



ANTICIPATE

IDENTIFY

DELIVER

FOR A FRANCE
READY TO FIGHT
EMERGENT
INFECTIOUS DISEASE
IN A BORDERLESS
WORLD

BCF2i FRENCH INFECTIOUS
DISEASE BIOCLUSTER



ASSISTANCE
PUBLIQUE
HÔPITAUX
DE PARIS



Université Claude Bernard Lyon 1



A NEW MODEL FOR A NEW WORLD

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INCREASE RISK OF EPIDEMICS & PANDEMICS

- Increase in the emergence of infectious diseases, mostly zoonoses
- Increase in the emergence of resistance to antimicrobial agents (AMR)

CREATION OF A FRENCH BIOCLUSTER FOR INNOVATION IN INFECTIOUS DISEASES (BCF2i)

DELIVER

PROVIDE NEW SERVICES & PRODUCTS TO THE MARKET

- Catalyst of collaborations and innovations
- Ecosystem with an integrated incubator
- Independent, pragmatic and agile structure

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COVID-19: VULNERABILITY OF OUR HEALTH SYSTEM

- Need to actively anticipate the profiles of future emerging infectious diseases and response for their control



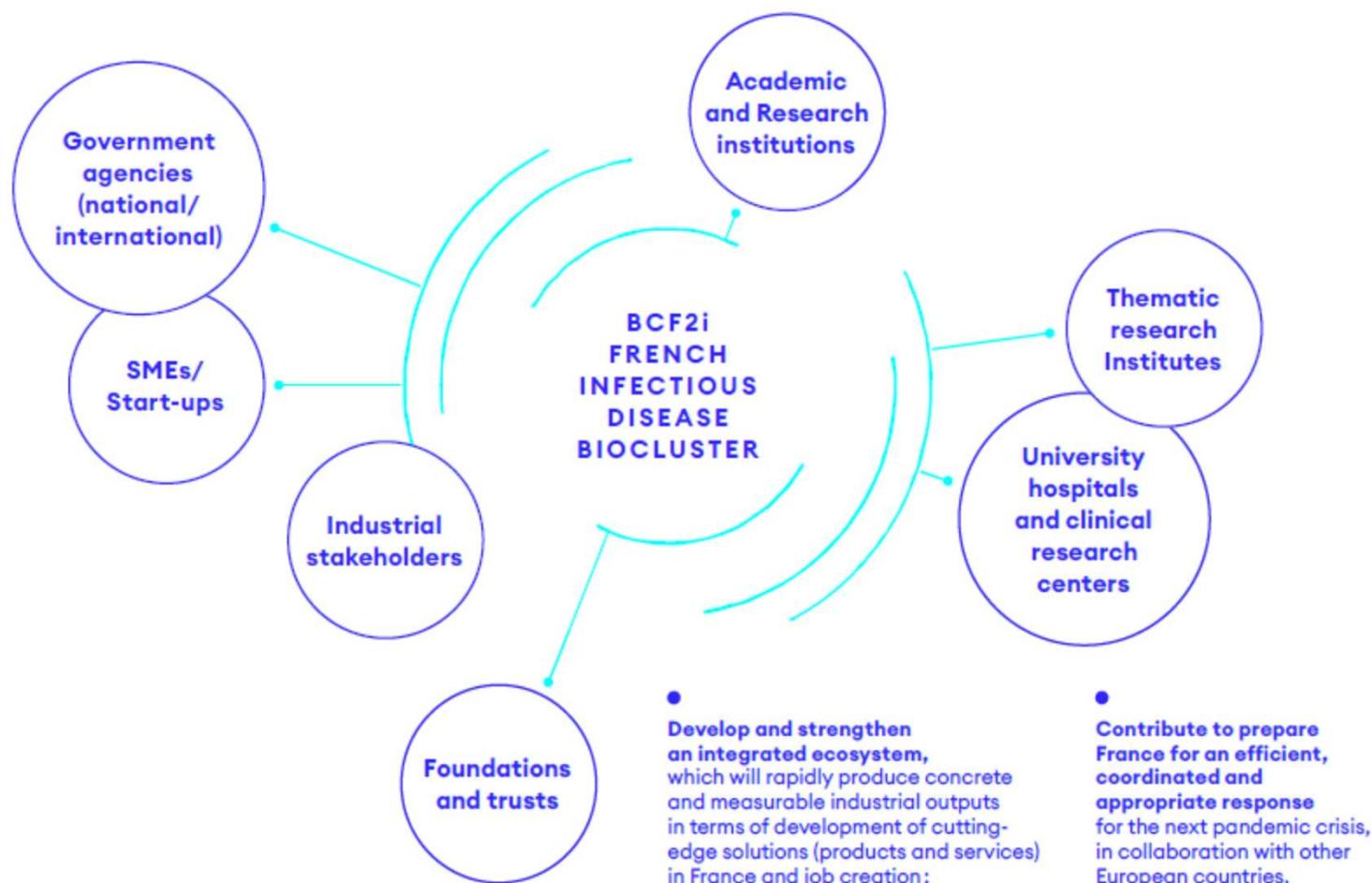
One Health

Fully integrated in the national acceleration strategies for emerging infectious diseases and biomanufacturing initiative

Comprehensive public and private partnership

Breaking down historical silos

AN INNOVATION ECOSYSTEM IN CAPACITY TO GATHER, BUILD AND DEVELOP UNIQUE SOLUTIONS



Activate a powerful community from innovation to manufacturing

•
Cornerstone of an ambitious strategy against emerging infectious diseases

•
Strong connection to the main European health networks and key international organisations

CREATE A SCIENTIFIC AND INDUSTRIAL ACTIONABLE FRAMEWORK



Support for
Epidemiological
surveillance and
monitoring tools

Pathogen X
and AMR
monitoring

Development
of diagnostic
strategies
and tests

Development
of new
vaccines

Development
of treatments

