

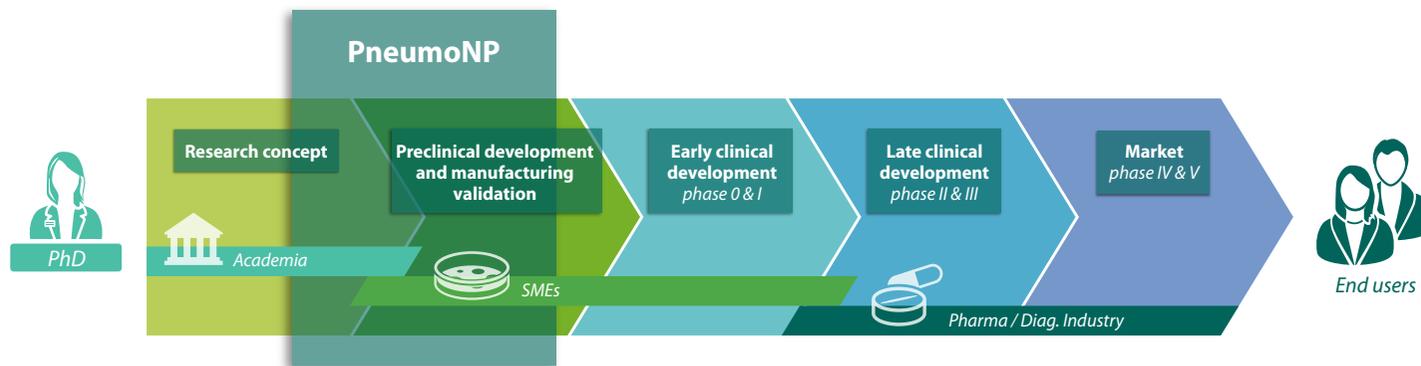
INTRODUCTION

PneumoNP is a research project funded under the European Union's Seventh Framework Programme, involving 11 teams, from 6 different European countries. These partners will actively cooperate in the **nanomedicine value chain as far as preclinical validation**.

The main objective of the project is the development of **a therapy and a diagnosis system for the treatment of lung infection** (pneumonia). The PneumoNP team will focus its attention on infections caused by *Klebsiella pneumoniae*.

At the end of the project, PneumoNP will have generated:

- a new **inhalable drug** combining an antibacterial compound and a nanocarrier;
- a new **inhaler** with an aerosol technology specifically developed for the treatment;
- an innovative **efficiency-efficacy test** to follow-up the treatment;
- a new **diagnostic kit** for the identification of bacteria causing respiratory infections.

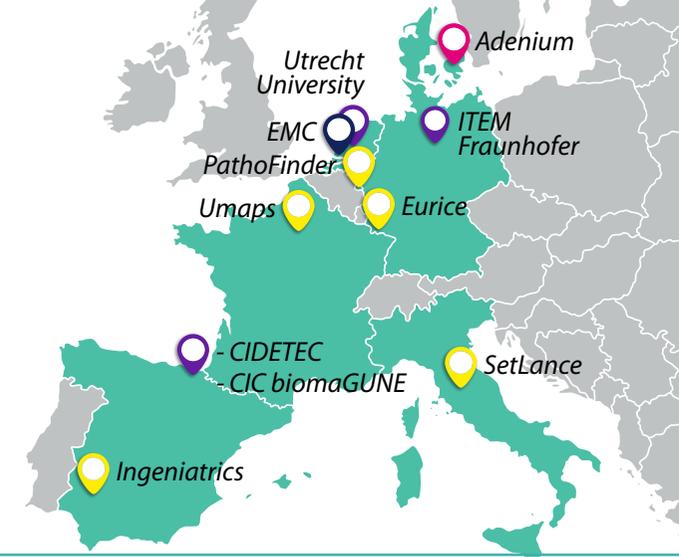


Research institutes/Universities:
CIC biomaGUNE: *in vivo* biodistribution studies in rodents
CIDETEC: scientific coordinator + production and formulation of NCs
Fraunhofer ITEM: *in vitro* studies up to a pulmonary level
Utrecht University: production of lipidic carriers

Clinicians:
Erasmus University Medical Centre: *in vivo* proof of concept studies

SMEs:
EURICE: project management
Ingeniatrics: production of aerosols
PathoFinder: diagnostic kit and efficiency/efficacy test
SetLance: synthesis of antimicrobial peptides
Umaps Communication: dissemination and exploitation

Entreprise:
Adenium: synthesis of antimicrobial peptide



PARTNERS

PneumoNP is involving **11 partners from 6 EU member states**. Each partner has a distinct role in the project. Being specialists in their fields, but located in different countries, means that only access to European-wide research funding can create the combination of research capabilities and company experience that is built into the PneumoNP consortium.

