01. BIOSCIENCES AND PHARMACEUTICAL SCIENCES (BSP) PFR

The creation of the “Biosciences and Pharmaceutical Sciences” (BSP) PFR provides an opportunity to develop a scientific project of excellence and a new and original study programme at the interface between biology, biochemistry and pharmacy.

Scientific project and scientific expertise

The BSP PFR’s scientific project is part of the IDEX “Bio-health and Society” priority area and is also part of the two main areas of excellence of the Auvergne-Rhône Alpes Region, “health” and “agriculture, agri-food and forestry”. It will be fully integrated into the Lyon ecosystem through its close contact with several socio-economic partners.

The PFR’s expertise means that it can integrate its research into the “One Health” concept, focusing on the functioning and health of all living beings and thus addressing questions relating to global change (urbanisation, climate change, etc.). This approach can be used to study the impact of disturbances on plant, animal and human health, as well as on ecosystem and environmental health, by considering the multiple and complex interactions between all of these actors. It relates to the study of molecular, physiological and pathological mechanisms, the study of processes related to the evolution of biodiversity and its functioning, and to the study of the adaptation of living organisms to these disturbances, such as the emergence of new pathogens. These studies are ultimately positioned in a continuum of applications in different fields, including therapeutic and ecological. The diversity of actors in the PFR makes it possible to use inter/pluridisciplinary approaches to consider these themes in an integrative way from the molecule to the ecosystem, not forgetting the cell, organisms, populations and communities (see Figure below).
be developed by drawing on the potential of 25 research units, including 15 primary affiliated (approximately 1,200 permanent staff) and 10 secondary affiliated (approximately 550 permanent staff) research units. These figures include permanent staff from all organisations and include professors working in other PFRs.

The PFR’s ambition will be:

- To have highly visible research in life sciences, pharmaceutical sciences and environmental sciences on the Lyon Saint-Étienne site, both nationally and internationally, stemming from the excellence of the research performed, with the objective of becoming a national reference centre for the “One Health” concept;
- To support the significant development of research in terms of publications and knowledge sharing as well as patent applications and start-up creation;
- To achieve a high level of attractiveness beyond the Lyon Saint-Étienne geographical area, leading the PFR to grow in size in the medium term; and
- To unite research forces in the Life Sciences field.

The BSP PFR will be based on cutting-edge tools/platforms and shared skills within transversal structures, currently grouped within the framework of the following research federations (FRs) and instrumental and observation sites: Environment and Health Research Federation (FR Bioenvironnement et santé), Lyon EST Federative Research Structure (SFR), BioSciences SFR, Biosyl SFR, CERES (Evolutionary Sciences Resource Centre, Lyon 1 collections), Workshop Zones (ZAs): ZABR – Hwange (Rhône Basin Workshop Zone), OTHU (Field Observatory in Urban Hydrology), the Lyon and Saint-Étienne microscopy centres, and the PRABI (Rhone-Alpes Bioinformatics Centre). The BSP PFR will aim to open up all shared resources to the Target University academic community, regardless of the affiliation of the shared infrastructures (PFR or central).

Given the close proximity of the Biosciences and Pharmaceutical Sciences PFR and the Health Sciences PFR (PUSH), the BSP PFR proposes establishing an inter-PFR coordination committee with PUSH. The committee would comprise the directors/deputy directors of the two PFRs and the component heads, and would hold quarterly meetings to discuss joint policies for facilities, research and training on health sciences issues. The committee would also discuss the development of professor profiles at the science/health interface, new science/health training courses and interactions between health training courses, and responses to calls for proposals concerning the two PFRs.

Training ambitions

In terms of training courses, the PFR will be involved in three degrees in Science and Technology, Health with six courses in the Biosciences training and research unit (UFR) and three courses at Jean Monnet Saint-Étienne University (UJM). At Master’s level, 16 degrees will be open with a total of 37 courses, including an Erasmus Mundus+ international Master’s degree. In addition, the Lyon Institute of Pharmaceutical and Biological Sciences (Institut des sciences pharmaceutiques et biologiques de Lyon, ISPB) will offer a unique study programme for the Doctor of Pharmacy qualification with different fields: pharmacy, industry, research and internship. There will also be double degree courses: Pharmacist-Engineer, Pharmacist-Entrepreneur and Military-Pharmacist. This study programme will cover a total of 6,500 students.

The PFR’s vocational training and lifelong learning offering currently includes five professional diplomas available in work-study format, ten continuing education short courses and 11 university degrees. Professionalisation is being strengthened at the Bachelor’s and Master’s levels by developing work-study and double degree courses and by involving private sector professionals in professionalisation educational units (UEs) for general Bachelor’s degrees.
The PFR wishes to delegate the administrative and academic management of Bachelor’s degree courses to the University Undergraduate School (EU1C). The PFR therefore requests the necessary human and financial resources to manage the pedagogical aspects and development of these courses. It is essential to maintain research training from the Bachelor’s level as well as a strong relationship between the undergraduate and Master’s degrees, in particular through research laboratory internships for undergraduate students (L3).

