

AVITHRAPID PROJECT

The AVITHRAPID consortium “Antiviral Therapeutics for Rapid Response Against Pandemic Infectious Diseases” is part of the Horizon Europe Framework Programme topic “Pandemic preparedness and response: Broad spectrum anti-viral therapeutics for infectious diseases with epidemic potential”, which has been launched with a budget of 50 million EUR to combat and prevent pandemics more efficiently.

Viral diseases represent a major threat to global public health. AVITHRAPID aims to establish a pipeline of early-stage drug candidates based on a set of small molecules whose bioactivity has been shown and which can be rapidly translated into novel antiviral agents against emerging infectious diseases with pandemic potential. In addition, the consortium will conduct a Phase 2a clinical trial for a small molecule developed against Zika virus.

The AVITHRAPID research consortium comprises 18 research institutions and companies from 8 countries bringing together interdisciplinary expertise and approaches including molecular modeling, biochemical and cell-based assays, Macromolecular Crystallography, medicinal chemistry, biophysical binding studies, ADMETox profiling, in vitro and in vivo PK, as well as animal disease models.

The AVITHRAPID Project started in January 2024 with a duration of 54 months and a budget of 7.5 million EUR. The Swiss Partners in the AVITHRAPID consortium are funded by the Swiss State Secretariat for Education, Research and Innovation SERI.



“Better preparation for future pandemics is extremely important. We want to support this by building up a pipeline of preclinical drug candidates that can be used to rapidly identify and develop antiviral agents against emerging infectious diseases.”

Project coordinator Prof. Björn Windshügel, Fraunhofer Institute for Translational Medicine and Pharmacology ITMP, Hamburg

Consortium Members

Germany:

- [Fraunhofer Gesellschaft zur Förderung der angewandten Forschung](#) → Project Coordinator, Lead Participant: Work Package 7 “FAIR Data Management” and Work Package 8 “Project Management”

Italy:

- [Elettra Sincrotrone Trieste S.C.p.A.](#)
- [Università degli Studi di Napoli Federico II](#) → Lead Participant: Work Package 1 “Preclinical Discovery and Medicinal Chemistry”
- [Università degli Studi di Siena](#)
- [Istituto Nazionale per le Malattie Infettive Lazzaro Spallanzani-Istituto di ricovero e cura a carattere scientifico](#) → Lead Participant: Work Package 3 “Clinical Development”
- [Università degli studi di Cagliari](#)
- [Università degli Studi di Roma “Tor Vergata”](#)
- [Università degli Studi della Toscana](#)
- [Dompé farmaceutici SpA](#) → Lead Participant: Work Package 4 “In Silico Resources and Machine Learning”
- [Euresist Network GEIE](#)

France:

- [Université de Tours](#)
- [Institut national de recherche pour l'agriculture, l'alimentation et l'environnement](#) → Lead Participant: Work Package 2 “Preclinical Development”

Czechia:

- [VSB – Technical University of Ostrava](#)

Netherlands:

- [First Health Pharmaceuticals B.V.](#) → Lead Participant: Work Package 5 “Formulation and Delivery”

Portugal:

- [Instituto de Medicina Molecular Joao Lobo Antunes](#)

Latvia:

- [Latvijas Organiskās Sintēzes Institūts](#)

Switzerland:

- [Swiss Tropical and Public Health Institute](#)
 - [Chelonia SA](#) → Lead Participant: Work Package 6 “Dissemination, Patient Outreach & Sustainability”
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Goals & Impact

The overarching goal of AVITHRAPID is to develop novel broad-spectrum antivirals providing additional therapeutic options for current and future epidemics and pandemics based on existent substances with proven efficacy against viral drug targets using a rational pre-clinical drug discovery workflow.

