



Unit Director

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Teams in this unit study various aspects of tumour development. Two main strategies are being developed:

- **the direct study of human malignancies to better understand their physiopathological mechanisms,**
- **the uses experimental models (cells or animals) to address specific aspects of oncogenesis.**

A variety of genetic methods including microarray, genotyping and next-generation sequencing analyses are developed to characterise human tumours, as well as molecular biology, cell biology and transgenesis approaches to create and investigate models are being used.

The main research themes of the unit include:

- The link between oncogenesis, stemness and cell differentiation, especially in neural and mesenchymal cell lineages, with the goal of establishing similarities and differences between the biology of the tumour cells and their corresponding normal cells,
- The genetic alterations in cancer cells, in particular the mechanisms of genetic instability that

- may be a cause or a consequence of tumour development,
- The role of oxidative stress in angiogenesis, cell aging and tumour development,
 - The changes in intracellular traffic and in the cytoskeleton that are associated with malignant transformation.

Key publications

Year of publication 2018

Forget Antoine, Martignetti Loredana, Puget Stéphanie, Calzone Laurence, Brabetz Sebastian, Picard Daniel, Montagud Arnau, Liva Stéphane, Sta Alexandre, Dingli Florent, Arras Guillaume, Rivera Jaime, Loew Damarys, Besnard Aurore, Lacombe Joëlle, Pagès Mélanie, Varlet Pascale, Dufour Christelle, Yu Hua, L. Mercier Audrey, Indersie Emilie, Chivet Anaïs, Leboucher Sophie, Sieber Laura, Beccaria Kevin, Gombert Michael, D. Meyer Frauke, Qin Nan, Bartl Jasmin, Chavez Lukas, Okonechnikov Konstantin, Sharma Tanvi, Thatikonda Venu, Bourdeaut Franck, Pouponnot Celio, Ramaswamy Vijay, Korshunov Andrey, Borkhardt Arndt, Reifenger Guido, Pouillet Patrick, D. Taylor Michael, Kool Marcel, M. Pfister Stefan, Kawauchi Daisuke, Barillot Emmanuel, Remke Marc, Ayrault Olivier (2018 Sep 10)

Aberrant ERBB4-SRC Signaling as a Hallmark of Group 4 Medulloblastoma Revealed by Integrative Phosphoproteomic Profiling

Cancer Cell : 34 : 379-395 : [DOI : 10.1016/j.ccell.2018.08.002](https://doi.org/10.1016/j.ccell.2018.08.002)

Manuel Rodrigues, Lenha Mobuchon, Alexandre Houy, Alice Fiévet, Sophie Gardrat, Raymond L Barnhill, Tatiana Popova, Vincent Servois, Aurore Rampanou, Aurore Mouton, Stéphane Dayot, Virginie Raynal, Michèle Galut, Marc Putterman, Sarah Tick, Nathalie Cassoux, Sergio Roman-Roman, François-Clément Bidard, Olivier Lantz, Pascale Mariani, Sophie Piperno-Neumann, Marc-Henri Stern (2018 May 16)

Outlier response to anti-PD1 in uveal melanoma reveals germline MBD4 mutations in hypermutated tumors.

Nature communications : 1866 : [DOI : 10.1038/s41467-018-04322-5](https://doi.org/10.1038/s41467-018-04322-5)

Year of publication 2017

Boeva, V., Louis-Brennetot, C., Peltier, A., Durand, S., Pierre-Eugène, C., Raynal, V., Etchevers, H.C., Thomas, S., Lermine, A., Daudigeos-Dubus, E., Georger, B., Orth, M.F., Grünwald, T.G.P., Diaz, E., Ducos, B., Surdez, D., Carcaboso, A.M., Medvedeva, I., Deller, T., Combaret, V., Lapouble, E., Pierron, G., Grossetête-Lalami, S., Baulande, S., Schleiermacher, G., Barillot, E., Rohrer, H., Delattre, O., and Janoueix-Lerosey, I. (2017 Sep 1)

Heterogeneity of neuroblastoma cell identity defined by transcriptional circuitries.

Nature Genetics : [DOI : 10.1038/ng.3921](https://doi.org/10.1038/ng.3921)

Franzetti GA, Laud-Duval K, van der Ent W, Brisac A, Irondelle M, Aubert S, Dirksen U, Bouvier C, de Pinieux G, Snaar-Jagalska E, Chavrier P, Delattre O, (2017 Jun 22)

Cell-to-cell heterogeneity of EWSR1-FLI1 activity determines proliferation/migration choices in Ewing sarcoma cells.

Oncogene- : [DOI : 10.1038/onc.2016.498](https://doi.org/10.1038/onc.2016.498)

Sheffield NC, Pierron G, Klughammer J, Datlinger P, Schönegger A, Schuster M, Hadler J, Surdez D, Guillemot D, Lapouble E, Freneaux P, Champigneulle J, Bouvier R, Walder D, Ambros IM, Hutter C, Sorz E, Amaral AT, de Álava E, Schallmoser K, Strunk D, Rinner B, Liegl-Atzwanger B, Huppertz B, Leithner A, de Pinieux G, Terrier P, Laurence V, Michon J, Ladenstein R, Holter W, Windhager R, Dirksen U, Ambros PF, Delattre O, Kovar H, Bock C, Tomazou EM. (2017 Mar 23)

DNA methylation heterogeneity defines a disease spectrum in Ewing sarcoma.

Nature Médecine- : [DOI : 10.1038/nm.4273](https://doi.org/10.1038/nm.4273)

Gentric G, Mieulet V, Mechta-Grigoriou F (2017 Mar 20)

Heterogeneity in Cancer Metabolism: New Concepts in an Old Field.

Antioxidants & Redox Signaling : 26 : [DOI : 10.1089/ars.2016.6750](https://doi.org/10.1089/ars.2016.6750)