Hamilton Institute

Modelling the Immune Response using Probabilistic Concepts

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Abstract:

When lymphocytes, the primary mediators of immunity, are stimulated they proliferate and their rate of growth, survival and differentiation is highly regulated by the receipt of soluble and cell contact mediated signals. This complex system is well suited to experimental dissection, and offers a useful testing ground for developing concepts in systems biology.

A major tool in measuring and analysing the immune response is flow cytometry. Careful quantitative experiments with this method have revealed how cells follow a combination of relatively simple cellular rules operating independently. In this seminar I will discuss how these rules can be used to develop quantitative models of cell growth and the generation of cellular diversity that emerges during the immune response. An important theme of my talk will be that intrinsic stochastic cellular variability, easily dismissed as noise, may have evolved to be an essential feature of immune regulation.

Venue: Seminar Room, Hamilton Institute, Rye Hall, NUI Maynooth

Time: 1.30 - 2.30pm (followed by tea/coffee)

Travel directions are available at www.hamilton.ie

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