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REACT: RESPIRATORY HOST- PATHOGEN INTERACTION

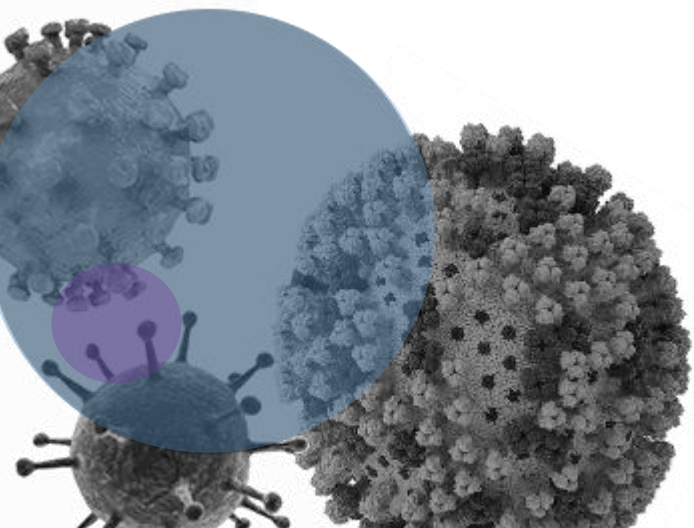
Horizon Europe Framework Programme

Horizon-RIA (Research and Innovation Actions)

Tackling diseases (Horizon-Hlth-2021-Disease-04-07)

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101057129

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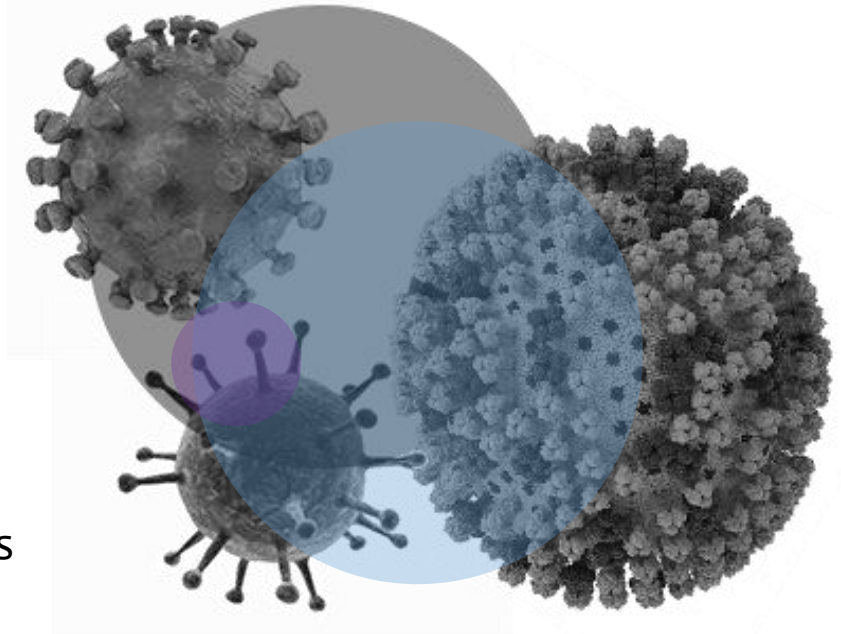
CONTRIBUTING TO PATIENT CARE IN EMERGING INFECTIOUS DISEASES

Lower respiratory tract infections resulting from seasonal epidemics and pandemics are among the **leading causes of death globally**.

The predominant viral etiological agents of lower respiratory tract infections include influenza viruses, paramyxoviruses and coronaviruses.

Regarding health assistance, there is a paucity of treatment options for viral respiratory pathogens, and patient care remains largely supportive.

