Inserm: Committed to the future of human medicine

Inserm (the French National Institute of Health & Medical Research) is the leading academic biomedical research institution in Europe and 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 and employs 15,000 scientists, engineers and technicians all with one shared objective, to promote health – by advancing knowledge about living organisms and their diseases, developing innovative treatment modalities and conducting research on public health. To discuss this in more detail, we were pleased to catch up with CEO and Chair of Inserm, Professor Yves Lévy at Research Features on the work of Inserm that strives to improve human health in France and worldwide.

Biomedical research is key to aid and support the development of new medicines to help improve human health. This is a key fact and core mission for Inserm (Institut National de la Santé et de la Recherche Médicale – French National Institute of Health and Medical Research), the sole French public organisation dedicated wholly to human health research.

Inserm is a French public research institute under the joint authority of the Ministry of Health and the Ministry of Research. Inserm have a key responsibility for the strategic, scientific, and operational coordination of biomedical research in France. Indeed, they lead the way in biomedical research in Europe.

Professor Yves Lévy has a busy role in the organisation as both the CEO and Chairman of Inserm. He recently spoke with Research Features about his roles, the successes of Inserm and health challenges for France in more detail.

What does your role as Chairman and CEO of Inserm involve?

As CEO of Inserm, my job is to manage the Institute and represent it in France and around the world. This entails chairing the Management board, managing personnel and preparing the budget, leading the scientific advisory board, as well as its specialised scientific committees, signing partnerships in Europe and beyond and liaising with our various contacts (government, other research organisations, industry, associations and foundations, European research bodies).

The French research landscape is rather fragmented, with public research institutions (such as Inserm), universities, university hospitals, graduate schools and industry players. Our health and life sciences community has made significant progress in recent years in terms of coordinating its strategic thinking, via thematic alliances (in our field, Aviesan, the French National Alliance for Life Sciences and Health, which I also manage). We now speak with a common voice, based on shared assessments and ambitions. Essentially, my role at the helm of Inserm and Aviesan is to work to reinforce the consistency of French academic research and to build partnerships with industry.

What do you aim to achieve during your tenure at Inserm? What objectives have you set for the organisation?

My first objective is to maintain and improve the remarkable results already obtained by Inserm in the past few years. Today, Inserm is the leading academic biomedical research institution in Europe with some 12,000 publications a year, and second in the world (behind the American National Institutes of Health).

For the immediate future, Inserm has defined three priorities in its 2016–2020 strategic plan: match research to society’s needs and public policy; nurture top skills to meet research and health challenges; optimise partnerships with academia and the private sector to consolidate its leading position in both Europe and on the broader international stage.

Inserm’s strategic directions also include: steering the Cancer and Neurodegenerative Diseases Plans within the framework of Aviesan, as well as organising the France Genomic Medicine 2025 programme, which aims to sequence about 235,000 genomes a year for the purposes of personalisation medicine; preparing the launch of these ambitious multidisciplinary research programmes (aging, microbiota, genetic variability of cohorts and antibiotic resistance); creation of accélérateurs de recherche technique (ART, Accelerators of Technological Research) to maintain and optimise the use of new technologies in the field of life sciences and information systems, elements which are essential in order to advance knowledge and innovate.

What is Inserm’s core mission?

Inserm’s role is to conduct biomedical research, but it also provides public policy-making support in the fields of health and research. The Institute has been working on the major changes that have transformed our knowledge and practices. Be it in the field of genetics, neuroscience, molecular biology or the development of cutting-edge research technologies, Inserm has established a solid position for itself within the French research system and demonstrated its excellence on a European level. It has played a part in many key, historic medical advances, including: the first prenatal diagnostic tests, radiotherapy for cancer, the first skin graft, deep brain stimulation and gene therapy, to name a few. Its scientists have won numerous awards, including Nobel prizes, Lasker prizes and numerous others, in recognition of their work carried out with constant reference to the needs of society.

