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Interview with <u>Géraldine Albérola</u>, research engineer at <u>Institute of Pharmacology</u> and <u>Structural Biology</u> (CNRS, University of Toulouse)

By Alice Le Friec

Single-use plastics, shipping of reagents and materials, energy-hungry autoclaves and equipment, toxic waste and more...increasing numbers of scientists are coming to terms with the not-so-negligible environmental impact of their research. We are sure you agree, there must be a better way!

What can we do to reduce the environmental impact of our laboratories? How can we work together to bring the necessary changes? Discover how one academic lab tackled this issue! As you'll find out, starting small can have a powerful impact.

Géraldine Albérola, research Meet engineer at IPBS and person of contact for the laboratory's **TERRE committee** (Transition Environnementale de la Réduction Recherche et de notre Empreinte), a working group dedicated to greener science.

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ARTICLE

<u>IPBS</u> is a public research institute founded in 1996 in Toulouse. Its 18 teams and 250 personnel explore the biology of cell and tissue microenvironments, and the structural and molecular mechanisms of cancer, infectious diseases and inflammation. A dozen startups have been created from IPBS research since 2000.





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Alice : How did the TERRE initiative begin?

Géraldine : the CNRS asked its research units (laboratories) to put in place sustainable development committees, and IPBS management called for 5 volunteers to create a working group within the lab: in 2021, the TERRE committee was born! TERRE has two main missions:

(1) implement practical solutions to reduce the environmental footprint of the lab;(2) rraise awareness in the lab and support colleagues in considering the environmental impact of their work and changing their mindset

Today TERRE is driven by 12 volunteers at IPBS.

To help us set up and build the initiative, we used resources developed by the <u>Labo1point5</u> collective, a group of scientists committed to sustainability. You can find a wealth of information and resources: a travel simulator, a greenhouse gasses calculation tool that we used to assess our footprint, webinars, conferences..it is a very active community! We joined the collective officially in 2022 as a "labo en transition".

A: What were your first actions and how should other researchers get started?

G: We started out simple, with small but important eco-gestures to save energy in the lab. We made "in the lab as at home" posters to remind everyone to be mindful of the lights, water use, switch off unused equipment where possible and so on.





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After these first actions, we realized we needed support from every team to implement institute-wide changes. Each research team at IPBS appointed a "contact person" for sustainability, and they are essential to ensure the actions are suitable for everyone's research and to follow through on the agreed changes. The contact persons allowed us to identify all the hot water tanks throughout the institute and disconnect the unnecessary ones (27 out of 56). Together, we also equipped all offices with thermometers and asked about plastic usage for each team. Next, we set our -80°C freezers to -70°C (after presenting the results from our related literature search to the institute's management team and obtaining permission from every research team) and planned yearly defrosting of all freezers. We also set up a cold box to save dry ice, with the help of the labs' safety contact persons.

Involvement and awareness

- One <u>sustainability person</u> of contact per team
- Eco-gesures
- GDR Labo1point5 membership, « laboratoire en transition » label
- <u>Sustainability</u> coffee meetings
- Brainstorming session to reduce the <u>lab's environmental</u> impact
- My Earth in 180 min (team leaders, PhD students...)
- Comittee presentations in the General Assembly, and in convivial lab events

Events and conferences

- J. Carrey : "From IPCC reports to the impact of scientific research "
- I. Laplace :" Should we stop flying? "
- F. Graner :" Should research be banned?"
- Questionnaires :
 - home-work travel
 - use of plastic pipette tips
- In partnership with the neighboring LCC lab : Clean Campus Day, « fresque du climat » workshop
- Participative action to tackle long distance travelling for work, and purchasing
- Invited to a « Labo en transition » workshop on reducing energy consumption

Practical solutions

- Energy
- Freezers set to -70 °C
- <u>Removal</u> of <u>unused</u> water tanks (27 sur 56)
- Office temperature (19°C winter-25°C summer)
- Labelling equipment that can be switched off after use
- Dry-ice saved in cold container

Plastics and waste

- Rechargable pipette tip boxes
- CNRS Low Carbon Project « reuse of single-use plastics »

Mobility

- Bicycle made <u>available</u>
- Information on financial incentives
 and carpooling









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Another underrated aspect is to organise conferences and talks with guest speakers! This is a great way to get people involved and to raise awareness. You can create dedicated events (coffee meetings, serious games, World Earth Day...) or tag onto existing scientific events in your institute. Speakers can be motivated lab members or expert guests!