This underscores a desperate need for **identifying novel targets for prophylactic/treatment interventions and early prediction models of disease outcome to personalise treatments.**

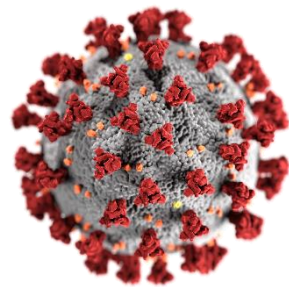


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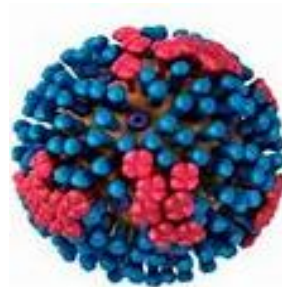
August 2022 – July 2026

PROJECT OBJECTIVES AND MILESTONES

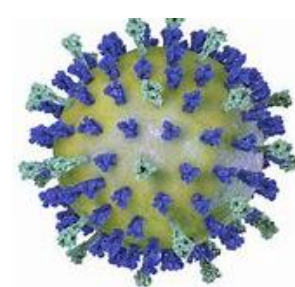
REACT aims to define and to deepen within the **lower tract viral respiratory diseases**, which are the **mechanisms and variables** (genetic, immunophenotypic, demographic and clinical) that affect in the context of the disease course, through the analysis of the **host-pathogen interaction and characteristics**, as well as the **immunological characterisation of emerging viral variants**, focusing on the predominant viruses (**SARS-Cov-2, influenza and respiratory syncytial virus (RSV)**).



SARS-Cov-2



Influenza



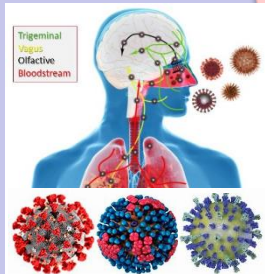
Respiratory
syncytial virus RSV



SCOPE

CHARACTERIZATION OF THE HOST RESPONSE AND HOST-PATHOGEN INTERACTION

Genetic patterns
Physiological mechanisms
Molecular pathways



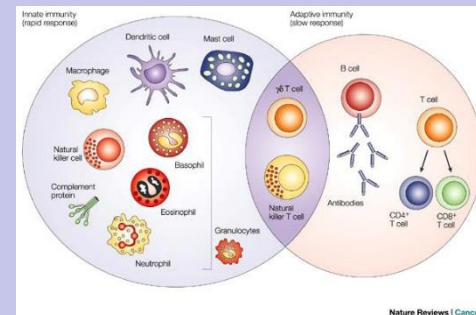
Influenza
(AH1N1 / H3N2)
RSV (A & B)
Sars-Cov-2

Factors that predispose to different **clinical symptoms** and **progression** of the viral disease, leading to **different clinical outcomes**.

DEEP IMMUNOLOGICAL PHENOTYPING OF THE HOST RESPONSE

Dynamics of the innate and adaptive immune responses to the chosen virus(es)

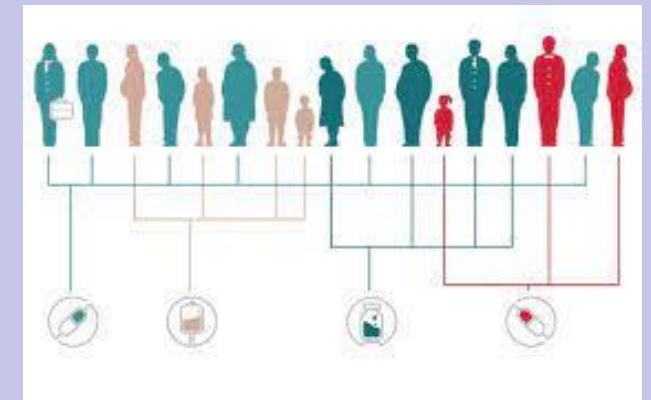
Association of HLA assets of patients with protective or harmful immune responses.



Inform **disease progression** and the **development of personalised prophylactic and therapeutic strategies**.

CREATION OF DIVERSE COHORTS

Analysis on the effect of differences in age, sex, gender, ethnicity, chronic conditions, co-morbidities, treatments offered



