

Coordinators meeting - EU funded Ebola projects

19 January 2015

Brussels

PREDEMICS EBOLA activities

Sylvie van der WERF
PREDEMICS coordinator
Institut Pasteur

FP7-HEALTH.2011.2.3.3-1: Identification of factors promoting the emergence of pathogens with human pandemic potential from pathogens with a zoonotic background and related prevention strategies

Preparadness, prediction and prevention of emerging zoonotic viruses with pandemic potential using multidisciplinary approaches

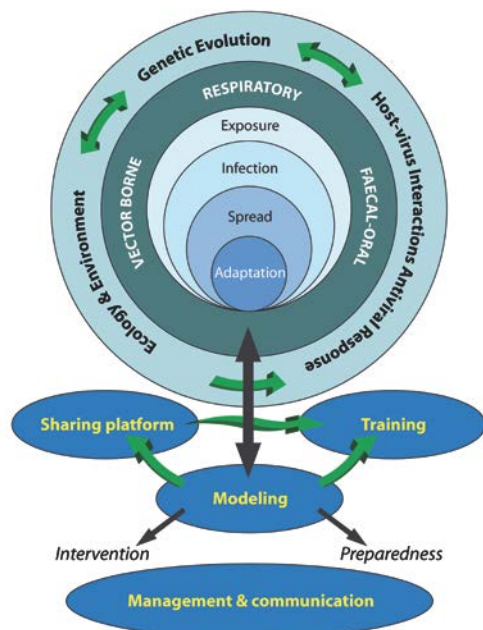
Coordinator: Sylvie van der Werf (IP)
 Co-coordinator: Hervé Bourhy (IP)
 Project manager: Sophie Ablott (IP)

Project N° 278433 11.75 M€

Start date: 01/11/11

Web site: predemics.biomedtrain.eu

Duration: 60 months



- 1) Which key factors (considering environment, ecology, anthropology, virus evolution and virus-host interplay) are associated with the highest risk of virus emergence?
- 2) What is the impact of the transmission route on viral evolutionary trajectories and cross-species transmission?
- 3) How do viral and host determinants interact to favour/limit the potential for cross-species transmission and adaptation to a new host?
- 4) Which intervention strategies limit most effectively cross-species transmission and spread in the new host?

★ 18 Partners (24 teams) 8 countries

1 (Coordinator)	Institut Pasteur	IP
2	Istituto Zooprofilattico Sperimentale delle Venezie	IZSVe
3	Katholieke Universiteit Leuven	KU Leuven
4	Aix-Marseille Université	AMU
5	Eidgenössisches Departement des Innern	EDI-IVI
6	Imperial College of Science, Technology & Medicine	IMPERIAL
7	Agence Nationale de Sécurité Sanitaire de l'Alimentation, de l'Environnement et du Travail	ANSES
8	Max Planck Gesellschaft zur Foerderung der Wissenschaften E.V.	MPG
10	Goeteborgs Universitet	UGOT
11	Philipps Universität Marburg	UNIMAR
12	Istituto Nazionale per le Malattie Infettive L. Spallanzani - IRCCS	INMI
13	The University of Edinburgh	UEDIN
14	Fondazione Istituto per l'Interscambio Scientifico (I.S.I.)	ISI
15	Fondation Health Sciences e-Training	HSeT
16	Istituto Superiore di Sanità	ISS
17	Alma Mater Studiorum-Universita di Bologna	UNIBO
18	Universitat de Barcelona (added as a new beneficiary as from 01/03/2013)	UB
19	Freunde von GISAID e.V. (added as a new beneficiary as from 01/11/2013)	GISAID



○ Partners involved with EBOLA

WP 1 Environment, ecological and anthropological factors *IP (J-C Manuguerra)*

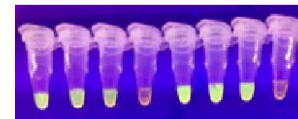
➤ Mobile labs and diagnostics tests :

