

Synapse

The journal designed to connect with you

No. 24 - March 2021



Special report

Multiple sclerosis, patients may hold the key to slowing the disease



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After the trials of 2020, the start of this new year is full of uncertainties. Covid-19 and lockdown continue to affect all of us and we want to express our solidarity with you in this difficult time.

From the first weeks of the pandemic, all the forces of the Paris Brain Institute mobilised around the Cohort Covid Neurosciences project to understand the neurological and psychiatric consequences of SARS-CoV-2 infection. Alongside many of the institute's donors, we decided to support this research through the International Automobile Federation (FIA) and the FIA Foundation.

2021 will be a year of hope. The arrival of vaccines is a central element in the fight against this terrible virus. It is a testament to the feats that research can accomplish when it unites its forces. The Institute also hopes to continue its progress in the understanding of the brain and the treatment of neurological and psychiatric diseases.

More than ever, 2020 reminded us how much medical research is a priority around which we all must rally. As you will discover in the special report devoted to multiple sclerosis, a very debilitating disease that affects young people, in particular women, in the prime of their life, researchers and clinicians from the Paris Brain Institute are at the forefront in the fight against nervous system diseases.

Your support is essential to help our researchers tackle these diseases.

Thank you very much.

Jean Todt
Founding member and Vice-President of the Paris Brain Institute



Bequests awareness

In its new media campaign broadcast at the end of 2020, the Paris Brain Institute honoured those who decide to bequeath or designate the Institute as a beneficiary of a life insurance contract. An essential link to research on the brain, much like researchers. Rediscover the TV and radio spots on our website via the following link:

<https://institutducerveau-icm.org/fr/actualite/legs-institut-du-cerveau/>



In the spotlight

Last December, Stanley Durrleman (Institute for Research in Digital Science and Technology, Inria), co-head of the "ARAMIS - algorithms, models and methods for images and signals of the human brain" team at the Paris Brain Institute, received the Inria French Academy of Sciences Young Researcher Award for his work to predict the evolution of Alzheimer's disease up to four years. A great recognition!

Marie-Ange Bouvet Labruyère Prize 2020

Created in 2011 by the Bouvet family, the Marie-Ange Bouvet Labruyère Prize aims to support - within the Paris Brain Institute - innovative projects led by young researchers and allowing the implementation of original and high-quality research on multiple sclerosis. This year this scientific prize was awarded to doctoral student Nadjet Gacem for her work in the "Myelin plasticity and regeneration" team.

SYNAPSE is the Paris Brain Institute's journal distributed to its donors. No. 24 - 2021. Editorial board: Jean-Louis Da Costa, Astrid Crabouillet, Nicolas Brard, Isabelle Rebeix, Claire Pennelle, Lauriane Gallier, Carole Clément and Aurélie Grosse. Edited by: adfinitas. Printer: Imprimerie Jean Bernard. Edition: 115,000 copies. © Paris Brain Institute



11 years of unwavering support!



A loyal partner of the Paris Brain Institute since 2009, the Klesia social protection group, through its institutions Carcept Prévoyance, Ipriac and Klesia Prévoyance, has just renewed its support for the period 2020-2022. "As a general interest insurer, we carry out numerous actions intended to provide the keys to ageing well, bearing the loss of autonomy and assisting caregivers. Developing knowledge and supporting progress in health are also part of our priorities. Our commitment to the Paris Brain Institute is obvious since diseases of the nervous system and in particular neurodegenerative diseases are the challenge of the 21st century", says Christian Schmidt de La Brélie, CEO of Klesia. The financial

support from the Klesia group will be allocated in particular to the development of a neuroinformatics centre aimed at creating predictive and personalised neurology.

The Paris Brain Institute would like to thank the Klesia group for its faithful commitment alongside the research teams.

seen on the web

More information in the "News" section of our website.



- Results confirm the ability of SARS-CoV-2 to infect neurons
- New knowledge on a major protein involved in Alzheimer's disease
- Clinical validation of a machine-learning algorithm for the diagnosis of parkinsonian syndromes

videos



- Online donor conference in French on 5 December 2020 on psychiatric disorders
- Braincast - The voice of neurons, podcast in French in partnership with the magazine *Cerveau & Psycho*, available on the magazine's website, with Prof. Alexandra Durr, AP-HP/Sorbonne University, Neurologist and head of the "Fundamental and translational neurogenetics" research team at the Paris Brain Institute

agenda

Saturday, 20 March

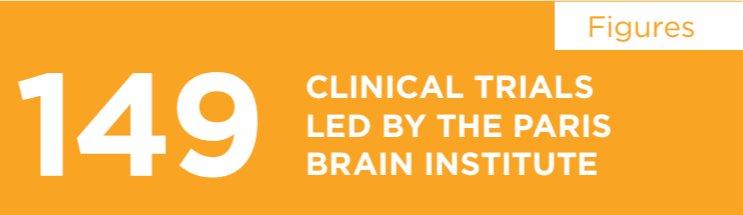
Multiple Sclerosis Online Donors Conference (a link to the video will be emailed to you and will also be available on our website - conference available in French)