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Implement a dual
innovation process

- Competitive
intelligence
& continuous
mapping

- Support crisis
simulations existing
processes

- Enhance and
densify french
biological
entrepreneurial
community

NEW AVENUES AND FAST ACCESS TO THE MARKET

STUDIES OF VIRUS-HOST-VECTOR INTERACTIONS

- The International Research Center for Infectious diseases (CIRI)
- Inserm and Jean Mérieux P4 Laboratory
- Major research platforms (Labex Ecofect, InfectioTron...)
- Universities and centers of excellence (Lyon1, INP, Mines Saint-Etienne, Polytech, ENS Lyon)

- Institut Pasteur
- Université Paris Cité
- Veterinary approach and comparative medicine (INRAE, VetAGroSup, HUB_VPH)

- ANSM
- ANSES
- ANRS - MIE
- WHO

EPIDEMIOLOGICAL SURVEILLANCE

- 3 National Reference Laboratories for zoonoses
- 7 National Reference Centers for Communicable Diseases
- Aurobac
- MIAI Grenoble Alpes Institute

CREATION AND SUPPORT OF NEW COMPANIES, ACCELERATION OF PROJECTS

- Lyonbiopole

BCF21 FRENCH INFECTIOUS DISEASE BIOCLUSTER

DEVELOPMENT OF DIAGNOSTIC METHODS

- CEA Leti
- RHU IdBioRIV research program
- bioMérieux

- Université Paris Cité
- BioAster
- Institut Pasteur

DEVELOPMENT OF PREVENTIVE AND THERAPEUTIC APPROACHES

- Pharmaceutical manufacturers
- Research programs

EUROPEAN AND INTERNATIONAL STAKEHOLDERS

- HERA
- WHO
- GIHSN
- Mérieux foundation network
- Institut Pasteur network
- Bill and Melinda Gates Foundation
- Wellcome Trust
- Jean Mérieux P4 network

- IABS, international consensus on practice in vaccinology and biotherapeutics
- Large network of SMEs (Fab'entech, Osivax, Fareva, Nexbiome, Seqens, Nosopharm, Novasep, ABL, erytech, Cynbiose...)
- Clinical investigation centers (CHUs, APHP, HCL)
- Finovi
- Industrial partners: BD, Evotec, Sanofi, Boehringer Ingelheim
- Vaccinology Clinical Investigation Centre