FIGHTING DRUG RESISTANCE:

According to the majority of international stakeholders from the healthcare sector, infections caused by antibiotic resistant bacteria are one of the current major health issues affecting global health, largely due to a lack of effective antibiotic therapies. The broad use of wide spectrum antibiotics over decades has generated bacterial strains that are resistant to most currently available antibiotics. On the other hand, pharmaceutical companies have tended to consider the development of new antimicrobial agents as financially flawed. Therefore, there currently exists a gap between the continuing growth in antibiotic resistance and the active discovery of new antibacterial agents. To help respond to this problem, the PneumoNP consortium has been awarded European union financing to help develop a new theragnostic system for the treatment and identification of antibiotic resistant bacteria associated with respiratory infections. The project combines research into nanotechnology and novel antibiotic compounds.

Pneumo NP

European research project aiming to diagnose and treat antibiotic resistant pneumonia infections

Glossary:

AMP: antimicrobial peptide

API: active pharmaceutical ingredient

Meropenem: antibiotic

NC: nanocarrier

NS: nanosystem

Theranostic: treatment strategy combining therapeutics with diagnostics

Contact:

You can find out more about the PneumoNP project on www.pneumonp.eu. Follow us on Twitter to get the latest news, or on LinkedIn to share your expertise with us!

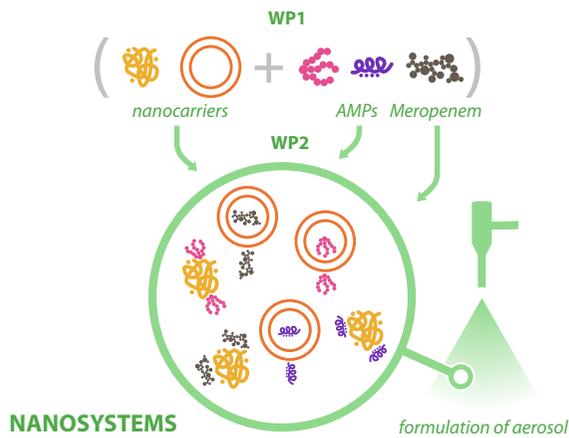
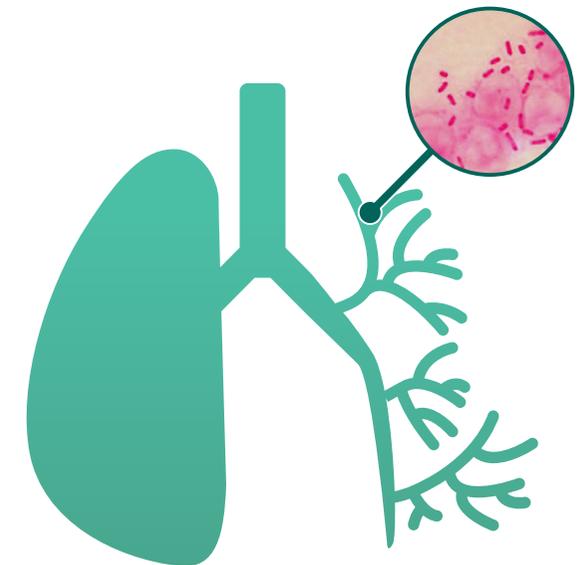


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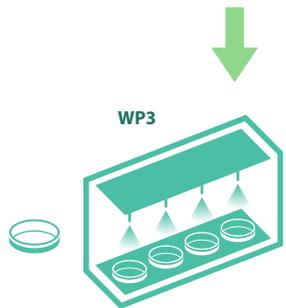
PneumoNP

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NANOSYSTEMS

formulation of aerosol



WP3
in vitro efficacy and cytotoxicity tests / PRIT®
air/liquid interface (ALI) in vitro system



WP4
development of in vitro
efficiency/efficacy test
and detection system

**SELECTION OF
6 NSs**



WP5
in vivo imaging for biodistribution in healthy rats / in vivo
studies in pneumonia animal model; validation
of detection system



**DIAGNOSTIC KIT
AND EFFICIENCY/
EFFICACY TEST**

**SELECTION OF
THE BEST NS**



**POTENTIAL
INHALABLE NANOTHERAPEUTIC
AND AEROSOL
INHALATION SYSTEM**