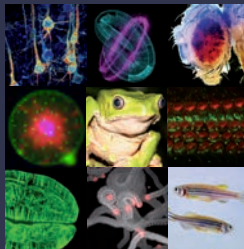




INSTITUT DE BIOLOGIE PARIS ■ SEINE





OUR INSTITUTE

The Institut de Biologie Paris-Seine (IBPS) was created on January 1st 2014. It brings together all biological research carried out on the Jussieu Campus of the Pierre and Marie Curie University (UPMC). Located in a single building on the Quai Saint-Bernard by Paris's River Seine, the IBPS hosts over 600 people across five research units, supported by state-of-the-art technology platforms.

- Evolution Paris-Seine: 8 teams
- Computational and Quantitative Biology: 7 teams
- Developmental Biology: 16 teams
- Neuroscience Paris-Seine: 15 teams
- Biological Adaptation and Aging: 10 teams

OUR MISSIONS

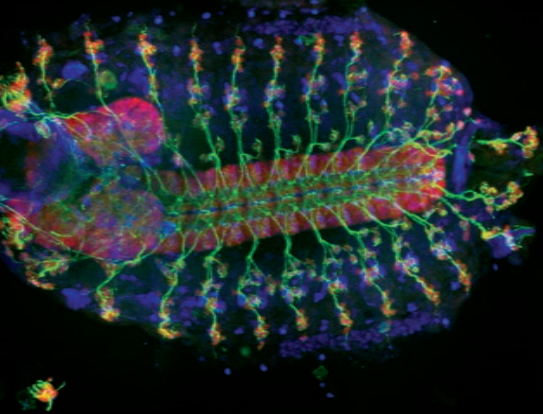
- Advance and disseminate knowledge in biology
- Address major social challenges including aging, neuro-degenerative and behavioral diseases, biotherapy, big data in biology, and the impact of global warming
- Educate and train our future research scientists
- Translate biological advances into applications beneficial to the whole society

OUR STRATEGY

- Develop complementary approaches using different model systems in order to understand and compare biological processes and their evolution
- Develop quantitative approaches at the interface between biology, computer science, mathematics and physics, notably in the field of genomics.
- Develop a strong expertise at the forefront of biology, in domains such as bioluminescence, biosensors, optogenetics, microfluidics, behavioral tests, and bioinformatics.

KEY FIGURES

- 600 people
- Over 100 PhD students
- Over 50 post-docs
- 34 nationalities
- 282 publications in 2014
- 22 patents
- 3 start-ups created



OUR RESEARCH

The nervous system, healthy and diseased

Neuroscience is a major research domain at the IBPS. Our research focuses on the development of the nervous system, as well as its functioning in normal and pathological conditions. We investigate behavioral parameters (reproduction, sleep, decision-making, navigation, memory) and cerebral dysfunction leading to mental illnesses (autism, depression, anxiety, stress, addiction, schizophrenia) or neuro-pathologies (Huntington's, Alzheimer's, epilepsy, brain tumors).

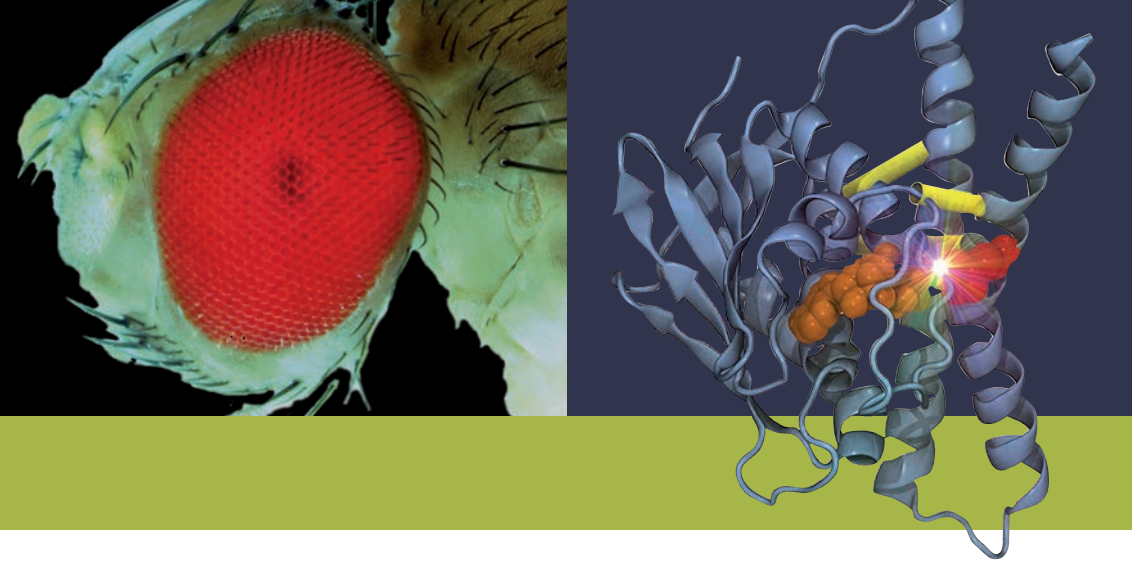


Understanding the biology of aging

With life expectancy continuing to increase in developed countries, healthy aging has become a major issue for the society. We are interested in identifying factors that control aging and longevity, as well as understanding susceptibility to age-related diseases and stress adaptation. Our studies are focused on cerebral, muscular and vascular aging, and on therapies for the nervous and cardiovascular systems.

