F-CRIN Network

i-reivac

Innovative clinical research network in vaccinology

Présentation du Centre de vaccinologie et Immunothérapie (CVI) Institut Pasteur, Paris

Guillemette Masse-Ranson

CVI

CENTER FOR VACCINOLOGY AND IMMUNOTHERAPY

INSTITUT Pasteur

Center for Vaccinology and Immunotherapy (CVI)

(created December 2023)

MISSION

Coordinate scientific efforts to conduct transformative vaccinology and immunotherapy research and development to fight infectious diseases and resistant pathogens, and to be prepared for the next pandemic threat.

Director: Pr. James DI SANTO, MD, PhD

Deputy Director: Dr. Guillemette MASSE-RANSON, PhD

- A transversal center dedicated to the 'continuum' of vaccine and immunotherapy (IT) research and development
- 60 teams including 51 Research Units, 8 Platforms and the IP Medical Center
- Vaccine and IT discovery, technologies, product development, clinical research and education
- Diverse vaccine/IT prototype portfolio managed by DARRI in early-/late-stage clinical development in collaboration with a network of biotech/ industrial partners.
- Member of national France Vaccins initiative that includes key partners (Inserm, Univ Paris C, CEA, AP-HP)
- Longstanding collaboration with CIC Cochin-Pasteur for vaccine and IT clinical trials (member of I-REIVAC network)
- Founding member of the European Vaccines Hub (EVH) providing 'end to end' vaccine and mAb prototype development for pandemic preparedness

European Vaccine Hub

EUROPEAN VACCINES HUB

- 8 EU Partners: Rino Rappuoli - coordinator
- 10 Institut Pasteur (IP) Teams (+affiliated teams)
- IP : Pre-clinical Pillar 2 Lead
- 110M€ EU/HERA Support (2025-2028)

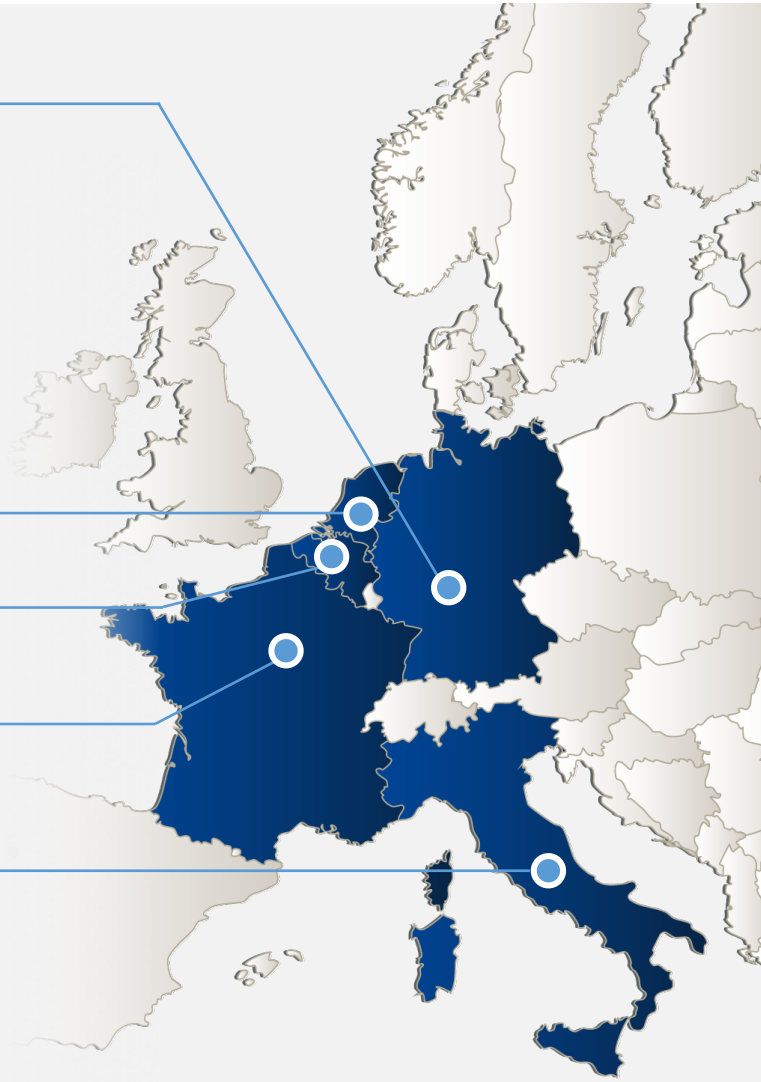
- **Center for Pandemic Vaccines and Therapeutics – ZEPAI**
- **Deuch Zentrum für Infektionsforschun – DZIF**
- Philipps-Universität Marburg – UMR
- Helmholtz Zentrum München – Deutsches Zentrum für Ymwelt und Gesundheit – HMGU
- Helmholtz Centre for Infection Research – HZI
- Ludwig-Maximilians-Universitaet Muenchen – LMU
- Stiftung Tierärztliche Hochschule Hannover – TiHo
- Technische Universität München – TUM
- Universitätsklinikum Köln AöR – UHC
- Universitätsklinikum Hamburg-Eppendorf – UKE
- University of T¨bingen – UT
- Instituto de Biologia Experimental e Tecnologica – iBET