We always make time to discuss sustainability in our General Assembly, and at any festive lab events. We hold monthly "sustainability coffee meetings" where any lab member is welcome to brainstorm ideas.

A: How do you keep the momentum going ?

G: A core team of motivated people (3 people is already great start!) is essential to keep the dynamic going. Everyone in the lab is busy, so you need to keep the enthusiasm up. We meet monthly, and our meetings are open to all lab members who want to join. The small initiatives snowball into bigger and even more impactful discussions and actions. This definitely keeps me energized! I feel less anxious about the climate because I know I'm doing what I can to help.

I am also lucky to have the support of my institute and of the CNRS, in fact 10% of my time as a research engineer is now officially dedicated to sustainable actions in my lab. This is important because some actions do take time. In 2022, we collected the data necessary to calculate IPBS's greenhouse gas assessment, using the tool that Labo1point5 provides. It was absolutely worth it to determine our baseline and progress, but we needed to collect data from several departments (missions, purchases, the building itself, IT, work-home travel, and even workplace lunches!).





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We presented the results of the greenhouse gas assessment to the whole lab in our 2022 General Assembly. The biggest impact on our carbon emissions came from purchasing activities, with travel for conferences in second position. I think scientists in general are particularly receptive to this approach, since it is factual and based on data! We had great discussions with our lab members.

A: By 2022, you had created a lab-wide dynamic, with eco-gestures in place and a first estimation of your carbon footprint! What came next?

G: In 2023, we were delighted to obtain funding from the <u>CNRS</u> to tackle the replacement of single-use plastics in the lab. This <u>collaborative project</u> involves 7 laboratories in Toulouse (IPBS, LCC, CBU, LAAS, CIRIMAT, TBI, ICT), and will give us the time and resources to actually run experiments to test the impact of plastic reuse on our research. We performed user consultation to define uses à *priori* compatible with re-use (storage of saline solutions, buffers, ...), then compiled a list of conditions to test and analyses to perform (impact of plastic re-use on biological and chemical experiments). Life-cycle analysis was also performed. This project is coming to an end, and the results will be published, so watch this space!

There are legitimate concerns that some sustainable changes in the lab can impact the quality or productivity of our science, and we need to reassure our colleagues and our institutions that this need not be the case. We can only do so if we objectively measure the impact of the proposed changes on our research.







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I also want to insist on the power of setting the example and of "pilot teams" in labs. When a colleague sets a great example, and proves that you can make a sustainable change without compromising the scientific excellence of the work, everyone is quick to do the same. If something works, make sure to tell your colleagues!

A: A lot has been accomplished already, what are the next big challenges and how do you see the future?

G: Our big challenge for 2025 is tackling travel for work (conferences, collaborations) and purchasing (which is more difficult because we don't control the whole pipeline). Actions such as these bring more heated discussions, because they have a profound impact on the institute's organization and work. This is why we will tackle it collectively, with a structured participative approach based on discussions and votes to design a plan of action!

We have already started by evaluating how much traveling our members did for conferences and collaborations in 2023, what percentage of those were long-distance and/or required airplanes. We presented the results to the group during one of our "sustainability coffee" meetings. Purchasing will be the next project, but requires careful re-organization. We need to group purchases in larger volumes to reduce costs and individual shipping of packages. It would also be great to have shared stock (for instance in chemistry, to reduce the amount of reagents that go unused past their use-by-date). We can go ahead with these big challenges because we started small and practical! All initiatives to reduce the environmental impact of our research are welcome and useful.



ARTICLE



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By <u>Alice Le Friec</u>

There is much we can do, starting now, to make a positive impact!

- Create a core group of motivated people
- Gain the support of your management
- Start with small actions and "low-hanging fruits"
- Involve and motivate colleagues by organizing events and seminars
- Let the data do the arguing
- Involve the group and use collective intelligence and cooperation to tackle the larger challenges participatively







The REAL section (for Read – Analyze – Listen) highlights our recommendations of the month.

What you can **READ** this month?

 New Technologies Expand Microbe-Based Therapies Beyond the Gut, by Gail Dutton in GEN

In a recent article in *Genetic Engineering & Biotechnology News*, Gail Dutton covers the latest developments in microbiome research and the innovative therapies they're enabling. Scientists are exploring new microbial strains and advanced methods to treat a range of diseases. To learn more about these cutting-edge breakthroughs, click <u>here</u>!