Development, from a single cell to a whole organism

How does a complex organism develop from the fusion of two gametes? This fundamental question in biology is yet to be fully addressed. Our laboratories investigate various aspects of the processes of development and organ formation (circulatory system, kidneys, muscles,



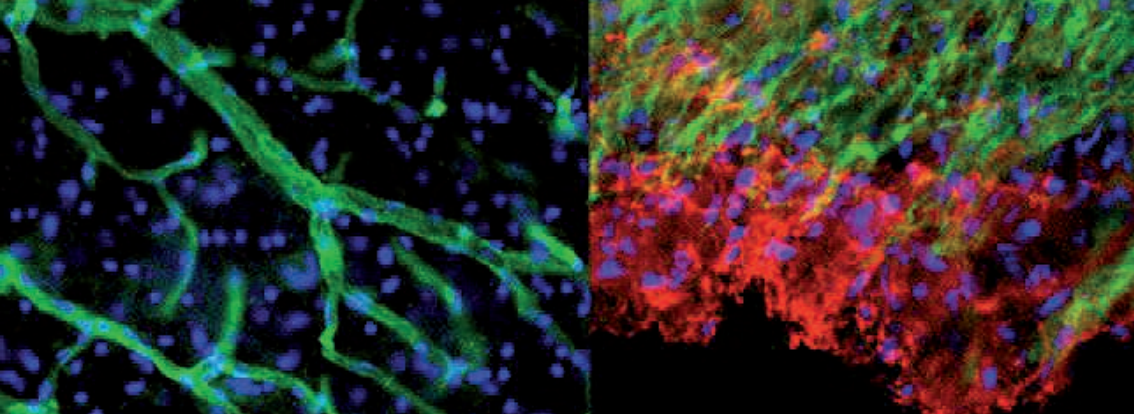
brain, etc.), from the initial step of fertilization through to the later stages of cellular differentiation, along with the dysfunctions leading to cancer development.

Modeling the living organism

The availability of genomic data from sequencing and other high-throughput technologies has radically changed the nature of biological studies. At the interface of biology, mathematics, computer science and physics, the relatively novel field of computational biology is developing rapidly. Our institute is at the forefront of this new domain, with several teams working on modeling, mathematical and algorithmic analyses of genomes and their evolution.

Evolution and environmental adaptation

Understanding evolution is essential for reconstructing the history of living organisms by deciphering ancestral links between species. Several IBPS teams are addressing this by studying biodiversity and how organisms adapt to their environment (mangroves, Mediterranean, Antarctic). Other studies include symbiotic interactions (sea anemones/Symbiodinium, bivalvia/bacteria) and the development of key biological functions such as mineralization (teeth, bones, coral), the nervous system, and the evolution of organs through programmed cell death.



TECHNOLOGY PLATFORMS

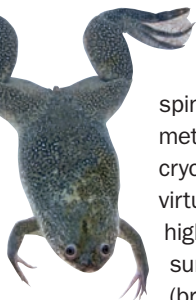
Research carried out at the IBPS is supported by state-of-the-art platforms, available to both private and public users.

The platforms: photonic and electronic microscopy, proteomics, bioinformatics, rodent and fish facilities.

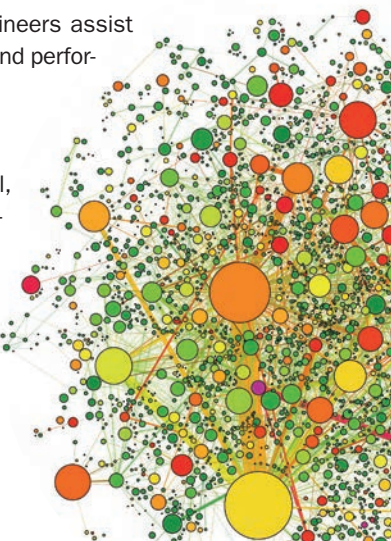


Services provided: assistance for analytical methods of biological samples covering the molecular level to the whole organism; autonomous or assisted access to equipment; support for data acquisition and analysis; training and knowledge sharing.

The team: around 30 researchers, technicians and engineers assist and train users in designing protocols, using equipment and performing experiments.



Key technologies: fluorescence microscopy (confocal, spinning disc, two-photon, photomanipulation), flow cytometry, transmission and scanning electron microscopy, cryotechnology, Galaxy system-based bioinformatics, virtualization of IT environments, quantitative PCR, high-resolution mass spectrometry, peptide synthesis, surface plasmon resonance, rodent and fish facilities (breeding, surgery and genetic engineering).



EDUCATION AND TRAINING

Located at the heart of the UPMC, France's leading university (Shanghai Academic Ranking), the IBPS is deeply committed to education and training, counting over 60% of teaching professors and senior lecturers among its researchers.

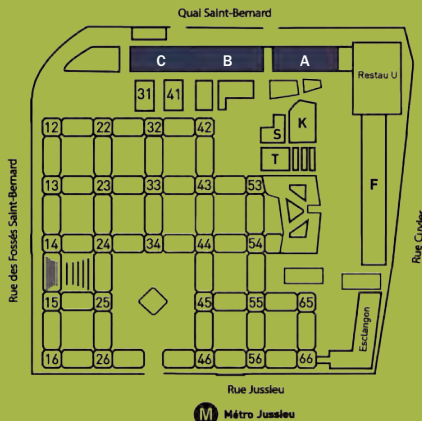
Researchers at the IBPS are responsible for:

- 2 out of 4 of the UPMC's doctoral schools in biology
- 11 of the 15 biology Master's programs offered
- a computing science Master's program
- a life science Bachelor's program



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Université Pierre et Marie Curie - 7-9 quai Saint-Bernard - 75005 Paris



The IBPS is located in buildings A, B and C, accessible via the Jussieu Campus or the Quai Saint-Bernard.

Access:

- Metro lines 7 and 10 (Jussieu station)
- Buses 89 and 67 (Jussieu station)

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