Inserm is also involved in clinical research. Its Centres d’Investigation Clinique (CICs, Clinical Investigation Centers) offer scientists and clinicians as well as academic and commercial sponsors a chance to conduct their research projects in the best possible conditions. This might mean understanding a disease better, testing new treatments or health technologies, gathering data and biological samples, or following up cohorts. Finally, Inserm is a multidisciplinary partner...
The increase in life expectancy has a flip side: living longer does not always mean living better

Neurodegenerative Diseases (NPDs) with a primary focus on Alzheimer’s disease, the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR), or the Innovative Medicines Initiative (IMI), which aims to support the more rapid development of new, safer and more effective medicines.

What do you think are the main health challenges currently facing France? What role does Inserm have in the creation of strategies to deal with this?

Today, like all industrialised societies, France is having to cope with diseases related to development and the population ageing it permits. The increase in life expectancy has a flip side: living longer does not always mean living better. New causes of morbidity and mortality dominate, such as cognitive disorders and chronic metabolic diseases. Age-dependent diseases are complex and multifactorial and are difficult to model and treat effectively. Age-related chronic conditions are an increasing burden on the public health economy, forcing us to rethink our health and social welfare systems. Health is also adversely affected by our interactions with the environment. There are cumulative effects, over a lifetime, of individuals’ exposure to chemical and physical agents (pesticides, urban pollution, the sun’s rays). Climate change will also have an impact on health.

To tackle these problems, life and health sciences are seeing their methods, challenges and frontiers constantly evolve. Public policies need to adapt to these rapid changes to fully play their supporting role in terms of new discoveries and healthcare. Since the 1970s, progress in the field of biomedical sciences has been gathering pace, completely transforming the field. It can be described as a triple revolution: biological, with the exploration of the fundamental components of living organisms (genes, proteins, etc.) having transformed our view, technologically, with imaging of living organisms on all scales, spectrometry, genetic engineering, big data bioinformatics having made previously inconceivable explorations and experiments possible; multidisciplinary too, because physicians and biologists work together with many other disciplines.

Today, the French health and life sciences community is united in its recognition of a number of fundamental challenges: maintain attractive and effective academic research, capable of retaining its world-class status; successfully achieve the development of personalised medicine, based on a multidisciplinary approach and multiscalar exploration of living organisms; reinforce the link between fundamental and translational research; develop data analysis infrastructures (Big Data); facilitate the acceleration of the innovation chain; invent a new economic and partnership model with public-private interfaces; rethink the mechanisms for assessing and estimate the price of health innovation.

Your scientific career has always combined basic and clinical research. How valuable is that combination to your role at Inserm? Translational research is a strength at Inserm. It is no longer possible to contrast fundamental research with clinical or applied research, because today’s research reality is bi-directional, from fundamental research to applied research, with constant two-way flows between knowledge and concrete results. What’s more, research has become an increasingly integrated and cross-disciplinary innovation ecosystem. It is not possible to carry out health and life sciences research without also incorporating: physics, chemistry, mathematics, computing, engineering sciences or human and social sciences.

Last July, you had the honour of being invited by UN Secretary-General Ban Ki-moon to be part of the Global Health Crises Task Force. Can you tell us more about the work of the task force?

The Global Health Crises Task Force makes sure that the recommendations of the “Protecting humanity from future health crises” report given to the UN Secretary-General in February 2016 by the High-level Panel on the Global Response to Health Crises are implemented and monitored. The Task Force’s main mission is to bring to the attention of the UN Secretary-General issues relating to emerging health crises and to gaps or weaknesses in the global health architecture.

It is an immense honour to have been appointed as a member of this international task force to fulfill this ambitious mission. In the same vein as the REACTing (REsearch and ACTion targeting emerging infectious diseases) consortium led by Inserm and Aviesan since 2013 to improve the preparation of research between crisis periods and set up research projects during epidemic crisis periods, my hope is that our work will help reinforce mechanisms around the world capable of contributing to a global response to the emergence of epidemics. This is now a crucial health issue for our planet, as we have seen through recent emerging crises (SARS, H5N1, Chikungunya, Ebola, Zika etc.).

For more information on the work at Inserm, their research programmes, or publications, please visit their website at english.Inserm.fr/