

Synapse

The newsletter designed to connect with you

No. 29 - June 2022

Special report

Data science for the benefit of patients

Tomorrow's brain diseases treatment is taking shape today





In recent years, our society and, even more so, scientific and medical research, has had to address data challenges: integration, storage, protection, privacy, classification, use, etc. Technological breakthroughs in basic science disciplines and large-scale clinical studies are now the source of evermore abundant, evermore complex information.

Making the best use of all this data is a real scientific and technical challenge that offers the opportunity to establish totally new hypotheses on the origin of neurological and psychiatric diseases, and to develop technological tools for better diagnosing, predicting and treating patients. As you will discover in the Special Report in this issue of Synapse, Paris Brain Institute researchers and doctors are gearing up to meet these challenges.

Although everyone agrees on the undeniable benefits of this technological revolution involving data science and artificial intelligence, questions about data protection, privacy and its ethical use are a key issue to be taken into account.

I hope that this issue will give you some more insight into the amazing state-of-the-art work of Paris Brain Institute researchers and that you will continue to support them so that they may find solutions to tackle brain diseases.

Jean Glavany
Founding member of Paris Brain Institute

Double award

Last December, Prof. Lionel Naccache (AP-HP/Sorbonne University), co-leader of the "PICNIC: Physiological investigation of clinically normal and impaired cognition" team at Paris Brain Institute was awarded the Eloi Collery 2021 prize from the French Academy of Medicine and the Claude Bernard Grand Prix from the City of Paris. These prizes honor this great specialist for his work on cerebral bases and the psychological properties of consciousness in healthy subjects and in brain-injured patients.



2 winners in the prestigious ERC call for projects

Congratulations to Léonie Koban and Julia Sliwa, CNRS researchers at Paris Brain Institute, whose projects were selected to be financed by the ERC (European Research Council). These brilliant scientists, who respectively work on mental and physical decision-making, and on the transformation of social perceptions, will as such be able to pursue innovative and promising neuroscience research in their team.



Positive results for Brain Week 2022

For this latest edition, Paris Brain Institute chose to place the emphasis on 6 of the brain's key functions: sleep, language, reading, creativity, motor skills, emotions, attention and decision-making. Our podcasts, videos and conferences gathered several thousand listeners around discussions on neuroscience and brain research challenges today. Discover all our content on: <https://institutducerveau-icm.org/fr/semaine-du-cerveau/>

Taking Paris Brain Institute

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Neuroscience isn't just for us big folk!

Above and beyond research on nervous system diseases, the Institute's mission includes passing on knowledge about this incredible organ we call the brain. To initiate children, we've created a junior space on our website that offers content designed just for them.

Discover our 2 downloadable booklets right now: "My brain's a superhero!" for 8/12 year olds and "My brain's a superconnected network!" for 13/16 year olds. A brand new podcast entitled "In a corner of the mind!", created during the last Brain Week, is also available. Listen in to these 7 "savvy" episodes (for 5 years old and over) that last 4 minutes where Institute researchers answer children's questions in a straightforward way: why do we sleep? How do I learn to read? Where do I get my ideas for drawing from? etc. A brilliant way to share knowledge with all the family!

Discover it (in French) on <https://institutducerveau-icm.org/fr/juniors/>



Research to the heights

Whatever the conditions, go the extra mile and get involved! This is the challenge that Antoine Bovyn - a mountaineering enthusiast and a Paris Brain Institute donor - recently took up! As Antoine wished to give meaning and a special character to his project to climb Mont Blanc with a friend and high mountain guide, he chose to associate it with charitable work by supporting Paris Brain Institute. Unfortunately, due to bad weather and snow conditions, this climb had to be canceled. But, as Antoine was as determined as ever to raise awareness and rally his network, he decided to climb (and did so successfully) three summits over 3,000 meters high between France and Italy instead. Through this brilliant commitment, €6,100 was collected for the institute.

A big thank you, Antoine!

seen on the web

Find out more in the "News" section of our website.



