

IRB BARCELONA 2010 ANNUAL REPORT

SCIENCE AT IRB BARCELONA

Research Programmes

Cell and Developmental Biology

Jens Lüders: Microtubule organization



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Highlights

- SPICE, a novel centrosome protein, is a dual-function regulator that participates in centriole duplication and chromosome congression during mitosis
- The gamma-tubulin ring complex, the main nucleator of microtubule polymerization, contains several previously unidentified core subunits. It is regulated by a network of constitutive as well as mitosis-specific interactors.
- GCP8 is a novel core subunit of the human gamma-tubulin ring complex. GCP8 has no obvious role in mitotic spindle assembly, but participates in microtubule organization at centrosomes specifically in interphase.

Publications

- Archinti M, Lacasa C, Teixidó-Travesa N and Lüders J. SPICE--a previously uncharacterized protein required for centriole duplication and mitotic chromosome congression. *J Cell Sci*, 123 (Pt 18), 3039-46 (2010)
- Teixidó-Travesa N, Villén J, Lacasa C, Bertran MT, Archinti M, Gygi SP, Caelles C, Roig J and Lüders J. The gammaTuRC revisited: a comparative analysis of interphase and mitotic human gammaTuRC redefines the set of core components and identifies the novel subunit GCP8. *Mol Biol Cell*, 21 (22), 3963-72 (2010)

Collaborations

- Composition and regulation of the human γ TuRC. Carme Caelles, IRB Barcelona (Barcelona, Spain); Steven P. Gygi, Harvard Medical School (Boston, United States); Joan Roig, IRB Barcelona (Barcelona, Spain); Judit Villen, University of Washington (Seattle, United States)
- Functional analysis of the centrosomal protein SPICE. Laurence Pelletier, Samuel Lunenfeld Research Institute (Toronto, Canada)
- Regulation of microtubule nucleation through phosphorylation. Joan Roig, IRB Barcelona (Barcelona, Spain); Carme Caelles, IRB Barcelona (Barcelona, Spain)

Research projects

- Microtubule organization group. Grups de Recerca reconeguts per la Generalitat de Catalunya 2009-2013 (2009 SGR 1536). Agency for Administration of University and Research Grants (AGAUR). Principal investigator: Jens Lüders
- Microtubule organizing centers and microtubule nucleation in mitosis (MTOC FUNCTION), European Commission, PIRG02-GA-2007-224835. 2008-2012. Principal investigator: Jens Lüders
- Organización molecular de los sitios de nucleación de microtubulos centrosómicos y no centrosómicos. Proyectos Investigación Fundamental (BFU2009-08522). Spanish Ministry of Science and Innovation (MICINN). 2010-2012. Principal investigator: Jens Lüders



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