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6th International Conference on

Structural Biology August 22-23, 2016 New Orleans, USA

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Talin- Insights into mechanosignaling and integrin activation

Talin is cytoplasmic protein essential for cell adhesion. It connects integrin receptors for actin cytoskeleton and acts as a mechanosensor by recruiting vinculin molecules as a response to mechanical stress applied on it. We have studied talin structure and function using extensive molecular dynamics simulations, small-angle X-ray scattering, cryo-EM and biophysical methods combined with cell biology methods. These studies have revealed novel insights into role of talin in integrin activation. We have also been able to develop more detailed picture of about the role of talin rod in mechanosensing and in regulation of cell adhesion dynamics, cell migration and traction force generation.

Biography

Vesa P Hytonen is a Head of the Protein Dynamics Research Group at the University of Tampere. After graduating PhD from the University of Jyvaskyla, Finland at 2005, he conducted Post-doctoral training at ETH Zurich, Zurich, Switzerland 2005-2007. He has then continued as a Post-doctoral Researcher at the University of Tampere and established independent research group at 2010. His research interests are mechanobiology, protein engineering and vaccine research and he has authored more than 90 scientific articles.

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