- Hypnotic suggestion informed by neuroscience
- First demonstration of the neuroprotective effect of remyelination in multiple sclerosis patients
- Identification of new risk factors or early signs of Alzheimer's disease

videos



- ▶ Donors' conference from 03.15.2022: "Immersive journey into Paris Brain Institute research". (in French) <https://institutducerveau-icm.org/fr/conferences/>
- ▶ Science, Art and Culture conference from 03.18.2022: extracts from "Marilyn Monroe's Diary" read by Elsa Zylberstein (in French).

agenda

Tuesday, June 14

Viva Voce concert in aid of and at Paris Brain Institute - Information on <https://institutducerveau-icm.org/en/>

Sunday, June 19

Course des Héros (Heroes' Run) at Domaine de Saint-Cloud (Paris suburbs) - Registration and program on <https://www.coursedesheros.com/villes/paris>

Wednesday, June 29

Donors' conference on Amyotrophic Lateral Sclerosis (ALS)

Key figure

PARIS BRAIN INSTITUTE'S INTERNATIONAL INFLUENCE:

300 partnerships fostered around the globe

Follow us



Algorithms helping to understand the brain and its diseases



Alizée LOPEZ-PERSEM, Inserm researcher in the FRONTLAB team

Ninon BURGOS, CNRS researcher in the ARAMIS team

To make the best use of data, test new hypotheses and improve our understanding of the brain and management of its diseases, computational modeling* constitutes a vast field of study which Alizée Lopez-Persem and Ninon Burgos have made their hobby-horse.

How did your interest for computational approaches come about?

A.L. I started out in the field of biology. My work has always been geared to studying how the brain works and the complex behavioral patterns that can stem from this. I discovered computational modeling principles applied to decision-making during my thesis.

N.B. I arrived in computational neuroscience a bit by chance. My initial training was as a computer and electronics engineer and I also studied biomedical engineering. I wanted to pursue this with a thesis focused on medical imaging, which turned out to be about the brain.

What is your research goal?

A.L. My goal is to understand how creativity is implemented in the brain, how new ideas emerge in each of us and how we select them. Creativity is indispensable in everyday life. It helps us adapt to unexpected events, find solutions to problems we encounter and helps us have a sense of humor.

N.B. The purpose of my project is to develop tools to help diagnosis that automatically detect abnormalities in brain images using artificial intelligence algorithms. These tools are used to identify various diseases such as dementia but can also be used to identify potential subtypes of a disease, such as Alzheimer's disease.

What prospects do you see in your respective projects?

A.L. One of the angles of my work is clinical. Creativity is impacted in many diseases, yet there's no tool to assess it in patients. Computational models will enable us to deconstruct the way creativity works, to develop assessment tasks for patients and subsequently therapeutic procedures.

N.B. Today, artificial intelligence makes a host of tasks possible such as segmenting brain regions and detecting injuries, albeit without having a clear idea of their clinical relevance.

“The purpose of my project is to develop tools to help diagnosis that automatically detect abnormalities in brain images using artificial intelligence algorithms.”



DATA SCIENCE FOR THE BENEFIT OF PATIENTS

Tomorrow's brain diseases treatment is taking shape today

Big Data, 4P medicine (preventive, predictive, personalized and participative). What's behind these new terms? Should they be a cause for concern or a sign of hope for patients?



Medical research in the digital data age: interest, strategy and benefits

Medical research focuses on quantitative and qualitative measurements that are used to define a specific profile for each person, irrespective of whether they are in good health, suffer from a mild or severe form of a disease, or are susceptible to disease. These measurements and observations are called data. Where does this data come from, who collects it, analyzes it and for what reason?

The origin of medical research data

All the data used in Paris Brain Institute research comes from healthy individuals or individuals with brain diseases who have given their informed consent, i.e. a doctor has explained to them why the data is collected.

They can be included in populations defined by their disease or their relationship with a patient or, on the contrary, by a healthy condition, i.e. not suffering from any brain disease.

People suffering from a brain disease may be included in a cohort, i.e. a group of patients followed for several years or decades, based on biological and/or clinical characteristics specific to the disease assessed at regular intervals.

Finally, patients may be included in clinical, physiopathological or therapeutic trials intended to better define the characteristics of a disease or to assess the effectiveness of a treatment.

