



Education at the Institut Pasteur in the 21st century



The education provided by the Institut Pasteur aims to train outstanding scientists for the benefit of the entire world. It is supported by a highly structured local, national and international organisation, driven by high-level scientists.

The courses, as well as the initial and continuing training, have thus earned an important international reputation and contribute to attracting the great talents of today and tomorrow.

Since July 1, 2021, the Institut Pasteur has been a partner research organisation of the Université Paris Cité.



The Institut Pasteur,
excellence in providing
health care for all

The Institut Pasteur is an internationally renowned biomedical research centre, created by decree in 1887 on the initiative of Louis Pasteur.

To carry out its mission dedicated to the fight against diseases, in France and worldwide, the Institut Pasteur conducts its operations in four areas:

- research and its applications, which contribute to the fight against the emergence and spread of infectious diseases, cancers, neurodegenerative diseases and antibiotic resistance in bacteria,
- high level education and training,
- public health measures dedicated to the monitoring of diseases,
- innovation in Life and Health Sciences.

The Institut Pasteur is a member of the Pasteur Network, a worldwide network of 33 research institutes on five continents, united by common Pasteurian values, which contribute to the improvement of human health.



33 Pasteur Network research institutes on five continents.

**The Institut Pasteur,
currently has**

10

**PASTEUR RESEARCHERS
AWARDED A NOBEL PRIZE**
including the most recent in 2008

140

LABORATORIES

spread across

12

research
departments

MORE THAN

2,800

**RESEARCHERS, ENGINEERS,
TECHNICIANS AND
ADMINISTRATIVE STAFF**
mobilised against diseases

75

NATIONALITIES

2,150

**ACTIVE
PATENTS**



Education provided by
leading Pasteur and
international scientists



THE PASTEUR COURSES

The dissemination of knowledge has always been at the heart of Institut Pasteur's work, and the Covid-19 health crisis has confirmed the absolute necessity of offering future researchers the excellent training that will enable them to find solutions to the major health challenges of tomorrow. In a context where the fight against diseases is more globalised than ever, the Institut Pasteur plays an essential role in the generation, preservation, sharing and promotion of scientific and medical knowledge.

Each year, more than 900 students, doctoral candidates and professionals from around 85 countries take part in one of the 40 courses and workshops given at the Institut Pasteur in Paris in partnership with Université Paris Cité, Sorbonne Université, Université Paris-Saclay and Paris Sciences & Lettres.

Located within the Institut Pasteur campus, in close proximity to laboratories and technology platforms, the education centre engages renowned scientists who interact with students from all over the world and enables the development of a vast international network of researchers and physicians.

Courses are delivered by researchers who see training as an integral part of their mission, in collaboration with teachers from organisations in France (such as the partner universities, Institut Curie, IRD, CNRS and Inserm) and experts from around the world. Involved in cutting-edge research, all of these scientists impart the most recent knowledge, latest advances in the relevant fields but also innovative technologies developed within the Pasteur Network or in public institutions/organisations or privately. They also provide training in proper laboratory practice related to Life and Health Sciences.

Pasteur Courses are organised for limited groups of students (14 to 30 maximum) and are aimed at master's level students (M1 and M2), doctoral candidates (doctoral school modules), but also professionals (doctors, pharmacists, veterinarians, researchers etc). These latter have access to highly specialised courses that can result in the award of Institut Pasteur university diploma (DU), Cnam diploma in Specialised master's in public health or IP-ESCP diploma in Innovation Management in Life and Health Sciences (APiL). These courses involve prestigious universities and schools, both in France and abroad.

The emphasis placed on experimentation and practical work has always been one of the fundamental characteristics of the teaching provided at the Institut Pasteur and forms both its strength and its specificity.

This is designed to enhance the quality of the courses and workshops and to give students the opportunity to experience real-world situations in a unique laboratory environment equipped with state-of-the-art technology.

900
STUDENTS, DOCTORAL
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approximately

85
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Université Paris Cité,
Sorbonne Université
and Université
Paris-Saclay



A full range
of programmes to train
future generations of researchers



The outstanding research carried out at the Institut Pasteur provides a unique framework for training through research for young scientists, both French and international.

