



**APPEL A MANIFESTATION D'INTERETS
COMPETENCES ET METIERS D'AVENIR - CMA
2022**

CATEGORIE : DISPOSITIF DE FORMATION

DOCUMENT PROJECT OVERVIEW

EID@Lyon

Les données à fournir dans les premières pages, avant la description détaillée du projet, sont aussi demandées en ligne sur le site de soumission de l'action CMA et pourront faire l'objet d'une communication par l'ANR et la CDC dès la sélection des projets.

Acronym	EID@Lyon		
Project Title	Transdisciplinary Graduate School In Emerging Infectious Diseases		
Job sector(s) eligible for France 2030 priorities (see Annex #2)	Maladies infectieuses (ré)émergentes et Menaces NRBC		
Type(s) of training envisaged	<input type="checkbox"/> School education <input checked="" type="checkbox"/> Higher education <input checked="" type="checkbox"/> Continuing education		
Training / Degree(s)	Master' degree / PhD thesis / Continuing education		
Professional branch(es) concerned (if relevant)			
Continuation of a CMA "Diagnostic" project	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, specify:		
Modelled after a pre-existing PIA tool	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, specify: <input type="checkbox"/> CMQe <input checked="" type="checkbox"/> EUR <input type="checkbox"/> IDEFI <input type="checkbox"/> NCU <input type="checkbox"/> IFPAI <input type="checkbox"/> PFPE <input type="checkbox"/> Other:		
Keywords	Emerging infectious diseases, Transdisciplinary networking, Immersive learning experience, Nurturing talents, Health Education-Research-Engineering continuum, Crisis preparedness & management, Interconnecting ecosystems, Evaluating risks for decision, Social determinants of health, Transforming Healthcare		
Leading institution	Claude Bernard Lyon 1 University		
Project manager	LAST NAME, First name, Quality		
	PONTIER, Dominique, Professor		
	Email address	Phone number	
	Dominique.pontier@univ-lyon1.fr	+33472448142	
Duration of the project (60 months maximum)	60 Months		
Total aid requested	6 M€	Full cost (1)	48.8 M€

(1) Specify the candidate's VAT status; taxable or non-taxable. The fullcost corresponds to the eligible expenditure; indicate the amount excluding tax if taxable.



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LIST OF CONSORTIUM MEMBERS

Training or coaching organisations (universités, écoles, lycées, CFA, organismes privés, Pôle emploi, etc.).	Sector(s) of activity
Université Claude Bernard Lyon 1 (UCBL)	Université - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Université Lumière Lyon 2 (U Lyon 2)	Université - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Institut d'enseignement supérieur et de recherche en alimentation, santé animale, sciences agronomiques et de l'environnement (VetAgro Sup)	Etablissement formant des vétérinaires, ingénieurs agronomes et inspecteurs de santé - Institution académique - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Institut National des Sciences Appliquées de Lyon (INSA Lyon)	Ecole d'ingénieurs - Institution académique - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Université Jean Monnet (UJM)	Université - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Ecole Normale Supérieure de Lyon (ENS-Lyon)	Institution académique - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Ecole des Hautes Etudes en Santé Publique de Rennes (EHESP)	Etablissement public exerçant une double mission de formation et de recherche en santé publique et action sociale
Institut National des Sciences et Industries du vivant et de l'environnement (AgroParisTech)	Institution académique - Établissement public à caractère scientifique, culturel et professionnel (EPSCP)
Ecole Nationale Vétérinaire, Agroalimentaire et de l'Alimentation (ONIRIS)	Etablissement public sous tutelle du Ministère de l'Agriculture et de l'Alimentation, spécialités : santé animale et santé publique, biomédical, sciences de l'alimentation
Ecole Nationale Vétérinaire de Toulouse (ENVT)	Etablissement formant des vétérinaires - Établissement public national d'enseignement

Public clients in the purchase of continuing education for job seekers
(conseils régionaux, Pôle emploi, OPCO)

Employers or their representatives (entreprises, groupements d'employeurs, organisations professionnelles, syndicats, fédérations professionnelles, , etc.).	Sector(s) of activity
Institut National de la Santé et de la Recherche Médicale (Inserm)	Organisme de recherche - Établissement public à caractère scientifique et technologique (EPST)
Hospices Civils de Lyon (HCL)	Etablissement public de santé
Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE)	Organisme de recherche - Établissement public à caractère scientifique et technologique (EPST)
Agence Nationale de Sécurité Sanitaire de l'Alimentation, de l'Environnement et du Travail (ANSES)	Etablissement public national à caractère administratif
Les Entreprises du médicament (LEEM)	Syndicat / Organisation professionnelle des entreprises du médicament opérant en France
Syndicat de l'Industrie du Médicament et Diagnostic Vétérinaire (SIMV)	Syndicat / Organisation professionnelle des entreprises du médicament, du diagnostic, des dispositifs et technologies pour la santé animale.



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OTHER PROJECT PARTICIPANTS

(Collectivités territoriales, équipes de recherche, entreprises...)

Métropole de Lyon	Adjuvatis
SATT Pulsalys	Ausvet
IRT BIOASTER	Biomérieux
Lyonbiopôle	Boehringer Ingelheim Animal Health France
Agence Nationale de Recherche sur le Sida et les hépatites virales (ANRS)	Fabrique de l'Innovation
Office Français de la Biodiversité (OFB)	Fondation Mérieux
Etat Major Interministériel de Zone Sud-Est (EMIZ)	IZInnovation
Centre de Coopération Internationale en Recherche Agronomique pour le développement (CIRAD)	
Institut National de l'Environnement Industriel et des Risques (INERIS)	

NUMBER OF TRAINEES TARGETED AT THE END OF THE PROJECT

Level	Number of learners# trained by this project through level training** ...		Number of people# reached through an action of the level*** ...		Of which people in continuing education at this level ***	
	At 5 Years	At 10 Years	At 5 Years	At 10 Years	At 5 Years	At 10 Years
Before « bac » and « bac »			250	500		
Bac +1/2			250	500		
Bac +3	300	600	400	800	300	600
Bac +4/5	250	500	700	1400		
Beyond bac +5**	715	1430	900	1800	670	1340

TARGET NUMBER OF TRAINEES BY 31/12/2030

Level	Number of learners# trained by this project through level training** ...	Number of people# reached through an action of the level*** ...	Of which people in continuing education at this level ***
Before bac et bac		400	
Bac +1/2		400	
Bac +3	480	640	480
Bac +4/5	400	1120	
Beyond bac +5**	1145	1440	1075



Summary of the project in English (Not confidential – 4000 characters maximum, spaces included)

The proposed Graduate School (EUR) on Emerging Infectious Diseases EID@Lyon aims to build an innovative transdisciplinary training programme – covering Life Sciences, Medical Sciences, Veterinary Sciences, Humanities and Social Sciences, Engineering - to meet the global challenges of Emerging Infectious Diseases (EID) and public health responses. Despite progresses, EID remain major causes of human mortality, pain and distress worldwide and impact on the global economy. In this era of Global Changes, defining efficient and sustainable strategies to prevent and respond to EID threats is critical to mitigate their human and economic consequences. It is thus critical to fully understand how the complex network of interactions between hosts and pathogens promotes their emergence and spread, from the molecular and cellular level up to populations, and socio-ecosystems. To address these urgent challenges, we need to go beyond current dogmas based on biomedical scientific disciplines.