Fast track

•
Regulatory

•
Global approach

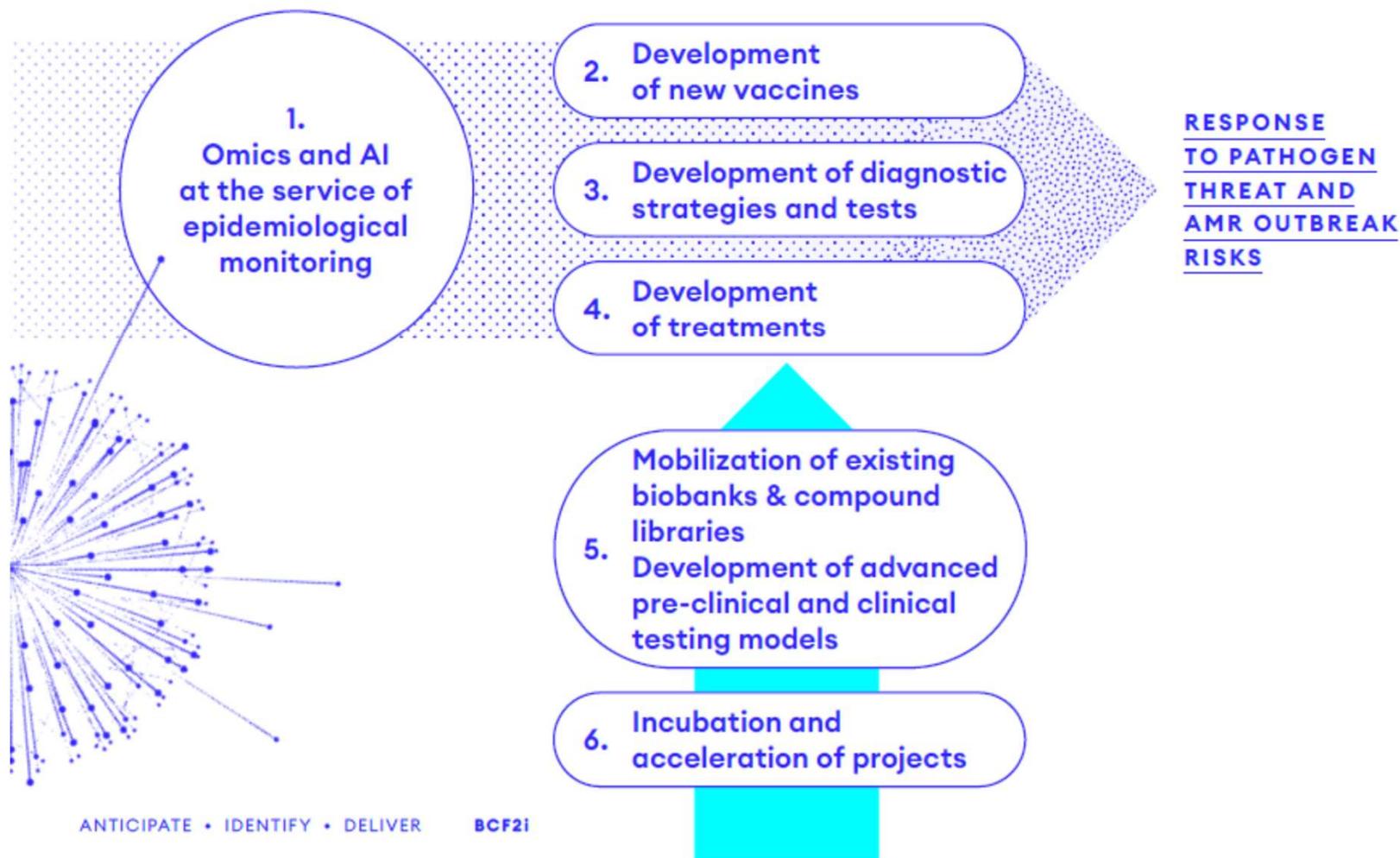
•
Partnerships

•
International network

•
Result oriented

•
North/South perspective

SIX INTEGRATED PLATFORMS TO DELIVER BREAKTHROUGH INNOVATION

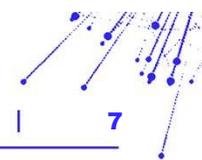


Six decentralized platforms to support breakthrough innovation

• Pragmatic approach based as much as possible on existing capabilities

• Development of innovative and top-notch solutions

• Innovative “enablers” to accelerate and improve the development of solutions

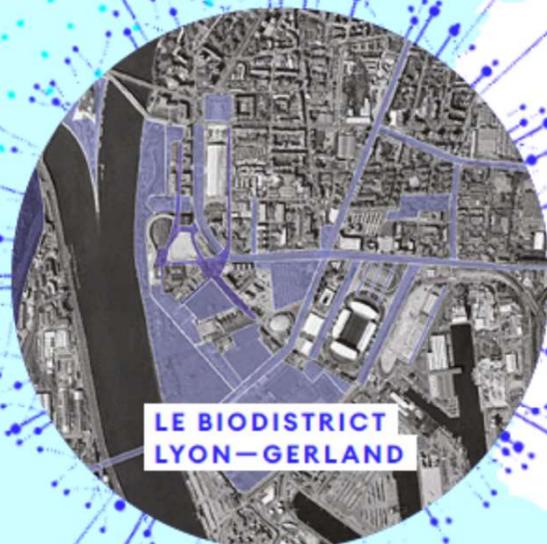


6 technology platforms to catalyze innovative projects, bring products and services to market and become “attractiveness markers” in the region

#	Title of the platform	Description of the platform
1	Omics and artificial intelligence at the service of epidemiological monitoring	<ul style="list-style-type: none"> – Acceleration platform for artificial intelligence in epidemiology and infectious diseases – Use of existing surveillance data to identify pathogens at risk (emerging and resistant) and possible vaccine strains
2	Innovative development and evaluation strategies new vaccines including personalised medicine	<ul style="list-style-type: none"> – Development of delivery systems for vaccine antigens – Development of predictive models of reactogenicity, immunogenicity, identification and exploitation of companion biomarkers
3	Innovative and rapid diagnostic methods	<ul style="list-style-type: none"> – Acceleration Platform for Emerging Pathogen X and AMR Diagnostic Tools – Innovation platform and development of diagnostic tests – Standardised, automated, high-throughput tools with targeted or non-targeted approaches and associated bioinformatics analyses