The aim is to train a new generation of scientists who will actively engage in public health issues at the global level.

More than 600 young scientists are welcomed each year into the laboratories of the Paris campus to carry out their training courses and research projects in the framework of the first cycle of higher education in universities up to the doctoral level.

Different types of funding are available, *via* the affiliating university, *via* the laboratories' own funding obtained in the framework of regional, national or European thematic programmes, *via* non-governmental organisations, or *via* the Institut Pasteur's International Doctoral Programme (PPU programme) or by international institutions.

In addition, private partners can also provide scholarship funding for these students.

The Institut Pasteur also provides scientific follow-up of doctoral studies with the thesis committees, but also personalised follow-up via the Tutorat, the Graduate Office, the *Startup Awareness Office* and a division dedicated to the development of post-doctoral careers (MAASCC).



MEDICINE-SCIENCE PROGRAMME

In an effort to adapt to the radical transformation in the practice of medicine and biomedical research, linked to scientific breakthroughs and recent technological progress, the Institut Pasteur, the Institut Curie and the École normale supérieure (ENS-PSL) are continuing the medicine/science (M/S) programme created in 2015 and offering a high-level dual medical and scientific curriculum. This programme includes an initial introduction to research in order to train a core group of professionals with both scientific and medical competence. This programme, open by competitive examination to students who have completed their second year of medicine or pharmacy (DFGSM2), offers interdisciplinary and integrated training, resulting in an exceptional diversity and quality of teaching, lectures and placements. Moreover, it benefits from guaranteed study funding for the first three years, closely supervised scientific and medical mentoring, and allows students to obtain the ENS-PSL diploma in addition to a scientific doctorate. It provides opportunities for high-level careers, both in the academic field and in the health industry, in France and abroad.

Closing ceremony
of doctoral students
graduating in 2021

Monica Sala

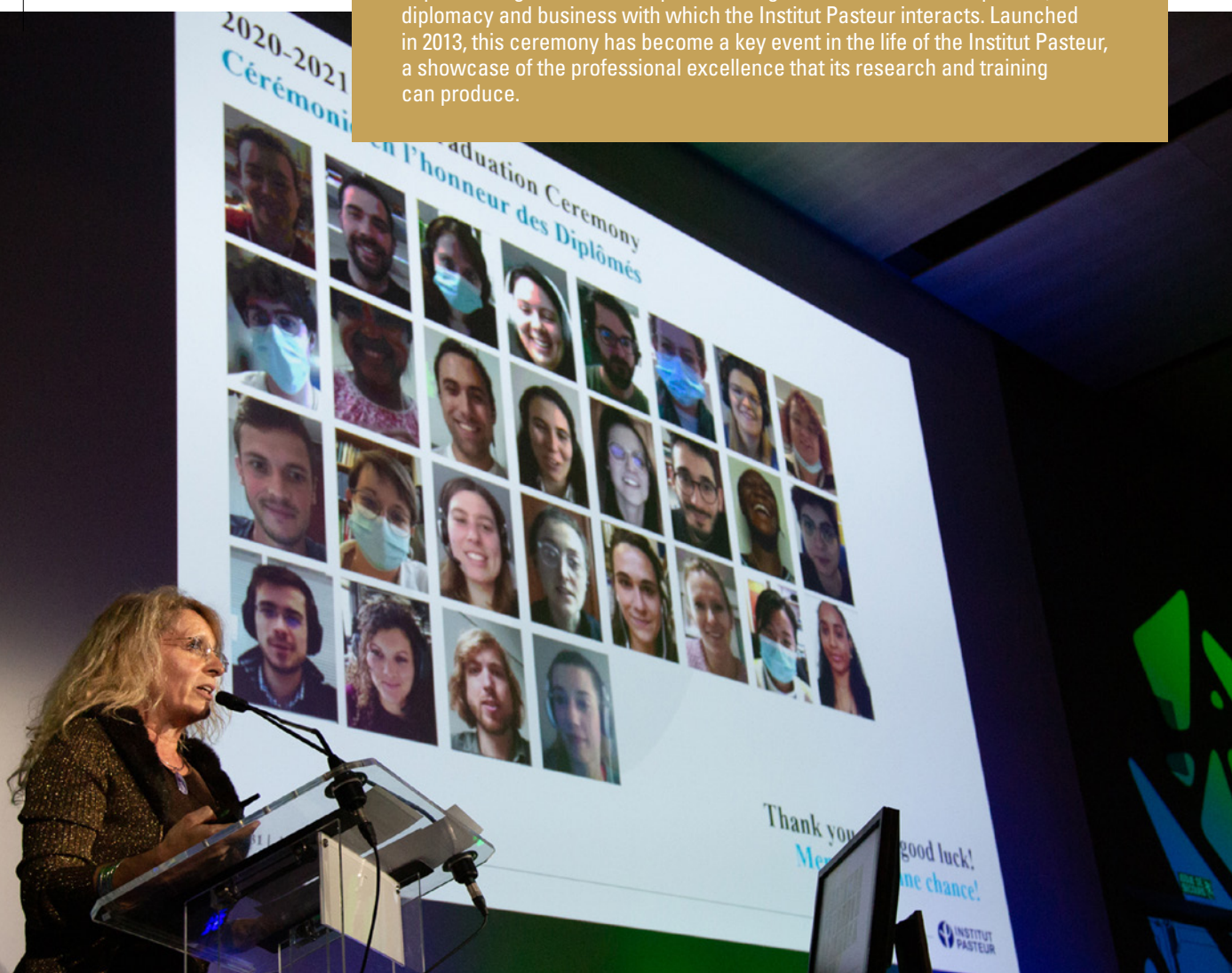
Head of the Education Department
at the Institut Pasteur