15 to 21 March

Brain Week (digital edition)
Programme available in French at <https://www.semaineducerveau.fr/> and <https://institutducerveau-icm.org/fr/>

March

Opening of the new iPEPS - The Healthtech Hub campus dedicated to medical technology start-ups (see page 12)



23rd edition of the Brain Week

This year, due to the Covid-19 pandemic, the Brain Week, in which the Institute and its teams will participate, will take place as a 100% digital version from 15 to 21 March.

Initiated in 1999, this international event aims to raise awareness among the general public of the importance of brain research. Consult the programme on <https://www.semaineducerveau.fr/>

Follow us



Patients at the centre of research at the Paris Brain Institute.



Prof. Catherine Lubetzki and Prof. Jean-Yves Delattre

Within the Pitié-Salpêtrière hospital group, the Neurosciences University Medical Department (DMU Neurosciences) brings together neurology, psychiatry, neurological rehabilitation, neuro-pathology and neuro-physiology, in total, 15 departments and 135 doctors, 1,200 paramedical staff and numerous of students.

The Paris Brain Institute hosts 25 research teams, including 12 directed or co-directed by clinician-researchers, 10 leading technology platforms and one clinical investigation centre.

Since 16 November 2020, Professor Catherine Lubetzki succeeds Professor Jean-Yves Delattre as Medical Director of the Paris Brain Institute and the Neurosciences University Medical Department of the Pitié-Salpêtrière hospital.

“The fact that the medical director of DMU Neurosciences is also the medical director of the Paris Brain Institute underlines a desire for strong interaction between clinical practice and research.”

Prof. Catherine Lubetzki

What is the role of the medical department at the Paris Brain Institute?

J.-Y. D. A significant part of my work has been to facilitate exchanges and strengthen the bonds of trust between the management of the Pitié-Salpêtrière hospital group and the Paris Brain Institute.

C.L. It is an honour for me to succeed Jean-Yves Delattre, a good friend for many years for whom I have so much esteem and affection. In line with his actions, I wish to promote interactions between caregivers and researchers and develop clinical research in conjunction with fundamental research. My role will also be to participate in the thematic orientation of the research teams who will be recruited at the Paris Brain Institute in the coming years.

How are fundamental and clinical research complementary?

J.-Y. D. The STARE programme, set up under my leadership, allows hospital students to carry out a rotation within research teams. My hope is that these young people, who are the key players in the development of clinical research, will develop a taste for research in order to become clinician-researchers in the medium term.

