Contribution ID: **82** Type: **Poster**

Molecular architecture of the Spire-actin nucleus and its implication for actin filament assembly

Thursday, 15 September 2011 14:11 (1 minute)

The Spire protein represents a new class of actin nucleation factors which contain ca. 25 amino acid long actin-binding motifs called the WH2 repeats. We have applied small angle X-ray scattering to study the architecture of several Spire/actin complexes, including the native N-terminal part of Spire (SpireNT). Spire forms stable longitudinal-like complexes, with actin loosely positioned along the stretch of WH2 domains. Actin together with the WH2 domain constitutes a rigid unit and these units are linked by unstructured and flexible linkers. Analysis of the orientation of actin domains within the complexes reveals a high rotational mobility in single actin/WH2 modules. The Spire/actin nucleus shows an open and flexible conformation, but the longitudinal-like shape is preserved. The three most unusual properties of the Spire constructs upon their interaction with actin are (i) nucleation of actin polymerization at substoichiometric Spire WH2/actin ratios, (ii) a dose-dependent decrease of polymerization-induced fluorescence signal during steady state, and (iii) an extremely fast disintegration of actin filaments upon addition of Spire constructs that contain WH2 domains.

Please specify the session

Soft Condensed Matter

Please specify poster or talk

Poster

Primary authors: Dr IKONEN, Teemu (Paul Scherrer Institut); Dr SITAR, Tomasz (Max-Planck-Institut für Biochemie, 82152 Martinsried, Germany)

Co-authors: Ms DUCKA, Anna M. (Max-Planck-Institut für Biochemie, 82152 Martinsried, Germany); Dr GALLINGER, Julia (Institute for Anatomy and Cell Biology, Ludwig-Maximilians University, 80336 München, Germany); Dr SCHLEICHER, Michael (Institute for Anatomy and Cell Biology, Ludwig-Maximilians University, 80336 München, Germany); Prof. HUBER, Robert (Max-Planck-Institut für Biochemie, 82152 Martinsried, Germany); Prof. HOLAK, Tad A. (Max-Planck-Institut für Biochemie, 82152 Martinsried, Germany)

Presenter: Dr IKONEN, Teemu (Paul Scherrer Institut)

Session Classification: Poster session I and lunch

Track Classification: Poster Session I (Thursday)