DOCTORAL CANDIDATES IN THE SPOTLIGHT

Each year, the Institut Pasteur holds a ceremony in honour of the doctoral candidates on campus who have defended their thesis during the academic year. The event includes the attendance of leading scientists, including several Nobel Prize winners from various disciplines.

On this occasion, laureates from Pasteur Network institutes are also honored.

This ceremony brings together the staff of the Paris campus, representatives of partner organisations and prominent figures from the world of politics, diplomacy and business with which the Institut Pasteur interacts. Launched in 2013, this ceremony has become a key event in the life of the Institut Pasteur, a showcase of the professional excellence that its research and training can produce.



PPU PROGRAMMES

The Institut Pasteur in Paris has specific doctoral programmes, such as the international Pasteur-Paris Universities doctorate (PPU). This programme is open to students with a master's degree (or equivalent) from a foreign university who would like to conduct their thesis work in an Institut Pasteur laboratory. Launched in 2009, this programme of excellence is conducted in close partnership with the Ile-de-France universities Université Paris Cité, Sorbonne Université and Université Paris-Saclay.

This programme includes a three-year training program leading to a doctoral thesis at a French university. Each cohort has between 12 and 15 doctoral candidates and includes participants from a wide range of disciplines who interact through collaborative activities, supervised by the PPU steering committee (bibliographic seminars, the annual International Doctoral Programme retreat). Under the umbrella of the PPU programme, international satellite doctoral programmes (such as PPU-Oxford and PPU-R&T) are organised, with specificities in the eligible sciences and selection processes. Doctoral candidates from the latter programmes are an integral part of the PPU cohorts.

“



The PPU programme offered me the best way to start my scientific career. This is an excellent opportunity to develop a doctoral project in the dynamic intellectual atmosphere prevailing in Paris. What I liked most about the programme was its international aspect: sharing the adventure of a PhD with students from all over the world proved to be an enriching experience.

For me, a "melting pot" of cultures and expertise is crucial for developing new ideas.”

Paolo Caldarelli

PPU programme doctoral candidate - Nicole class (2017-2020).



INTERNATIONAL TEACHING IN CONNECTION WITH THE PASTEUR NETWORK

The teaching has been deeply influenced by the development of the international network of Instituts Pasteur (Pasteur Network), both in the scientific subjects taught and in the participation of students. In order for a committee of international experts to guarantee, through its independent evaluation, the same quality standards for all courses held in one of the Pasteur Network's Institut Pasteur, the PIC (Pasteur International Courses) label was launched in 2021.

