Inserm, Research in Health and Life Sciences
IMPROVING HUMAN HEALTH

The *Institut national de la santé et de la recherche médicale* (Inserm, the French National Institute of Health & Medical Research) is the only public sector research institution in France exclusively dedicated to human health. Under the dual aegis of the Ministries of Health and Research, Inserm has a budget of 998 million euros and employs 15,000 scientists, engineers and technicians all with one shared objective, namely to promote health—by advancing knowledge about living organisms and their diseases, developing innovative treatment modalities and conducting research on public health.

OUTSTANDING RESEARCH CAPACITIES

Inserm has more than 365 research units spread across France and internationally. These are supported by 13 Regional Commissions for local oversight. Scientific activities are organized around 9 “Inserm Thematic Institutes”, corresponding to the main fields of biomedical and health research.

9 INSERM THEMATIC INSTITUTES

- Cancer
- Cell biology, development and evolution
- Genetics, genomics and bioinformatics
- Health technologies
- Immunology, inflammation, Infectiology and Microbiology
- Molecular and structural basis of life sciences
- Neurosciences, cognitive sciences, neurology and psychiatry
- Pathophysiology, Metabolism, Nutrition
- Public health

CENTRE OF EXCELLENCE

Inserm is in the leading academic biomedical research institution in Europe with some 12,000 publications a year: it is only second in the world (behind the American National Institutes of Health).

AN EXCEPTIONAL LABORATORY

The P4 Inserm Jean-Mérieux biocontainment laboratory focuses on research on Class 4 pathogens. It is the only unit of its kind with this level of biosafety, offering the highest capacity for such experimentation in Europe. The laboratory is run as a major research platform open to the entire national and international scientific community. Its activities concern fundamental or highly targeted research fields, diagnosis and collection management.
FOSTERING TALENT

Since its foundation in 1964, Inserm has played a part in many key, historic medical advances, including the first prenatal diagnostic tests, how the HLA system works, the first in vitro fertilisation, identification of the Human Immunodeficiency Virus, radiotherapy for cancer, the first skin grafting, deep brain stimulation and gene therapy.

NOBEL PRIZES IN MEDICINE

• Jean Dausset (1980) for discovery of the Major Histocompatibility Complex and related immunological phenomena

• Françoise Barré-Sinoussi (2008) for the identification of HIV.

...AND LASKER PRIZES

• Étienne-Émile Baulieu (1989), for his contribution to understanding of steroid hormones

• Pierre Chambon (2004) for discovery of a family of nuclear receptors that bind hormones, vitamins and other molecules involved in cell signalling.

• Alim-Louis Benabid (2014) for his work on deep brain stimulation in the treatment of Parkinson’s disease.

Every year since 2000, the Institute has been recognising its own talents with the awarding of an annual series of Prix Inserm. Biomedical research depends on a wide variety of different skills coupled with the creativity and passion of all the men and women who work in it.

Inserm has also launched a series of initiatives to encourage young scientists, such as the ATIP-Avenir program and ERC support sessions.

COMMITTED TO THE FUTURE

The new Inserm 2016-2020 Strategic Plan adopts a multidisciplinary, reactive and integrated approach to biomedical research. The life and health care sciences are seeing a revolution in methodologies and Inserm is right at the heart of this development.

THE THREE PRIORITIES FOR 2016-2020

Strategic directions:

• support integrated, multidisciplinary research in line with society’s requirements;

• develop the highest-level skills to meet strategic challenges;

• optimise partnerships with academia and the private sector to consolidate Inserm’s position in both Europe and on the broader international stage.

• oversight of the Cancer and Neurodegenerative Diseases Plans in the framework of Aviesan and organisation of the France Genomic Medicine 2025 Program which aims to sequence of about 235,000 genomes a year for the purposes of personalised medicine;

• launch of 3 ambitious cross-disciplinary research programs: ageing, microbiota and genomic variability;

• creation of accélérateurs de recherche technologique (ART, Accelerators of Technological Research) to make the most of new technologies in the life sciences and information systems.
CONSOLIDATING NATIONAL PARTNERSHIPS

Inserm has always worked closely with hospitals, universities and other public sector institutions. Most of its research units undertake diverse research activities and are located close to health care establishments and teaching centres. The success of any partnership depends on sharing skills, opening up to talent and staying close to patients.

In 2009, Inserm was one of the founder members of the Alliance nationale pour les sciences de la vie et de la santé (Aviesan, the French National Alliance for Life Sciences and Health), over which it presides.

The Alliance is responsible for the scientific steering of research themes and operational coordination of projects and resources: Aviesan is enhancing the reactivity and effectiveness of French science.