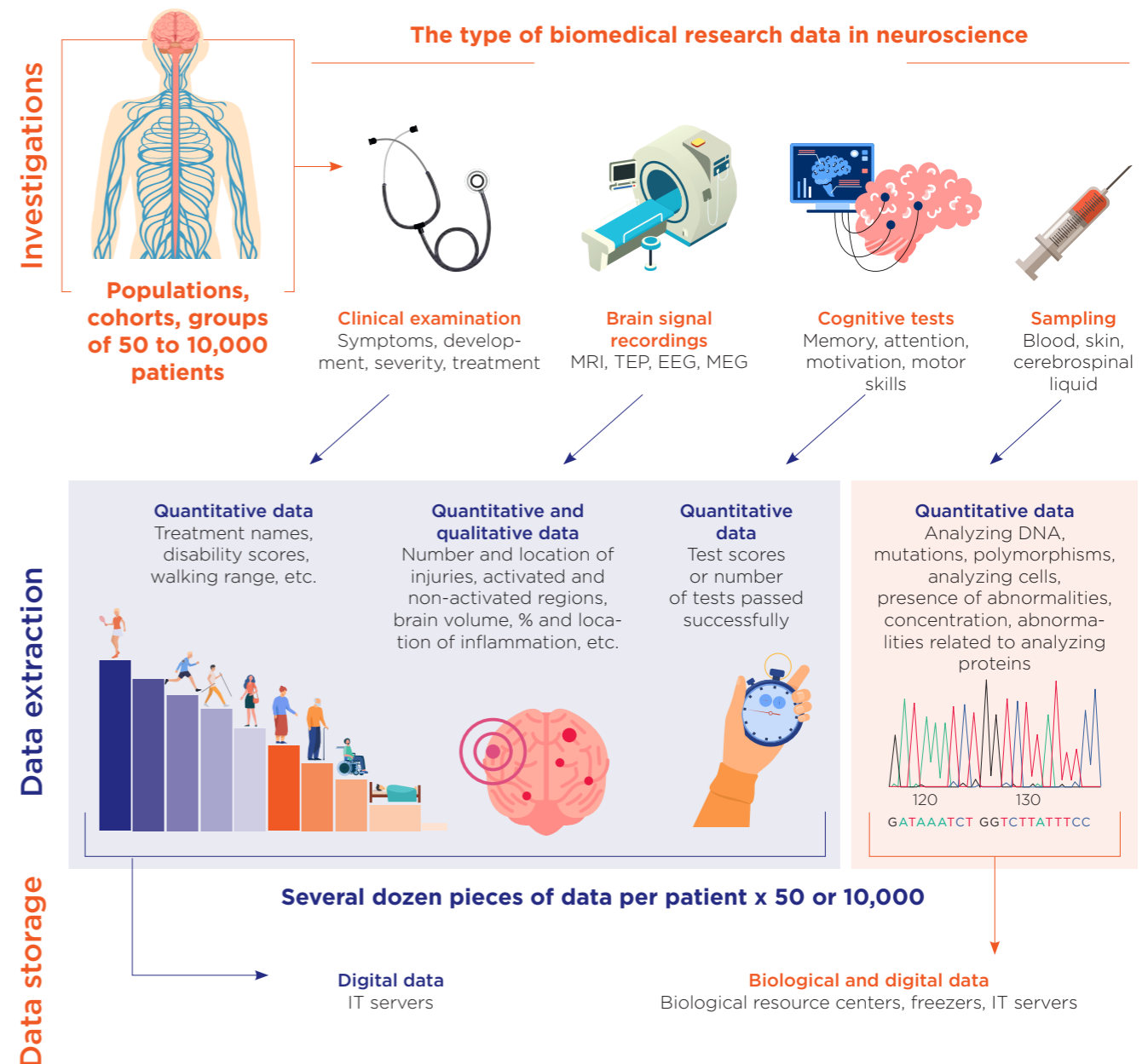
In all these cases, these people agree to biological sampling (blood, cerebrospinal fluid or skin) or exploratory examinations such as MRI for example, which will generate results called "data".

Big Data a.k.a digital data

Although there is no universally-accepted definition of Big Data today, it may be defined by two characteristics in biomedical research: volume and variety. The term "digital" is based on the fact that a large volume of highly-diverse data cannot be recorded, stored or used without the help of IT tools.

