



**Summary of PREDEMICS ongoing and planned activities on ZIKA virus  
and available expertise**

**February 11, 2016**

*Contacts:*

Sylvie van der Werf ([sylvie.van-der-werf@pasteur.fr](mailto:sylvie.van-der-werf@pasteur.fr))

Hervé Bourhy ([herve.bourhy@pasteur.fr](mailto:herve.bourhy@pasteur.fr))

Sophie Ablott ([sophie.ablott@pasteur.fr](mailto:sophie.ablott@pasteur.fr))

Web site: <http://predemics.biomedtrain.eu>

Activity	Comments	Status	PREDEMICS Partner Contacts
<b>Virus evolution</b>			
<b>Virus collection</b>		<b>Has started</b> further depends on access to local strains	AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> ) IP: JC Manuguerra ( <a href="mailto:jean-claude.manuguerra@pasteur.fr">jean-claude.manuguerra@pasteur.fr</a> ) INMI: A.Di Caro ( <a href="mailto:antonino.dicaro@inmi.it">antonino.dicaro@inmi.it</a> )
<b>Sequence analysis Evolution studies  Phylogeny / phylogeography</b>	Pattern associated with microcephaly and other neurological complications	<b>Has started</b> further depends on availability of strains and sequences	AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> ) IP: JC Manuguerra ( <a href="mailto:jean-claude.manuguerra@pasteur.fr">jean-claude.manuguerra@pasteur.fr</a> ) INMI: G. Ippolito ( <a href="mailto:giuseppe.ippolito@inmi.it">giuseppe.ippolito@inmi.it</a> )  KU-Leuven : P. Lemey ( <a href="mailto:philippe.lemey@rega.kuleuven.be">philippe.lemey@rega.kuleuven.be</a> ) UEDIN : A. Rambaut ( <a href="mailto:a.rambaut@ed.ac.uk">a.rambaut@ed.ac.uk</a> )
<b>Reverse genetics system</b>		<b>Has started</b>	AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> )
<b>Structure and evolution of Zika virus proteins</b>		<b>Can start</b>	MPI: T. Lengauer ( <a href="mailto:lengauer@mpi-inf.mpg.de">lengauer@mpi-inf.mpg.de</a> )

<b>Sequence database</b>	To be part of PREDEMICS database on flaviviruses	Under development	GISAID: A. Hay ( <a href="mailto:Alan.Hay@crick.ac.uk">Alan.Hay@crick.ac.uk</a> )
<b>Diagnostics</b>			
<b>Serological tests</b>	development and validation of assays allowing differential diagnostics from other arboviruses; multiplex assays	Ongoing	IP: JC Manuguerra ( <a href="mailto:jean-claude.manuguerra@pasteur.fr">jean-claude.manuguerra@pasteur.fr</a> ) AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> ) INMI: Maria Rosaria Capobianchi ( <a href="mailto:maria.capobianchi@inmi.it">maria.capobianchi@inmi.it</a> ) UGOT: H. Norder (validation) ( <a href="mailto:helene.norder@gu.se">helene.norder@gu.se</a> )
<b>Molecular tests</b>	Comparison/validation of RT-PCR assays ; development of field tests. •	Ongoing Alternatives to the Altona assay already available with same/better performances (AMU)	IP: JC Manuguerra ( <a href="mailto:jean-claude.manuguerra@pasteur.fr">jean-claude.manuguerra@pasteur.fr</a> ) AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> ) INMI: C.Castilletti ( <a href="mailto:conchetta.castilletti@inmi.it">conchetta.castilletti@inmi.it</a> ) UGOT: H. Norder (validation) ( <a href="mailto:helene.norder@gu.se">helene.norder@gu.se</a> )
<b>Surveillance/Epidemiology/Clinical studies</b>			
<b>Retrospective studies on pregnancy in French Polynesia</b>	Define the potential correlation between Zika virus infection and microcephaly in newborns	Already started additional funds required for further development	AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> )
<b>Zika virus pathogenesis in humans:</b> potential link with Guillain Barre Syndrome from 2012-2013 outbreak in French Polynesia	In link with various other groups	Completed/ongoing	IP : A. Fontanet ( <a href="mailto:arnaud.fontanet@pasteur.fr">arnaud.fontanet@pasteur.fr</a> )
<b>Surveillance in the Caribbean archipelago and French Guyana</b>	In link w/ Institut Pasteur in French Guyana	Ongoing	IP: JC Manuguerra ( <a href="mailto:jean-claude.manuguerra@pasteur.fr">jean-claude.manuguerra@pasteur.fr</a> ) AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> )
<b>Evaluation of blood donation safety</b>		Can start/ Launched by the French Blood bank to be operational before the end of February (AMU)	AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> )
<b>Vector-Virus interactions</b>			
<b>Vector competence</b> comparison for different Zika virus isolates		Can start	IP: V. Choumet ( <a href="mailto:valerie.choumet@pasteur.fr">valerie.choumet@pasteur.fr</a> )
<b>Comparative proteomics studies</b>	Potential targets block transmission	Ongoing	IP: V. Choumet ( <a href="mailto:valerie.choumet@pasteur.fr">valerie.choumet@pasteur.fr</a> )

