

# Cutting Edge Precision

Independent biotech firm Axon Neuroscience – in neighboring Slovakia – is developing a vaccine for COVID-19 with a uniquely targeted approach

by Mahnoor Jalal

**Axon Neuroscience usually develops disease-modifying immunotherapeutics for Alzheimer's. In the current pandemic, the company pivoted to developing a COVID-19 vaccine.**

**E**yes avert at the offending sound: The mask-muffled cough is enough to make others step away, pull out a hand sanitizer, or maybe even hold their breath. The pandemic of SARS-CoV-2 has reshaped life worldwide, bringing volatile uncertainty to our societies and public health. But the precautions and baby elephants are not a sustainable solution for this new abnormal; we need a cure. The global race for a vaccine is both high stakes and high pressure.

Now, an unexpected contender is stirring up the competition with uniquely precise, cutting-edge research. “Over 20 years of science has led us to develop a much more targeted vaccination method,” said George Salapa, spokesman for Axon Neuroscience, a private biotech and pharmaceutical company. “That’s what we are now using to develop a vaccine [against SARS-CoV-2].” And they are showing promising results.

Axon was founded in 1999 by Michal Novak, neurologist, immunologist, and awardee of the prestigious World Health Organization Prize for Research in Health Care for the Elderly. Along with three Nobel laureates at MRC Laboratory in Cambridge, Novak established the tau protein as a major constituent of Alzheimer’s, which eventually led him to establish Axon Neuroscience as an

independent biotech firm committed to developing a vaccine to treat the neurodegenerative disease.

The search for venture funds brought Axon to Vienna. At the Vienna BioCenter in 2013, ground-breaking first phase clinical trials for Axon’s Alzheimer’s vaccine began. Eventually bought out by a private investor, Axon has since relocated to Bratislava, bringing Slovak science back home.

Now, the industry leader in the treatment for neurodegenerative diseases is now applying its robust background in vaccine development to a new project – COVIDAX: the world’s first independent COVID vaccination.

## A BETTER SHOT

Unlike traditional vaccine development, Axon applies a uniquely targeted approach, based on the identification of potential immuno-therapeutics. Chief Scientific Officer Norbert Žilka explains: “The vaccine is able to induce an immune response in such a way that the antibodies are able to recognize the vulnerable area of the virus protein,” a great advantage in terms of efficacy.

“These antibodies can recognize the difference in structure that is characteristic for the pathological strain [of the protein], stimulating the production of selective antibodies,” Žilka said. By recognizing the

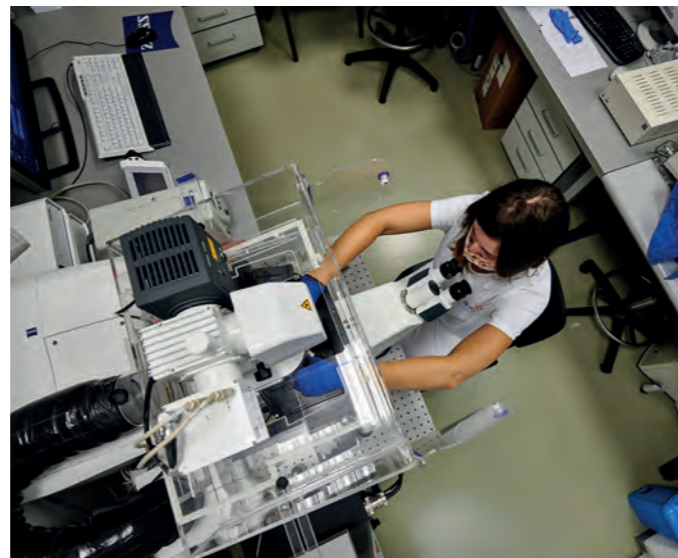


**“[Other developers] have had to limit the dosage levels to avoid dangerous effects; but that means they don’t have a solution for the elderly.”**

George Salapa, spokesman for Axon Neuroscience



Michael Fresser (left) has been the CEO of Axon Neuroscience since August 2019, after having worked for the company since 2013, when its first ground-breaking clinical trial for an Alzheimer’s vaccine began.



pathologically functional protein fragments only, a selective immune response ensures that the system is not overwhelmed with antibody production. This increases the efficiency of the vaccine and reduces adverse side effects, which is especially relevant for the elderly.

