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ITMO Pathophysiology, metabolism, nutrition

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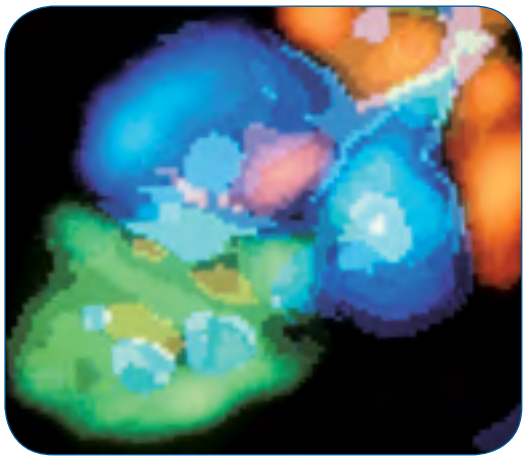
ARIIS · CDEFI · CIRAD · EFS · FONDATION MERIEUX · INERIS · INSTITUT CURIE · INSTITUT MINES-TELECOM · IRBA · IRSN · UNICANCER

- **The Institute covers a wide spectrum of research in physiology, experimental medicine and human diseases**
- **Fields: lung, circulatory system and hemostasis, endocrine organs, liver, kidney, skin, joints and bones and organs involved in nutrient processing (from the control of food intake and nutritional behavior to digestive processing, control of substrate use and storage).**

Research priorities

- Develop strong fundamental research to increase understanding of physiological mechanisms
- Encourage innovative projects with pathophysiological applications
- Examine gene-environment interactions to understand the pathophysiological disruptions observed in common multifactorial diseases
- Develop new therapeutic strategies and foster cell or organ replacement strategies
- Anchor development of biomarkers and preclinical models so as to be more representative of human diseases in detailed translational research.



Heart MRI.
Michel Depardieu © Inserm

The forces involved in the field

353 teams

1,500 staff scientists

1,130 hospital practitioners

4 Research Centers for Human Nutrition

3 national thematic networks of clinical investigation centers

15,800 publications a year

Public health care challenges

- Metabolic, endocrine and nutritional diseases: diabetes, obesity, hyperlipidemia, renal insufficiency, atherosclerosis the frequency of which is high and the complications devastating
- Cardiovascular and thrombotic diseases are the major cause of mortality in industrialized countries
- Respiratory diseases are increasing in incidence
- Kidney, liver and digestive tract diseases are at the interface of numerous metabolic diseases
- Malnutrition: nutritional deficiencies account for 3 million child deaths each year in less-developed countries and malnutrition is further observed in almost 50% of patients suffering from chronic diseases and of hospitalized patients
- Skin diseases including allergic and chronic inflammatory disorders lead to serious social disability
- Bone and joint disorders are a subject of concern, particularly because of the population aging.

01/2019

The scientific experts

Multi organisation subject-specific institute (ITMO) director

Christian BOITARD
(University Professor & Hospital Practitioner)

Multi organisation subject-specific institute (ITMO) co-director

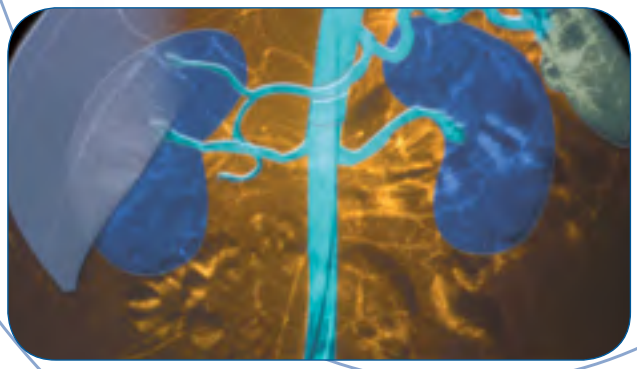
Jean DALLONGEVILLE (Research Director, INRA)

Scientific policy officers

Raymond BAZIN (Research Director, Inserm)
Nathalie GRIVEL (Research Engineer, Inserm)

Expert group

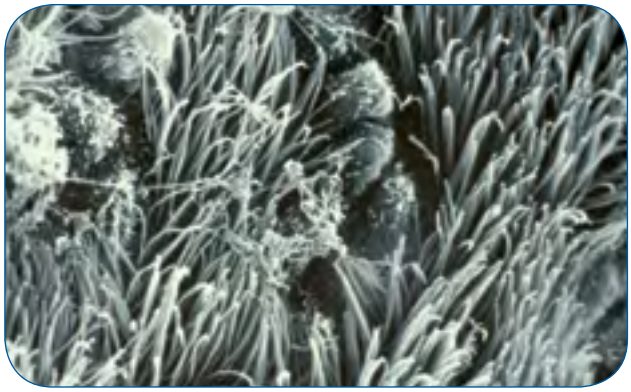
- Jean-François ARNAL (University Professor & Hospital Practitioner)
- Francis BERENBAUM (University Professor & Hospital Practitioner)
- Chantal BOULANGER (Research Director, Inserm)
- Nadine CERF-BENSUSSAN (Research Director, Inserm)
- Barbara DEMENEIX (Professor, *Muséum national d'Histoire naturelle*)
- Chloé FERAL (Research Director, Inserm)
- Marc HUMBERT (University Professor & Hospital Practitioner)
- Christophe JUNOT (Research Officer, CEA)
- Armelle LETURQUE (Research Director, CNRS)
- Roger MARTHAN (University Professor & Hospital Practitioner)
- Renato MONTEIRO (University Professor & Hospital Practitioner)
- Richard MOREAU (Research Director, Inserm)
- Luc PÉNICAUD (Research Director, CNRS)



Abdominal aortic angiography © Inserm/Alpha Pict/Caro, Daniel

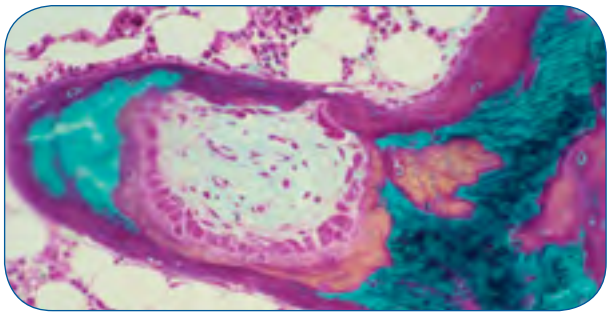
Organizational and technological priorities

- Develop research sites ensuring significant critical masses and based on competitive technical platforms in coordination with universities
- Develop an incentive-raising policy for the emergence of young teams on major sites
- Foster national and European networks
- Consider the North-South dimension in such fields as nutrition and inflammation



Airway epithelium © E.U. Inserm 314

- Foster interactions between research laboratories and clinical departments by relying on Clinical Investigation Centers and by encouraging interface contracts
- Conduct an active search for projects likely to give rise to technology transfer



Alignment of osteoblasts responsible for bone formation.
Georges Boivin © Inserm

- Promote interactions between academic, biotechnology and industry laboratories, pooling skills in a way that is necessary for the development of innovative therapeutic or diagnostic approaches
- Set up metabolome platforms coordinated with "omics" platforms that already exist or under discussion.