

# IRB BARCELONA 2010 ANNUAL REPORT

## SCIENCE AT IRB BARCELONA

Research Programmes

## Cell and Developmental Biology

### Cayetano González: Cell division laboratory



#### Group Members

##### Group Leader

Cayetano González.  
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#### Highlights

- In *Drosophila* neuroblasts, the orientation of asymmetric mitosis is cell-autonomous.
- The memory effect that maintains the orientation of asymmetric division requires centrosome-organized interphase microtubules.
- The span of this memory is limited to the last mitosis.

#### Publications

- Chang KC, Garcia-Alvarez G, Somers G, Sousa-Nunes R, Rossi F, Lee YY, Soon SB, Gonzalez C, Chia W and Wang H. (2010). Interplay between the Transcription Factor Zif and aPKC Regulates Neuroblast Polarity and Self-Renewal. *Dev. Cell.* 19: 778-785.
- Janic A, Mendizabal L, Llamazares S, Rossell D and González C. Ectopic expression of germline genes drives malignant brain tumor growth in *Drosophila*. *Science*, 330 (6012), 1824-7 (2010)
- Januschke J and González C. The interphase microtubule aster is a determinant of asymmetric division orientation in *Drosophila* neuroblasts. *J Cell Biol*, 188 (5), 693-706 (2010)
- Lesage B, Gutierrez I, Martí E and Gonzalez C. Neural stem cells: the need for a proper orientation. *Curr Opin Genet Dev*, 20 (4), 438-42 (2010)
- Rebollo E and González C. Time-lapse imaging of embryonic neural stem cell division in *Drosophila* by two-photon microscopy. *Curr Protoc Stem Cell Biol*, Chapter 1, Unit1H.2 (2010)

#### Collaborations

- Wang Hongyan, National University of Singapore, NUS Graduate School for Integrative Sciences and Engineering (NGS) (Singapore).

#### Research projects

- Cancer stem cells and asymmetric division (ONCASYM), LSHC-CT-2006-037398. European Commission (EC). 2006-2010. Principal investigator: Cayetano González
- Grupo de división celular, Grups de Recerca reconeguts per la Generalitat de Catalunya 2009-2013 (2009 SGR 938). Agency for Administration of University and Research Grants (AGAUR). Principal investigator: Cayetano González

- Hacia la comprensión estructural y funcional del centrosoma, CENTROSOME 3D. Consolider Ingenio-2010 (CSD2006-00023). Spanish Ministry of Science and Innovation (MICINN), 2006-2011. Principal investigator: Cayetano González
- Nuevas estrategias basadas en biomarcadores para la detección del cáncer, su pronóstico, la predicción de respuesta y el desarrollo de nuevos tratamientos. Cémit (CEN-20091016). Centro de Desarrollo tecnológico Industrial (CDTI). Principal investigator: Cayetano González
- Stem cell polarity, genomic instability and tumor growth in *Drosophila*. Proyectos Investigación fundamental (BFU2009-07975). Spanish Ministry of Science and Innovation (MICINN), 2010-2012. Principal investigator: Cayetano González

## PhD Theses

- The contribution of centrosome dysfunction and genomic instability to tumorigenesis in *Drosophila* neural stem cells. Elisabeth Castellanos, University of Barcelona (2010). Thesis director: Cayetano González. Honors: Cum Laude



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