

# IRB BARCELONA 2010 ANNUAL REPORT

## SCIENCE AT IRB BARCELONA

Research Programmes

## Oncology

### Roger Gomis: Growth control and cancer metastasis laboratory



#### Group Members

##### Met Lab Managing Director

Roger Gomis, *ICREA*  
Researcher

##### Research Associate

Mònica Morales

##### Postdoctoral Fellow

Jelena Urosevic

##### PhD Students

Anna Arnal  
Milica Pavlovic  
Maria Tarragona

##### Lab Manager

Marc Guiu

##### Lab Technician

Esther Fernández



#### Highlights

- Over the last two years, we have identified a unique in vivo model that mimics dormant metastasis in ER(+) BC human patients. By combining our experimental mouse model of dormant BC metastasis and a genome-wide short-hairpin (shRNA) library, we aim to identify dormant metastasis genes.
- We test the hypothesis that ER+ breast cancer metastasis to the bone selects mediators for homing, survival and colonization of the bone. Interestingly, this process is, in part, led by a recurrent DNA copy number alteration that has been observed specifically to occur ER+ breast cancer primary tumors.
- Colorectal tumors progress slowly to invasive carcinomas, which can then disseminate and colonize the liver and, less frequently, the lungs. The mechanisms that allow colon cancer cells to form liver metastasis are unknown. We shed light on the molecular bases of these processes.

#### Publications

- Arnal-Estapé A, Tarragona M, Morales M, Guiu M, Nadal C, Massagué J and Gomis RR. HER2 silences tumor suppression in breast cancer cells by switching expression of C/EBP $\beta$  isoforms. *Cancer Res*, 70 (23), 9927-36 (2010)
- Gonzalez-Roca E, Garcia-Albéniz X, Rodriguez-Mulero S, Gomis RR, Kornacker K and Auer H. Accurate expression profiling of very small cell populations. *PLoS One*, 5 (12), e14418 (2010)

#### Collaborations

- Breast Cancer Metastasis Suppressors, Joan Massagué, Memorial Sloan-Kettering Cancer Center (New York, United States)
- Colon Cancer Metastasis, Eduard Batlle, IRB Barcelona (Barcelona, Spain)
- Identification of Breast cancer metastasis mechanisms, Cristina Nadal, Hospital Clínic (Barcelona, Spain)
- Identification of colon cancer metastasis mechanisms, Ramon Mangues, Hospital de Sant Pau (Barcelona, Spain)
- Mechanisms of metastasis, Angel Nebreda, IRB Barcelona (Barcelona, Spain)

#### Research projects

- Estudio de los mecanismos moleculares de la metástasis del cáncer de mama a pulmón: función y potencial terapéutico de genes supresores de metástasis, Fundación Asociación Española contra el cáncer. 2008-2011. Principal investigator: Roger Gomis

- Grup de recerca de metàstasi tumoral. Grups de Recerca reconeguts per la Generalitat de Catalunya 2009-2013 (2009 SGR 1429). Agency for Administration of University and Research Grants (AGAUR). Principal investigator: Roger Gomis
- Papel de C/EBPb en los mecanismos moleculares de regulación de la respuesta citostática al TGFb; implicaciones fisiológicas y sus alteraciones en el cáncer de mama. Proyectos de investigación fundamental (SAF2007-62691). Spanish Ministry of Science and Innovation (MICINN). 2008-2010. Principal investigator: Roger Gomis
- Fundación Banco Bilbao Vizcaya Argentaria. Principal investigator: Roger Gomis
- Prous Institute for Biomedical Research, S.A. Principal investigator: Roger Gomis



© Institute for Research in Biomedicine (IRB Barcelona)  
Parc Científic de Barcelona. C/ Baldori Reixac 10. 08028 Barcelona - Spain  
Tel: +34 93 402 02 50 | Fax: +34 93 403 71 14  
info@irbbarcelona.org