In this context, EID@Lyon capitalizes on more than 10 years of experience of successful transdisciplinary research, bringing together researchers and lecturers from 6 higher education institutions and 3 research organisations, to deliver an ambitious training programme in EID prevention and control management. EID@Lyon will leverage on a broad range of postgraduate training programmes, covering all biological sciences (inc. infectiology and vaccinology), mathematics, digital engineering, humanities and social sciences, medical curriculums (physicians, pharmacists, veterinarians) and engineering, to enhance France's capacity to respond to health and healthcare needs of the future, through research and innovation, and strengthen preparedness against future EID. In this way, the EUR will benefit from, and to, the rich ecosystem in infectiology present in Lyon, with leading pharmaceutical and biotechnological companies, the second French largest group of hospitals, the first European WOAHA collaborating training center and the WHO Academy. This ecosystem places us in a unique position to train and nurture postgraduate talents, anchoring them in state-of-the-art disciplines, while developing interfaces between public and private sectors, at the international, national and local levels, to create transdisciplinary and transformative research and solutions.

EID@Lyon training programme will offer a transdisciplinary space where talents will work together with experts and professionals from public and/or private sectors to respond to real-world challenges and meet the needs of the research and socio-economic partners. This innovative 'learning by doing' experience is the core of the training programme of the EUR, (i) promoting exchanges between disciplines and sectors, (ii) ensuring future health professionals acquire the soft skills and methods needed to deal with complex and uncertain health issues posed by EID, and (iii) accelerating the development of innovative and transformative solutions to best respond to EID threats.

To support this action, EID@Lyon will create the One Health Institute (OHI), offering a suite of training programmes providing cross-disciplinary and cross-sectoral competencies in risk management to international and national decision-makers, from both public and private sectors, and based on the One Health approach. The OHI will (i) acculturate decision-makers to cross-disciplinary and cross-sectoral issues, to raise awareness in diversity of experiencing real-life issues between disciplines and communities; (ii) strengthen multi-actor networks to develop an 'esprit de corps' across ecosystems; and (iii) improve exchange of norms and processes between sectors, leading to better, more comparative actions across ecosystems.

In this way, we will ensure that the next generation of open-minded experts are trained to meet the challenges from all actors (from research to hospital) involved in responding to EID threats.

PROJECT DESCRIPTION

1.1. BACKGROUND

In the France 2030 acceleration strategy against Emerging Infectious Diseases (EID) threats, creation of two postgraduate schools and a One Health Institute were recommended to (i) train specialists in disciplines relevant to EID control, and (ii) educate decision-makers from public and private stakeholders to the 'One Health' approach. Our goal is to benefit from the exceptional environment in infectiology present in Lyon and promote interactions between ecosystems (industry, basic research, public health) involved in EID preparedness.

Infectious diseases remain a major challenge for human health and livelihood, despite remarkable progresses in treatment and prevention. Infectious diseases are a leading cause of death, accounting for a quarter of the estimated 60 million deaths worldwide, among which zoonoses represent the most significant infectious threat to humans. COVID-19 has shown how infectious diseases can rapidly spread worldwide, impede world's economic growth and set back by years all socio-economic gains; hence radically changing risk perceptions in communities. Intensification of food production and increases in local and international movements of both people and animals, together with a reduced biodiversity in a warmer, more crowded, and socially diverse older populations, yield opportunities for zoonotic infectious diseases to emerge and spread. Mitigating the spread of infectious diseases is an evolving challenge, due to the numerous evolutionary opportunities for pathogen to mutate and infect and survive within and outside hosts. This situation is worsened by the constant reduction in the effectiveness of treatments due to the dramatic increase of resistances and the fast evolution of pathogens, while the rate of discovery of novel molecules is slowing down, and the rise of vaccine hesitancy due to the mistrust of public authorities.

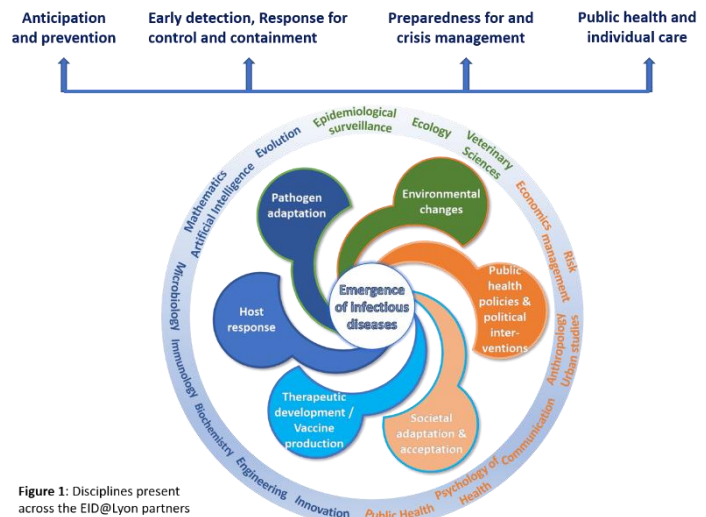
EID epidemics are increasingly recognised as complex spatio-temporal biosocial events that have clinical, ecological, social, economic, and geopolitical consequences. The recognition that effectively responding to these ever-changing, complex and uncertain contexts requires a broader range of expertise beyond the biomedical, infectiology, and eco-epidemiological disciplines has considerably increased with recent epidemics such as Ebola, Zika, and now COVID-19. There is an urgent need to integrate social sciences in epidemics preparedness and response, in order to humanise emergency responses, and mitigate the disruptive socio-economic, geopolitical and psychosocial burdens associated with epidemics and pandemics.

The development of innovative and transforming technologies are also critical to improve emerging responses. Technological innovations may not only improve disease intelligence and expertise, through the capture and fast analysis of well-designed, easily-accessible data, but also support decision making of patients, clinicians, policy-makers and business managers. Technology also provides solutions to improve access to care and reduces burdens for suffering, social-challenged and disabled populations. Despite these benefits, the shortage of good quality/validated/appropriately stored dataset, together with that of trained data-analyst, software designers and developers that are familiar to the needs of responding to EID and Healthcare crisis, was identified as key barriers to development of translational and transformative software solutions to challenges from EID threats.

In this context, **EID@Lyon aims to build an innovative transdisciplinary training programme to meet the challenges of global health and specificities of public health.** EID@Lyon is organised around 2 key objectives: (i) Train highly educated specialists in various disciplines linked to EID preparedness and response through high-level transdisciplinary academic courses, combining

different cultural visions and forms of knowledge. (ii) Create a network of open-minded professionals and decision-makers that are acculturated to systemic understanding of critical health situations and to the appreciation of the consequences of each decision on humans, animals and ecosystems.

The vision of EID@Lyon is rooted in the excellence of individual disciplines existing in Lyon (Fig. 1). EID@Lyon brings together 70 researchers, 131 teaching staff, 93 clinicians, from 6 higher education establishments and 3 research centers, one Engineering school (INSA), and Lyon university hospital network (HCL). Scientists and lecturers have forged strong links with foreign universities worldwide (Appendix 1), which represent an entry point for developing shared international training programs based on complementary skills.



EID@Lyon has the ambition of creating a dynamic ecosystem in which students, researchers, professionals and decision-makers are trained by comprehensive high-level courses, while being free to follow their curiosity, to test radically new ideas, and to form networks to tackle complex fundamental and societal problems. This innovative ecosystem will provide students with:

- a solid theoretical and technical basis on molecular, immunological, epidemiological, ecological/evolution and/or cultural aspects of pathogen-host interactions.
- an understanding of vaccine development, clinical trials, the social, economic, political and ethical issues of vaccination, as well as on the evolutionary potential of viruses or bacteria in response to vaccination campaigns and public adherence to vaccination and treatments.
- an understanding of the socio-territorial aspects of infectious diseases preparedness and control.
- new 'fields of possibilities', i.e. teach them how to deal with complexity of systems, requiring links between concepts and methods from different disciplines.
- skills to extract knowledge from data as well as efficiently communicate them to stakeholders
- an engineering perspective on the specificities of industrial production of innovating therapies.

