HAP²

Host-targeted **A**pproaches for **P**revention and treatment *of* **H**ospital-**A**cquired **P**neumonia

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Host-targeted Approaches for Prevention and treatment *of* Hospital-Acquired Pneumonia

HAP² aims to develop stratified host-directed drugs and biomarkers to enhance the prevention and the treatment of hospital-acquired pneumonia (HAP) and develop precision medicine in infectious diseases.

HAP is an infectious disease of major concern in the world, and the most frequent cause of hospital-acquired infections with 500,000 episodes being treated every year in Europe.

Currently, prevention and treatment strategies of HAP are mostly aimed at reducing the bacterial load, in particular by using antimicrobial therapy. HAP is in fact the main cause of antibiotic consumption in European hospitals and is increasingly induced by drug-resistant pathogens: leading to higher medical costs, prolonged hospital stays, and increased mortality. New, alternative and more effective strategies are therefore urgently needed to fight the dangerous rise of antibiotic resistance.

Building on a decade of pre-clinical research, the HAP² project is proposing a complete reappraisal of the physiopathology of HAP, whereby HAP is not induced by the contamination of the respiratory tracts by exogenous pathogens, but results from a dysbiosis between a dysfunctional commensal bacteria and a dampened immunity in hospitalised patients. This reappraisal is a game-changer in the prevention and treatment of this dramatic condition, departing from the prevailing "one-fits-all" approach towards achieving truly personalised treatment of infectious diseases.

FACTS & FIGURES

Start Date: 01/01/2020

End Date: 31/12/2024

Call: H2020-SC1-BHC-14-2019

Grant agreement number: 847782

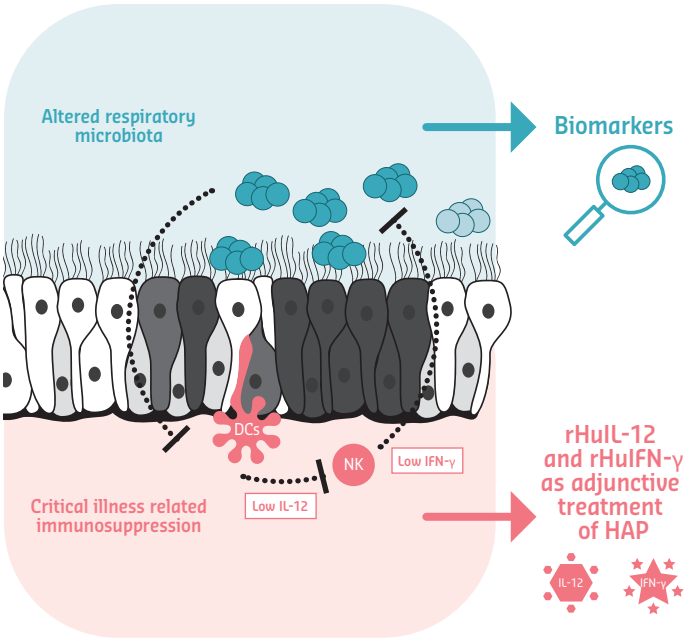
Type of Action: RIA (Research and Innovation Action)