4	Targeted therapeutic response to an identified pathogen	<ul style="list-style-type: none"> – Multimodal referral platform: as soon as a new target is discovered, to direct the teams to the most suitable new molecule discovery platform(s) (gene therapy, mab, ADC, small molecules, phagotherapy)
5A	Strategy for the identification, assessment and upstream banking of "generic" therapeutic resources anticipating an emergence	<ul style="list-style-type: none"> – Pipeline of predictive models against pathogen X or antimicrobial resistance – Multi-therapeutic "Plug & Play" industrial screenings
5B	Instruments and technological tools for accelerating the innovation and evaluation of products and devices	<ul style="list-style-type: none"> – Preclinical <i>in silico, in vitro and in vivo</i> models to rapidly screen and test preventive, diagnostic and therapeutic solutions – Innovative clinical trial platform integrating <i>in silico</i> trials, artificial intelligence models (e.g. "digital twins")
6	Incubation and Acceleration Programme	<ul style="list-style-type: none"> – Creation or support of start-ups/small and mid-size companies in the development, production, clinical validation and marketing of products or services to combat infectious diseases

A FLAGSHIP BUILDING TO FOSTER CROSSFERTILISATION, HYBRIDATION AND EMERGENCE OF START-UP

Biodistrict Lyon Gerland is a unique place gathering not only headquarters of worldwide leaders and multiple biotech Sme's and start up but also universities, academic research centers, WHO agencies or bio manufacturing sites.