EID@Lyon enhances the capacity to respond to health and healthcare needs of the future, through research and innovation, and strengthen preparedness against future EID; hence contributing to the French national priorities of Health Innovation 2030. EID@Lyon is **fully integrated within the SHAPE-Med@Lyon project** ([Link](#)) that is currently under international evaluation but secured by the stakeholders' roadmap. Together, we aim at creating a major Health Research and Innovation Hub in Lyon, connecting universities, veterinary school, hospitals, engineering school. EID@Lyon's research activities belong to two of its One Health research programs:

P1: Adaptation and evolution in infectious diseases: from pathogens to societies: Expands the management of emerging infectious diseases to social, animal, and environmental health, bringing together ecological, biological, clinical, epidemiological, psychosocial, socio-economic, or political perspectives. By exploring pathogen and host variability, and the evolutionary and social feedbacks, we prepare the response and management of infectious risks, in particular to orthonairoviruses, COVID-19, and Disease X.

P2: Health and Territories: Innovative approaches to relate health to environmental and social characteristics of territories and predict spillover effects – These approaches are based on the

paradigm that territorial inequalities (geographical, environmental, sociocultural, socio-economic) generate heterogeneous landscapes for exposure to education, pathogens, health care, access to food, etc, influencing well-being and infectious disease emergence. The objective is to understand how some territories enable (or not) the maintenance of a good health; and conversely, how health crises affect the functioning and quality of territories.

Higher education and research institutions in Lyon have developed a longstanding collaboration to strengthen the excellence and visibility of scientific research (e.g., LabEx Ecofect 'Eco-Evolutionary dynamics of Infectious Diseases' and LabEx IMU 'Intelligence des Mondes Urbains') but also training programmes. UCBL is engaged in ambitious training programs, such as the creation of a unique partnership between the Medical Schools and the Ecole Centrale Lyon (ECL) - allowing students of both institutions to join the medical/engineering track to get a double Engineering/MD degree; the international elective course 'One Health - Managing Health of Populations' of the MSc in Public Health; the 'Evolutionary Biology and Medicine' University Diploma, and the recently selected SFRI Graduate+ strategy. This is in addition to the European Joint Master's degree in vaccinology ('LIVE'), a large number of Masters, Doctoral schools, and University Diploma related to infectious diseases. Most notably, EID@Lyon makes the commitment to create **the One Health Institute (OHI), providing a suite of transformative fundamental and field-based experiential training courses, targeting decision-makers and based on the One Health approach.** The management of recent health crises highlighted failures of global public health authorities when anticipating and responding to EID and CBRN (chemical, biological, nuclear and radiological) risks. These stressed the urgent need for the creation of a new, innovative, systemic, and cross-sectorial pandemic preparedness system. By ensuring interconnections between people, animals and their shared environment are considered, as well as their links with society, the One Health concept provides a systemic understanding of critical health situations. Transdisciplinary skills are critical for solving these complex and uncertain health problems, but their efficient implementation is lagging. The cross-disciplinary and cross-sectorial training programme offered by OHI would support decision-makers when designing new preparedness strategies against future EID epidemics and CBRN threats.

Lyon, a dense environment in infectiology, with key actors along the value chain and promoting One Health (Appendix 2).

- Health and health care represent a major and growing pool of employment. Together, Sanofi, the largest private employer, and the Hospices Civils de Lyon (HCL), the largest employer, represent 35,000 private jobs. Lyon is the second site of pharmaceutical industries in France, with 260 pharma and biotech enterprises (e.g. Biomérieux, Sanofi Pasteur, Boehringer Ingelheim), 800 life science companies, and 150 health companies. Other key players are the biocluster Lyonbiopôle, the IRT BIOASTER, and the Technology Transfer Office Pulsalys, with more than 40 start-ups created and a portfolio of 100 IP families in health innovation, mostly originating from Engineering schools.
- The Lyon site brings together a network of high-quality universities and research centers in all the One Health disciplines, one of the strongest university-hospital continuums in France, VetAgro Sup in the field of veterinary science and veterinary public health, together with engineering schools and a numerical science interface. The interdisciplinary research and training landscape has been structured by LabExs (Ecofect for infectious diseases and IMU for urban issues), the forthcoming chair on respiratory pathogens surveillance (Sanofi-Pasteur/UCBL), the VPH (Veterinary Public Health) HUB and the VPH industrial teaching and research chair (UCBL, VetAgro Sup, with Boehringer Ingelheim and CNRS), ambitious training programs, such as the forthcoming SFRI Graduate+ programs (see Appendix 5), the master's degree in Public Health, the international One Health Master's 2 degree, the double Engineering/MD (UCBL/ECL) and Medicine/Sciences



(UCBL/ENS-Lyon) degrees, the 'Evolutionary Biology and Medicine' University Diploma, or the European Joint Master Degree (EMJMD) in vaccinology ('LIVE'), in addition to a large number of Masters, Doctoral schools, and specialised University Diploma (DU/DE, DIU) related to infectious diseases.

- Lyon hosts a large set of cutting-edge 'One Health' infrastructures: platforms of high-security levels (e.g. the Jean Mérieux Inserm BSL4), rooms for patients for P3 and P4 pathogens, state-of-the-art facilities for experiments on decision-making, 9 National Reference Centers, the Equipex+ InfectioTron, and 2 national Epidemiosurveillance Platforms.
- Lyon hosts the WHO Lyon Office, recognised as a Center of Excellence for public and global health. In 2024, the opening of the WHO academy in Lyon will offer the world's largest and innovative learning platform in global health. WHO has already contracted with University Lyon 2 for Social Sciences and Humanity training.

1.2. DESCRIPTION OF TRAINING FACILITIES

1.2.1 Jobs and skills

Professional sectors in line with the specialisations of EID@Lyon Masters combined with a transdisciplinary opening culture: e.g. (i) R&D in infectiology, vaccinology, immunotherapy (academic or industrial medical and pharmaceutical research) for the development of diagnostics, anti-infective, prophylactic and therapeutic vaccines; (ii) Development of assurance-quality procedures (research, bioproduction). (iii) Law and regulatory procedures (clinical trial manager, FDA/EMA consulting, audits). (iv) National and international Health agencies, Governmental and regional Health and agricultural institutions, international organisations (WHO, etc). (v) Management of hospitals and large health care services (vi) Technology intelligence. (vii) International health agencies, NGOs, and private consulting groups. (viii) Data management and security.

Jobs: (i) Researchers and engineers in the public or private sector. (ii) SME directors, entrepreneurs. (iii) Consultants in global health of infectious diseases and ecological issues. (iv) University teachers.

EID@Lyon as a vector of jobs of tomorrow: (i) EID Data Manager building the digital infrastructure required to collect and interoperate data, and monitoring weak signals for emergence detection. (ii) EID Data Scientist supporting Public Health Emergency Operations Centre and communicating with multidisciplinary teams and diverse public. (iii) EID logistician: Implementation of the goals and objectives in a crisis plan within intersectoral and multidisciplinary teams in cooperation with local and national health agencies. (iv) EID trainer: Upgrade of skills and knowledge especially in the field of managing EIDs in hospital. (v) EID manager: Able to assemble a comprehensive operational team with all stakeholders (in line with public agency, scientific, logistic, etc, strategy) in preparedness or in crisis situation. (vi) EID communicant: promoting prevention, education and pathology screening to the general public.