INMI (G. Ippolito):

- contribution to deployment in Guinea Conacry, Nigeria, Liberia ↔ DEVCO
- technical & scientific coordination for Italian cooperation intervention in Sierra Leone (MoFA, DGDC) expert advice, mobile lab planned in Lakka, Sierra Leone

IP (JC Manuguerra):

- Contribution to set-up of lab in Macenta, Guinea
- Development of **RT-LAMP** for **POC testing** (*coll. CEA-LETI, Grenoble, France*)



➤ Risk Factors :

AMU (X de Lamballerie) : Risk factors associated with Ebola and Marburg virus: **seroprevalence** in blood donors in the Republic of Congo *in press*

UB (J Serra-Cobo): *Expertise in bat population dynamics*

WP 2 Virus and host evolutionary dynamics *K.U.Leuven (P. Lemey)*

UEDIN (A. Rambaut):

- An analysis of the rooting of the EBOV phylogeny and the interpretation of this about the origins of the 2014 outbreak: Dudas G, Rambaut A. (2014) Phylogenetic Analysis of Guinea 2014 EBOV Ebolavirus Outbreak. PLOS Currents Outbreaks. 2014 May 2. Edition 1.
- Detailed analysis of 78 early cases from the Sierra Leone outbreak with geographical, epidemiological and genetic data: Gire et al. (2014) Genomic surveillance elucidates Ebola virus origin and transmission during the 2014 outbreak. Science.

Ongoing work: analysis of additional sequence data (≈ 600) from Sierra Leone. See open forum


<http://virological.org/> → Need for additional sequences from Guinea and Liberia

WP 3 Host-virus interaction and anti-viral response *IP (H. Bourhy)*

INMI (G. Ippolito):

- Host-virus interactions, pathophysiology and transmissibility \leftrightarrow EVIDENT
- Safety and efficacy of anti-Ebola horse antibodies as passive immunity treatment \leftrightarrow IF-EBOLA

IP (S. van der Werf):

- Host-virus interactomics using high-throughput pipelines (planned) \leftrightarrow PREPARE
- **Awaiting authorization for work with select agent sequences** 

WP 4 Sharing platforms *GISAID (A. Hay)*

➤ Ebola sequence database (potential):

GISAID (A. Hay):

- Based on model and accession rules of EpiFlu2 database
- Development based on current development of Lyssavirus database
- Could be hosted by the German BLE

MPG (T. Lengauer):

- Prototype annotation service for Ebola virus sequences available

→ Input from Ebola experts, outside PREDEMICS required, for data annotation and curation

WP 5 Modelling of ecological, genetic and anthropological *IMPERIAL* (C. Donnelly)

➤ Transmission dynamics:

IMPERIAL (C. Donnelly):

- Ebola Virus Disease in West Africa — The First 9 Months of the Epidemic and Forward Projections WHO Ebola Response Team *N Engl J Med* 2014; 371: 1481-1495
- West African Ebola Epidemic after One Year — Slowing but Not Yet under Control WHO Ebola Response Team *N Engl J Med* 2014

↔ WHO

IP (S. Cauchemez):

- Chains of transmission and control of Ebola virus disease in Conakry, Guinea, in 2014: an observational study. Faye et al, *Lancet ID*, in press.

➤ Risk of Importation and spread:

ISI (V. Colizza):

↔ inVS

- Assessing the impact of travel restrictions on international spread of the 2014 West African Ebola epidemic. Poletto C et al. *Euro Surveill.* 2014;19(42)



WP 6 Training *HSeT* (J-P Kraehenbuhl)



Isabel Minguez-Tudela
(1956-2011)

➤ Field lab and Diagnostics training: IP (JC Manuguerra)

- 17 trainees to date

➤ E-learning material (potential): *HSeT* (JP Kraehenbuhl)



Thank you
for your attention

Kick-off Meeting – 22-23/11/2011 – Institut Pasteur