



## ALLEGATO 2

### PROJECT DESCRIPTION<sup>1</sup>

#### TITLE:

**Unraveling the Molecular and Immunologic Mechanisms of Intra-host Persistence in  
Emerging and Re-Emerging Arboviral Infections**

#### ACRONYM:

**GENESIS**

#### PRESENTING ENTITY:

**University of Pisa**

**ID CALL: COC-1-2023-UNIPV**

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<sup>1</sup> To be filled in English





## 1. GENERAL INFORMATION

<b>Title:</b>	Unraveling the Molecular and Immunologic Mechanisms of Intrahost Persistence in Emerging and Re-Emerging Arboviral Infections
<b>Acronym</b>	GENESIS
<b>Project duration</b>	18 months
<b>Total Project Cost (Euro)</b>	2,514,962.50 Euro
<b>Cofinancing (if planned, Euro)</b>	15,000 Euro
<b>Financing requested (Euros)</b>	2,499,962.50 Euro
<b>Abstract</b>	<p>Arboviruses such as Chikungunya virus (CHIKV), dengue virus (DENV), West Nile virus (WNV) and Zika virus (ZIKV) pose a global health threat and have spread in Europe due to climate change, immigration and trade. Their persistence in human and non-human hosts has an impact on transmission dynamics and complicates containment efforts. ZIKV, which is associated with congenital microcephaly, persists in various human cells, crosses the blood-placental barrier and lingers in semen, leading to sexual transmission. The mosquito-borne CHIKV, DENV and WNV occasionally persist in tissues in the post-acute phase. Tick-borne encephalitis virus and Toscana virus also show persistence in humans, associated with chronic and worsening disease. The mechanisms of persistence of arboviruses in humans, which are critical for viral evolution, disease dynamics and public health, are poorly defined. GENESIS aims to comprehensively investigate the molecular mechanisms of arbovirus replication and persistence and their interactions with the host and to identify therapeutic targets. Using in vitro models, the viral replication pathways, tropism, the antiviral properties of host factors and their potential exploitation as drug targets are investigated. Using longitudinal patient samples, antibody responses to biomarkers of pathogenicity and persistence will be investigated, to assist in the design of new diagnostic platforms. The consortium will share resources and expertise and establish a network for data exchange and outreach. In line with the INF-ACT research program, GENESIS aims to improve the understanding of the persistence of these emerging viruses and to develop effective strategies for prevention, treatment and control.</p>
<b>Keywords (up to 5):</b>	Arbovirus, persistent infection, emerging viruses, virus-host interaction, host-targeted drug





## 2. CONSORTIUM COMPOSITION<sup>2</sup>

Consortium	Legal Entity Short Name	Public	Private	Country	Dept./ Division / Laboratory	Scientist-in-Charge
<b>Presenting Entity</b>						
1. University of Pisa	UNIPI	X		Italy	Dept. Translational Research	3
<b>Beneficiaries</b>						
2. University of Trento	UNITN	X		Italy	Dept. Cell Biology	1
3. University of Piemonte Orientale	UPO	X		Italy	Dept. Translational Medicine	2
4. National Institute for Infectious Diseases "Lazzaro Spallanzani" IRCCS	INMI	X		Italy	U.O.C. Laboratorio di Virologia e Laboratori di Biosicurezza	2
5. International Centre for Genetic Engineering and Biotechnology	ICGEB	X		Italy	Molecular Virology Laboratory	2
6. National Cancer Institute "Fondazione Pascale" Napoli	INT-NA	X		Italy	Molecular Biology and Viral Oncology Unit	2
7. IRCCS San Raffaele Hospital	OSR		X	Italy	Immunology, Transplantation and Infectious Diseases/Viral Pathogenesis and Biosafety Unit	1
8. Scylla Biotech Srl	SCYLLA		X	Italy	Infection Models	2
9. Fondazione Telethon ETS	FTELE		X	Italy	Telethon Institute of Genetics and Medicine	2
10. DIESSE Diagnostica Senese SpA	DIESSE		X	Italy	R& D Biotech	2

<sup>2</sup>Minimum 5