Each year, the Institut Pasteur's International Affair Department offers doctoral funding for theses to be carried out in one of the Pasteur Network's institutes (outside metropolitan France). The subject of the thesis may concern all the themes developed in the Pasteur Network institutes: infectious diseases (infectious physiopathology, immunology, microbiology, epidemiology, virology, parasitology) and public health activities (diagnosis, monitoring, resistance etc). Candidates must hold a master's degree or equivalent and be enrolled in a French or foreign doctoral school.



Attracted by the reputation of the Institut Pasteur and passionate about viruses, I joined the Fundamental Virology Pasteur Course with



the confidence that I would receive excellent training. And in fact, we were privileged to have experts from all over the world speak to us at each conference about 'their' pathogen, and the chance to have access to state-of-the-art equipment for hands-on work. The unique quality of teaching at Pasteur also comes from the diversity of the students, from various nationalities and backgrounds, biology students, doctors, pharmacists... It is also a huge advantage to take these courses at the dynamic and cosmopolitan campus of the Institut Pasteur, which favours exchanges, provides an opportunity to build a network for future collaborations, and allows students to discover the strength of the Pasteurian community: being a student at the Institut Pasteur implies being supported by the alumni, for example through the association young researchers from the Institut Pasteur, Stapa.”

Nicolas Malausse

2nd-year master's student in Fundamental Virology

DIGITAL EDUCATION AT THE INSTITUT PASTEUR: ONLINE LEARNING OPPORTUNITIES FOR ALL

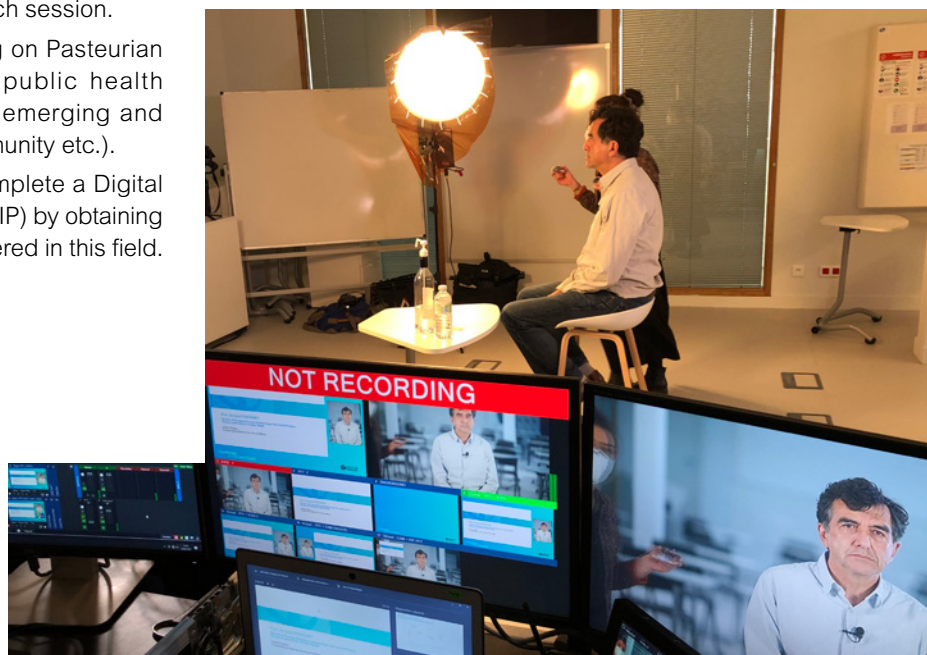
Since 2014, and as a natural evolution of training methods, digital education has been developed at the Institut Pasteur with the primary objective of allowing the Pasteur Network to access the courses given in Paris and to give them greater international visibility. It takes the form of MOOC (*Massive Open Online Course*), on the France Université Numérique (FUN) platform. These courses are free of charge and accessible worldwide. They are intended for scientists, life science students, health professionals and anyone interested in expanding their scientific knowledge. On average, 3,000 people register for each session.

These MOOCs offer quality teaching on Pasteurian themes with a strong impact on public health (vaccinology, antibiotic resistance, emerging and re-emerging viruses, entomology, immunity etc.).

Learners have the opportunity to complete a Digital Diploma in Infectious Diseases (DNM2IP) by obtaining a certificate in 5 of the 15 MOOCs offered in this field.