Skills: Students will acquire highly specialised knowledge, skills and competences of speciality fields of their Master complemented by a set of skills linked to the innovative pedagogy of the project (Experiential pillar, see below): (i) Project Management: Understand a complex problem, Design, Execute, Close and Analyse a project. (ii) Work in a multidisciplinary environment: Manage a multidisciplinary team; Work with and Report to different stakeholders; Conduct a systemic analysis; Master the complex and systemic thinking; Develop solutions; Work at the interface of several disciplines; Master the tools of collaborative management. (iii) Innovation management: Understand the mechanism of innovation emergence; Master the fundamentals of creativity; Understand the relationship between research and industry; Know the innovation ecosystem; Manage according to

the principles of agility (including Design Thinking). (iv) Openness to cutting-edge digital tools such as AI, extended reality and blockchain to imagine the future of EID field.

1.2.2 The Project

EID@Lyon offers Master- and Doctorate-level training courses, and will rely on 3 innovative pedagogic pillars (Fig. 2):

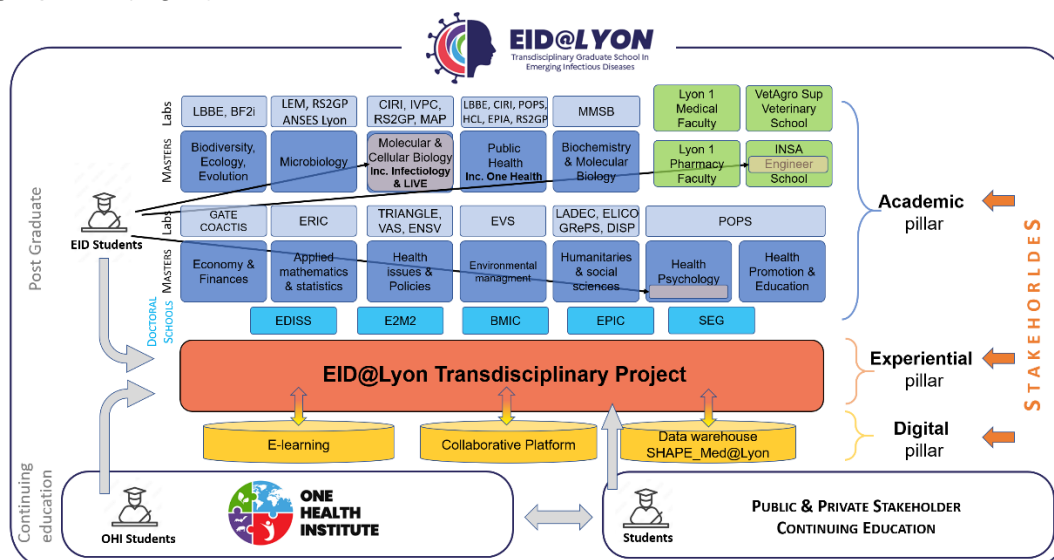


Figure 2: The organisation structure of the EUR EID@Lyon, highlighting the continuum between the postgraduate school and the continuing professional training programmes and their interconnections with the One Health Institute

Academic Pillar: After two days ‘opening’ scientific conferences and courses, students will enrol in their major Master's degree (Master of Science/HSS in a University partner, or Engineering courses of the INSA Engineering school partner, see Appendix 7), and select a set of courses from other Master's degrees in different but complementary disciplines. Initially, our EUR will bring together 20 existing labs (described in Appendix 8), associated with 12 existing Masters (Appendix 4), and 5 Doctoral schools (Appendix 6). EID@Lyon initial training structure will be operational in September 2023. In the second phase of EID@Lyon (2027 onwards), at least one new, transdisciplinary Master degree will be created in response to our experience with activities in the Experiential Pillar (see below), and in interaction with the WHO academy; thus entirely delivered in English. This course will be designed with the OHI to ensure continuum between postgraduate and continuing education; and cater for needs from stakeholders.

Experiential Pillar: ‘a learning by doing’ experience supported by lecturers and facilitators. All students will embark on transdisciplinary and real-world projects proposed by the research and socio-economic sectors (e.g., identifying best practices for communication of scientific uncertainty; identifying novel methods to track excess mortality geography; AI to improve pattern recognition of disease spread in populations) and accompanied by facilitators and lecturers. These projects (150 hours/year) will involve cross-disciplinary training and interventions by experts and professionals. To promote dialogue and efficiency, clear deliverables will be required and moments of team cohesion will be provided. This transdisciplinary space will also embark students from the INSA engineering school, the medical school of Lyon (physicians and pharmacists) and VetAgro Sup (veterinarians) as well as students from the OHI. To graduate with distinction, students are required to participate for at least one year, irrespective of their level of study (i.e. M1, M2 or beyond), to develop a transdisciplinary project. The most ambitious projects may extend over several years. Students may



continue working on their project for additional years on a voluntary basis and may be rewarded by higher distinction. Financial support may be provided for those that desired to continue for an extra year to deliver their project, potentially launching a start-up with mentorship of the Lyon ecosystem of entrepreneurship (e.g. La Fabrique de l'Innovation, TechTransfer offices Pulsalys, Beelys, FEE Lyon Tech). The Experiential Pillar is the core of the transdisciplinary training delivered in EID@Lyon.

Digital Pillar: Innovative and transforming educational digital support: e-learning platform, collaborative platform, access to the non-sensitive part of the SHAPE-Med@Lyon data warehouse. The pedagogical methods and tools underlying these three pillars are detailed in section 1.2.3.

A rich continuous education programme on EID preparedness and management will be offered to working professionals, both from public and private organisations, as well as for those currently seeking work, in their professional development plan (CPD) (see section 1.2.3.2). A selected number of learners in CPD will be able to get involved with Transdisciplinary projects organised as part of the Experiential Pillar (Fig. 2) to support their growth, explore different ecosystems, and create networking opportunities. Novel, integrative training programme, as well as innovative pedagogic tools, will be developed to ensure their relevance to stakeholders. These new and innovative training programmes and tools will be co-constructed with the OHI to ensure trainings materials are grounded on real-life situations. To this end, **the OHI is building a transformative fundamental and field-based experiential training anchored in the One Health context**, offering cross-disciplinary and cross-sectoral competencies to decision-makers, both from public and private organisations. Through the creation and actions of the OHI, EID@Lyon aims, therefore, to support the overhaul of civil services training and the creation of the French Institute of Public Service (INSP) by organising the continuous training on the topic of One Health. The OHI is organised around a consortium of the three national statutory institutions for training in the scope of Animal health (VetAgro Sup), Public Health (the École des Hautes Études en Santé Publique, EHESP) and Ecosystem Health (AgroParis Tech). This consortium is rich of years of experience in training civil servant worldwide. For example, the National School of Veterinary Services-France Veterinary International (ENSV-FVI), as part of VetAgro Sup, is one of the two European Collaborative Centre of the World Organisation for Animal Health-WOAH, training animal health officers for more than a decade. These three institutions will work in close coordination to develop a transdisciplinary and inter-sectoral vision of EID and CBRN risk management in coherence with the One Health approach. The OHI actions will:

- Acculturate professionals and decision-makers to cross-disciplinary and cross-sectoral issues, to raise awareness in diversity of experiencing real-life issues between disciplines and communities.
- Strengthen multi-actor networks between trainees (from public and private sectors) to develop an 'esprit de corps' across ecosystems and enabling efficient implementation of EID-CBRN prevention strategies and responses to EID-CBRN crisis.
- Improve exchange of norms and processes between sectors to facilitate the development of common indicators, leading to better, more comparative actions across ecosystems.
- Enhance communication between public policy and socio-economic partners, thereby promoting efficient and reactive exchanges of information, awareness of the needs and challenges across ecosystems. This will be supported by common field-exercise based topical subjects and real-life experiences (e.g. management of the Lubrizol climate crisis, COVID-19 and Monkey Pox crises).
- Enhance communication to raise awareness of populations exposed to EID-CBRN risks by using innovative participatory tools such as One Health murals ('Fresque du One Health'), video clips on social media, crisis simulation and role play.