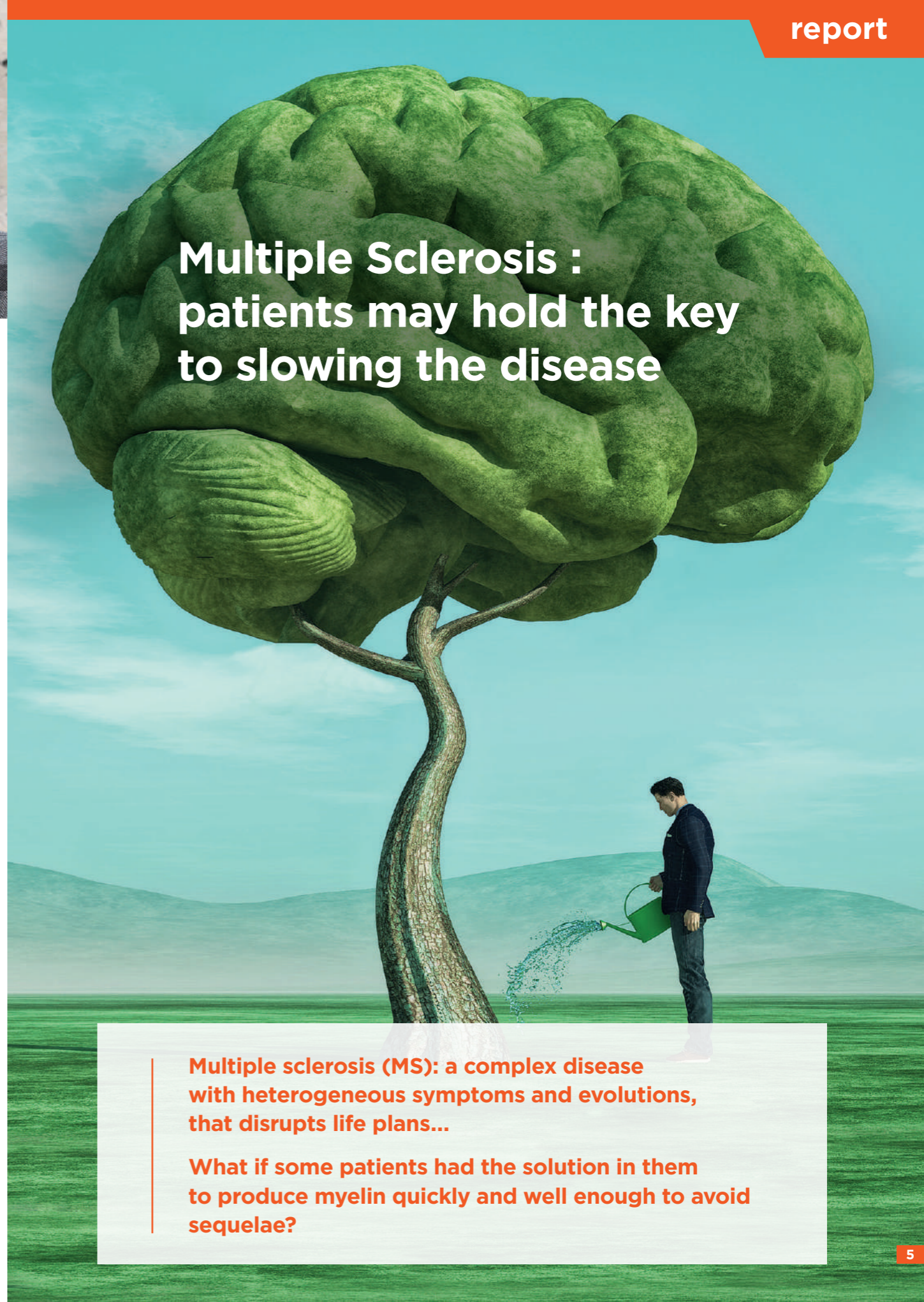
C.L. Whether fundamental or clinical research, it is research! There is a problem to be solved, a methodology that must be strict to obtain interpretable results. To complete the STARE project, initiated by Prof. Delattre, we launched the DECLIC programme, which aims to host a scientist for a few days or weeks in a clinical department to enable him/her to better understand neurological diseases - their impact on the daily life of patients, diagnostic and therapeutic challenges, etc. - to facilitate clinician-researcher-patient exchanges.

What are your short- and medium-term projects?

C.L. Many projects have already been initiated by Prof. Delattre and I would like to emphasize more particularly the interest and usefulness of iCRIN, the clinical research infrastructures of the Paris Brain Institute, which in my opinion are an important springboard for attracting caregivers to research. My goal will be to continue and expand this project.

I also wish to initiate, in conjunction with Prof Bassem Hassan, Scientific Director of the Paris Brain Institute, a Research & Development Unit which would welcome ideas from both caregivers and researchers. It would be based on the model of the Living Lab and the FabLab that both develop prototypes according to the ideas and feedback of patients and caregivers.

Multiple Sclerosis : patients may hold the key to slowing the disease



Multiple sclerosis (MS): a complex disease with heterogeneous symptoms and evolutions, that disrupts life plans...

What if some patients had the solution in them to produce myelin quickly and well enough to avoid sequelae?

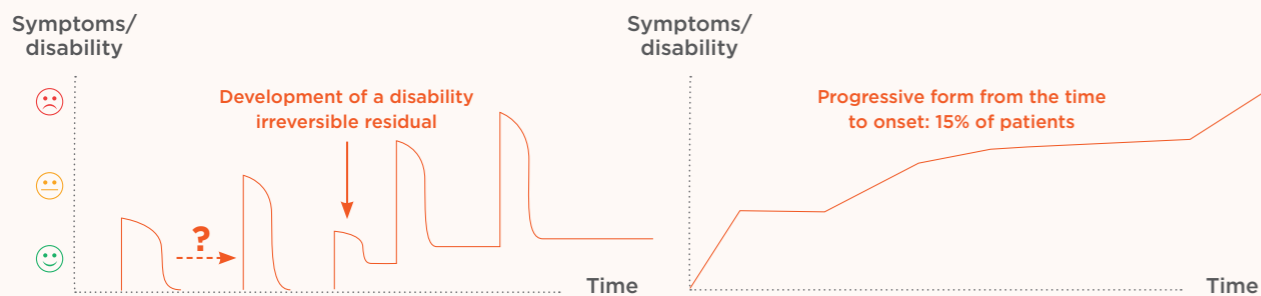
Multiple sclerosis: a debilitating neurological disease in young adults

Multiple sclerosis (MS), the leading cause of severe non-traumatic disability in young adults, today affects 2.8 million people worldwide, with very significant public health issues because the disease affects an active population in the prime of their life.



