

IRB BARCELONA 2010 ANNUAL REPORT

SCIENCE AT IRB BARCELONA

Research Programmes

Oncology

Ángel R. Nebreda: Signalling and cell cycle laboratory



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Highlights

- Chromatin remodeling mediated by SRCAP/p18Hamlet/H2A.Z is a new mechanism by which p38 MAPK signals facilitate transcriptional activation during mammalian cell differentiation.
- The CDK activator RINGO/Speedy C participates in the mitotic checkpoint, which is probably mediated by the recruitment of SAC components and the regulation of Aurora B kinase activity.
- The sequential phosphorylation of Myt1 by the kinases CDK1/XRINGO and p90Rsk facilitates the dephosphorylation of cyclin B-bound CDK1 on Thr14 and Tyr15, thereby ensuring the all-or-none response that characterizes meiosis I entry in oocytes.

Publications

The Signalling and Cell Cycle Laboratory joined IRB Barcelona in July 2010. The publications listed below include results obtained by the group in their previous affiliation at Spanish National Cancer Research Centre (CNIO).

- Ruiz EJ, Vilar M and Nebreda AR (2010). A two-step inactivation mechanism of Myt1 ensures CDK1/cyclin B activation and meiosis I entry. *Curr. Biol.* 20, 717-723.
- Lemaire M, Ducommun B and Nebreda AR (2010). UV-induced downregulation of the CDC25B protein in human cells. *FEBS Lett.* 584, 1199-1204.
- Ferreiro F, Joaquin M, Islam K, Gomez G, Barragan M, Lombardía L, Domínguez O, Pisano DG, Lopez-Bigas N, Nebreda AR and Posas F (2010). Whole genome analysis of p38 SAPK-mediated gene expression upon stress. *BMC Genomics* 11, 144.
- Santamaria PG and Nebreda AR (2010). Deconstructing ERK signaling in tumorigenesis. *Mol. Cell* 38, 3-5.
- Cuadrado A, Corrado N, Perdiguero E, Lafarga V, Muñoz-Canoves P and Nebreda AR (2010). Essential role of p18Hamlet/SRCAP-mediated histone H2A.Z chromatin incorporation in muscle differentiation. *EMBO J.* 29, 2014-2025.
- Mourón S, de Cárcer G, Seco E, Fernández-Miranda G, Malumbres M, Nebreda AR (2010). RINGO/Speedy C is required to sustain the spindle-assembly checkpoint. *J Cell Sci.* 123, 2586-2595.
- Cuadrado A and Nebreda AR (2010). Mechanisms and functions of p38 MAPK signaling. *Biochem. J.* 429, 403-417.

Collaborations

- Molecular mechanisms of metastasis. Roger Gomis, IRB Barcelona (Barcelona, Spain)
- p38 MAPKs in T cell regulation. Jesus Salvador, Centro Nacional de Biotecnología/CSIC (Madrid, Spain)
- Stress-induced p38 MAPK signaling. Francesc Posas, Universitat Pompeu Fabra (Barcelona, Spain)

Research projects

- Understanding inflammation-associated tumorigenesis for the rational design of novel anti-cancer therapeutic strategies (INFLA-CARE), European Commission, 223151, (2009-2012). Coordinator: Aris Eliopolus. Principal investigator: Angel R. Nebred



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