EID@Lyon is coordinated by UCBL, which combines performing education and excellent research and benefits from an international reputation in the fields of science, technology, health, and sport:

47,860 students, 50 Masters degrees, 10 health degrees, 93% professional integration rate 30 months after obtaining the Master's degree. Expertise and research foci of UCBL are based on strong disciplinary competence (around 5600 publications/year, 65 start-up), interdisciplinary and international cooperation as well as partnerships with national research organizations (CNRS, INSERM, INRIA, INRAE, Engineering schools: INSA, CPE).

Responding to stakeholder needs. EID@Lyon is open to its socio-economic ecosystem at the national/territorial level, and will enable students to better tackle uncertainties related to EID crises. During project preparation, a survey has been conducted with local start-ups and pharmaceutical companies to compile and understand their needs. Our training model considers their five major needs but will adapt to emerging priorities: (i) Scientists & pharmacists capable of dealing with the specificities of innovative therapies. (ii) Transversal human/veterinary epidemiologists. (iii) Cross-disciplinary skills for doctoral students to improve their employability and adaptability in biotech companies. (iv) Competences in Data Driven Science. (v) Dual skills at HSS and EID interface.

Targeted populations. EID@Lyon is aimed for both postgraduate students and working professionals, as well as for those currently seeking work, in their CPD. In addition to the expected minimum of 25 M1, 25 M2 and 10 PhD students that will be graduating annually by 2027, we expect to train annually about 25 apprentices and 30-50 professionals in CPD. These numbers will be further completed by those benefiting from the OHI training programmes. The cross-sectorial training offered in the OHI will be targeted mainly to both public and private decision-makers, such as risk-managers from national and local authorities, hospitals, and business executives, but will also be relevant to media professionals. We expect on average 140-160 professionals each year.

A multi-level training programme. EID@Lyon training programmes will cover a wide range of disciplines (from molecular to socio-economic ecosystems) and will be completed with various medical cursus (physician, pharmacist, veterinarian), anthropological issues (e.g. individual and collective behaviors of human societies, economics, politics, media interactions) as well as Engineers. Appendices 4 & 7 describe the EID@Lyon comprehensive set of Master and Engineering trainings. EID@Lyon has access to foreign students through the *Erasmus Mundus* LIVE MSc in vaccinology (~1000 applications for 40 spots/year) and a number of International Master-level courses. EID@Lyon will capitalise on this experience to attract talents from all relevant fields.

Stakeholders' implication. The support of the Lyonbiopole gives EID@Lyon access to a large network of companies. Several non-academic partners (e.g. Biomerieux, Sanofi-Pasteur, Boehringer Ingelheim), but also ITR-BIOASTER are involved in the development of EID@Lyon training: they have agreed (i) to participate in the Experiential pillar by proposing projects. (ii) to co-construct students' initial training with academics; they are already involved in the MSc LIVE. (iii) to host M2 and PhD students. (iii) to contribute to complementary training in innovative technologies and soft skills (patents, entrepreneurship, etc). (iv) to participate in the governance of the EUR.

Training content and evaluation. Academic pillar (M1 and M2) will be delivered 80% in-person and 20% remotely and will be assessed through written evaluations. Bespoke evaluation criteria will be developed for the Experiential pillar through (i) Roadmap & Dashboards. (ii) Project delivery (e.g. Reports, Scripts). (iii) Regular orals. (iv) Mentors' evaluation. (v) Cross project teams' evaluation.

A complementary ambition with Lyon Health Research and Innovation Hub 2030. There is a clear development strategy around Health and Infectiology across all universities and industry stakeholders present in Lyon. With Shape-Med@Lyon and the Biocluster in infectiology, Lyon benefits from an exceptional environment to act upon our vision to be a globally recognised site in the field of health, infectious disease research and preparedness for their emergence. EID@Lyon combines institutions' skills to offer students additional advantages for professional success, finely

tuned with industrial needs. The OHI will have a significant impact on the management of future health crises in France and worldwide by providing decision-makers with the tools, skills and an interdisciplinary network to collaborate more effectively in a natural and obvious sharing process. EID@Lyon benefits from an exceptional environment being built on the Lyon site, together with a strong support system to translate research to transformative tools. This institutional context contributes to positioning EID@Lyon as a key player in higher education in the area of EID and Health, generating major community benefits through returns from research, technology application and service provision and ensuring employability for our graduated students and professionals.

Communication for student enrolment. Communication actions to ensure visibility of EID@Lyon and optimize recruitment are: (i) Developing a website and different media supports; (ii) Advertising position and job offers to students promoting the added-value of transdisciplinary experiences; (iii) Advertising EID@Lyon training offers to undergraduate students through direct feedbacks and seminars. (iv) Organising freely available transdisciplinary summer schools. (v) Promoting internationally co-constructed and supervised projects; (vi) Organising public events presented by students and supervisors with media coverage; (vii) Increasing integration and collaboration with EID@Lyon Alumni; and finally (viii) Promoting EID@Lyon through stakeholders' actions. These actions will be delivered through website, social media, videocapsules, etc. Ensuring long-term recognition at national and international level will be critical to attract high-profile students and lecturers as well as industrial partners. As such, efforts will be made to strengthen reputation through ensuring high level quality of management, academic programmes and research projects are offered to EID@Lyon students, as well as ensuring high jobs opportunities.

1.2.3 Teaching methods

1.2.3.1 Initial Education - the EID@Lyon structure is shown in Fig. 2.

Academic pillar

Master's level training - Students will choose two mentors from two different disciplines to guide them during their Master cursus. Assignments, based on the students' preferences, will be made by the program director. We will encourage lecturers from the different master programs to select their case studies from the pool of transdisciplinary projects, thus, creating a positive systemic loop.

Doctorate's level training - EID@Lyon PhD students will be co-supervised by two scientists from two different disciplines. All students will register with one of the 5 Doctoral Schools.

- A 'Doctoral Charter' will formalise student and supervisor obligations and rights. An annual review for each PhD project will be required, gathering the PhD student, supervisor(s), a Doctoral School referent, at least one renowned international scientist as an external advisor and, when relevant, a representative of stakeholders.
- Financial support (i.e. fourth year of funding) will be provided to a few selected talents enrolled in PhD and desiring pursuing a second master's degree in different but relevant disciplines.
- A 5-day module will be developed to train EID@Lyon students in specific soft-skills (inc. good scientific practices, transdisciplinary epistemology, creativity, technology intelligence, IP protection, project and time management, public outreach, career mentoring).

