, responsible of β-globin is mutated and some therapies try to reactivate the γ-gene. In this talk we will explain the different experimental and bioinformatics techniques to study this process and how to use them to produce a quantitative mathematical model and how to use it to design an experiment to determine the Gene Regulatory Network.

Date:	**July 30, 2015**
Place:	**Room C1/028**
Time:	**12:00**