In all the recruitment scenarios mentioned above, there is a large quantity of characteristic measurements, for a single individual or for a large number of individuals, and *a fortiori* a huge quantity if we consider more than 10 measurements for a very large number of individuals, and up to several thousand in some studies.

The idea of variety is based on the current possibility of collecting and using a lot of different data for the same individual, thanks in particular to new scientific technologies such as high-throughput genome sequencing or the standard use of MRI.



All investigations carried out on patients and on healthy individuals required for studies and for producing data can be performed in Paris Brain Institute **thanks to 10 state-of-the-art technological platforms used for exploring everything from DNA through behavior and to the brain in its entirety.**

"Based on the analysis accompanying the raw information, our aim is to extract specific combinations of data related to a disease or to a stage of the disease that will result in a diagnosis sometimes even before clinical signs appear or in an early forecast of their development."



Olivier Colliot, PhD
(CNRS) Co-leader of the ARAMIS team (joint INRIA/CNRS/Inserm/Sorbonne University team) at Paris Brain Institute



Analyzing biomedical data in Paris Brain Institute for the benefit of patients

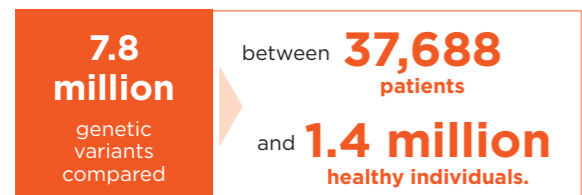
Since 2021, Paris Brain Institute has established a research field in computational neuroscience whose main objectives are to develop new methods for analyzing the numerous and varied data produced by the multidisciplinary research carried out by researchers and clinicians. Research projects on brain diseases and on patients and healthy individuals mostly integrate quantitative and qualitative multivariate data.

Large-scale exploration looking for susceptibility factors for Parkinson's disease.

In 95% of cases, the disease occurs in a person who does not carry mutations in the genes involved in familial forms, although there is an increased risk for relatives of a patient to develop the disease.

The "Molecular Pathophysiology of Parkinson's Disease" team, co-led by Olga CORTI, INSERM researcher and by Prof. Jean-Christophe CORVOL, neurologist (AP-HP and Sorbonne University) at Paris Brain Institute, was involved in an anonymous genome screening study seeking genetic susceptibility factors for the disease.

This study involved a population of 37,688 patients and 1.4 million healthy volunteers and identified 90 genetic variants linked to an increased risk of developing the disease. This result opens up an avenue for **anticipating the onset of the disease in people at risk of developing it.**



Identification of new risk factors or early signs of Alzheimer's disease in a cohort of patients monitored for over 15 years.

Identifying risk factors before the first symptoms of Alzheimer's disease appear is a key area of focus for **improving early prevention of patients at risk.** A multidisciplinary study involving the "ARAMIS: Algorithms, Models and Methods for Images and Signals of the Human Brain" team, co-led by Stanley DURRLEMAN researcher (Inria) and Olivier COLLIOT researcher (CNRS) at Paris Brain Institute analyzed anonymous health records of around 40,000 patients



affected by Alzheimer's disease and as many control subjects who had not developed neurodegenerative diseases. ARAMIS team's expertise in mathematical modeling made it possible to test the potential link between the onset of Alzheimer's disease and 123 health factors. 10 pathologies are more frequently developed by patients who will declare Alzheimer's disease within 15 years: depression, anxiety, exposure to high stress, hearing loss, constipation, cervical spondylarthrosis, memory loss, fatigue (and ailments), and sudden weight loss. These results still need to be fine-tuned but are of great value when it comes to prevention.

Improving visual perception by non-invasive brain stimulation in a group of patients after a Stroke.

To modulate brain activity, it is vital to understand how the brain is organized, what networks it uses, what type of activity and what bioelectrical mechanisms enable information to circulate to guide spatial attention and modulate conscious visual perception.

The "FRONTLAB: Frontal Functions and Pathology" team, led by Prof. Richard LEVY, neurologist (APHP-Sorbonne University), hand-in-hand with Prof. Pascale PRADAT-DIEHL, from the Pitié-Salpêtrière AP-HP Hospital Rehabilitation Department, launched the HEMIANOTACS trial with patients who had suffered a stroke and had conscious visual disorders.