- **Leid University Medisch Centrum – LUMC**

- **University of Antwerp – Vaccinopolis**
- **Université libre de Bruxelles – ULB**

- **Institut Pasteur – IP**
- Institut national de la santé et de recherche médicale – INSERM
- Commissariat à l'énergie atomique et aux energies alternatives – CEA

- **Sclavo Vaccines Association ETS – SVA**
- **Fondazione Biotecnopolo - FBS**
- Instituto Zooprofilattico Sperimentale delle Venezie – IZSVe
- Università degli Studi di Siena – UNISI
- VisMederi
- Norwegian Institute of Public Health – NIPH
- Reithera Srl



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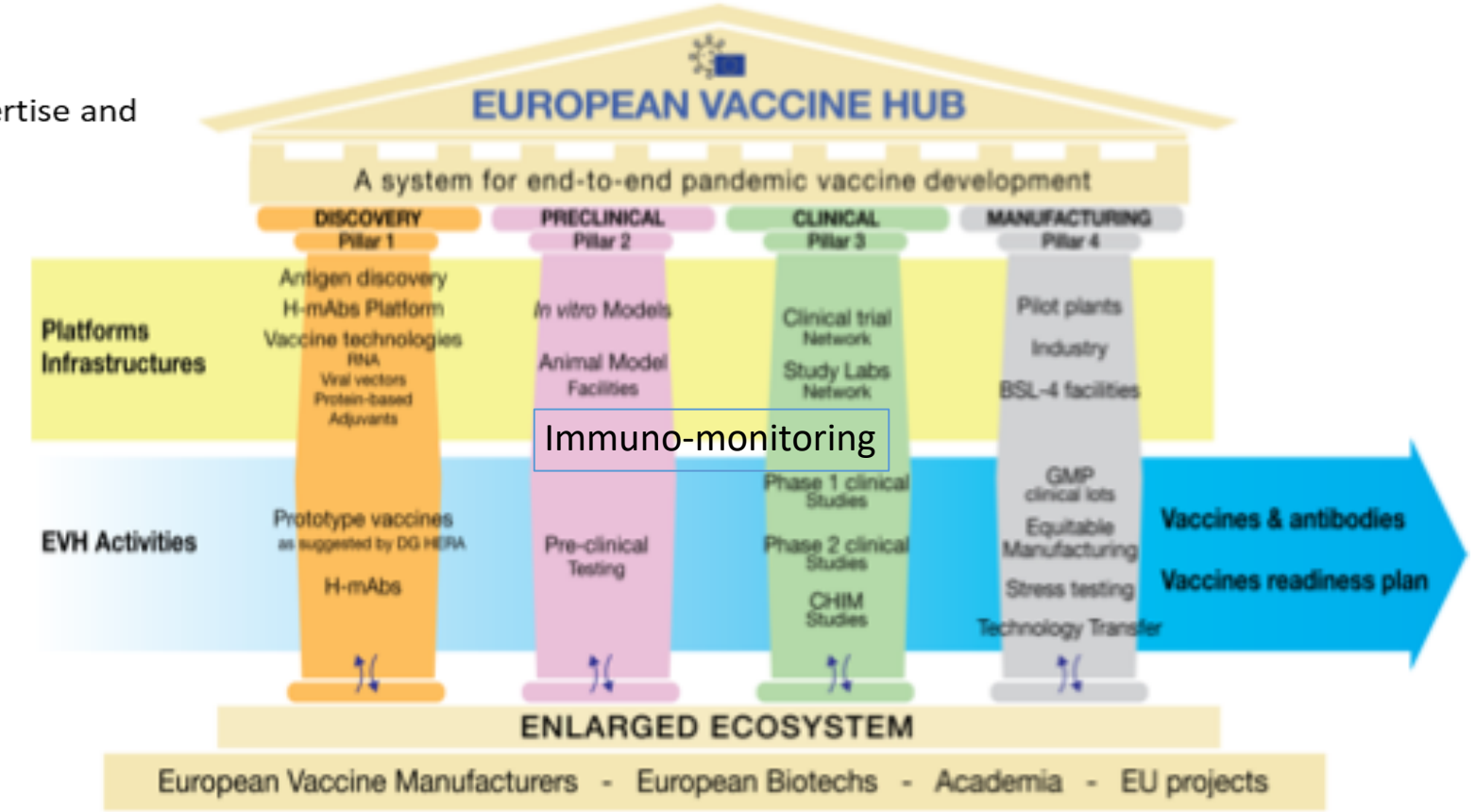
European Vaccine Hub

