

ImmuneWatch, Quantoom Biosciences (Univercells) and UAntwerp join forces to explore new *in vitro* and *in silico* assays that predict T cell responses in vaccines



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ImmuneWatch, Quantoom Biosciences (“Quantoom”) and UAntwerp (Lab of Experimental Hematology) are delighted to announce a public-private partnership in a project under the “Pandemic Preparedness” call, launched by the University of Antwerp in 2022.

“The goal of this project is to assess if a detailed analysis of the T-cell receptor response can be utilised to inform vaccine design and augment the vaccine development process.” says Prof. Eva Lion, who will be the principal investigator in the project. *“We believe that our proposed methodology could reduce time and expenditures in the preclinical development process of vaccines”*, she continues.

More affordable and accessible vaccines for rabies

The collaborative team has chosen to work on a rabies vaccine candidate as a proof-of-concept. *“Although safe, effective vaccines are available for human and animal use, the current vaccines are too expensive and generally inaccessible for widespread use in regions where the risk of bites from rabid animals is highest.”* says Conor Cahill, Head of Vaccine Development at Quantoom. *“mRNA approaches offer an opportunity to provide affordable vaccines with the possibility of manufacturing in low- and middle-income countries. Deeper insights into how these approaches elicit cellular immune responses may help us improve these already impactful interventions.”*

This is where the expertise of ImmuneWatch comes in. *“Our in-silico platform is designed to help vaccine developers choose the right vaccine candidates.”* says Sander Wuyts, CEO at ImmuneWatch. *“It is based on a set of AI-driven algorithms that exploit the large amounts of biological data available, to prioritise the candidates that have the highest chance of eliciting*

good T cell responses. This kind of in silico analysis has the potential to de-risk failure in clinical trials.”

Optimising vaccines for rabies, and more.

While the team is currently working on rabies as a proof-of-concept, they are convinced that their technology could expand to other pathogens as well. This project originates from the early work in cancer models done by the LEH. *“By developing and testing these assays now, like we do for cancers, we should be ready to deploy them when another pathogen with pandemic potential hits”*, concludes Prof. Lion.

About University of Antwerp and LEH

The University of Antwerp is a young, dynamic and forward-thinking university. It integrates the assets of its historic roots with its ambition to contribute positively to society. The University of Antwerp develops, provides access and disseminates scientific knowledge through research, teaching and service to society. The Valorisation Office of the University of Antwerp plays a key part in this service to society, as it aims to connect the academic world to the business world and non-profit sector.

The Laboratory of Experimental Hematology is a strong multidisciplinary basic and translational research group of the University of Antwerp and member of the Vaccine and Infectious Diseases center of Excellence in Antwerp (VAX-IDEA). LEH holds a national and international track record on the development of cellular immunotherapies and gene engineering in the context of cancer and autoimmune diseases as well as stem cell research and neuro-inflammation, with a particular interest in dendritic cells and T cell immunity. LEH also provides expert advice, assistance, and immune-monitoring services (housing UAntwerp’s flow cytometry and cell sorting core facility FACSUA since 2022) in the context of R&D and clinical studies performed by academic and industry partners. The experimental and clinical hematology departments are headed by Prof. dr. Sébastien Anguille.

Further information:

<https://www.uantwerpen.be/en/research-groups/experimental-hematology/>

<https://www.uantwerpen.be/en/research-facilities/facsua/>

<https://www.uantwerpen.be/en/research/info-for-companies>

About Quantoom Biosciences

Quantoom Biosciences, is reinventing mRNA production by developing an RNA Platform (Nfinity™) that encompasses DNA (Nplify™) and RNA (Ntensify™) manufacturing and formulation (Ncapsulate™), along with critical reagent supply, from sequence to large scale production. We are a team of scientists, engineers and clinicians committed to solving some of the biggest DNA and RNA production challenges facing vaccines and therapeutics, by delivering greater access and autonomy to mRNA technology. Our facilities are strategically located in Belgium and France, in the heart of Europe, benefiting from an exceptional biotech ecosystem. We are part of Univercells, a global life sciences group that makes biologics available to all.

www.quantoom.com

About ImmuneWatch

ImmuneWatch is a university spin-off company that wants to accelerate medical applications that leverage the power of T cells. We use AI and immunoinformatics that improve the development processes of vaccines, therapies and diagnostic applications where T cells play an important role. Our platform allows users to get more insights and make better predictions regarding T cell responses. ImmuneWatch is a spin-off company born from years of collaboration between clinicians and data scientists at the University of Antwerp and Antwerp University Hospital in Belgium.

www.immunewatch.com

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