

# Expanding access to genetic engineering-based cancer treatments

• Jerusalem Post Staff

While the whole world races to find a coronavirus vaccine, genetic engineering treatment that has been found to be effective for several types of cancer is failing to reach patients due to the cost and complexity of the production process. Now an Israeli start-up is changing the game.

In an interview with journalist Keren Uzan as part of the 2020 Maariv Business Summit, Dr. Ohad Karnieli, a biologist and the founder and CEO of ADVA Biotechnologies, spoke about the treatment and the company's role in the production process.

The treatment, CAR T, uses white blood cells taken from the patient. Following a process of genetic engineering, in which the cells learn to attack and destroy the cancer cells, they are restored to the body and carry out their task. The production process for this medication is almost entirely manual, carried out in centers and laboratories in the USA, Europe and even medical centers such as Tel Hashomer, and it has demonstrated overwhelming levels of success.

According to Dr. Karnieli, it recorded a 90% response rate among people with advanced cases of blood cancers, with 50% making a complete recovery and remaining healthy to the present day, eight to 10 years after receiving

the treatment. The problem, he notes, is that the cost of the treatment alone is approximately half a million US dollars per person, not including the hospitalization costs.

ADVA has developed the ADVA X3, which creates the same individually tailored life-saving treatment through an automated and effective in-house process that takes place within the hospital while drastically reducing the production costs, thereby expanding access to these treatments to more patients.

"Up to this point, two companies whose medicines have been approved for treatment have been able to produce fewer than 2,000 doses in three years," he says. "Even if the money was there to fund the treatment, it would not always be available as a result of the time and complexity of the process to produce the medication."

Dr. Karnieli and his team have developed a printer-like machine that replaces the biological process of cell engineering that is carried out in a lab. "We reached a situation where it is possible to produce the medication using a simple method, and that simplicity means reduced prices," he says. "At the beginning of next year we are planning to begin sending devices to clients and hospitals abroad, and hopefully here in Israel too, with the aim of making the treatment an industry standard



DR. OHAD KARNIELI  
(Ofra Toledo)

in the near future. We anticipate that within a few years, this treatment will be available in hospitals in a way that is simple, cheap and with widespread availability."

Dr. Karnieli's model is the next stage of healthcare development – individually tailored healthcare. The machine he has developed can produce medication that is individually tailored to the patient and their cancer type and will be located close to the patient themselves.

"Just like a printer," he says with a smile. "You place the sheet of paper at the top and the printer prints it. The idea is to build a machine that is flexible and smart enough to be efficient and cost-effective not only for patients, but also for the entire healthcare system."