Experiential Pillar – Teams of 5-6 students from various disciplines and background will be formed to respond to projects from a pool of systemic challenges on EID proposed by stakeholders (academics, health institutions, industrial partners), or directly created by them (from M2 onwards). Teams will be given clear deliverables and supervised by project leaders, facilitators, researchers and lecturers from academia and/or industry. The year will be punctuated, at least once a month, by cross-disciplinary events, i.e. training, experts' seminars, supervised workshops and team-building

moments. These projects should be carried out mainly in the evenings and, as far as possible, 'outside the classroom' (e.g. in the workspace of 'La Fabrique de l'Innovation'), in order to take the students out of their daily routine. The pedagogical model of these projects is as follows (Fig. 3):

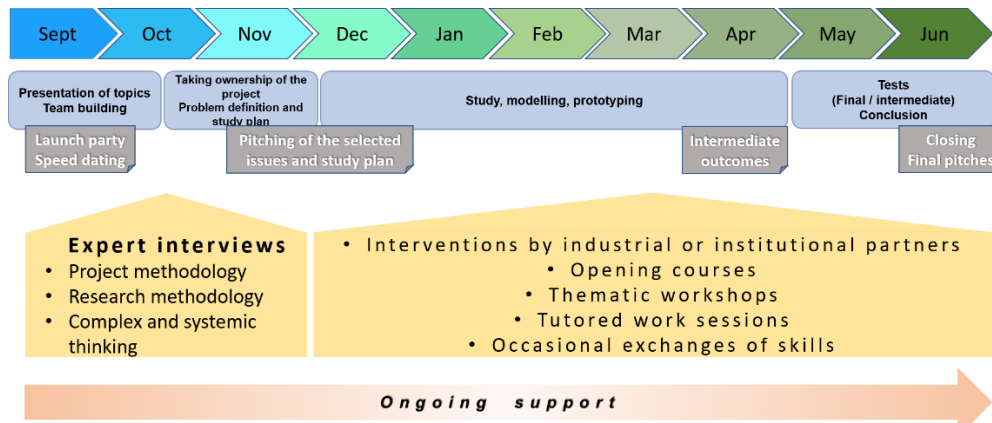


Figure 3: Annual planning of the experiential project (can extend over several years)

Phase 1 - The launch: presentation of subjects and creation of teams through 'Speed Dating'.

Phase 2 - Design: project ownership by defining challenges and creating roadmap. Definition of the main problem to tackle and roadmap will be identified thanks to field surveys and expert interview under the supervision of their mentors and the project leader. Students will undergo bespoke training programme, specific to their research context and focusing on systems and complex thinking. At the end, students will defend their work to a jury of partners during an evening event.

Phase 3 - Operational implementation: each team (i) Study, model, prototype the roadmap choices, with EUR financial support. (ii) Attending EUR-organised evenings once a month consisting of expert, industrial or institutional partners' presentations, tutored work sessions or workshops. (iii) Present intermediate results by each team. (iv) Complete team's skillset if required.

Phase 4 - Closure: tests and conclusions: each team (i) Present outcomes to the Jury. (ii) Produce a short video capsule of the project presenting the challenges and the impact of the work on society. **Competency assessment system** - A 'EID@Lyon' label will be granted to projects showing high quality, transdisciplinary and transformative research carried out to solve EID issues.

Digital pillar - The digital pillar is made of three components:

An e-learning platform - Students will be able to access a database of short, operational video capsules, designed by our teacher-researchers and external partners (industrials, etc) covering all the disciplines of EID@Lyon. These videos represent key resources for students training.

A collaborative platform - A collaborative digital platform will provide tools and a forum for student to foster open innovation and collaborative work, providing: (i) descriptive of current/past projects; (ii) a brief summary of students and mentors background and skills; (iii) A rich set of dashboards to visualise workflows, reports delivery, match training programme to needs, identify skills shortage, share resources, and schedules. (iv) actively communicate beyond the Transdisciplinary Projects teams, to publish jobs, surveys, and other opportunities within the community. (vi) up-to-date news trackers and key information/news; (vii) an 'Open Innovation' type where ideation on new avenues of study will be retained based on crowd voting.

A state-of-the-art data warehouse - Under supervision, students will have access to non-sensitive parts of the SHAPE-Med@Lyon data warehouse; supporting projects of the Experiential Pillar.

1.2.3.2 Continuing in Transdisciplinarity

We aim to offer training programmes that are relevant to current and future needs. As such, our development strategy is based on continuous discussions with stakeholders and from the feedbacks gathered in annual students' survey and from the experience of the transdisciplinary projects. Short conceptual sessions (~30h) as well as longer experiencing transdisciplinary training will be offered within the first 5 years of the EUR:

- Training in Epidemic crisis management. Developed by the HCL, real-life role-playing games will be offered to junior and senior medical doctors, nurses, midwives, laboratory workers, research scientists, logistic crisis administrators, policy makers and managers to experience crisis response in hospital conditions. Efforts will be made to ensure OHI trainees, EUR students and public are mixed together. Such an approach will be extended to immerse student in nation-wide crisis situations, best preparing them to deal with multiple stakeholders and actors, including researchers. To enrich training, discussion and reflexion, realistic and captivating scenarii used in these games will be developed by working groups, bringing together experts with people of diverse background and disciplines (e.g. from the SHAPE-Med programme, but also decision-makers, civil society and artists), thus challenging *a priori* positions of participants.
- Transdisciplinary education training fellowship: EID@Lyon will offer suite of courses for lecturers involved in the experiential curriculum, particularly on digital technologies developed to support innovative pedagogies in Training for Teaching and Learning. This training programme will provide skills for lecturers to effectively coach students in their transdisciplinary journey, strengthen their systemic vision and support their use of modern digital learning and teaching technologies. We will take advantage of 'La Fabrique de l'Innovation' and the kick-started INCLUDE ([Link](#)) program developing new pedagogic and onboarding techniques.

1.2.3.3 One Health Institute

The OHI aims to create a common continuous training space for national and international decision-makers from public and private ecosystems, providing safe and friendly networking environment.

Educational process. The curriculum will be organised over 3 weeks in order to meet the professional requirements and constraints of decision-makers. The training is structured around three pillars: (i) Understanding complex crises and uncertainties, (ii) Preventing and managing risks and crisis. (iii) Practice crisis management. The OHI will rely on a network of experts to provide long-standing expertise and know-how to ensure efficient delivery of up-to-date knowledge and relevant field experiences to those attending the OHI training programme. In addition, learners from the OHI training programme will be invited to join Transdisciplinary projects of the Experiential Pillar during the course of their 3-week training period, to share real-life experience and increase networking opportunities between disciplines and across sectors (see full description in Appendix 3). Overall, the 3-week long training programme will be offered 4 times a year and hosted in turn by each partner of the consortium to ensure availability and geographic proximity of the training to civil servants from regional authorities. Briefly, the 3-week training programme will be organised once at AgroParisTech to capture all potential civil servants from the North-East quarter of France, 1 session will be organised at EHESP to capture those from the North-West quarter, and 2 sessions will be organised at ENSV-FVI, as part of VetAgro Sup, to capture those from the South-West and South-East quarters. To promote cohesion and interactions within and between cohorts, summer schools, master classes, and hybrid conferences, that will run either in-person or virtually, will be regularly organised. These events will cover 'Major issues in global public health' and will invite recognised experts in their fields (14 nationally renowned speakers are identified to date).

In addition to be vectors of cohesion between participants of the OHI training programme, these conferences represent networking opportunities with a broader public and ways to maintain awareness of recent research and information within the One Health and EID domain.