Most current developers of a COVID vaccine introduce larger proteins, which results in the bombardment of potentially non-therapeutic antibodies, overwhelming the immune system. According to Salapa, “[other developers] have had to limit the dosage levels to avoid dangerous, adverse effects; but that means essentially, they don’t have a solution for the elderly,” and the immunodeficient.

Meanwhile, COVIDAX’s specialized approach is showing promising results. “So far, we can completely eliminate the replication of the virus in the invitro cell stages,” said Žilka, proudly.

#### SMALL IS FLEXIBLE

Their science is not the only thing that sets Axon apart. With a venture background, the biotech is completely independent and on the search for more investors. This limits the influence of external pressures and politics on the research. Independence has its drawbacks, however: “It is almost implausible to find a company in our region so far along in the clinical trials,” said Salapa. “You would expect that in Boston, somewhere in the US, or at Oxford. We have to work twice as hard and twice as well, in

terms of actual research and proving ourselves in academic journals, to get the word out and be recognized.”

Still, Axon has the advantage of flexibility; “We can decide within hours on specific projects. Big Pharma can take months to get a response from management in the decision process, sometimes years,” Žilka said. This was also the reason they could start with COVIDAX as early as last March – especially practical in the time-sensitive vaccine race. And Axon is stepping on the gas: “We plan to start clinical trials at the end of this year, then we need about 10 to 12 months,” said Žilka. “Everything depends on the investment; we are not so lucky to get support from the US or the UK.”

The fight against the virus is competitive, and the anti-vax movement puts up yet another obstacle. “We are fighting for vaccines in general; if the future COVID vaccine shows negative side effects, then the movement will gain momentum,” Žilka noted. “This could be very dangerous – [another] reason why we need to focus on the safety.”

“We think we should be more careful and more targeted, that is what Axon is trying to do,” Salapa added. With their precise approach and promising results, Axon’s independent innovation can bring an end to the current pandemic, fight future disease outbreaks, and alter the process of pharmaceutical development.

Until then, the baby elephants will have to continue their march. 

PHOTOS: AXON NEUROSCIENCE



## GIVING REFUGEES A CHANCE IN LIFE...

Asylum is an inviolable human right! However, the bureaucratic barriers on the way to being granted asylum are lengthy and marked by permanent uncertainty. The Ute Bock refugee project, an independent, private initiative, works towards providing a basic standard of living for refugees.

We at Ute Bock are available when the most elementary needs such as housing or food have become a challenge. We assist people in achieving integration through the provision of free educational opportunities, an internal housing project or comprehensive social counseling.

In our Ute Bock Educational Center, over 450 people attend German classes free of charge, if necessary, starting with alphabetization up to language level B2. One of our signature projects close to our heart

is the so-called Büffelböcke project, which offers daily afternoon care and tutoring by committed volunteers for up to 35 refugee children suffering from traumatic experiences. These volunteers specifically address the individual educational needs of the children in their care and thereby promote equal opportunities in the classroom.

In addition to these educational initiatives, the Ute Bock refugee project currently supports people from 46 different

countries in mastering the most elementary challenges of everyday life. Our own internal housing project takes care of the safe and secure housing and counseling for 350 people in the Ute Bock Haus itself, as well as in 50 external apartments. Our social counseling team serves as a competent point of contact lending a sympathetic ear to over 800 asylum seekers per month – in twelve languages. At Ute Bock, we endeavor to lay the foundation for successful integration of refugees into the labour market.



Through counseling, shelter and education, we hope to create nothing less but solid perspective, hope and support. Because we are Ute Bock!