Ensure Europe's vaccine readiness for pandemics

Strengthen European strategic autonomy and competitiveness in vaccine R&D

Providing a reservoir of EU vaccine expertise and candidate vaccines

EVH
EUROPEAN VACCINES HUB



Preclinical models availability at IP and key partners and BSL3/ASL3 capacities

ASL3

Mouse models

- 500+ strains including IFNAR-/-
- HLA transgenic mice
- Collaborative Cross mice
- Pathogens : H5N1, CHIKV, WNV, Mpox…

Accessibility: C2RA team (Jean Jaubert), Mouse Genetics Lab (Christian Vosshenrich) EVH (German partners)

ASL3

Hamsters

- Respiratory pathogen modeling
- Aerosol transmission system for hamsters (H5N1)
- Vaccine immunogenicity

Accessibility: PF-CCB (Fabrice Agou) And EVH

ASL3

Ferrets

- Respiratory pathogen modeling (influenza)
Limitations: More expensive and complex than hamster models, require group housing

Accessibility: ANSES, collaboration or EVH (German partners), **not at IP now**

ASL3

Humanized mice

- Models for HIV, HBV, EBV, CMV
Limitations: Limited B cell and antibody responses

Accessibility: Human Disease models platform (Mathilde Dusséaux), Jim Di Santo (Innate Immunity Unit)

ASL3

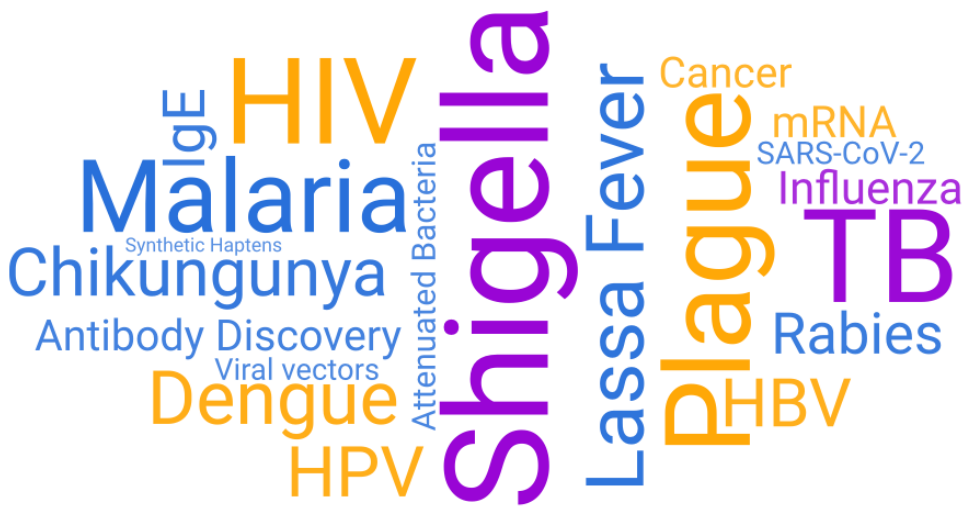
NHP

- SIV, resp pathogens, Vector borne diseases, Flavi, Arbo, Pox V... High Correlation with human Correlates of protection + pathogenicity
Limitations: Expensive models, different MHC
Accessibility: IDMIT, CEA affiliated entity of IPP for EVH

In vitro models

- Vacc. immungenicity in human cultures
- T cell priming capacity in classical DC/PBMC co-cultures
- Evaluation of memory B cell responses in a lymphoid OOC model
To be developed: Skin models, Nose-on-chip, new generation lymphoid OOC with T and B cell priming capacity (R&D)
Accessibility : Lisa Chakrabarti, Samy Gobaa

Vaccine pipeline at Institut Pasteur



- 3 vaccine candidates ongoing clinical phases (I, II, III)

(Chickungunya, Shigella, Lassa)

- 6 vaccine candidates in mature preclinical stages

(Malaria, Plague, Arenaviruses-combo MOPEVACnew, Crimean-Congo, Dengue-lenti, Dengue-mRNA)

Variety of vaccine platforms

MV-CHIKV – Recomb. viral vector

Preparation of a phase **I**(age de-escalating) -**III** in Africa

Plan for a CHIM study with EVH (IPP, Vaccinopolis, CIC Cochin)

MOPEVAC-Lassa – Recomb. viral vector

Preparation for Phase **I** (IPP, CIC-Cochin)

Shigella quadrivalent – Glycoconjugate

On going plans for Phase **I** in Africa

Yersinia – live attenuated

Mucosal vaccine, grant application for a phase I trial (IPP, CIC-Cochin)

Malaria (P. falciparum, P. vivax) – LNP mRNA

Preclinical mRNA vaccine designs (Gates/Path)

Thank You / Merci

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