Teaching support and methods. Training will combine varied formats teaching support to effective delivery of information and insights. In addition to visits and field trips, collective projects will be organised, and supported by innovative participatory tools such as One Health murals ('Fresque du One Health'), video clips on social media, crisis simulation and role play) to promote critical thinking.

1.3. RESULTS AND IMPACT ASSESSMENT

Impact monitoring and risk assessment. Indicators of impact and student satisfaction will be monitored by the number of students recruited in partner industry partners, number of projects proposed by all partners, number of foreign students, number of French students with international experience. Surveys will be developed to assess students' well-being and stakeholders' satisfaction. These surveys will be designed to mitigate clear risks for EID@Lyon: (i) The attractiveness of EID@Lyon: a main pedagogic risk is the extra workload for students. (ii) Ensuring commitment of stakeholders: setting up attractive events to increase project proposals. (iii) Ownership of transdisciplinarity: using lessons from the Ecofect LabEx (i.e. benefits of encouraging discussion and exchanges between postgrads and professionals), students' deliverables will be regularly evaluated to assess reality of transdisciplinarity and cross-sectorality of the Experientiel pillar. (iv) Ensuring economic sustainability beyond 5 years: cf. section 2.3.

Industrial stakeholder impact monitoring. Annual surveys will be carried out to have regular feedbacks of the skills needed by enterprises. The impact of EID@Lyon will be evaluated by: (i) Number of patents and of startups. (ii) Number of industry grants (CIFRE). (iii) Number of R&D internships. (iv) Number of industry employees attending training in OHI and the continuing training program of EID@Lyon. (v) Number of co-constructed training programs. (vi) Students entry-level job and EID domain after graduation. (vii) Number of students hired by stakeholders.

Impact on the local and regional EID ecosystem. Lyon is already an exceptionally fertile breeding ground in the health domain, endowed with all the structures (hospitals, academia, platforms, socio-economic environment, etc) at the highest level. EID@Lyon will be the place to harness transdisciplinarity between these structures and across sectors. EID@Lyon will optimise graduate studies on EID, making them more visible, consistent, and coordinated within the One Health approach. Professionals of various background will gain the soft skills and methods needed to face the complex Health issues of the future.

Monitoring of the pedagogic efficiency. This will rely on: (i) Student attendance rate. (ii) Student commitment in transdisciplinary projects. (iii) Graduation rate. (iv) Proficiency rates from the transdisciplinary project. (v) Feedback about outcomes of transdisciplinary projects by mentors and stakeholders involved in project. (vi) Proportion and number of courses delivered in English. (vii) Number of foreign professors invited to give courses. (viii) Number of students in-jobs after one, two and three years post-graduation and for each course (e.g. M1, M2, PhD) provided.

1.4. DISSEMINATION OF FACILITIES AND RESULTS

EID@Lyon actions will benefit to the larger community through: (i) The Data Warehouse of SHAPE-Med@Lyon will be continuously supplied by the wealth of data generated by the transdisciplinary projects. (ii) A collection of study cases based on the projects implemented in the Experiential pillar that can be used as pedagogical materials presented in the different Masters programmes of



EID@Lyon. (iii) A suite of widely available e-learning capsules. (iv) A common identity in EID mitigation and transdisciplinarity shared between Alumni.

2. ORGANIZATION AND MANAGEMENT OF THE PROJECT

2.1. ORGANIZATION OF CONSORTIUM

EID@Lyon is a consortium involving the universities Lyon 1 and Lyon 2, VetAgro Sup, INSA Lyon, ENS-Lyon and UJM; hence covering all fields needed to respond to EID challenges. This is an already developed long-standing collaboration with shared educational offers. This consortium also includes the second French largest group of hospitals (HCL). OHI consortium is presented in Appendix 3.

EID@Lyon will be coordinated by Pr. Dominique Pontier and co-led with Pr. Florence Ader, Dr. Estelle Loukiadis, and Pr. Marie Préau. Their full CVs as well as those from the OHI governance are provided in Appendix 9.

DP is a full professor of exceptional class of University Lyon-1 and has a long experience in academic and teaching practice. She leads the team 'Eco-Evolutionary Epidemiology' at UMR-CNRS 'Biometry and Evolutionary Biology'. She uses different model systems to investigate the broader determinants of infectious disease dynamics and develop quantitative approaches to understand disease transmission and associated selective pressures in a multi-host/multi-parasite framework. DP has acquired a valuable experience in transdisciplinary project management (co-leads Ecofect LabEx) and engaged herself into student supervision (including with the private sector), capacity building and transfer of knowledge, in particular through cooperation with the tropical regions (Gabon, Guyane). She created and co-leads the University Degree in 'Evolutionary Biology and Medicine'.

FA is M.D.Ph.D. Head of the Infectious and tropical diseases department of the Lyon university hospital. She is professor of medicine at the Lyon University school of medicine. She is a pulmonologist and infectious diseases physician by training. She conducts her research at Inserm U1111 International Centre for Infectious Diseases Research focusing on respiratory infections (Legionnaires' disease and tuberculosis). She has led the effort in platform clinical trial implementation during COVID-19 at the national and the international level (investigator coordinator of the pan-European DisCoVeRy trial). She is part of the EU-RESPONSE trial consortium (<https://eu-response.eu/>) the WHO Solidarity Trial Consortium and the WHO high-level European expert group for stabilisation of Pandemic in the European region.

EL is DVM-PhD, veterinary public health inspector and has worked on regulatory texts for the government. She is a researcher in the UMR-CNRS-INRAE 'Microbial Ecology' and develops integrative approaches considering field situations and molecular microbiology to understand evolutionary trends of *E. coli* populations and emergence of life-threatening clones. She led the national reference laboratory for *E. coli*, and provides expertise to the French government, to the French Agency for risk assessment (ANSES), to the French and European standardisation bodies (AFNOR, CEN). EL is the scientific Dean of VetAgro Sup to promote One Health research programs (co-leads Equipex+ InfectioTron), to support innovation (create the industrial VPH chair), and to support research training for veterinarians and veterinary public health inspectors.

MP is full professor of exceptional class of University Lyon-2. She's assistant director to Inserm Unit 1296 and leader of Social Psychology Teams. She's largely implicated in social science research in HIV and public health, member of the Aids National Board and president of the public health scientific committee in the French AIDS Research Agency (ANRS-MIE). MP has acquired a valuable experience in transdisciplinary project for infectious diseases prevention (PrEP) and chronic diseases management (HIV, Cancer, Lyme disease) in several settings (France, Guyane, Mali,

Brazil). Largely implicated in developing community-based research, MP also supervises numerous students and leads a Master's degree programme in health psychology.

2.2. PROJECT MANAGEMENT



Figure 4: Governing bodies of EID@Lyon

The operational and strategic management of EID@Lyon is organised around two components:

- An **Organisational Committee**: In charge of monitoring organizational performance, foreseeing future problems and opportunities, and mitigating risks. It integrates: (i) The **Board of Directors**, comprising the EUR coordinator and the 3 co-leaders, will represent the executive committee of EID@Lyon, chaired by the co-coordinator, and in which decisions will be made with equal number of votes between representatives. In most cases a simple majority is required for a measure to pass. In the case of a tie, coordinator may cast the tie-breaking vote. (ii) The **Academic Council (AC)**, including 10 representatives of the Masters coordinators, of the OHI, INSA, Medical and Pharmacy faculties, and Doctoral Schools as well as 5 researchers from key disciplines. The AC selects students and awards grants, determines pedagogic improvements, and implement actions agreed upon annually with the Stakeholder board, the Institutional Committee, and the International Scientific Advisory Board. (iii) These committees are supported by an **international relations manager**, a **business developer**, and a **project manager**.
- A **Steering Committee** responsible to ensure delivery of milestones, discusses future needs and provides guidance to improve organisation and relevance of the training actions and competences. It comprises three Committees: (i) The **International Scientific Advisory Board** (10 internationally renowned scholars and researchers) providing guidance on scientific and educational orientations, and on leveraging links between research and industrial needs for transdisciplinary education. (ii) The **Institutional Committee** where institution representatives discuss coherence of actions with local strategy in EID and Health. (iii) The **Stakeholder Board** includes 10 representatives of public and private stakeholders, highlighting competence needs for current and future personnel.