The disease begins in **85% of cases between 25 and 35 years** and affects three times more women than men. It evolves in **two main forms: relapsing-remitting forms** characterised by recurrent inflammatory flare-ups between which the symptoms regress for an average of 15 years before a progressive phase; **progressive forms from the onset** in which disability sets in and progresses continuously.

The symptoms of multiple sclerosis are very diverse, motor, visual and balance disorders, associated with more invisible manifestations, but just as disabling such as urinary problems, attention disorders, pathological fatigue and depression.



Multiple sclerosis (MS) is an inflammatory disease of the central nervous system (CNS: brain, spinal cord, and optic nerves). It is characterised by lesions in which **the protective sheath of neurons "myelin" is destroyed, leading to neuronal degeneration with loss of communication between the brain and peripheral organs.**

Multiple sclerosis is not an inherited disease. It is **a condition with a multifactorial origin** linked to the interaction of environmental factors, which are unknown today, and a genetic predisposition defined as a combination of genes that gives a greater probability of developing the disease.

Lesions or "plaques" that are observed in the brain or spinal cord of patients or the optic nerve by Magnetic Resonance Imaging (MRI) are characterised by four components:

- **inflammation**, the body's defence response to external aggression mediated by immune cells. In MS, the immune reaction is directed against the body itself; this is called an autoimmune disease. Immune cells attack a component of the CNS: myelin, which protects neurons and facilitates the passage of electrical impulses between the CNS and the rest of the body;
- **demyelination**, myelin disappears on certain axon segments;
- **neuronal degeneration**, bare neurons degenerate and die;
- **spontaneous myelin repair** in certain lesions and in certain patients which, at an early stage, prevents neuron death and the development of disability.



“ It is important to focus on multidisciplinary care for patients with irreversible disabilities. There are no treatments that can stop the disease, but we have at our disposal a dozen therapeutic molecules that reduce the frequency of relapses and attacks the dysregulation of the immune system.

Today, we can reduce inflammation and the appearance of new plaques by 80%. Now, the challenge is to be able to stop the degeneration phase.”

Prof. Catherine Lubetzki

Two research teams at the Paris Brain Institute are focusing their research in three main areas: early prediction of a severe course of the disease, stimulation of myelin repair and protection of neurons.

■ The **"Myelin plasticity and regeneration"** team co-led by Brahim Nait-Oumesmar and Violetta Zujovic, Inserm researchers at the Paris Brain Institute



■ The **"Remyelination in multiple sclerosis: from biology to clinical translation"** team co-led by Prof. Catherine Lubetzki and Prof. Bruno Stankoff, AP-HP/Sorbonne University, neurologists and researchers at the Paris Brain Institute

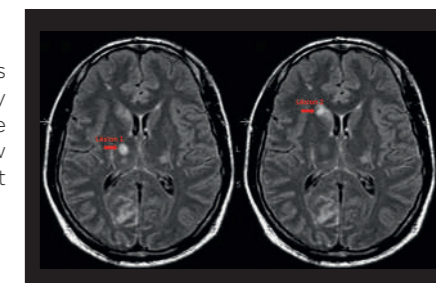


The dissemination of multiple sclerosis lesions over time and in different brain and medullary regions explains the great heterogeneity of symptoms in the same patient depending on the disease phases, but also between patients.

Multiple sclerosis can progress and regress unpredictably. **The symptoms of the disease are very heterogeneous from one patient to another**, as is the progression and time to onset of irreversible disability.

The inflammatory phases that constitute the flare-ups follow one another until a persistent and chronic inflammation sets in, creating a cellular cascade at the origin of the degeneration of neurons and the development of permanent disability.

Multiple sclerosis lesions seen by MRI in the same patient a few months apart





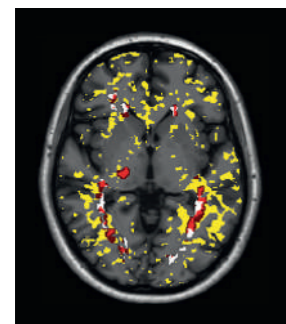
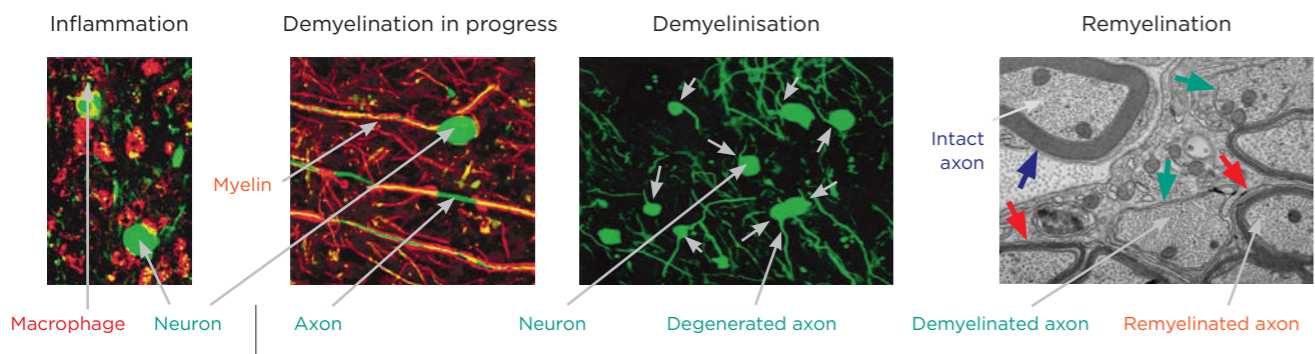
A therapeutic avenue within the brain lesions of patients