<b>ZIKV compartmentalization in the vector and related quasi-species stucturation of the viral population</b>	Similar studies are being conducted with CHIKV and Dengue	additional funding required for further development	IP: M. Vignuzzi (marco.vignuzzi@pasteur.fr)
<b>Virus-Host interactions</b>			
<b>Interactomics studies</b>	<ul style="list-style-type: none"> <li>• Ongoing for JEV and WNV</li> <li>• High through-put genome wide interactomics</li> <li>• Pathway-oriented screening</li> </ul>	Can start Additional funding required	IP: N. Pardigon ( <a href="mailto:nathalie.pardigon@pasteur.fr">nathalie.pardigon@pasteur.fr</a> ) IP: Y. Jacob, N. Naffakh ( <a href="mailto:yves.jacob@pasteur.fr">yves.jacob@pasteur.fr</a> ; <a href="mailto:nadia.naffakh@pasteur.fr">nadia.naffakh@pasteur.fr</a> )
<b>Role of (and targeting of) polyamine synthesis pathway</b>	<ul style="list-style-type: none"> <li>• potential for therapeutic approaches</li> </ul>	Ongoing in parallel w/ CHIKV, DENV, SIN	IP: M. Vignuzzi (marco.vignuzzi@pasteur.fr)
<b>Neuropathology: In vitro models ; evaluation of Zika virus tropism and comparison with DENV, JEV, WNV and USUV</b>	Primary human cells, cerebral organoids and human and animal cell lines	Can start ; additional funding required for further development	IP: N. Pardigon ( <a href="mailto:nathalie.pardigon@pasteur.fr">nathalie.pardigon@pasteur.fr</a> ) IP: H. Bourhy ( <a href="mailto:hbourhy@pasteur.fr">hbourhy@pasteur.fr</a> ) EDI-IVI: A. Summerfield ( <a href="mailto:Artur.Summerfield@ivi.admin.ch">Artur.Summerfield@ivi.admin.ch</a> ) INMI: G. Ippolito ( <a href="mailto:giuseppe.ippolito@inmi.it">giuseppe.ippolito@inmi.it</a> )
<b>Innate immune responses</b> Interaction of ZIKV with human gamma delta T cells interaction of ZIKV with human IFN system	Systems available	Ongoing or can start	INMI: C. Agrati ( <a href="mailto:chiara.agrati@inmi.it">chiara.agrati@inmi.it</a> ) EDI-IVI: A. Summerfield ( <a href="mailto:Artur.Summerfield@ivi.admin.ch">Artur.Summerfield@ivi.admin.ch</a> ) ISS: I. Di Bartolo ( <a href="mailto:ilaria.dibartolo@iss.it">ilaria.dibartolo@iss.it</a> )
<b>In vitro models for evaluation of trans-placental transmission</b>	Systems available	Can start	UNIBO: V. Sambri, G. Rossini ( <a href="mailto:vittorio.sambri@unibo.it">vittorio.sambri@unibo.it</a> ; <a href="mailto:giada.rossini@unibo.it">giada.rossini@unibo.it</a> ) IZSVE: F Bonfante, P De Benedictis ( <a href="mailto:FBonfante@izsvenezie.it">FBonfante@izsvenezie.it</a> ; <a href="mailto:pdebenedictis@izsvenezie.it">pdebenedictis@izsvenezie.it</a> ) INMI: G. Ippolito ( <a href="mailto:giuseppe.ippolito@inmi.it">giuseppe.ippolito@inmi.it</a> )
<b>Animal models evaluation of neuropathology</b>	Mouse Mouse IFNAR KO	Already started; additional funds required for further development	IP: V. Choumet ( <a href="mailto:valerie.choumet@pasteur.fr">valerie.choumet@pasteur.fr</a> ) IP: N. Pardigon ( <a href="mailto:nathalie.pardigon@pasteur.fr">nathalie.pardigon@pasteur.fr</a> ) IP: H. Bourhy ( <a href="mailto:hbourhy@pasteur.fr">hbourhy@pasteur.fr</a> ) AMU : R. Charrel ( <a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a> )

<b>In vivo models for evaluation of transplacental transmission</b>	<p>Mouse</p> <p>Rabbit</p>	<p>Additional funding required</p>	<p>IP: N. Pardigon (<a href="mailto:nathalie.pardigon@pasteur.fr">nathalie.pardigon@pasteur.fr</a>)  AMU : R. Charrel (<a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a>)  EDI-IVI: A.Summerfield (<a href="mailto:Artur.Summerfield@ivi.admin.ch">Artur.Summerfield@ivi.admin.ch</a>)</p>
<b>Interventions and control</b>			
<b>Modeling</b> <ul style="list-style-type: none"> <li>• Prediction of spread and dissemination</li> <li>• Impact in public health</li> </ul>		<p>Started or Can start requires availability of data</p>	<p>IP : S. Cauchemez (<a href="mailto:simon.cauchemez@pasteur.fr">simon.cauchemez@pasteur.fr</a>)  IP : A. Fontanet (<a href="mailto:arnaud.fontanet@pasteur.fr">arnaud.fontanet@pasteur.fr</a>)  IMPERIAL: C. Donnelly (<a href="mailto:c.donnelly@imperial.ac.uk">c.donnelly@imperial.ac.uk</a>)  INMI: G. Ippolito (<a href="mailto:giuseppe.ippolito@inmi.it">giuseppe.ippolito@inmi.it</a>)</p>
<b>Ecological studies</b> to understand virus-vector-reservoir dynamics		<p>Funding required</p>	<p>UB : J. Serra-Cobo (<a href="mailto:serracobo@areambiental.com">serracobo@areambiental.com</a>)</p>
<b>Antivirals</b> screening and functional testing of compounds with activity against other flaviviruses; compounds usable during pregnancy		<p>Can start Funding required</p>	<p>AMU : R. Charrel (<a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a>)</p>
<b>Vaccines:</b> genome reencoded attenuated strains	Technology validated for other flaviviruses	<p>Can start Funding required</p>	<p>AMU : R. Charrel (<a href="mailto:remi.charrel@univ-amu.fr">remi.charrel@univ-amu.fr</a>)</p>