

# ICST

## Ion Channel Science & Therapeutics



**Dr. FLORIAN LESAGE**  
45, DR1 INSERM.  
90 articles, 13 patents (7700 citations, h-index:45).

Ion channels control the flow of ions, such as chloride, sodium, calcium and potassium, into and out of living cells. They are necessary for hormone secretion, muscle movement, nerve transmission and cardiovascular function. Their pore-forming subunits constitute a prominent class of therapeutic targets. Drugs modulating ion channel activity have been very successful and generate more than €10 billion in global sales per annum.

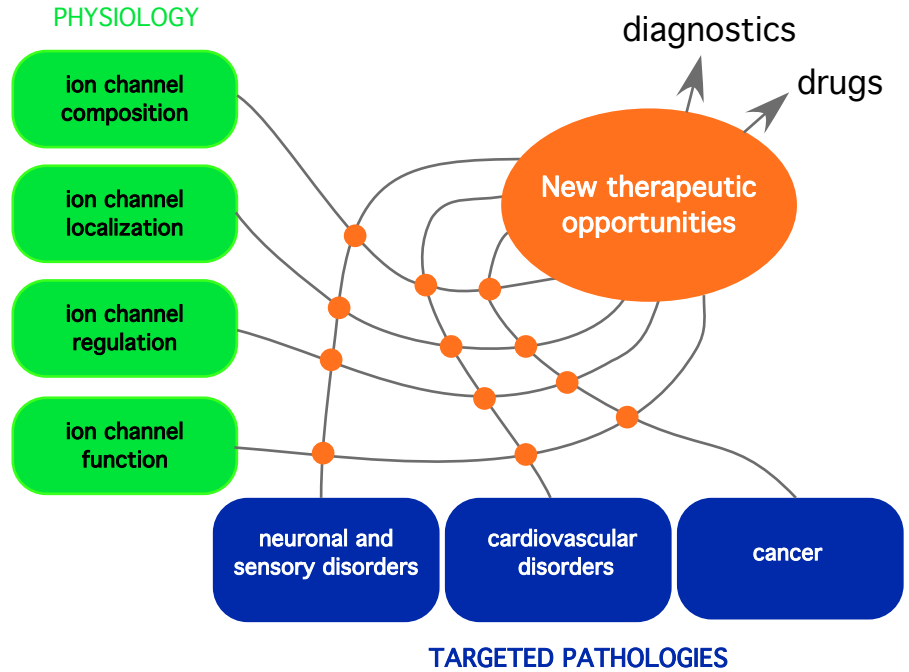
Association of auxiliary subunits, addressing to specific membrane subdomains, intracellular trafficking, membrane recycling, post-translational modifications as well as epigenetic regulations contribute to the complexity and plasticity of ion channel functions. They are unique therapeutic opportunities for a next generation of pharmacological agents with enhanced safety and economic benefits.

The Ion Channel Science and Therapeutics project aims to create a national consortium. The Sophia-Antipolis pole founded by Michel Lazdunski, Gold Medal of CNRS, has a long and successful history in ion channel discovery and study. It will associate with laboratories from Montpellier, Lille and Grenoble, forming a unique combination of renowned competences dedicated to the multilevel study of a large diversity of channels involved in acquired and genetic « channelopathies » and of therapeutical interest for treating pain, cardiac dysfunction, cancer and neurological disorders.

This unique LabEx structure will constitute one the most visible consortium in Ion Channels at the European and international level, resulting in a strong attractivity for students, researchers, private companies and medical communities.

### PARTNERS

- Institut de Pharmacologie Moléculaire et Cellulaire, Sophia-Antipolis
- Institut de Génomique Fonctionnelle, Montpellier
- Laboratoire de Physiologie Cellulaire, Lille
- Grenoble Institut de Neurosciences
- Institut de Biologie Structurale, Grenoble



## Innovate in ion channel research

### Clustering leading academic laboratories for the discovery of the next generation of drug targets

ICST Researchers will focus their energy to the study of molecular physiology and physiopathology of a panel of ion channels chosen for their unique potential as therapeutic targets. With a lot of inter-thematic collaborations, we expect breakthroughs at the fundamental level deciphering novel mechanisms of ion channel regulations, heading to applications in human health by validating their relevance for diagnostics and therapeutic interventions.

## A national consortium - France



## ICST Ambition

The overall ambition of ICST is to become a world-wide recognized clusters in ion channel studies carrying research and innovation at the interface of biology and medicine.

### PROFESSIONALS

With the integration of outstanding teams from top class multi-thematic research centers in a single wall-less federation, ICST will create value by pushing back the frontiers of knowledge. Researchers in ICST will have a complete environment for exercising their expertise and for benefiting of the multiple levels of expertise of each constituting teams. Visiting positions will be available throughout the year, as well as specific training sessions and frequent symposia connected with the whole ion channel community.



### PROSPECTIVE STUDENTS

This LabEx aims to develop the skills and competences of young graduates in the field of ion channels. Particular attention will be paid to the skills needed for international careers in industry and academic laboratories.



### CONNECTIONS WITH ECONOMIC STAKE HOLDERS

These connections include the involvement of industrial partners or representative in the steering committee and licensing to industry of public-owned patents and technologies.



### INDUSTRIAL AND ECONOMIC NETWORKS

ICST seeks to efficiently exploit the result of its research activities. Our research will lead to new patent-protected technologies. Technology transfer will be possible towards companies already involved in partnerships. The creation of start-ups will also be promoted. In this regards, ICST will benefit from the support of several entities including the EUROBIOMED pole.



## State-of-the-art characterization platforms

Constituting teams of ICST will benefit from exceptional technological platforms present in their direct environment:

- Imaging facilities (IBISA)
- Electrophysiology set ups
- EOPS animal facilities
- Genomics platform (FRANCE GENOMIQUE)
- Proteomics platform (MS/MS analysis,...)

## ICST: KEY FIGURES

- >80 researchers, post-docs and PhD students and >15 technicians and engineers covering complementary research fields
- >620 scientific publications for the last 10 years and 50 patents since 1991
- 3 start-ups created
- an expected investment of 80M€ within the next 8 years

## ICST PUBLIC FINANCIAL SUPPORT



10 M€

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