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What you can ANALYZE this month?

Panorama France Healthtech 2024, by France Biotech

The English version of France Biotech's 2024 Healthtech panorama is out! You can dive into a detailed analysis of a year in the industry, spanning employment, innovation, investment, trends and perspectives. Check it out <u>here</u>!

What you can LISTEN to this month?

Hidden brain, by Shankar Vedantam

in

Hidden Brain helps us unlock the mysteries of our own minds and understand others better, making life a bit easier: from negotiation to disconnecting, being yourself, boosting creativity, and handling uncertainty. Click the <u>link</u> to tune in!

Follow us !



Réseau Biotechno Webinars are back!

Scientific Communication : Corporate and Consulting Perspectives

Interested in exploring career opportunities in the dynamic field of science communication? This is the perfect webinar for you!

Q Our guest speakers - <u>Katarzyna Szymanska</u>, <u>Lara Laghetto</u>, and <u>Caroline</u> <u>Courme</u> will share their diverse expertise in **biomedical translation**, **illustration** and **science communication**. Learn how they bridge the gap between science and various audiences!

🤝 Hosted by <u>Zhanerke Satzhan</u>, MSc & <u>Samuele Lisi, PhD</u>

Thursday the 10th of April at 18h00 CEST

Register to receive the link to the webinar <u>here</u>





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SPECIAL EVENTS

Réseau Biotechno is proud to renew our partnership with <u>Eurasanté</u>! We are partners of 3 events: **BioFIT**, **MedFIT** and **MEDigIT**. Join us in **Strasbourg**, on **December 2nd and 3rd**, **2025** and on December 8th for the digital meetings. Organised jointly for the second year running, BioFIT & MedFIT are business conventions dedicated to partnership innovation in the Life Sciences, MedTech and Diagnostic sectors. Don't miss the 2nd edition of @MEDigIT Event, the European event fostering innovation in Digital Health, which will be held as part of MedFIT 2025!



Thanks to our partnership, take advantage of an **unprecedented discount**! For more information, and to receive your discount code, please get in touch with your contact in our organisation. **Register as early as possible for the best price!**

Discounts are always applied to the 'regular' fee except during the 'late registration' period. Discounts cannot be combined with other offers.







Apr 30th

Nikon Small World photomicrography competition When: deadline for submission 30th April

Submit your best original microscopy images or microvideos to Nikon's Small World competitions and win exciting prizes! The competition is open to anyone with an interest in the complexity of life viewed through a microscope (your images don't have to use Nikon equipment!). Find all the information and beautiful images from previous editions here. Remember to submit your entry before the 30th of April!



PhDTalent

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RÉSEAU BIOTECHNO



Afterwork PhDTalent x Réseau Biotechno

When: Thursday 24th of April from 18h30 to 21h00 Where: Bar "Le Piano Vache", Paris

PhDTalent X Réseau Biotechno afterwork is back ! Join us to meet like-minded people in a friendly atmosphere. For more information and to sign up, click <u>here</u> !

May 15th Thursday Lunch Talks webinar by the PEPR Biothérapies et Bioproduction de Thérapies Innovantes (in English) When: May 15th at 12h00 Where: online

Discover Thursday Lunch Talks, a series of webinars by the PEPR Biothérapies, Bioproduction de Thérapies Innovantes. In this session, Pr Philippe Menasché (Hôpital Européen Georges Pompidou, AP-HP) will present "*Treatment of heart failure with extracellular vesicles: rationale and translational approach*". Sign up here !



PROGRAMME DE RECHERCHE BIOTHÉRAPIES





May 16th

D4Gen Hackathon

When: Friday 16th to Sunday 18th of May Where: Paris

Genopole is hosting the D4Gen Hackathon! Over 48 hours, selected participants will team up to create AI-driven solutions for health, the environment, or life sciences. It's a great chance to apply your skills, collaborate with experts, and develop impactful prototypes. Click <u>here</u> for more info!



May 10-21st *Pint of Science Festival* When: 19-21st of May Where: 58 cities in France

International science communication fair, Pint of Science is coming soon...ticketing starts April 14th! Check out the events in your city, as they book out very quickly! *Most events are in French.* Click <u>here</u> for more information.