Budget: 9 996 350.25€

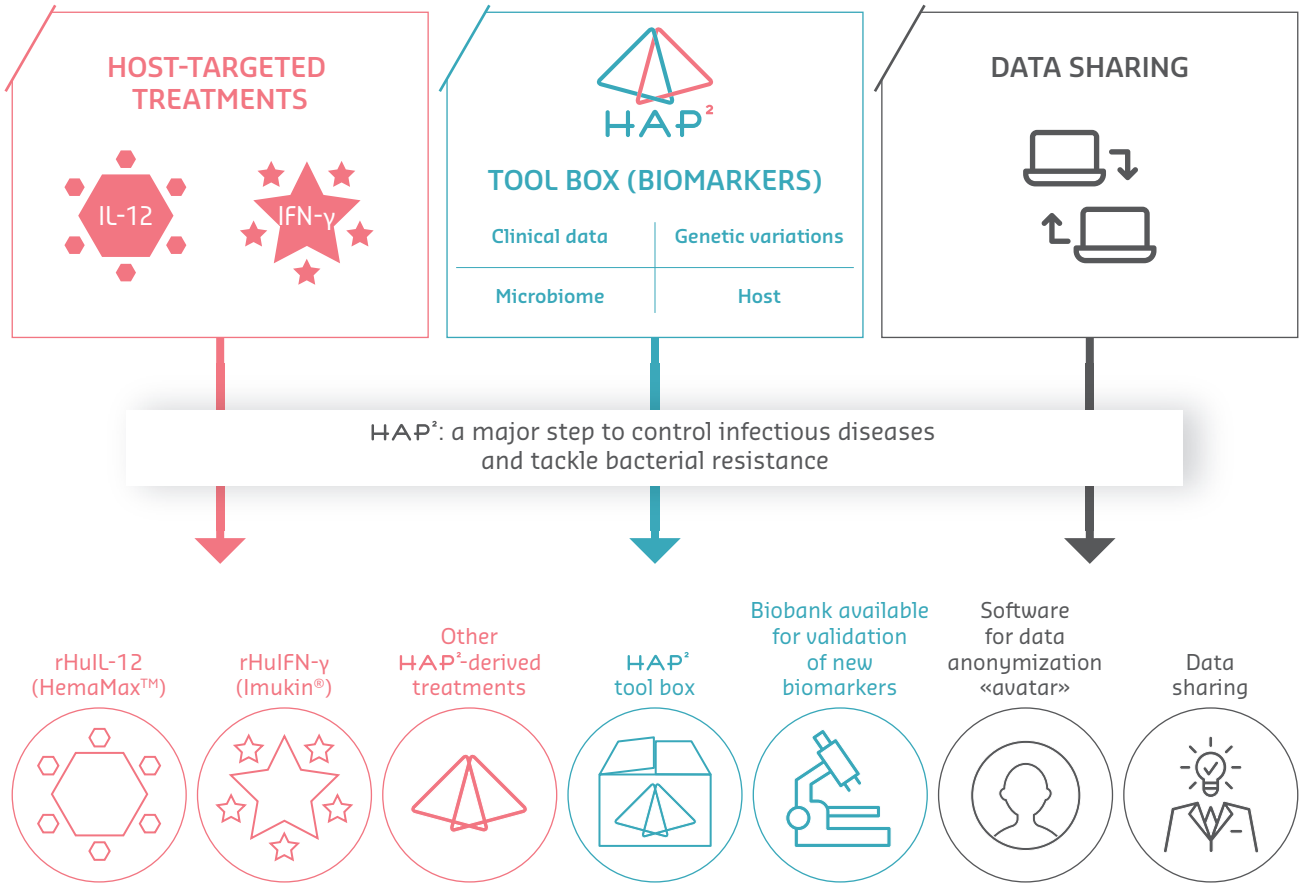
THE HAP² PROJECT AIMS TO REACH THREE GROUND-BREAKING OBJECTIVES

1. **First** demonstrating the clinical proof of concept that host-targeted immunotherapies have the potential to i) reduce the relative risk of HAP in hospitalized patients and ii) improve outcomes of patients with HAP.
2. **Second** validating biomarkers based on an integrative assessment of the host-pathogen interactions, to predict the course of HAP and the response to treatment.
3. **Third** demonstrating the suitability, acceptability by different populations and adaptability in different national health systems of the proposed host-directed immunotherapies.

Emerging concepts: respiratory dysbiosis



EXPECTED RESULTS & IMPACT



CLINICAL TRIALS

Two phase-2, placebo-controlled, randomised, clinical trials are conducted to demonstrate the clinical proof of concept of host-targeted immunotherapies aiming to restore the immune control of the microbiome through the supplementation of the IL-12/IFN-γ axis (defective in patients at risk of pneumonia) for the prevention (PREV-HAP study) and the treatment (TREAT-HAP study) of HAP. Health economics and societal impact (incl. Quality of Life) are also assessed.

600
PATIENTS

≈ 20
HOSPITALS

3
COUNTRIES
France, Greece and Spain

2021 > 2023
PATIENTS'
recruitment

OUR TEAM

HAP²

STAY IN TOUCH

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