Patients are exposed to different transcranial electrical stimulation patterns. At the same time, their brain activity is assessed and monitored by EEG (electroencephalogram), by MRI and a battery of attentional cognitive and visual range tests are carried out to determine the effectiveness of the brain stimulation. The hypothesis of this trial is that this **stimulation enables patients to recover part of their conscious vision.**



Share your experience

Many thanks for the questions and experiences we have received.

"How is personal data collected for your studies processed?"

Integrity, transparency, responsibility, ethics and code of conduct have always been core values for Paris Brain Institute. Our priority is to ensure that data privacy is taken into account right from the inception of a project. As such, every study involving patients and healthy individuals is subject to a declaration to the French Ministry concerned and to the CNIL, the French data protection authority and has been authorized by an Institutional Review Board (IRB).

Let's talk about rare diseases!

Email us your question on the special report theme for our next issue, which will deal with rare diseases. Your question may be published in the August 2022 issue of Synapse.

▶ contact@icm-institute.org



Coffee for treating dyskinesia

Prof. Flaman-Roze and Dr Méneret's team at Paris Brain Institute and at the Pitié-Salpêtrière AP-HP Hospital Neurology Department have confirmed the therapeutic potential of coffee for a rare form of dyskinesia linked to the ADCY5 gene.

Dyskinesias are a group of rare disorders characterized by sudden, involuntary movements that can affect the whole body. One of the causes of this condition is a mutation in the ADCY5 gene, which starts mainly in childhood. These abnormal movements are often

from this form of dyskinesia. To confirm these results, the team conducted a retrospective study on a worldwide scale on 30 patients affected by this rare condition who had consumed or were still consuming coffee for their dyskinesia.



caffeine binds to adenosine receptors that modify the function of the mutated protein (ADCY5). The latter is strongly located in the striatum of the brain, which is involved in motor control. Researchers at Paris Brain Institute are currently exploring the interest of the cyclic adenosine monophosphate (cAMP) pathway as a therapeutic target in this disease and more widely in pathologies associated with hyperkinetic movements.

87% of patients reported a clear improvement in their motor symptoms. Coffee consumption not only reduced the frequency and duration of crises, but also reduced their baseline movement disorders, as well as other symptoms such as walking, attention and concentration disorders, certain types of pain and hypotonia, with a notable improvement in the patients' quality of life. The efficacy of coffee can be explained by the fact that

exacerbated during crises that can occur during the day, but also at night. Despite numerous explorations of the potential benefits of drug treatments, no treatment had been confirmed to be effective in this condition until recently.

Just over two years ago, a long-standing study by Prof. Emmanuel Flaman-Roze and Dr Aurélie Méneret highlighted the benefit of caffeine on the symptoms of a child suffering

“ 87% of patients reported a clear improvement in their motor symptoms.,”



Our eye movements reveal our emotions during sleep

A study conducted by Jean-Baptiste Maranci (Sorbonne University), Isabelle Arnulf (AP-HP/Sorbonne University) and their associates at Paris Brain Institute shows a link between dream emotions and the different types of eye movements observed during REM sleep.

Sleep helps digest negative emotions. It is suggested that this desensitization takes place during REM sleep, which is rich in emotions and provides a mental theater where we can re-expose ourselves differently to unpleasant events. During REM sleep, our eyes move under our eyelids whilst the rest of our body remains paralyzed: these eye jolts are slow or, on the contrary, fast and occasionally take place in bursts. But, what exactly is the purpose of these eye movements?

As they are more frequent during REM sleep in patients suffering from or at risk of depression, this suggests there is a link between the intensity of eye movements during this sleep phase and the regulation of mood and emotions. To better understand this link, the researchers filmed the sleeping face whilst analyzing the sleep and eye activity of 20 patients suffering from REM sleep behavior disorder, a state in which

people "enact" their dreams and externalize them through words, shouting, gestures and various facial expressions. "The faces of people during

eye movements "in bursts" (i.e. grouped together as opposed to more isolated movements). This association brings EMDR (Eye movement desensitiza-

