

Ghent biotech start-up myNEO develops universal Covid-19 vaccine with technology for cancer treatment

Ghent, May 27, 2020 - myNEO announces that promising Covid-19 peptides have been identified which will undergo further preclinical testing. By making smart use of existing cancer treatment technology, the Covid-19 vaccine aims to provide long-term protection to more than 80% of the global population. The vaccine will fight all current Covid-19 forms and other viruses from the corona group such as SARS and MERS.

When developing a vaccine against a virus, bacteria (or cancer cell), the body is exposed to an inactive form of the malignant component. For example, the body can start a defense reaction against this and create immune substances for future infection.

The vaccine of myNEO works differently. The start-up, which is supported by Start it @KBC, is developing a carefully chosen cocktail of peptides (pieces of protein) that are essential for the virus, to initiate a highly targeted immune response. This approach has several advantages over using a complete virus. By specifically choosing fragments that are necessary for the virus to work, the vaccine has a better effect against both SARS-CoV-2 (the virus responsible for Covid-19) and all other (future) forms of the same virus family with those same parts. Unlike other companies that develop a covid-19 vaccine, myNEO not only focuses on the Spike-protein but also the E-, M- and N proteins are analysed. These proteins are in fact also important for the survival of the virus and thus can increase the likelihood of a highly effective vaccine.

In addition, myNEO aims for a vaccine that activates immune surveillance cells to kill infected or malignant cells, in contrast to many other companies pursuing production of immune-related compounds (antibodies). It's expected that this will ensure a more long-term immune response.

Human clinical trials from 2021

Now myNEO has found these promising Covid-19 peptides, the company starts pre-clinical trials in collaboration with a European biotech company with a cancer vaccine technology. The goal is to test the vaccine in early 2021 on humans.

"It is very important to evaluate thoroughly against which specific parts of the Covid-19 virus we want to vaccinate. It's going to be the difference between a vaccine that provides long-term immunity to all known forms and relatives of Covid-19 and a vaccine that only produces results in certain select populations." describes Cedric Bogaert, CEO of myNEO. Fortunately, we can learn a lot from the other coronaviruses that have flared up in recent decades. "

Use of cancer technology

myNEO used its technology for personalised cancer treatments to identify the major segments of the SARS-CoV-2 virus. The team normally compare DNA sequences of cancer cells with healthy normal cells of the patient. The various errors or 'mutations' that have surfaced in the tumour namely give rise to mutated proteins, which a patient's immune system can recognise.

The myNEO algorithms are able to predict which fragments of the mutated proteins are interesting to target with a vaccine. After all, not all protein fragments are equally efficient at eliciting an immune response. The severity of the current Covid-19 pandemic inspired the myNEO team to rewrite these algorithms to predict the interesting fragments of the SARS-CoV-2 proteins.

Lasting protection

Viruses, like cancer cells, are known to mutate. This makes it necessary, for example, to administer a flu vaccine every year because the flu virus is constantly adapting. Also the virus SARS-CoV-2 has already gone through several mutations during the global spread in recent months, so that now different types are known. By carefully choosing the virus components for the vaccine, the immune system can discover the different known forms of the virus in one vaccination.

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About myNEO

myNEO is one of the companies that emerged from the Novalis biotech incubator fund at the end of 2018, founded by two leading entrepreneurs : Wim Van Criekinge, professor of computational biology at Ghent University, who founded and sold many successful companies, and childhood friend Jan Van den Berghe, serial entrepreneur in biotech and food industries and co-founder of Genohm and Lipa Holding.