“ It started with an observation. We had patients with the same number of plaques and the same number of lesions, who seemed to be in the same phase of the disease. And yet one lived an almost normal life and the other was confined to a wheelchair. We were missing something... **To understand what differentiated them, we needed to keep investigating.** This is how the idea came to us to design a brain-imaging technique to quantify both myelin loss and inflammation, but also and above all remyelination. ”



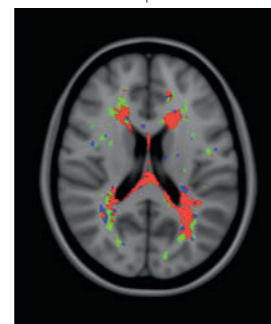
Prof. Bruno Stankoff

Multiple sclerosis lesions, from the microscope to brain imaging (MRI)



Activation of microglia (brain macrophages) in a patient with multiple sclerosis seen by MRI

- Inactive lesions
- Inflammatory regions in the white matter
- Inflammation around and in lesions



Stages of lesions in a patient with multiple sclerosis seen by MRI

- Demyelinated lesions
- Lesions undergoing demyelination
- Remyelinated lesions

In addition to the work of Professor Bruno Stankoff's team, **which demonstrated for the first time the visualization of inflammation and remyelination by cerebral imaging**, Violetta Zujovic's team showed that circulating immune cells (blood) of patients were pro-inflammatory and led to chronic non-remyelinated lesions in experimental models.



■ The “SMART in MS” project, headed by both teams, is based on a unique research continuum between clinicians, neuroimaging experts, statisticians, immunologists and neurobiologists. Combining expertise, the project is part of translational research to identify and pharmacologically validate specific immune profiles to be targeted to stop flare-ups while maintaining a controlled inflammatory level, conducive to endogenous myelin repair.

“SMART in MS” is organised as a translational platform based on four major research areas responding to four main objectives:

- **Definition of individual** inflammation profiles and the remyelination capacity of MS patients in the remitting or progressive phase;
- **High-resolution profiles** of immune cells from MS patients associated with remyelination efficacy;
- **“In vivo” and “in vitro” tests** of the influence of lymphocytes (total population and lymphocyte subtypes) of MS patients on the myelin repair mechanism;
- **Integrated complex multivariate analysis** to identify molecular and cellular actors involved in remyelination efficacy.

The results obtained could lead to the filing of patents and new generations of therapies aimed at better managing MS.

Share your experience



Women and MS

“ My name is Flora, I am 28 years old. I have just been diagnosed with multiple sclerosis and am wondering about the influence of pregnancy on my current and future health, as well as the risk of my unborn child developing multiple sclerosis. ”

Scientific studies have shown that pregnancy does not increase the severity of the disease, neither during nor after. Multiple sclerosis is not an inherited disease; however, a genetic predisposition increases your child's risk of developing the disease to 3% compared to 0.1% for the general population.

Let's discuss the research continuum

Email us your question on the theme of the special report for our next issue, which will focus on the virtuous circle of research at the Paris Brain Institute. You may be lucky enough to be featured in your June 2021 Synapse Journal.

▶ contact@icm-institute.org

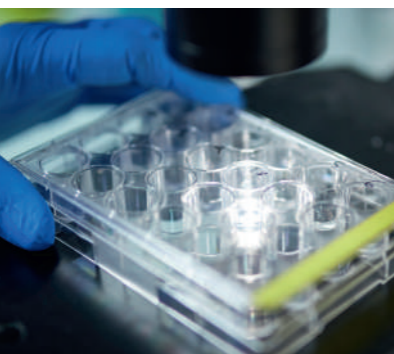


A promising therapeutic avenue in Charcot's disease

Séverine Boillée's team (Inserm researcher) at the Paris Brain Institute highlights an important role of peripheral immune cells, macrophages, in Charcot's disease or amyotrophic lateral sclerosis (ALS), paving the way for a new therapeutic avenue .