These MOOCs can be used to train students in advance of a classroom course at the Institut Pasteur in Paris or in the network of Instituts Pasteur.

By providing high-quality online education courses accessible to all, the Institut Pasteur contributes to the training of future scientists and world leaders in science and public health, but also to the sharing of cutting-edge scientific knowledge.





EDUCATION DEPARTMENT
Startup Awareness office

Startup Breakfast

Meet high-profile entrepreneurs
and innovation actors and
learn their rich experiences



TRAINING IN VALORISATION AND ENTREPRENEURSHIP IN SCIENCE

By vocation and conviction, the Institut Pasteur is consciously committed to the valorisation of its research and its teaching fully integrates this specific characteristic. The Education Department has undertaken several initiatives in this direction, in particular the organisation of monthly informal meetings between a major player, successful entrepreneur in the field of biotechnology and Institut Pasteur researchers relevant to the valorisation process (*Startup breakfast*) and the annual organisation of a summer university (*Start-me up*).

In 2022, the Institut Pasteur is joining forces with an internationally renowned management school (ESCP Business School) to launch a new degree programme (*Advanced Master Program in Life Sciences and Health Management, APiL*) to train entrepreneurs at international level in innovation management in Life Sciences and Health.



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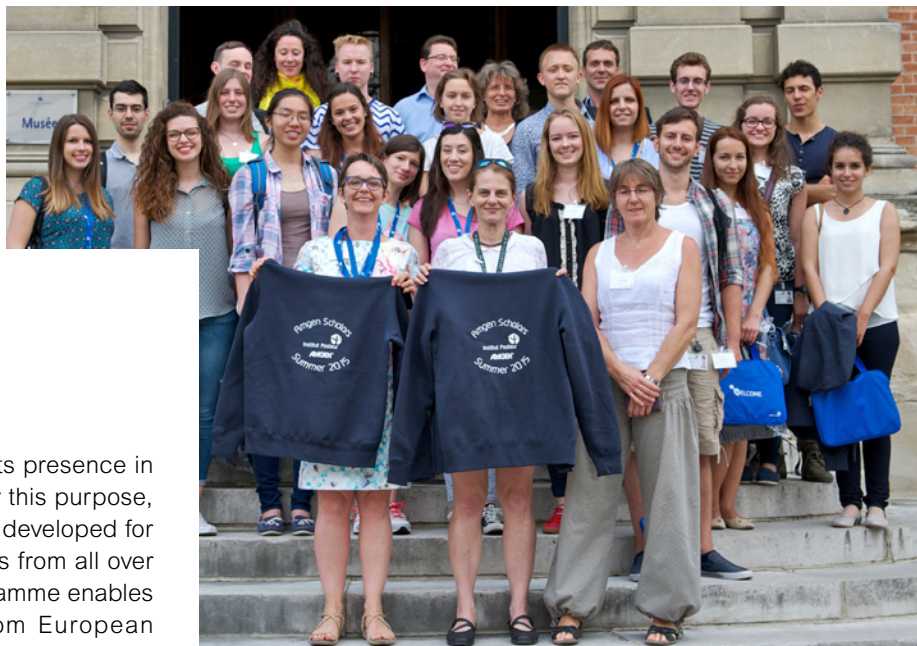
I am a PhD candidate in Biophysics at the Institut Pasteur Paris. Since I began my studies in 2019, it has become increasingly clear to me that I am not going to stay in the academic world. That's why I decided to participate in Start-me up.

During this training, I learned how to use the business model template, how to manage the basic operations for the creation of a start-up.

This course was very useful to me and I recommend it to the following students.”

Mirko Sadi

Doctoral candidate in the PPU programme



PRE-DOCTORAL PROGRAMMES AT THE INSTITUT PASTEUR

The Institut Pasteur is strengthening its presence in earlier phases of student training. For this purpose, several pre-doctoral programmes are developed for undergraduate and graduate students from all over the world. The Amgen Scholars programme enables approximately twenty students from European universities and colleges to come and work on a research topic for eight weeks in one of the laboratories of the Institut Pasteur. This international programme

is conducted entirely in English and culminates in a Congress bringing together the graduating classes of 5 Amgen Scholars cohorts trained at 5 renowned European sites. The Institut Pasteur also welcomes trainees from the European Erasmus+ programme, thanks to the partnerships established with many European universities. Additionally, as part of the job shadowing programme, the Institut Pasteur offers secondary school students the opportunity to discover the different professions offered by a world-renowned research institute (Collège 3 programme). Within the framework of this programme, a week of activities is organised, such as visits to technical platforms, the Museum, the Education Centre, a presentation of the Institut Pasteur and its missions, and assistance with writing the student's job shadowing report.

