Here’s what Juno just bought for $10M plus milestones from a Boston professor

Perhaps because the disclosed payment was relatively small, or that the acquisition was overshadowed by other news out of Juno Therapeutics over the previous week, the Seattle biotech’s purchase of a small firm founded by a Northeastern University professor last week wasn’t widely covered.

In an interview, the professor who founded RedoxTherapies — Michail “Misha” Sitkovsky, professor of immunophysiology and the director of New England Inflammation and Tissue Protection Institute — contended that along with the acquisition of his Boston-based company, Juno (Nasdaq: JUNO) is getting a lot more than access to a single drug that can work in conjunction with its cancer drugs. He said Juno is gaining more than a decade worth of research into how to prevent cancer tumors from one of the most common ways they become resistant to the body’s immune system, boosting the current wave of cancer drugs that...
harness the immune system — so-called immunotherapies.

“It may improve all known types of immunotherapies,” he said. “This could be the final technology we need for immunotherapies to work.”

Sitkovsky, 68, was a senior scientist at Moscow University when he came to the U.S. 35 years ago. After a short stint working at MIT, he worked at the National Institutes of Health from 1984 to 2004. It was at NIH that he made a discovery about the critical role of an enzyme called adenosine and hypoxia (lack of oxygen) in protecting tissues from damage by overactive immune cells. His research was published in Nature magazine in 2001.

His research comes down to a ubiquitous molecule in the body, adenosine, with puts the body’s killer T cells — which attack cancers — to sleep. Tumor cells create adenosine in response to low-oxygen environments, so Sitkovsky found that giving a tumor extra oxygen decreases adenosine production, thereby allowing T cells to attack and kill cancer cells. He also discovered that certain compounds — including caffeine — also reduce the effects of adenosine, making the T cells better able to attack tumors.

Sitkovsky left the NIH for Northeastern in 2004, but the “method of use” applications for patents from his discovery remained with the NIH. Sitkovsky said he learned that there was interest from drug companies in licensing those patents. That would have been ok with him, he said, until it was explained that he would have no control over what happened with his method and could be excluded from translating his own method into the clinic.

So he licensed his own discovery from NIH and founded RedoxTherapies in 2006. The company’s only employees were himself and his wife, Jane Kinsel.

By buying RedoxTherapies for $10 million up front plus undisclosed milestones, Juno is getting three things, said Sitkovsky. First is the issued method of use patents, enabling Juno to commercialize several types of drugs that reduce the effects of adenosine. Secondly is an actual drug, a “high affinity and selective synthetic A2AR antagonist” called vipadenant that Redox licensed from Vernalis, England. The pill has been proven well-tolerated by about 250 patients in Parkinson disease trials, said Sitkovsky, and it has the additional advantage that it’s a once-a-
day pill, meaning it’s eliminated quickly from the body. (Current antibody-based immunotherapies remain in the body much longer).

Lastly, Sitkovsky says Juno is gaining him as an advisor, and his years of expertise as the one who discovered and developed the “anti-hypoxia-A2-adenosinergic” approach to fighting cancer.

“I am a biophysicist from the Soviet Union. I’m a dying breed of scientists, who are not scared to have the ‘bird-view idea’ and then go to the bench and pursue it by becoming an expert in different specialties,” he said. “I do not know anybody else with my combination of knowledge in several non-obviously complementary scientific fields.”

Sitkovsky believes that Juno is the best fit to develop Redox’ platform to enable better tumor rejection and improve clinical outcomes. He said he was “really impressed” at the company’s due diligence.

“Juno acquires a position of leadership in the therapeutic manipulations of powerful immunosuppressive pathway, which is a must to accomplish the effective immunotherapies of cancer,” he said.

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