Melanoma is a very aggressive tumor originating from neural-crest derived melanocytes. The transformation of normal melanocytes into melanoma cells is a multistep process. It is crucial to elucidate the molecular and cellular mechanisms of melanocyte development (specially the molecular network that controls the induction of neural crest) and transformation, to improve the prevention, early diagnosis, prognosis and therapy.

Our research combines molecular approaches based on an understanding of the signaling associated with extracellular factors, a cellular approach based on an understanding of the establishment/maintenance and alteration of the melanocyte lineage and an approach based on animal models that will be used to test specific innovative treatments. In fine, we expect that we can ultimately propose new prognostic markers for melanoma and improved therapeutic treatments.
Key publications

Year of publication 2019

Giorgio Seano, Rakesh K Jain (2019 Nov 4)
**Vessel co-option in glioblastoma: emerging insights and opportunities.**
Angiogenesis : [DOI: 10.1007/s10456-019-09691-z](https://doi.org/10.1007/s10456-019-09691-z)

**An autocrine ActivinB mechanism drives TGFb/Activin signaling in Group3medulloblastoma**
EMBO Molecular Medecine : 11 : e9830 : [DOI: 10.15252/emmm.201809830](https://doi.org/10.15252/emmm.201809830)

**Solid stress in brain tumours causes neuronal loss and neurological dysfunction and can be reversed by lithium.**
Nature biomedical engineering : 230-245 : [DOI: 10.1038/s41551-018-0334-7](https://doi.org/10.1038/s41551-018-0334-7)

John D Martin, Giorgio Seano, Rakesh K Jain (2019 Feb 12)
**Normalizing Function of Tumor Vessels: Progress, Opportunities, and Challenges.**

Yolanda Prezado, Gregory Jouvion, Consuelo Guardiola, Wilfredo Gonzalez, Marjorie Juchaux, Judith Bergs, Catherine Nauraye, Dalila Labiod, Ludovic De Marzi, Frederic Pouzoulet, Annalisa Patriarca, Remi Dendale (2019 Feb 1)
**Tumor Control in RG2 Glioma-Bearing Rats: A Comparison Between Proton Minibeam Therapy and Standard Proton Therapy.**
International journal of radiation oncology, biology, physics : 266-271 : [DOI: S0360-3016(19)30171-3](https://doi.org/S0360-3016(19)30171-3)

Chia-Hsiang Chang, Marco Zanini, Hamasseh Shirvani, Jia-Shing Cheng, Hua Yu, Chih-Hsin Feng,

**Atoh1 Controls Primary Cilia Formation to Allow for SHH-Triggered Granule Neuron Progenitor Proliferation.**