ALS is characterised by the degeneration of motor neurons (motor neurons directly connected to a muscle and controlling its contraction) leading to **a progressive and irreversible deficit in the patient's ability to walk and speak, until complete paralysis of all the muscles, including those of respiration.**

The spinal motor neurons affected in ALS have the distinction of being surrounded by two types of macrophages (immune cells): microglial cells in the spinal cord and peripheral macrophages in the nerve, which is the part of the motor neuron extending from the spine to connect the muscle to the periphery organs. While the role of microglia in motor neuron degeneration in ALS is now recognised, the role of macrophages in this mechanism is still controversial.



Through parallel studies in experimental murine models and in the tissues of 11 patients suffering from ALS, Séverine Boillée's team was able to show for the first time the capacity of peripheral macrophages to influence, from the periphery organs, the microglial cell response in the central nervous system and motor neuron

degeneration, **with slower disease progression and significant lengthening of life in the murine model.**

This work concludes for the first time that peripheral macrophages play an important role in the development of amyotrophic lateral sclerosis (ALS), thus opening the way to new **therapeutic approaches for patients.**

In the longer term, the development of research aimed at treating neurotoxic macrophages, outside the central nervous system, i.e. in a less invasive way, could lead to **a significant decrease in motor neuron death in patients suffering from ALS.**

“ **These works demonstrate for the first time, an important role of peripheral macrophages in the evolution of amyotrophic lateral sclerosis (ALS). ,,**



Focus on our dreams

What could be more enigmatic than a dream? Progress in neuroscience today allow us to better understand this mysterious phenomenon. Prof. Isabelle Arnulf (Neurologist AP-HP/Sorbonne University) at the Paris Brain Institute explores the different aspects of our dreams and nightmares, and the perspectives in neurological diseases.

We define a dream as a subjective experience during sleep that we remember when we wake up. Dreams are very varied, ranging from simple impressions to real dreamlike adventures. Nightmares are vivid, unpleasant dreams that often include some form of threat that leads to awakening. They are distinguished from "bad dreams", rich in negative emotions, but do not wake the sleeper. On average, people report remembering one dream per week, but some may recall their dreams every morning whereas others do not.

The studies conducted on the healthy subject highlight several factors in the recall of dreams such as age, sex, personality, quality of sleep or attitude towards dreams.

Several theories have been put forward on the functions of dreams.

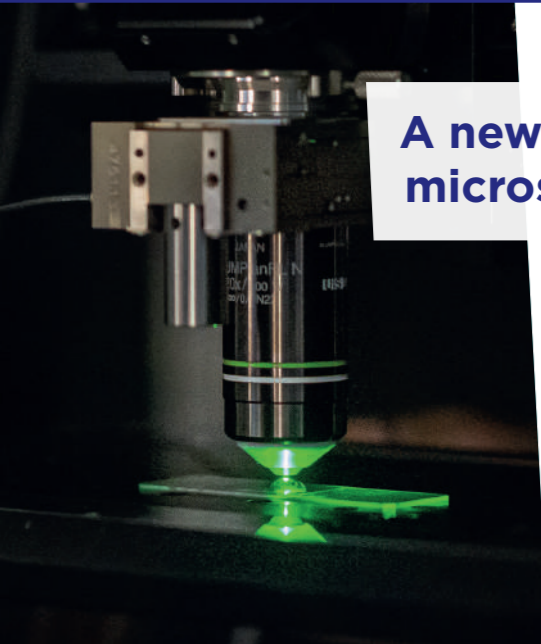
They may be a guardian of sleep or participate in the attenuation of negative emotions felt during the day, but also associated with memory consolidation. Other hypotheses

suggest that **dreams play a role of a simulator of social interactions and threats or games.** Finally, some consider them as **a simple epiphenomenon.** Technological advances in neuroimaging make **it possible to increasingly associate the phenomenon of dreams with specific activities in our brain.**

Progress in abnormal dreams in neurological disorders has been made through the study of patients with Rapid Eye Movement Sleep (REM) behaviour disorder. They manifest as restless nightmares and physically experienced dreams in adult subjects, while most muscles are normally blocked and paralyzed during this sleep phase.

The majority of patients affected by this type of disorder subsequently develop forms of parkinsonism or dementia. Behavioural disorders during REM sleep thus affect nearly 60% of patients affected by Parkinson's disease.

