

IRB BARCELONA 2010 ANNUAL REPORT

SCIENCE AT IRB BARCELONA

Research Programmes

Cell and Developmental Biology

Chromatin structure and function (Fernando Azorín)



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Highlights

- We have identified an unexpected contribution of the hypervariable N-domain of CenH3 to the recruitment of kinetochore components. Simple R-rich motives within this domain constitute evolutionarily conserved structural determinants involved in BubR1 recruitment.
- In *Drosophila*, SCFPpa regulates CenH3CID proteolysis. Interestingly, most known SCF complexes are inactive when, during mitosis, de novo CenH3CID deposition takes place at centromeres. This finding suggests that CenH3CID deposition and proteolysis are synchronized events in *Drosophila*.
- The interaction of the *Drosophila* GAGA factor with DNA is modulated by acetylation.

Publications

- Aran-Guiu X, Ortiz-Lombardía M, Oliveira E, Bonet Costa C, Odena MA, Bellido D and Bernués J. Acetylation of GAGA factor modulates its interaction with DNA. *Biochemistry-us*, 49 (43), 9140-51 (2010)
- Guitart T, Leon Bernardo T, Sagalés J, Stratmann T, Bernués J and Ribas de Pouplana L. New aminoacyl-tRNA synthetase-like protein in insecta with an essential mitochondrial function. *J Biol Chem*, 285 (49), 38157-66 (2010)
- Torras-Llort M, Medina-Giró S, Moreno-Moreno O and Azorín F. A conserved arginine-rich motif within the hypervariable N-domain of *Drosophila* centromeric histone H3 (CenH3) mediates BubR1 recruitment. *PLoS One*, 5 (10), e13747 (2010)

Collaborations

- ChIP-seq analysis of histone modifications and chromatin binding proteins. David Rossell, IRB Barcelona (Barcelona, Spain)
- Post-translational modifications of histones. Ernest Giralt, IRB Barcelona (Barcelona, Spain)

Research projects

- Caracterización biológica de inhibidores de metil transferasas. PETRI (PET2007-0319-02). Spanish Ministry of Science and Innovation (MICINN). 2009-2011. Principal investigator: Ferran Azorín
- Epigenética: Mecanismos y enfermedad, Consolider Ingenio-2010 (CSD2006-49). Spanish Ministry of Science and Innovation (MICINN). 2006-2010. Principal investigator: Ferran Azorín
- Regulación epigenética de la estructura y función de la cromatina. Proyectos Investigación Fundamental (BFU2009-07111/BMC). Spanish Ministry of Science and Innovation (MICINN). 2010-2012. Principal investigator: Ferran Azorín
- Regulación transcripcional de genes controlados por el factor GAGA: Identificación de nuevos genes diana y de los mecanismos de activación/represión que operan in vivo. Proyectos Investigación Fundamental (BFU2007-64395/BMC). Spanish Ministry of Science and Innovation (MICINN). 2008-2010. Principal investigator: Jordi Bernués

PhD theses

- Anàlisi de la localització subcel·lular i propietats funcionals de ddp1, la vigilina de *Drosophila melanogaster*. Marta Batlle, University of Barcelona (2010). Thesis director: Ferran Azorin. Honors: Cum Laude



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