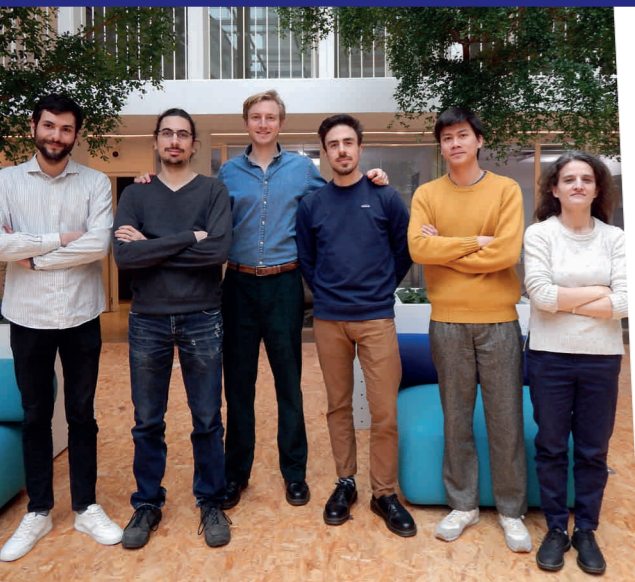
“ Eye movements in bursts may be important for digesting negative emotions during REM sleep. ,”

REM sleep behavior disorder are a real open book on emotions in dreams. Thanks to them, we have direct access to the emotional content of the dream.” explains Isabelle Arnulf.

This original approach enabled the researchers to show a strong association between positive emotions (smiling, laughing) and slow eye movements, then between negative emotions (anger, crying, fear, disgust) expressed by patients' faces and their behavior on the one hand, and by

tion and reprocessing) to mind, a therapy used in alert patients suffering from psychological trauma who recall negative events while moving their eyes to heal.

“These results suggest that rapid eye movements in bursts may be important for digesting negative emotions during REM sleep. More generally-speaking, these eye movements and their different types can provide information on the emotional content of dreams.” concludes Jean-Baptiste Maranci.



IMAGEENS: artificial intelligence helping diagnoses

Paris Brain Institute now hosts the Imageens startup, which is developing a diagnosis-help solution for clinicians using fast, accurate and reliable medical image analysis applications based on artificial intelligence.

The one-of-a-kind ecosystem that the iPEPS incubator – Paris Brain Institute’s Healthtech Hub – offers is constantly attracting new entrepreneurial projects, providing a source of partnerships and breakthrough innovations. The Institute recently welcomed the Imageens startup on its new Chevaleret incubation site, which groups together medtech startups.

The 2017-created Imageens uses the potential of artificial intelligence (AI) to provide medical imaging data to clinicians to help them enhance their diagnostic accuracy and to facilitate the management of this imaging data.

The startup has developed its tools across two areas: predictive diagnostics and data management.

“There’s a real gap between routine clinical data and data that can be used in research. It’s a challenge to find high-quality, appropriate data in the thousands of imaging scans.

We design tools that help characterize and promote data thanks to AI. This makes the emergence of ambitious research projects based on large amounts of real-world data easier.” Christopher Salotti, Data Scientist at Imageens.



ACCESS TO THE RNA OF EVERY CELL IS NOW POSSIBLE

After four years spent in the iPEPS incubator – Paris Brain Institute’s Healthtech Hub, the Scipio Bioscience startup team has announced the launch in Europe of its sequencing kit, developed hand-in-hand with scientific teams and the technology platforms at the Institute. This kit has in particular led to promising results for understanding the development of Alzheimer’s disease.

This tool now offers researchers across all disciplines, even without expertise in bioinformatics, the opportunity to obtain the RNA sequencing of a single cell, thanks to the support of specially-developed integrated software.



Brain Bee: the competition for young people fascinated by neuroscience!



On March 26 this year, the 2022 edition of France Brain Bee, the neuroscience competition for junior and senior high school students, was held at Paris Brain Institute. The Institute will host the International Brain Bee, its worldwide version, in July.

The France Brain Bee competition is open to students from 9th grade through to 12th grade. It is designed to encourage teenagers to learn more about neuroscience and to pursue careers in research professions to further the discovery of treatments for neurological and psychiatric diseases.



Since 2019, Paris Brain Institute, in its capacity as a French and European center of excellence in nervous system research, has been the official organizer of the French edition of the France Brain Bee competition, offshoot of

the International Brain Bee competition created in 1988. The Institute’s scientific team is fully involved in this competition where it provides entrants with challenges based on the most recent research results.

