

IRB BARCELONA 2011 ANNUAL REPORT

Research Programmes

CELL AND DEVELOPMENTAL BIOLOGY

Marco Milán: Development and Growth Control



Group Members

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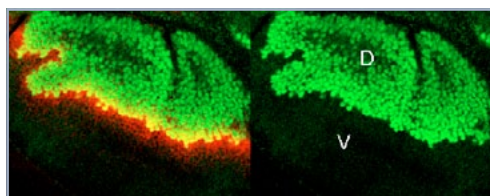
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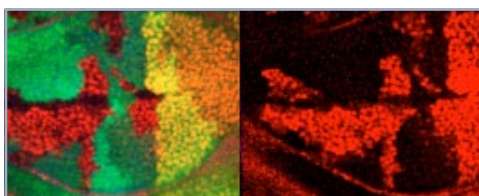
Mercedes San Miguel

Highlights

- Communication between Enhancers and Polycomb Responsive Elements contributes to the expansion of gene expression domains within highly proliferative primordia.
- Subdivision of proliferating tissues into adjacent cell populations that do not mix plays a key role in animal development, and increased mixing contributes to cancer. We have identified the molecular effectors that link Notch signalling and the actin cytoskeleton and that contribute to the generation of these affinity barriers.



Altered affinity formation between D and V cells upon expression of bantam miRNA in boundary cells



Expression of the hedgehog gene (red) in clones mutant for engrailed and ci (labeled by the absence of GFP in green)

Publications

- Pérez L, Barrio L, Cano D, Fiuza UM, Muzzopappa M and Milán M.
Enhancer-PRE communication contributes to the expansion of gene expression domains in proliferating primordia
Development, **138**, 3125-34 (2011)
- Becam I, Rafel N, Hong X, Cohen SM and Milán M.
Notch-mediated repression of bantam miRNA contributes to boundary formation in the Drosophila wing
Development, **138**, 3781-9 (2011)
- Dekanty A and Milán M.
The interplay between morphogens and tissue growth
Embo Rep, **12**, 1003-10 (2011)

PhD Theses

- Coordination of Growth between territories within the developing wing primordium of *Drosophila melanogaster*. Duarte Mesquita, University of Barcelona (2011). Thesis director: Marco Milan. Honors: Cum Laude

Research projects

- Development and growth control laboratory. 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: Marco Milán
- Compartments, organizing molecules and growth control in *Drosophila*. EMBO Young Investigator Programm. European Molecular Biology Organization (EMBO). 2008-open. Principal investigator: Marco Milán
- EMBO YOUNG INVESTIGATOR PROGRAMME 2007 AWARD. Acciones Complementarias (BFU2008-00104-E). Ministry of Science and Innovation (MICINN). 2008-2011. Principal investigator: Marco Milán
- Bordes de compartimentos en el ala de *Drosophila*. Organizadores de crecimiento y bordes de afinidad. BFU2010-21123 Proyectos Investigación Fundamental Spanish Ministry of Science and Innovation (MICINN) 2011-2013. Principal investigator: Marco Milán
- From genes to shape: analysis of morphogenesis in *Drosophila* and vertebrates. Consolider Ingenio-2010 (CSD2007-00008). Spanish Ministry of Science and Innovation (MICINN). 2008-2010. Participant IP: Marco Milán

Collaborations

- *Lafora disease in Drosophila*, Joan Guinovart, IRB Barcelona (Barcelona, Spain)
- *p38 signaling in Drosophila*, Angel Nebreda, IRB Barcelona (Barcelona, Spain)
- *miRNAs in compartment boundary formation*, Stephen Cohen, IMCB Singapore (Singapore, Singapore)



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