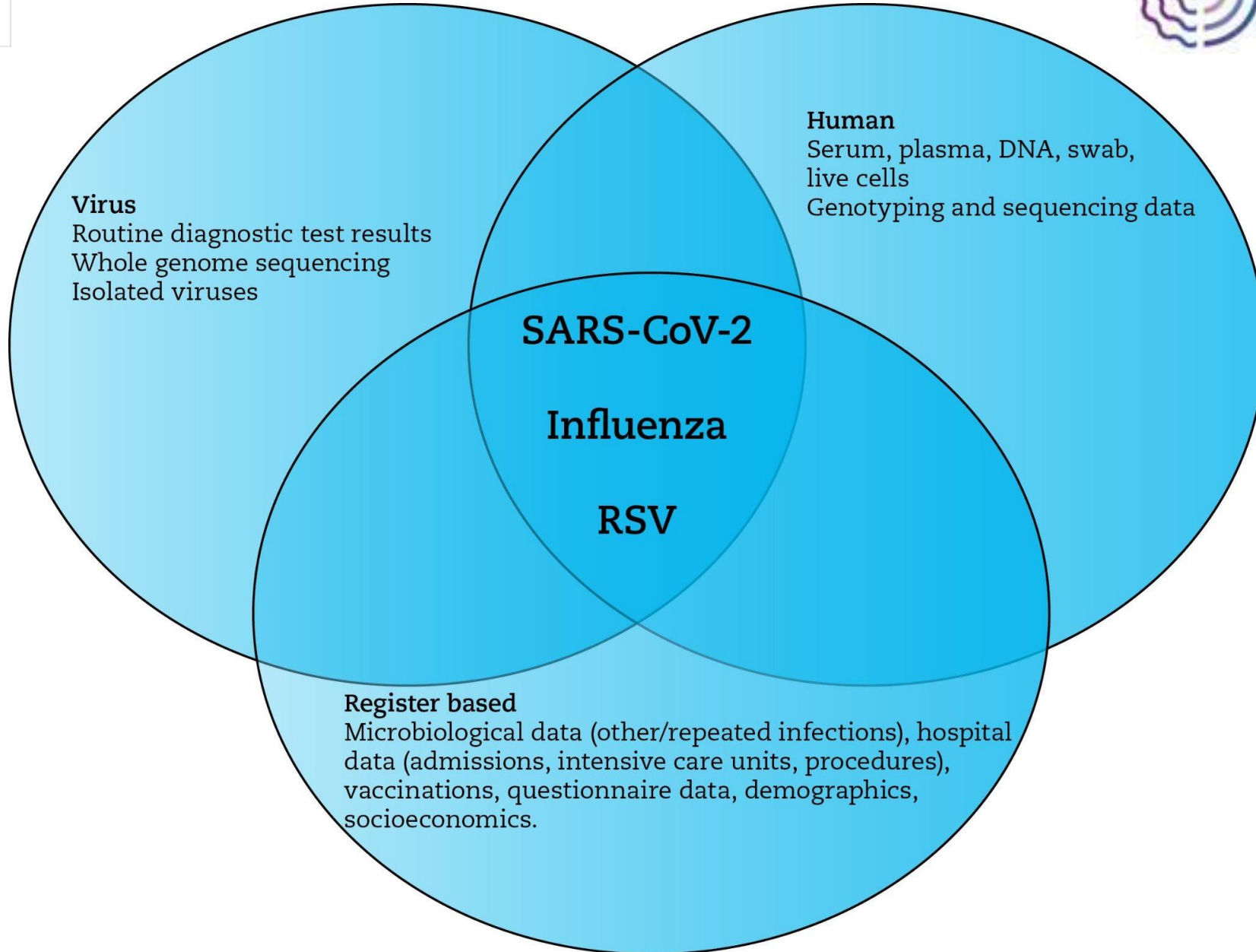
Guidance on definition for **personalised patient management** and **early identification of patients at risk**