Paris Brain Institute’s research and training excellence will also be highlighted, from July 6 to 8, during the International Brain Bee, the worldwide competition that gathers together winners from all the national competitions every year. The 2022 edition of the International Brain Bee will be remotely organized by the Institute which, through the scientific quality of the challenges and activities proposed, will offer entrants fascinated by neuroscience an incomparable international cohesion experience.



Alexandre Ravel from the École Jeannine Manuel in Paris, winner of the France Brain Bee competition, will have the opportunity to train with the Institute’s experts to prepare for the international competition.

Donate from abroad: support Paris Brain Institute researchers across borders

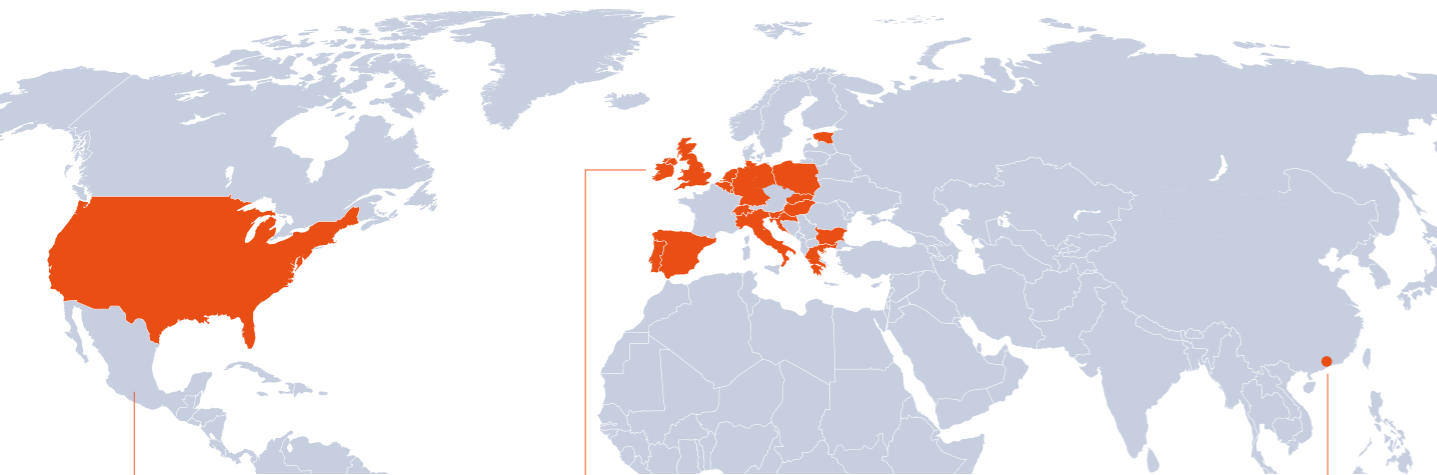
Paris Brain Institute brings together in one place scientists from over 40 nationalities driven by the same ambition: to accelerate knowledge about the brain and revolutionize the treatment of its diseases for the benefit of all patients.

Every year, Paris Brain Institute cooperates with hundreds of research centers across the globe. Over the years, the Institute has also established closer scientific partnerships with frontline institutions in Europe, the US, Canada and Israel.

Generosity, like science, knows no borders. Donors from around the globe support Paris Brain Institute to further research on neurological and psychiatric diseases.

Paris Brain Institute had developed links with trusted partners abroad to enable anyone who so wishes to support brain research, wherever they live in the world.

You too can support Paris Brain Institute researchers and benefit from tax advantages:



In the US.

In 2021, Paris Brain Institute created the "Friends of Paris Brain Institute" fund, hosted by the King Baudouin Foundation United States, which enables you to support the Institute's activities and benefit from tax advantages specific to American legislation.

You may make your donation to the "Friends of Paris Brain Institute" by check, bank transfer or directly online by credit card on our dedicated page. Our fund also accepts donations of securities and real estate.



In 18 European countries: Belgium, Bulgaria, Croatia, Estonia, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Poland, Portugal, Slovakia, Slovenia, Spain, Switzerland, the Netherlands and the UK.