EID@Lyon project schedule monitoring. Implementation and delivery of EID@Lyon is organised around 3 key milestones (see details in Appendix 11):

- **First milestone** (At t_0+6 -to-9 months from project acceptance): (i) Finalising recruitment of the international relations manager, the business developer, and the project manager. (ii) Developing the website to provide course contents to students. (iii) Developing and submitting application documents for the creation of the 'EID@Lyon' label for transdisciplinary project. (iv) Compiling an initial pool of transdisciplinary projects from research units and stakeholders. (iv) Defining student profiles and competences required for transdisciplinary projects.

- **Second milestone** (From t_0+1 to 5 years): (i) Increase student mobility abroad and attract high level international graduate students. (ii) Implement, communicate, and evaluate the service offer in close relation with the stakeholders to sustain the EID@Lyon's economic model. Each year the following indicators will challenge us to improve the method: (i) Too low selection rate: <20% of the 30 spots available in M1 and in M2 being filled. (ii) Too low diversity of student profiles (e.g. absence of SSH, mathematicians, engineers). (iii) Lack of proposed transdisciplinary projects. (iv) Feedback from the training survey (students, lecturers, facilitators). (v) Feedback from stakeholders on transdisciplinary projects interest and usefulness. (vi) Feedback from eco-model services progressive implementation. Decision to stop the project is set at t_0+5 year.
- **Third milestone** (t_0+5 years): Set up (i) An *Erasmus Mundus* Joint Master programme on EID. (ii) An apprenticeship Master(s) and Internships. (iii) The full EUR economic model (cf. section 2.3).

2.3. SUSTAINABILITY OF THE TRAINING PROGRAMS IMPLEMENTED

EID@Lyon offers an ambitious and original economic model which guarantees its sustainability after 5 years. Led by a dedicated manager, it is based on a full economic plan that gradually develop a service offers to socio-economic partners (companies, associations, local partners). This progressive development of the offer will allow testing and improvements before its full deployment at the end of the fifth year. This plan, detailed in Appendix 10, allows generating revenues from diverse sources of income to cover the entire costs of the EUR after the year 5. Within terms of a partnership agreement framework between members of the consortium, EID@Lyon will offer a differentiated partnership, based on the needs and expectations, to industrial stakeholders as a function of their business category (from start-up to multinational). These partnerships are built around four key areas: (i) research and innovation, (ii) education, (iii) sponsorship and branding, (iv) donation. In particular, EID@Lyon will require financial contribution from both international and national, either public or private, organisations desiring access to the pool of students, submit projects and benefit from technology intelligence as well as from access to research international research collaborators involved in the Transdisciplinary Projects. We believe that contributing to the EUR will represent a cost-efficient innovation accelerator for companies, allowing fast implementation of research to the field. In addition, a suite of summer schools will be also purposely designed to respond demands from industry, academia or beyond, on specific topics. These will be complemented by incomes generated by patents submitted from work of Transdisciplinary Projects and technology transfer. We will leverage our high attractiveness for transdisciplinary research and education to benefit from successful grant proposals (overheads), and apprenticeship training programme. In the course of the EID@Lyon teaching programme, numerous events (e.g. conferences, seminars) will be organised. We will therefore use these events as a pathway to leverage branding and sponsoring contributions.

3. JUSTIFICATION OF PROJECT EXPENDITURE

The requested budget (see financial annexes) represents a total of 6M€ over 5 years, divided into 4,9M€ for the EID@Lyon postgraduate actions and 1,1M€ for the One Health Institute implementation. Main funding will be borne by the coordinating institution (UCBL) for the benefit of all. Agreements with partner institutions are planned according to give funds to projects approved by the EUR governance, hence giving a full flexibility to this transdisciplinary training programme. In addition, the objective is to make EID@Lyon become fully economically independent after 5 years through industrial partnerships, European and National call for proposals, local and regional communities, or state agencies (see section 2.3).

#	Main actions	Main expenditure items	Planned budget (k€)	Aid requested (k€)
Fellowships to recruit and train future experts to better prepare, anticipate, prevent & manage future epidemic outbreaks				
1	Academic pillar	30 fellowships for Master 2 students / year for 5 years - Starting Year 1	550	450
2	Academic pillar	15 PhD fellowships (5/ year from Year 1 to 3)	2 201	2 201
3	Academic pillar	PhD mobility fellowships (stay in collaborative partners)	45	45
Strengthening cross sectorial (academic, hospital practitioners, engineers) and transdisciplinary education to foster EID health innovation				
4	Experiential pillar	10 case studies/ year (inc. field studies, prototyping, project maturation, sociological surveys)	250	200
5	Experiential pillar	Predocctoral transdisciplinary fellowships (4 fellowships of 1 year at IE level)	146	146
6	Digital pillar	1 digital educational engineer (50%)	200	200
7	Digital pillar	Development of e-learning modules	50	50
8	Digital pillar	Creation and maintenance of an informatic platform for shared resources	55	55
9	Continuing education	Paramedical staff extra hours (in hospitals)	50	50
Developing an educational offer for decision-makers within the One Health Institute				
10	Design and courses engineering	1 educational engineer (100%)	250	250
11	Management & coordination	Part-time project manager (50%)	125	125
12	Pedagogic/administrative coordination (3 teaching sites)	Part-time pedagogic/administrative assistant	87	87
13	Course engineering	Design and development of a digital collaborative tool	58	58
14	Implementation of the continuing education programme	Organization and implementation of 4 courses sessions/year in France	330	330
15	Certification of the continuing education programme	Certification and registration of the OHI training session in France Compétences	25	25
16	Mission expenses	Travel/Accommodation of experts for the educational programs	50	50
17	Mission expenses	Meetings of the OHI governance members	35	35
18	Dissemination & communication	OHI dissemination, promotion, communication actions	23	23
19	Management & coordination	Operational costs	20	20
Connecting EID@Lyon educational pillars and continuing education actions				
20	Design and courses engineering	1 educational engineer (100%)	250	250
21	Business model development	1 business developer (100% - starting Year 4)	84	84
22	Pedagogic equipment	Equipment of a hybrid classroom (face-to-face & visio conference)	35	35
23	Mission expenses	Travel/Accommodation of experts for the educational programs	95	95
Management, Dissemination and Communication actions of EID@Lyon & OHI				
24	Management & coordination	1 project manager (100%)	250	250
25	Governance	Meetings of the EID@Lyon governance members	30	84
26	Scientific animation	Annual meeting organisation & Travel/Accommodation costs of invited speakers	105	35
27	Summer schools	2 Summer Schools organised	118	95
28	Dissemination & communication	EID@Lyon dissemination, promotion, communication actions	64	250
29	Management & coordination	Legal and financial assistance, financial reporting	30	84
30	Management & coordination	Operational costs	40	35