

**P012** Hob3 participates in cytokinesis and is required for Cdc42 localization to the division area

**Pedro M. Coll, Sergio Rincon and Pilar Perez**

*Instituto de Microbiología Bioquímica. CSIC/Universidad de Salamanca. Edificio Departamental. 37007 Salamanca, Spain*

Cdc42 GTPase is required for the establishment of cell polarity in most eukaryotic organisms and the spatio-temporal control of Cdc42 activity is necessary to generate growth polarity. In *Schizosaccharomyces pombe* cdc42<sup>+</sup> is an essential gene required for polarized growth. Cdc42 localizes to the division area, and also to the growing tips and to some internal membranes, and is specifically activated by two guanine-nucleotide exchange factors (GEFs). Scd1 mainly regulates apical growth and Gef1 affects cytokinesis. While the role of Cdc42 in apical growth is well defined, no role has been described for Cdc42 in the process of cell division. Hob3, a BAR-family protein, was identified as a Gef1-binding partner. Hob3 regulates *S. pombe* actin organization and cytokinesis. Hob3 binds to Gef1p and also interacts with Cdc42p bound to either GTP or GDP, suggesting that Hob3p is a Cdc42 adaptor. Genetic and biochemical data suggests that Hob3 is required for the Cdc42 activation mediated by Gef1. Additionally Hob3 is required to localize Cdc42 to the division area. Hob3p localization to the medial ring requires actin polymerization and Cdc15, a FCH domain-containing protein.

The rate of actin ring contraction is slower in hob3 $\Delta$  than in wild-type cells. We propose that Hob3p is an adaptor required to recruit Cdc42 to the cell division site where this GTPase is activated by Gef1, and play a role in the contraction of the actomyosin ring.