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DATA

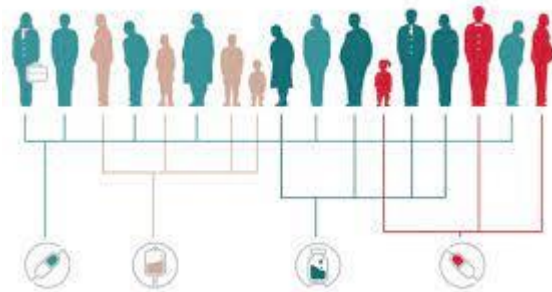


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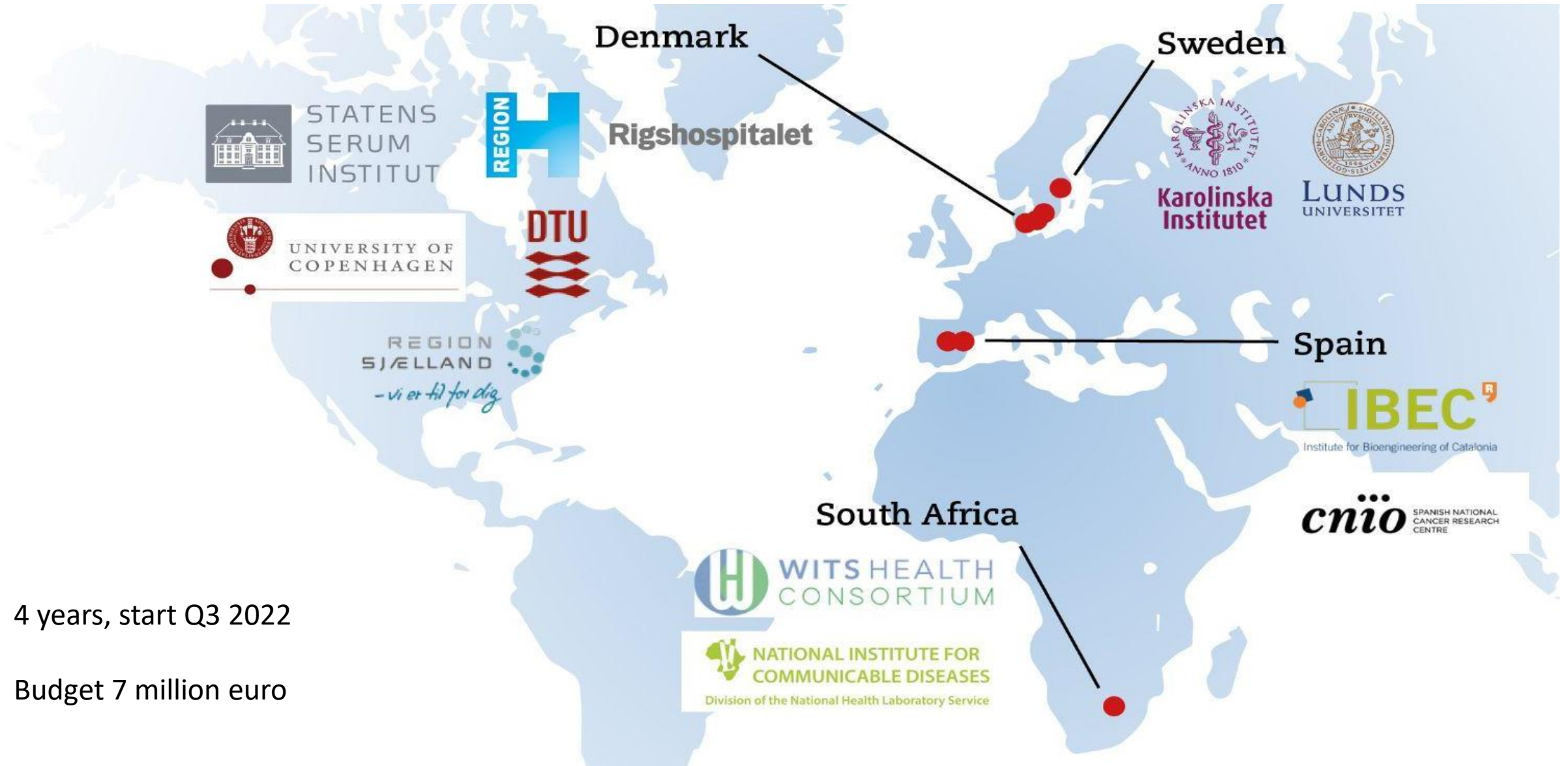
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PROJECT OBJECTIVES AND MILESTONES