“

Prior to the Amgen Scholars programme, my research experience had been in structural biology. During my stay at the Institut Pasteur, I was widely exposed to the diversity of research fields and discovered my true interest in translational sciences. I would not have imagined being in my current position, as there was only a small chance that I would be able to join a world-class laboratory, but becoming an Amgen Fellow laid the foundation for this incredible journey.”



Min Wen Ku (Malaysia)

Amgen Scholars Intern - 2015 Cohort



Teaching has been at the heart of
the Institut Pasteur's missions
since its creation



First technical Microbial course, created by Doctor Roux, at the Institut Pasteur in 1889.

Professors/Teachers:

- ① Alphonse Laveran,
- ② Emile Roux,
- ③ Elie Metchnikoff,
- ④ Alexandre Yersin

Along with research, public health and innovation in life sciences and public health, education is one of the four missions of the foundation, defined as by Louis Pasteur, who himself gave the first course in the History of Microbiology.

He then entrusted this mission to Émile Roux, a physician-bacteriologist-immunologist and very close collaborator, who took on the role of teacher for the first time in 1889 with around fifteen students.

Two essential characteristics of the current "Pasteurian" training has existed since the first courses: it is aimed at an international public and includes a significant amount of practical work.

At that time, Alexandre Yersin, the physician-bacteriologist who discovered the vaccine for the plague, came to help the teaching team at the laboratory. Over the years, the reputation of 'Monsieur Roux's course', which was held once a year, spread throughout France and beyond, and among the students, most of whom were doctors, there were sometimes more foreigners than French. Over time, other great scientific names began to participate in teaching, such as Elie Metchnikoff, a zoologist-bacteriologist-immunologist who was the father of the discovery of innate immune defence mechanisms, and who devoted himself passionately to the subject.

Interrupted by the World War I, teaching at the Institut Pasteur resumed in 1922 with René Legroux (then President of the Institut Pasteur) and Julien Dumas (physician and Department Head at the Institut Pasteur) for the practical section. The "Grand Cours" follows the 'Monsieur Roux's course'. It was held every afternoon from November to March and its structure changed very little until the eve of World War II. After another hiatus due to the conflict, it resumed in 1946-47 in an expanded form and with the introduction of new disciplines such as microbial physiology, under the impetus of André Lwoff (Nobel Prize in Physiology or Medicine 1965). The number of subjects and the depth of the content necessitate a separation of the subjects. The first in this discipline ever offered in the world, the first Immunology course was launched in 1950. Since then, education at the Institut Pasteur has continued to diversify in terms of disciplines and technologies. This is in parallel with and in support of scientific developments in the fields of Life and Health Sciences.





Partnerships Sponsorships Patronage

Recognised world leader in the field of infectious diseases, microbiology and immunology, the Institut Pasteur is dedicated to the study of the biology of living organisms.

Its work focuses on emerging infectious diseases, antimicrobial resistance, certain cancers, neurodegenerative diseases and brain connectivity pathologies. To reinforce the quality of its research, the Institut Pasteur has and is developing a very high-level technological environment, such as in nano-imaging or in computational biology and artificial intelligence.

The Institut Pasteur, as a non-profit private foundation recognised as being for the public good, is authorised to receive donations and legacies.

The generosity of the public is a vital resource for the Institut Pasteur, allowing it to carry out its missions. These include high-level education, which requires state-of-the-art facilities to be maintained at all times.

The Institut Pasteur is also recognised as an organisation authorised to receive payments relating to the apprenticeship tax.


Lastly, the Education Department develops partnerships and sponsorships with institutions and businesses who financially support the organisation of the courses (*through grants or donations*), in particular allowing more participants from the south to attend.

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