The PFR will train about 400 doctoral students. The doctoral policy will ensure that CIFRE agreements (industry agreements for training through research) are developed in order to fund theses.

The PFR’s ambition for the next five years will be to revitalise and strengthen current training courses by capitalising on the broad spectrum of its actors’ skills and experience in order to improve student success. In addition, privileged links should be developed with other PFRs in terms of training courses. For example, interactions with the PUSH PFR relating to the evolution of health professions, inter-professional practices, simulation platforms and the health service, etc. Or strong interactions with the HSS of the Sciences and Humanities PFR, relating to shared training within the framework of the H20 University Research School (EUR) on water sciences.

**International relations and research potential**

The BSP PFR’s policy for the international development of research will be based on at least four actions:

- Funded bonuses to encourage research laboratories to welcome international interns;
- The sharing of calls for proposals with other interested PFRs in order to finance PhDs for international students;
- Missions to facilitate the implementation and development of thesis co-supervision with overseas institutions; and
- Shared organisation between research laboratories for the recruitment of international post-docs.

In addition, to strengthen the international dimension of its study programme, the objectives of the PFR over the next five years will be:

- To obtain funding for two new international training projects;
- To promote the internationalisation of its administrative and teaching structures, with incentive actions to internationalise part of its staff, training, procedures, documents, communication and partnerships in order to achieve student mobility objectives by the end of the period; and
- To welcome 10% international students and for 10% of its students to study abroad.

**Governance**

The BSP PFR’s governance will comprise a management team based on a “PFR board” and a “student affairs council” (CAVÉ), which will be the PFR’s training and research board (CFR). The management team will comprise ten people: the director of the PFR, who will sit on the Target University’s COMEX; three deputy directors, each elected by one of the three CAVÉ commissions; the directors of the PFR’s three constituent entities (Biosciences UFR, Institute of Pharmaceutical and Biological Sciences (ISPB): ISPB and Biology at the University of Saint-Etienne); the PFR’s administrative director; an elected BIATSS staff representative and an elected student representative.
The PFR’s board, chaired by the PFR director, will be made up of representatives of four colleges (25-30% elected from college A (full professors or equivalent), 25-30% elected from college B (associate professors or equivalent), 10-15% elected BIATSS staff, 10-15% elected students) and at least 25% outside members (organisations and institutions directly linked to the PFR). Invited members may attend board meetings.

The CAVÉ will draw on three commissions:
- The research commission, under the direction of the deputy director in charge of research;
- The training commission, under the direction of the deputy director in charge of training; and
- The resources commission, under the direction of the deputy director in charge of resources.

The commissions will be composed of elected representatives from the boards of each internal entity and of members directly elected to the commissions. The members of the three commissions will together elect the director of the CAVÉ. Invited members may attend CAVÉ sessions.

The democratic process that the BSP PFR intends to maintain implies that the PFR director will be elected by the PFR board. In the event the director is appointed by the governance of the Target University, the PFR wishes to be able to make a choice from several proposals made by the governance or to be able to make proposals.

As the PFR’s activities will be spread over four campuses (LyonTech-la Doua, Gerland, Santé Est and Saint-Etienne), it is suggested that central services be managed centrally with key contacts for the PFR, plus one local office per campus. In addition to the operational structures, functional and administrative services will also need to be put in place.

To this end, seven cells have been identified:

1. quality approach;
2. research transfer and project design engineering;
3. international relations;
4. interaction with other PFRs;
5. communication;
6. career monitoring; and
7. budget monitoring.

Within the framework of the administrative autonomy that the PFR plans to acquire by 2025, and when the necessary conditions are met, resources will be allocated at the PFR board level, with a strong willingness to support ambitious research and training projects and to develop international relations. The various administrative units and services essential for the proper functioning of the PFR will require, from its creation, staff with skills in administration, management, quality approach, research transfer, communication and, for international relations, bilingual French-English skills.

As payroll management will be entrusted to the PFR, the PFR’s board will propose job transformations and redeployments to meet specific or emerging needs. With the help of the CAVÉ, the PFR’s board will thus implement a genuine forward-looking HR policy in line with changing training and research needs.
The administrative management of the PFR will play a key role in the management of BIATSS staff. To this end, it will rely in particular on the administrative departments of the components and research units affiliated to the PFR.

Having BSP PFR actors on four campuses will require the presence of representatives (for students and staff) to establish and maintain inter-site contacts in order to develop a “sense of belonging” and interactions between PFRs.