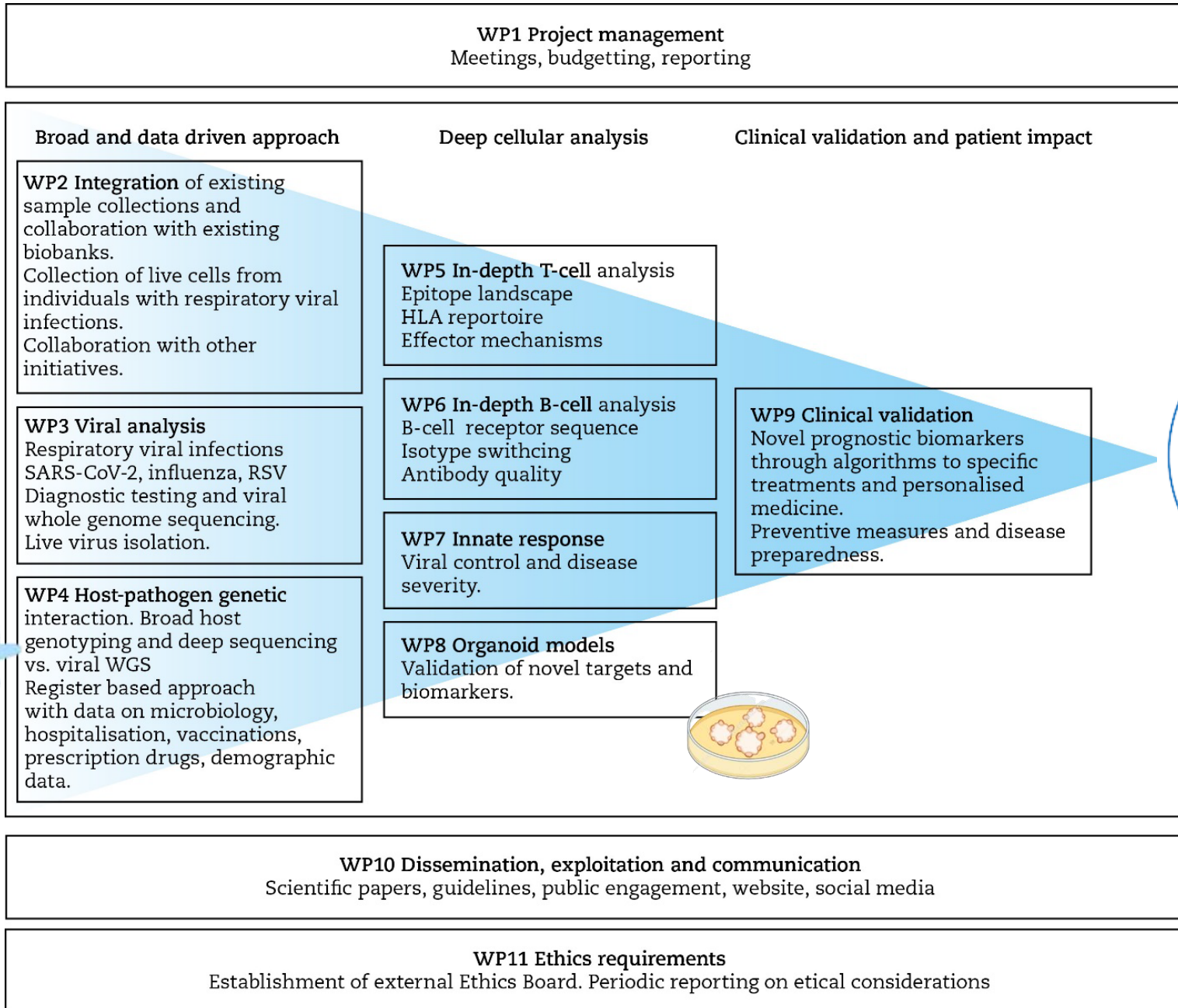
*REACT will provide a better understanding of the complex molecular interaction between pathogenic respiratory viral infections and the human host, to aid **personalised treatment, identification of therapeutic targets and define vaccination efforts.***