“ **Progress in abnormal dreams in neurological disorders has been made through the study of patients with Rapid Eye Movement Sleep (REM) behaviour disorder.,,**



A new custom-made multiphoton microscope at the Paris Brain Institute

The Paris Brain Institute has acquired a new state-of-the-art multiphoton microscope thanks to the support of the Edmond J. Safra Foundation, which, together with its chairwoman, Ms Lily Safra, has been one of the Institute's main sponsors for 10 years. Professor Bassem Hassan, Scientific Director of the Paris Brain Institute and team leader, explains how this custom-built microscope will allow several teams at the Institute to carry out very advanced explorations on multiple scales.

Why is the acquisition of this microscope important for the Institute's research?

B. H. The multiphoton microscope is an instrument that allows scientists to **acquire images deep within the brain** of a still-developing animal, or while he/she is performing a behavioural task. This type of instrument is **essential to make the connection between brain activity and behaviour. The acquisition of this equipment** gives real impetus to our research, in particular our project to understand the cerebral bases of our individuality.

This multiphoton microscope is custom-made for the Institute. What makes it unique?

Because each type of experiment is unique, **a multiphoton microscope should be versatile and customisable.** We have designed **a unique instrument that meets our needs** by allowing great freedom over the type of samples viewed and the experimental conditions.

You started using it for one of your research projects. Can you tell us more?

Over the past several decades, **neuroscientists have discovered that mental individuality is not unique to humans.** In fact, all the species that have been examined exhibit this characteristic. For example, our team has shown that the brain develops in slightly different and inherently unpredictable ways in each fly. **Chance plays a part in the way each brain is formed, especially in the way different nerve cells connect together.** There are still several questions that we hope to answer with new experiments with this microscope.

At what point exactly during development does this individual anatomy form? Does this mean that each individual has their own pattern of brain activity? Can an individual's prejudices be changed by social experience? What happens in the brain when an individual changes their typical behaviour after learning based on conditioning or social interaction, for example?

THE IPEPS MEDTECH CAMPUS OPENS ITS DOORS



Announced last year, the incubator of the Paris Brain Institute, iPEPS - The Healthtech Hub inaugurates, in March 2021, its new acceleration campus for start-ups specialising in medical technologies (MedTech) and artificial intelligence.

This new campus, ideally located in Rue du Chevaleret in the 13th district of Paris and a stone's throw from the Paris Brain Institute, is the strategic extension of the Institute and the iPEPS. It offers a transversal approach by bringing together start-ups, researchers, doctors and patients to develop and accelerate innovations in health. Start-ups hosted at the campus will benefit from new spaces containing 140 workstations.

The Classic Days: cars mobilised for the Paris Brain Institute



An unmissable event For car enthusiasts, the Classic Days is also a great initiative that benefits the Paris Brain Institute. Feedback on this commitment to charitable activities by the organiser, Benoît Abdelatif.

Hello Benoît, could you tell us about the Classic Days?

B. A. The Classic Days, founded in 2008, is a weekend meeting of vintage cars, alternating between Magny-Cours (Bourgogne Franche Comté region), and Le Mans, where participants can share their common passion for the car from its origins to the present day. We also organise the same event in Gers in the south of France on the Nogaro circuit: the Classic Festival.

How did you hear about the Paris Brain Institute?

The reputation of the Institute was already established, but it was particularly reinforced in our community after the death of Jean-Claude Olivier*, whose work for the Foundation was highly recognised.

Why did you choose to support the Institute?

Our support for the Paris Brain Institute is essential: the gaps in research with regard to the exponential growth of

neurological diseases is quite simply frightening. We always have the same regret: not being able to do more!

How can you support the Paris Brain Institute?

Autosur Classic, our partner, organises a parade on the track with the maximum number of vehicles participating in the event. For each one, it donates €10 to the Foundation.

How are the preparations for the 2021 edition of Classic Days going?

The preparations for the 2021

edition are going very well with a very good programme, despite the current "somewhat" tense situation. All the elements are there, so we keep our fingers crossed...

A word for our donors?

Let each donor of the Paris Brain Institute bring in 2021 a new donor, even if it is only one euro per donation.

The Paris Brain Institute teams sincerely thank Benoît Abdelatif, his team and his partners for their loyal commitment!



956

This is the record number of vehicles mobilised for the parade.

€79,955

Total donations collected since 2013

<https://www.classic-days.fr>

*Jean-Claude Olivier was a former rally-raid motorcycle rider, founder of Sonauto (first Yamaha importer in France) and former CEO of Yamaha Motor France.



Company director and private donor.
Is your company or one of its subsidiaries established in France?

> **Each year, an average of 10,000 additional companies make a corporate gift. Why not yours?**

Today, like many of our donors, you donate through your income tax or your solidarity tax on wealth, which allows us to make significant progress in our research on the brain. You should be aware that **corporate philanthropy is not limited to large companies**. In fact, VSEs and SMEs represent 96% of corporate philanthropy in France and contribute 23% to the overall budget (estimated by Admical, a network dedicated to promoting corporate philanthropy in France between 3 and 3.6 billion euros). Only 3% of corporate philanthropy are mid-size companies and 0.3% are large companies.

