Elaine Del nery
Platform Supervisor
bfx-screening@curie.fr

Franck Perez
Scientific Director
franck.perez@curie.fr
Tel: +33 1 56 24 63 88

Jacques Camonis
Scientific Director
jacques.camonis@curie.fr
Tel: +33 1 56 24 66 54

Philippe Benaroch
Scientific Director
philippe.benaroch@curie.fr
Tel: +33 1 56 24 64 32

BioPhenics facility specializes in chemical biology as it relates drug discovery, biological probe discovery and phenotypic characterization of small-molecule effects (siRNAs and chemical compounds) on cellular systems. The facility provides basic and applied research teams with the technical resources and expertise needed to carry out high-content screens.

The facility has enabled screening projects for different research groups in Europe, most of them located in cancer centers, aiming to benefit from the platform capabilities for identifying both the genes and pathways that mediate disease states and novel compounds that modulate these pathways. BioPhenics operates with a philosophy of collaboration, rather than fee-for-service. These screens can be carried out using small molecule or siRNA libraries curated by BioPhenics or with custom libraries developed by researchers.

Objectifs

- **Development of cell-based assays for large-scale identification of protein markers of a physiological or functional status of therapeutic response.**
- **Analysis of phenotypic profiles of genes and chemical libraries based on their diagnostic / therapeutic interest.**
- **Identification of bio-active molecules, even though they do not present an immediately exploitable therapeutic effect (molecular tools)**
- **Early drug discovery process from target identification to lead molecule characterization**

BioPhenics is designed to function both as an intellectual base and a core research facility for researchers in their goal to develop novel treatments for diseases. BioPhenics Scientific Staff provides the intellectual capital, collaborative opportunities and access to state-of-the-art technologies in chemical biology and participates in the training of future research scientists and health care practitioners.

Equipements

The robotic platform is a flexible, modular, specialized system for the full automation of a wide variety of 96 and 384-well cell-based and biochemical assays. In addition to housing the instrumentation and robotics required for traditional high-throughput liquid handling (TECAN EVO, MAP TiterTek, Thermo Scientific Multidrop), the facility houses two cutting-edge High Content Image-based instruments (INCell 2000 and INCell 2200 systems) for small-molecule discovery research and analysis in fixed cells. The cell culturing laboratory ensures the

continuous provision of cell culture samples for automated testing. They are located in a positive-pressure room fully equipped for preparation and maintenance of cell cultures in a safe and sterile environment. Standard operating procedures are implemented to ensure the continuous production of consistent high-quality cell-based assays.

Contact

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More information on the Biophenics website

Key publications

Year of publication 2015

Priscille Brodin, Elaine DelNery, Emmanuelle Soleilhac (2015 Mar 4)
[High content screening in chemical biology: overview and main challenges].
Médecine sciences : M/S : 187-96 : DOI : 10.1051/medsci/20153102016

Year of publication 2013

Sardar Faisal Mahmood, Nadège Gruel, Elodie Chapeaublanc, Aurianne Lescure, Thouis Jones, Fabien Reyal, Anne Vincent-Salomon, Virginie Raynal, Gaëlle Pierron, Franck Perez, Jacques Camonis, Elaine Del Nery, Olivier Delattre, François Radvanyi, Isabelle Bernard-Pierrot (2013 Oct 22)
A siRNA screen identifies RAD21, EIF3H, CHRAC1 and TANC2 as driver genes within the 8q23, 8q24.3 and 17q23 amplicons in breast cancer with effects on cell growth, survival and transformation.
Carcinogenesis : 670-82 : DOI : 10.1093/carcin/bgt351

Julien Ablain, Magdalena Leiva, Laurent Peres, Julien Fonsart, Elodie Anthony, Hugues de Thé (2013 Mar 18)
Uncoupling RARA transcriptional activation and degradation clarifies the bases for APL response to therapies.
The Journal of experimental medicine : 647-53 : DOI : 10.1084/jem.20122337