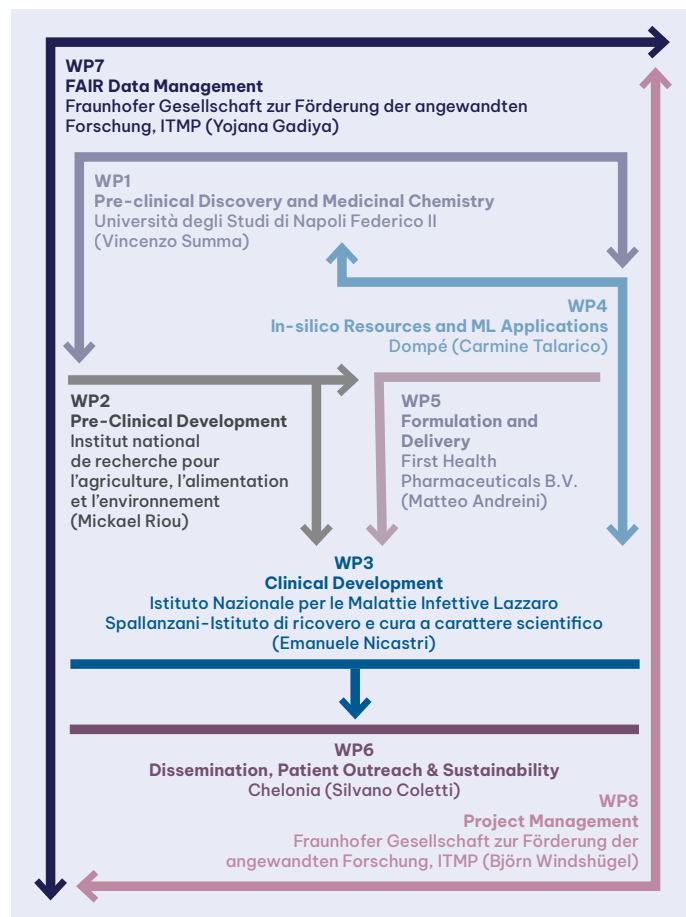
By coordinating cutting-edge capacities and expertise already available in Europe AVITHRAPID will focus on specific objectives:

- **Supporting pandemic preparedness** by provision of novel approaches for the development of antivirals using sophisticated computational methods in combination with experimental validation.
- **Joint development of pre-clinical candidates** based on an available set of small molecules addressing various viral targets with a focus on broad-spectrum applicability
- **Establish a complete pre-clinical drug discovery pipeline** based on the research activities within AVITHRAPID, that allows to react rapidly in case of novel viral infections with pandemic potential.

Approach & Work Packages

Drug discovery is a multidisciplinary effort. AVITHRAPID brings together a team of highly skilled experts in molecular modeling, structural biology, assay development, efficacy and toxicity profiling, animal model testing, and clinical trials. Several partners have successfully worked on the discovery of novel antiviral substances. The unique portfolio of substances ranges from validated hits to pre-clinical candidates with proven in-vivo efficacy. In addition, one pharma partner has identified a small molecule drug against Zika virus that is ready to enter Phase 2a clinical trials.

The AVITHRAPID Consortia is organized in 8 Work Packages (WPs) which operate as an integrated drug discovery value chain. Progress of the portfolio compounds towards early clinical development will be centrally managed in WP8 with the studies conducted in WP1 (Pre-Clinical Discovery and Medicinal Chemistry), WP2 (Pre-Clinical Development), WP3 (Clinical Development), WP4 (in silico resources) and WP5



AVITHRAPID Project Organization in 8 work packages

(Formulation and Delivery). WP7 (FAIR data management) ensures efficient and harmonized management of research data and thereby sustains the usability of AVITHRAPID project data among all partners and beyond the duration of the project. In addition, WP6 (Dissemination, Patient Outreach & Sustainability) will position AVITHRAPID as a comprehensive pre-clinical discovery to early clinical development platform for novel antivirals with special focus on broad-spectrum application.

AVITHRAPID will support open science and knowledge sharing, promoting wide external participation and by organizing a broad range of networking activities including all stakeholders and civil society. AVITHRAPID will mark a turning point in the effectiveness of research establishing a community of practice comprising the infrastructure, expertise, and complete range of stakeholders relevant to discover, develop and manufacture antiviral compounds.

www.avithrapid.eu

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More information:

<https://cordis.europa.eu/project/id/101137192>