BBB seminar (BMED380)

Thursday, March 16, 14:30 at the BBB, Auditorium 4

Receptor tyrosine kinases: different perspectives on signal transduction

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The textbook description of the initiation of a reproducible signal from a receptor tyrosine kinase (RTK) begins with extracellular ligand binding to a receptor followed by the up-regulation of kinase activity leading to phosphorylation of tyrosine residues (pY) to provide binding sites for downstream effector proteins. The signal is transduced by a relay of largely bimolecular binding events which, via a linear pathway, result in a defined and prolonged cellular outcome. In other words, the signal transduction process is portrayed as being 'cranked-up' from zero to full activity. This simplistic picture is not easy to reconcile in the light of a number of features that emerge from deeper mechanistic studies of receptor signalling.

Here the potential for signalling based on up-regulation of downstream effector proteins through binding of cognate SH3 domains to proline-rich sequences on receptors and the impact of intracellular liquid-liquid phase separation at RTKs will be described. This will provide insight into how RTKs can play a wider role in cellular outputs and response to environmental stressors, as well as highlight novel approaches to drug development and mechanisms of therapeutic resistance.

Chairperson: Jim Lorens <jim.lorens@uib.no>, Dept. of Biomedicine