e-FabRIC consortium announces the achievement of the first milestone: developing mosaic nanoparticle antigen from eight sarbecoviruses

- The Howarth Group at the University of Cambridge, a partner at e-FabRIC, has used technology developed at and patented by Caltech* to manufacture and deliver an innovative mosaic antigen, obtained from the conjugation of eight spike antigens from the sarbecovirus family.
- This stage is a critical milestone, as this mosaic antigen will be used for the production of broad-spectrum treatments for emerging infectious diseases with pandemic potential. The next key step in the development of e-FabRIC's antiviral therapy is the use of the antigen in the hyperimmunisation process performed by Fabentech in Lyon.

Lyon, France, 22/11/2024 – The Howarth Group at Cambridge University, partner in the e-FabRIC consortium, has delivered the last batch of the innovative mosaic antigen. The Group has spent the last six months assembling and producing a multiviral mosaic-8b nanocage with eight RBDs from SARS-like betacoronaviruses.

This milestone is a first key step in the development of a novel approach to antiviral therapies, combining mosaic-antigen and polyclonal antibodies production for therapeutic applications with novel, unique properties.

A mosaic antigen is an innovative technology that uses a protein structure called a nanocage. This nanocage has 8 different virus antigens attached to it, which helps protect against the sampled viruses as well as other members from the same subgenera. The mosaic-8b used in vaccination has been shown to provide protection against a diverse range of sarbecoviruses which includes viruses that are not represented on the antigen.

The antigen, once delivered to Fabentech, will be processed for use in the hyperimmunisation procedure, through which experts hope to obtain a functional broad-spectrum polyclonal antibody response to members of the sarbecovirus family.

> Mosaic antigens are an innovative technology that can help the community to be better prepared against future disease challenges. We are excited be part of this team, developing the use of mosaic antigens to generate novel therapeutics to protect against future pandemic threats.
>
> Prof. Mark Howarth, Sheild Chair of Pharmacology, University of Cambridge



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About e-FabRIC

e-FabRIC is a European consortium of leading voices in virology, immunotechnology and translational biomedical research, coordinated by Fabentech, aiming to increase the knowledge and understanding of viruses with epidemic potential and to develop broad-spectrum anti-viral therapeutics for emerging and re-emerging infections, particularly those caused by viruses in the Sarbecovirus family, in the context of epidemic and pandemic preparedness. With a €7.7 million grant from the European Commission under the "Horizon Europe" program, the e-FabRIC consortium is part of the European Union's drive to develop strategic and therapeutic solutions to respond to epidemic outbreaks caused by this specific family of viruses.

You can find more information on our project at https://efabric.org.

About the Howarth Group

The Howarth Group in the Department of Pharmacology at the University of Cambridge focuses on innovating protein technologies for therapeutics and vaccine design. The activity of the Group ranges from basic research in protein interaction to applications in clinical settings. Harnessing the particularities of the bacterium *Streptococcus pyogenes*, the Group used state-of-the-art technology to develop spontaneous isopeptide bonds between genetically encoded protein and peptide partners, including that of SpyTag with SpyCatcher. They are currently extending this new class of protein interaction to create novel possibilities for synthetic biology.

Their groundbreaking work is revolutionising the field of protein nanotechnology and immunology. The current focus of the lab is to create new protein antigen and nanoparticle designs to achieve the most potent and broadly protective immune responses.

For more information, please visit http://www.howarthgroup.org.

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***Citations:**

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