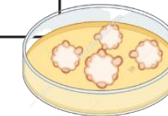
REACT PROJECT PARTNERS AND BUDGET



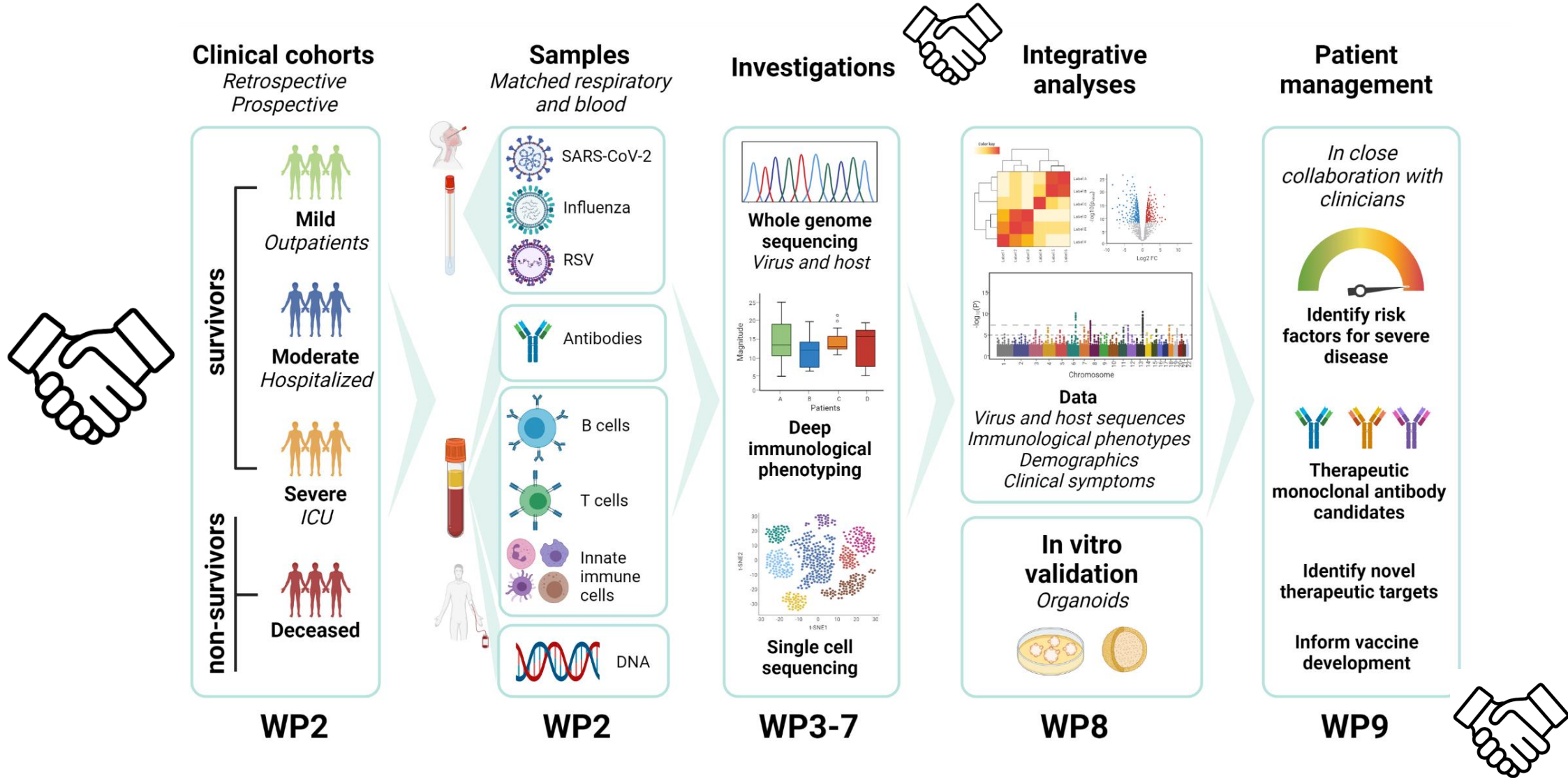
WORK PACKAGES



Identify novel therapeutic targets

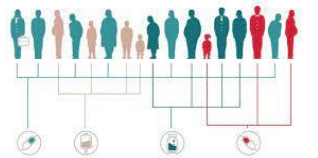
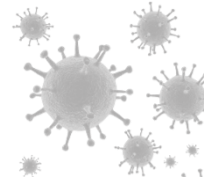


REACT PROJECT COLLABORATIONS



EXPECTED OUTCOMES

- **Characterization of host response** at the level of **genetic patterns, molecular pathways and physiological mechanisms, informing disease predisposition, disease progression, symptoms expression and clinical outcomes.**
- Deep characterization of the **dynamics of the immune responses** to the chosen virus(es), **identifying factors critical for viral control and immune protection.**
- Provide a robust and common **evidence base and biomarkers definition** for the development of **personalised therapeutic interventions and vaccines** in the future.
- **Guidance on preventive measures** and **early identification of patients at risk** of developing severe symptoms for better **patient management.**





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THANK YOU

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