The mission of this unit is to understand the biogenesis of the cell compartments and the molecular mechanisms that govern normal cellular functions.

The main research themes of the unit include:

- Transport pathways between compartments,
- The dynamics of the actin- and microtubule-based cytoskeletons,
- Three-dimensional structures of molecular motors,
- Mechanisms of cell division and cell migration,
- The mechanisms involved in establishing the polarity of epithelia and their differentiation,
- Signalling pathways associated with tumour progression in several mouse models and human tumours,
- Regulation of adhesive systems during morphogenesis and development.

Key publications

Year of publication 2018

Julien Robert-Paganin, Daniel Auguin, Anne Houdusse (2018 Oct 3)
Hypertrophic cardiomyopathy disease results from disparate impairments of cardiac myosin function and auto-inhibition.

*Nature communications*: 4019 : [DOI: 10.1038/s41467-018-06191-4](https://doi.org/10.1038/s41467-018-06191-4)

Florian Blanc, Tatiana Isabet, Hannah Benisty, H Lee Sweeney, Marco Cecchini, Anne Houdusse (2018 May 31)

*An intermediate along the recovery stroke of myosin VI revealed by X-ray crystallography and molecular dynamics.*

*Proceedings of the National Academy of Sciences of the United States of America*: 6213-6218 : [DOI: 10.1073/pnas.1711512115](https://doi.org/10.1073/pnas.1711512115)

Philip D Stahl, Graça Raposo (2018 May 17)

*Exosomes and extracellular vesicles: the path forward.*

*Essays in biochemistry*: 119-124 : [DOI: 10.1042/EBC20170088](https://doi.org/10.1042/EBC20170088)

Guillaume van Niel, Gisela D’Angelo, Graça Raposo (2018 Jan 18)

*Shedding light on the cell biology of extracellular vesicles.*

*Nature reviews. Molecular cell biology*: 213-228 : [DOI: 10.1038/nrm.2017.125](https://doi.org/10.1038/nrm.2017.125)


*Quantifying exosome secretion from single cells reveals a modulatory role for GPCR signaling.*

*The Journal of cell biology*: 1129-1142 : [DOI: 10.1083/jcb.201703206](https://doi.org/10.1083/jcb.201703206)

Year of publication 2017

Alexandros Glentis, Philipp Oertle, Pascale Mariani, Aleksandra Chikina, Fatima El Marjou, Youmna Attieh, Francois Zaccarini, Marick Lae, Damaris Loew, Florent Dingli, Philemon Sirven, Marie Schoumacher, Basile G Gurchenko, Marija Plodinec, Danijela Matic Vignjevic (2017 Oct 15)

*Cancer-associated fibroblasts induce metalloprotease-independent cancer cell invasion of the basement membrane.*

*Nature communications*: 924 : [DOI: 10.1038/s41467-017-00985-8](https://doi.org/10.1038/s41467-017-00985-8)