MEMBERS OF AVIESAN

CEA, CNRS, Conférence des directeurs généraux de CHRU, Conférence des présidents d’université, Inra, Inria, Inserm, Institut Pasteur, IRD ARIIS, CDEFI, Cirad, EFS, Fondation Mérieux, Ineris, Institut Curie, Institut Mines-Télécom, IRBA, IRSN, Unicancer.

www.aviesan.fr

INTERNATIONAL COLLABORATIONS

Inserm has a longstanding tradition of European and international collaborations. Its units are involved in more than 6,000 collaborative projects with foreign partners. Articles co-authored with one or more foreign research institutions account for over half of all the Institute’s publications. These collaborations involve partners from some 100 countries, of which almost 60% are members of the European Union or neighboring countries. The Institute’s leading partner remains the USA, with some 20% of collaborative projects.

More than 2,000 foreign staff are hosted in Inserm research units, and some 28% of the scientists hired are non-French nationals.

These figures on scientific collaborations with partners across the world attest to the excellence of Inserm’s research teams. Inserm has signed strategic partnership agreements and established specific collaborative networks, such as International mixed research Units (Irvine USA and Heidelberg Germany), Associated European and International Laboratories (AEL/AIL) – virtual collaborative structures bringing together Inserm and foreign research teams for a 4-year period –, European and International Research Groups (GDRE/GDRI) and international sites/facilities via the French National Agency for Research on AIDS and Viral Hepatitis (ANRS), which is an autonomous agency of Inserm.
Inserm plays an active role within major international multilateral bodies: participation in meetings organized alongside the United Nations General Assembly and at the World Health Organization, in particular as part of the **Global Health Task Force** launched in 2016 by the United Nations Secretary General. Significant collaboration in the field of vaccine development has also been developed with the **Coalition for Epidemic Preparedness Innovations** (CEPI).

Inserm is actively contributing to construction of the European Research Area:

- Inserm was the leading coordinator (36 projects) and lead European institution in collaborative projects in the field of health (183 projects) in the 7th European Union Framework Program for Research and Technological Development (FP7). The Institute was involved in a total of 434 European projects as part of this program.

- In response to the first three Horizon 2020 calls for projects (2014, 2015 and 2016), to address societal challenges, Inserm is participating in 42 collaborative projects in the field of health, including 8 as coordinator.

- Inserm is one of the two European institutions that employ the most ERC (European Research Council) prize-winners in the Life Sciences category. After the 112 prize-winners as part of FP7, today the Institute’s laboratories play host to more than 65 new ERC prize-winners as part of the first three years of Horizon 2020 calls for projects.

**INNOVATING AND CAPITALISING ON KNOWLEDGE**

Inserm is the leading academic patent applicant in European biomedical research, the 6th applicant in France across all sectors, the 2nd in the field of biotechnology and the first in pharmaceuticals (2016 European Patent Office figures).

In 2016, Inserm held a portfolio of 1,555 live patent families. Inserm Transfert, its private subsidiary responsible for managing the Institute’s intellectual property, has issued licenses for over a quarter of this portfolio to companies in France and around the world (including big commercial health care groups, intermediate-sized enterprises, SMEs or start-ups). On average, some ten spin-off companies are created each year.

In 2016, Inserm was the 9th most innovative public sector research institution in the world, according to Thomson-Reuters.

www.inserm-transfert.fr
SPONSORING CLINICAL RESEARCH

Under the umbrella of the Public Health Theme-Based Institute, the Clinical Research unit of Inserm handles all aspects and stages of sponsorship, from structuring clinical research projects to monitoring and closing the study, and submitting all regulatory filings.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>studies in the active queuing system</td>
<td>325</td>
</tr>
<tr>
<td>non-biomedical research projects</td>
<td>158</td>
</tr>
<tr>
<td>biomedical research projects</td>
<td>167</td>
</tr>
<tr>
<td>medicine projects</td>
<td>25</td>
</tr>
<tr>
<td>medical devices projects</td>
<td>11</td>
</tr>
<tr>
<td>key generic technologies projects</td>
<td>4</td>
</tr>
<tr>
<td>research projects using a collection</td>
<td>79</td>
</tr>
<tr>
<td>non-health products projects</td>
<td>127</td>
</tr>
<tr>
<td>health products projects</td>
<td>40</td>
</tr>
<tr>
<td>data research projects</td>
<td>79</td>
</tr>
<tr>
<td>research projects</td>
<td>79</td>
</tr>
<tr>
<td>non-health products projects</td>
<td>127</td>
</tr>
<tr>
<td>health products projects</td>
<td>40</td>
</tr>
<tr>
<td>non-health products projects</td>
<td>127</td>
</tr>
<tr>
<td>health products projects</td>
<td>40</td>
</tr>
</tbody>
</table>

In 2016, Inserm also sponsored: 7 phase I trials, 18 phase II trials, 2 phase III trials and 1 phase IV trial.

