

IRB BARCELONA 2011 ANNUAL REPORT

Research Programmes

ONCOLOGY

Roger Gomis: Growth Control and Cancer Metastasis



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Highlights

- Over the last two years, we have identified a unique *in vivo* model that mimics dormant metastasis in ER(+) breast cancer (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 tumours.
- Colorectal tumours 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

- Morales M, Planet E, Arnal-Estape A, Pavlovic M, Tarragona M and Gomis RR. **Tumor-stroma interactions a trademark for metastasis** *Breast*, **20 Suppl 3**, S50-5 (2011)

PhD Theses

- Study of new mechanisms of breast cancer tumor progression and metastasis: Characterization of the role of C/EBP β in TGF β cytostatic response; definition of an estrogen receptor positive bone metastasis signature. Anna Arnal-Estapé, University of Barcelona (2010). Thesis director: Roger R. Gomis. Honors: Cum Laude
- Study of the TGF β function in tumoral proliferation and in the metastatic processes. Maria Tarragona, University of Barcelona (2010). Thesis director: Roger R. Gomis. Honors: Cum Laude

Research projects

- Grup de recerca de metàstasi tumoral 2009 SGR 1429 Grup de Recerca reconegut de la Generalitat de Catalunya Agency for Administration of University and Research Grants (AGAUR) 2009-2013. Principal investigator: Roger Gomis
- 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 (AECC) 2008-2011 Roger Gomis

- Fundación BBVA. Principal investigator: Roger Gomis
- Mechanism of ER positive breast cancer metastasis SAF2010-21171 Proyectos Investigación Fundamental Spanish Ministry of Science and Innovation (MICINN) 2011-2013. Principal investigator: Roger Gomis
- Prous Institute for Biomedical Research, S.A 2011-2012. Principal investigator: Roger Gomis

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 Mangués, Hospital de Sant Pau (Barcelona, Spain)
- *Mechanisms of metastasis*, Angel Nebreda, IRB Barcelona (Barcelona, Spain)



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