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LARGE SET OF RECOGNIZED TRAINING INSTITUTIONS IN LYON AND PARIS, SPECIFICALLY IN INFECTIOUS DISEASES TRAININGS:

110
TRAINING COURSES

more than
12,000
STUDENTS IN HEALTHCARE

+ de
5 000
EMPLOIS EN SANTÉ ET BIOTECHNOLOGIES

1^{er}
INSTITUT DE RECHERCHE TECHNOLOGIE SANTÉ
Bioaster, dédié à la recherche en infectiologie et microbiologie

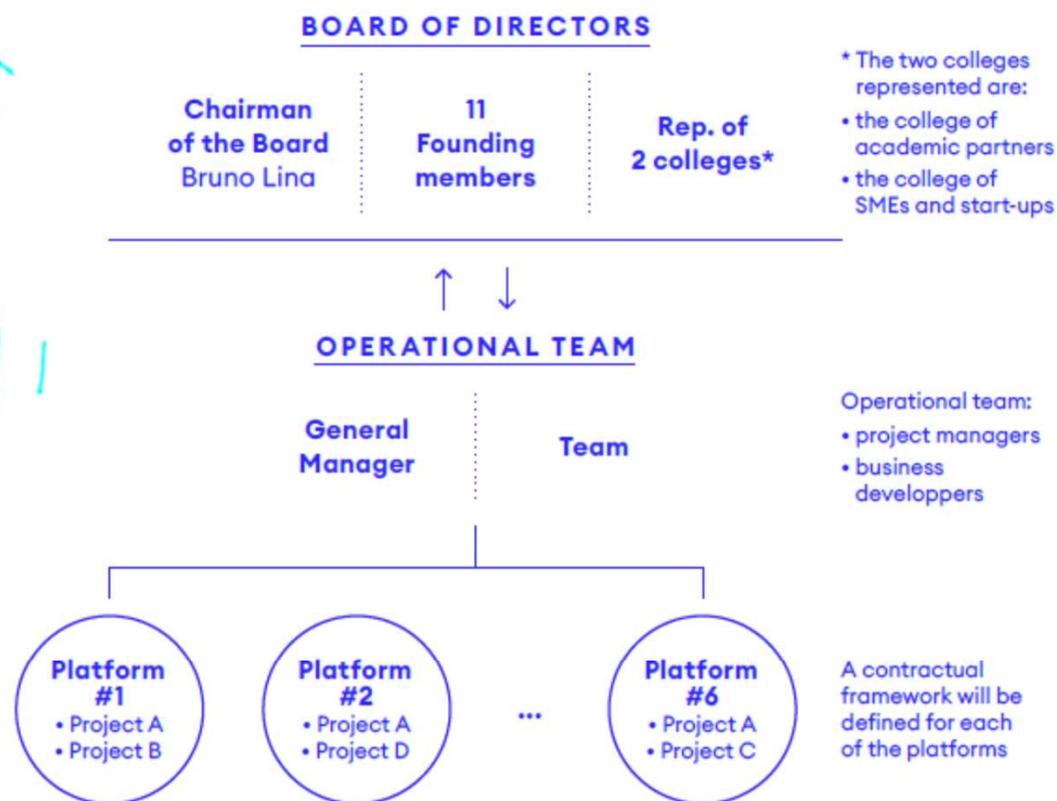
2 750
CHERCHEURS

50
ACTEURS MAJEURS dont des leaders mondiaux

INTERNATIONAL INSTITUTIONS AND FACILITIES
CIRC (WHO), Academy (WHO), Laboratory P4

1^{er}
PÔLE SANTÉ FRANÇAIS
Lyonbiopôle, animateur de la filière santé en Rhône-Alpes

LIGHT, AGILE, REACTIVE AND GENDER BALANCED GOVERNANCE



↓

COMMITTEES:

- Ethical committee
- +
- Crisis management committee
-
- Managed as a non profit organisation (association loi 1901)

MAJOR PUBLIC HEALTH THREAT: MOBILIZATION OF TOP LEADERS FOR A SIGNIFICANT WORLDWIDE IMPACT

FOSTER THE EMERGENCE OF NEW PRODUCTS AND SERVICES BY DEVELOPING COOPERATION BETWEEN STAKEHOLDERS

- Stimulate trans- and multi-disciplinary cooperation with a One Health perspective
- Acceleration of market access for innovative products and services

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MAKE FRANCE A LEADER IN THE FIELD OF EMERGING INFECTIOUS DISEASES AND THE FIGHT AGAINST MULTI- RESISTANT BACTERIA

- Industrial leadership in this field with emergence of new players
- Quick access to solutions in the likely event of a new pandemic
- Elimination of barriers that hinder the innovation process

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