Paris Brain Institute is a member of the Transnational Giving Europe (TGE) network that enables donors - private individuals and businesses - taxed in one of the partner countries to support charities in other member countries and benefit from tax advantages provided for under the legislation of their country of residence.

In Hong Kong.

You may make a donation to the "Paris Brain Institute Fund", hosted by our partner Give2Asia, by check, bank transfer or directly online by credit card on our dedicated page.



"I'm Belgian and a French friend told me about Paris Brain Institute nearly ten years ago. I was immediately taken by this across-the-board approach to research, this determination to break down barriers between disciplines. As head of a business, gathering together researchers and entrepreneurs under one roof to encourage new ideas, really touched me.

So, I contacted the patronage team to find out how I could support Paris Brain Institute from Belgium.

And, I discovered that I could donate to the Institute via the King Baudouin Foundation and, as such, benefit from Belgian tax advantages, whether I make my donation personally or through my company.

A 5% is applied to the amount of my donation and I've decided to cover that so that 100% of my donation goes to research. Because, for me, the most important thing is to be able to support Paris Brain Institute teams' work across borders and, in my own small way, help unravel the mysteries of the brain and its diseases 🙏.

Hubert M.



YOUR DEDICATED CONTACT
at the Circle of Friends Office

Ms Marielle Lethrosne
+33 (0)1 57 27 45 72
cercle@icm-institute.org

F.A.Q.?

I'd like to donate to Paris Brain Institute from Switzerland; how do I go about it? And how do I get my donation fiscal receipt?

You can make your donation directly to the Swiss Philanthropy Foundation specifying that you would like the donation to be made to Paris Brain Institute in France. Please note that only donations by bank transfer are currently accepted with a minimum amount of 500 Swiss francs (or the equivalent in euro, sterling or US dollars). The Swiss Philanthropy Foundation will send you a receipt for your donation for your tax return in February of the year following your donation. For more information, please get in touch with your dedicated contact at Paris Brain Institute or contact the Swiss Philanthropy Foundation (tge@swissphilanthropy.ch) directly.

I live in the US and I'd like to make a donation online deductible from my income tax. Is this possible?

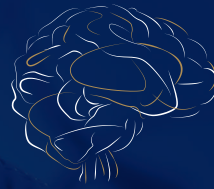
Yes, of course. You just need to go to our partner's website: kbfus.networkforgood.com and search for Paris Brain Institute. You can make your donation directly online using the secure online donation form. Once your donation is confirmed, the King Baudouin Foundation United States will send you your tax receipt.

As a foreigner not living in France, I plan to bequeath part of my estate to the Paris Brain Institute. What solutions do you suggest?

Mrs Carole Clement, Head of donor relations and bequests, donations and life insurance at the Institute, will be your key contact to help you find a solution so you can appoint the Institute as beneficiary of part of your estate.

Please feel free to contact her on +33 (0)1 57 27 41 41 or by email on carole.clement@icm-institute.org

Paris Brain Institute's CIRCLE OF FRIENDS



Together, let's push back the limits of neuroscience and **invent tomorrow's medicine.**

The Paris Brain Institute's Circle of Friends groups together exceptional women and men who wish to help research push back the limits of neuroscience through their financial and human commitment and around shared values, including: generosity, efficiency and innovation for the benefit of Humankind.

*Our Circle intends to grow. This is why we invite you to join our Circle, YOUR Circle, where we create a privileged link with doctors-researchers, startups created in the Institute and its dedicated, committed members. Tomorrow's medicine is being created today, for you and through you. **Thank you!***

Martine ASSOULINE and Maurice LÉVY
Co-Chairs of the Friends of Paris Brain Institute Committee

Invest intelligently in the future against nervous system diseases.

75% of your donation is deductible from solidarity tax on wealth.
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Please make your check payable to Paris Brain Institute and send it to us along with this form to the Institut du Cerveau - Hôpital Pitié-Salpêtrière CS 21414 - 75646 Paris Cedex 13 - France



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I would like to receive free information on bequests and donations.



The Paris Brain Institute Foundation complies with the rules of ethics of the "Comité de la Charte du don en Confiance" (Donating with Trust Charter Committee).

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