At a national level, the Institute is also the sponsor of the 4 pilot projects set up as part of the France Genomic Medicine 2025 plan. The goal is to integrate genomic medicine into the patient treatment process, drawing on a sector that can drive scientific and technological innovation and be a source of economic growth. Internationally, Inserm is the sponsor of over 15 projects in Europe and the Global South.

CICS: THE FLAGSHIPS OF FRENCH CLINICAL RESEARCH

Created in 1992, the Clinical Investigation Centers (CIC) help academic or industrial investigators and sponsors to devise innovative projects by offering them methodological, material and human resources for executing projects in a constantly evolving technical and regulatory environment. They enable clinical trials to be initiated to gain a better understanding of the mechanisms of a disease, test new treatments and health technologies, collect data and biological samples, and monitor cohorts. Under the umbrella of a tripartite agreement between Inserm, university hospitals (CHU), universities and in some cases other associated operators (associations etc.), these joint research infrastructures have demonstrated their added value in the clinical research landscape in France. To date, 35 CICs have been set up in university hospitals throughout France.

Since 2004, Inserm, through the national network of CICs, has been involved in the European Clinical Research Infrastructures Network (E-CRIN). With the set-up of F-CRIN, its French branch, CICs have become a core component of European and international clinical research projects.

CHIKUNGUNYA, EBOLA, ZIKA, ETC.: A RAPID RESPONSE FORCE

The REACTing project (REsearch and ACTion targeting emerging infectious diseases) aims to mobilize research teams between health crises to make preparations to rapidly implement research when an epidemic occurs. This mobilization was put into practice at an operational level during the H1N1 and Chikungunya epidemics and recently during the fight against the Ebola epidemic in West Africa, where Inserm and its partners from Aviesan played a key role.
ON BEHALF OF AND TOGETHER WITH SOCIETY

Inserm embodies a kind of scientific democracy: research on behalf of and together with its own society, ever attentive to its needs and expectations. Inserm has pioneered this approach and is profoundly committed to both the respect of ethics and to working in concert with voluntary organisations.

A STRONG ETHICAL IMPERATIVE

Discoveries in the field of health care and their applications systematically raise questions about respect of life and ethics. The Inserm Ethics Committee was created in 2000 as an independent forum where the scientific research community can dialogue with society. From day to day, it helps scientists review research-related ethical issues from a project’s design stage on, making its services available to all member organisations of Aviesan. Delicate areas such as animal experimentation and scientific integrity are closely monitored and innovative Good Practices recommendations are formulated.

EXPERT REVIEWS TO HELP DECISION-MAKERS

With such rapid progress in the field of public health, Inserm has been producing Expert Reviews (Expertises collectives) since 1993. These reports are designed to provide public agencies and elected officials with accurate information to help them come to informed decisions on sensitive questions, such as asbestos, lead, circadian rhythms in children and disabilities.

CHARITIES, PARTNERS IN RESEARCH

Created in 2004, the Groupe de réflexion avec les associations de malades (Gram, Patient Support Group Consultancy) and the Associations recherche & société (Charitable Research & Society) unit coordinates programs for joint actions between Inserm and more than 500 patient support groups as well as disabled people and their families. These are fora for dialogue, consultation and the formulation of solutions. Active charities play a key role in the democracy of health care and science, and are important in organising research—even its funding.

SPREADING KNOWLEDGE

Be it locally or nationally, Inserm makes great efforts to promote scientific culture and the spread of knowledge. As well as holding big conferences and publishing articles in scientific journals, Inserm organises open days in its laboratories, citizens’ meetings, theatrical presentations and exhibitions. It also has a virtual museum and produces a variety of popular science materials. High-quality information is variously broadcast to the general public via the Web site inserm.fr, social networks and Inserm’s news magazine Science& Santé.

« It is our men and women—be they scientists, technicians or administrators—who are Inserm’s great asset. All are motivated by and work towards expanding knowledge and improving human health. »

Pr Yves Lévy
CEO & Chairman of Inserm
Inserm is an organisation dedicated to biological and medical research as well as human health.

It is involved in the entire range of activities from the research laboratory to the patient’s bed.

Inserm is a founding member of Aviesan, the French National Alliance for Life Sciences and Health.

www.inserm.fr