> **A reformed, but still advantageous fiscal structure.**

In 2019, the Aillagon law on patronage underwent a major reform, facilitating donations from small businesses by moving the threshold from €10,000 to €20,000 and limiting the rate of tax reduction for the most contributing companies. From now on, 60% of your donations to the Paris Brain Institute are deductible from corporate tax up to a limit of €20,000 or 0.5% of turnover. For more than 2 million euros in cumulative donations, the deduction is 40%. If the threshold is exceeded, the unallocated balance can be carried over for five years.

For lack of time or knowledge of the system, not all companies declare their donations.

> **And two tax measures for your personal generosity (only for French residents)**

Do you pay solidarity tax on wealth?

75% of your donations to the Paris Brain Institute are deductible from this tax, up to a limit of €50,000.



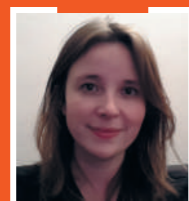
Do you pay income tax?

66% of your donations to the Paris Brain Institute are deductible from this tax, up to a limit of 20% of your net taxable income.



The Circle of Friends is available to help you work alongside us and set up the recognition programme dedicated to our supporters.

Thank you for your support!



YOUR PERSONAL CONTACT
to answer your questions:

MS MARIELLE LETHROSNE

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

Our new brochure "Bequests, donations and life insurance" is available.

- What is the difference between bequests and donations?
- How to use your life insurance contract to support research at the Institute?
- Can we bequeath to the Paris Brain Institute and to a loved one?
- Who are the rightful heirs and what is their share in the inheritance?

Here you will find answers to many questions, sample wills, testimonials and practical advice.

To receive it, contact **Carole Clément** or make an appointment on legs.institutducerveau.fr



Ms Carole Clément,
Bequests, Donation and Life Insurance Manager at the Paris Brain Institute
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Like Yves Boucheny, you can also support the Paris Brain Institute through your company.



“ I started to donate through my company after attending the Art-Science breakfast organised during the FIAC. The participation of the Institute's researchers that morning and the hope created by their work encouraged me to pledge a donation greater than what I usually give. In order to follow through on this commitment, I chose to complement my personal donation with a donation in the name of my company. Since that day, my company regularly donates.”

Art-Science Breakfast - FIAC 2019

F.A.Q.?

I currently reside in Belgium, but remain taxable for solidarity tax on wealth in France. Can I benefit from the same tax advantages by donating?

Like French tax residents, your donations to the Paris Brain Institute, as a public utility foundation, are 75% deductible from your solidarity tax on wealth (within the limit of €50,000). Apart from reducing your taxable base, this is also the only current way to reduce your tax. To donate, the Circle of Friends is at your disposal on +33(0)1 57 27 45 72 or at cercle@icm-institute.org.

I own €500,000 in shares in real-estate investment companies, collective real-estate investment funds and real-estate shares, which generate 5% of income per year and are taxable for solidarity tax on wealth. Can I temporarily give the usufruct to the Paris Brain Institute and thus benefit from tax savings?

Absolutely. The temporary donation of usufruct allows you to save on solidarity tax on wealth by reducing your tax base. In this case, with a marginal tax rate of 1%, you reduce your solidarity tax on wealth by €5,000. In addition, you save taxes on the income that would have been generated if it had remained in your assets. For example, for a tax rate of 45% on income tax, you reduce your tax by €11,250. Above all, your gesture will bring €25,000 per year to the research of the Paris Brain Institute. The temporary donation of usufruct is a commitment over time and valuable support for our researchers. Do not hesitate to talk to your tax or wealth management advisor.

Our brain, a masterpiece to protect

Your brain is an organ as precious as it is mysterious. Your freedom of thought and your freedom of movement depend on it. While diseases of the nervous system today affect one in eight people, at the Paris Brain Institute, scientific experts from all over the world are working to discover and rapidly develop innovative treatments for the direct benefit of patients. By jostling ideas, the 700 researchers at the Institute are now exploring new avenues of research and pushing the boundaries of knowledge to cure Alzheimer's, Parkinson's, epilepsy, ALS, strokes, brain tumours, multiple sclerosis, mental illness, quadriplegia, etc.



Invest intelligently in the future against nervous system diseases.
Assist progress in brain research by donating at www.parisbraininstitute-icm.org

**66% of your donation is deductible from your French income tax.
75% of your donation is deductible from your French solidarity tax on wealth.**

Paris Brain Institute - A public utility foundation authorised to receive bequests, donations and life insurance

Hôpital de la Pitié Salpêtrière - CS 21414 - 75646 Paris cedex 13 - France

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