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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.