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Research Institute that make it possible to genetically manipulate immune cells and enhance a person's natural ability to fight tumors. The approach has already demonstrated potential in treating certain blood cancers such as leukemia.

The Seattle startup launched Wednesday with an initial investment of \$120 million — one of the largest Series A rounds for a biotechnology startup in history, according to Dow Jones VentureSource. (A Series A round refers to the first significant round of financing for a startup after seed capital.) Hans Bishop, a biotech industry veteran, will lead Juno as CEO. Initial investors include technology venture capital firm ARCH Ventures and the Alaska Permanent Fund through a partnership with Crestline Investors.

Juno received attention from a number of media outlets, including the *Wall Street Journal*, which ran a story emphasizing the collaborative nature of Juno and excitement around early clinical trials at the three centers.

## Unleashing the Immune System

To date, approximately two dozen patients across the Juno partner institutions have received treatment with cell-based immunotherapies through clinical trials, and so far the majority of patients are in remission.

“By the most sensitive technology available, we can’t detect residual tumor,” [Michel Sadelain](#), Director of the [Center for Cell Engineering](#) at Memorial Sloan Kettering and one of the founders of Juno, said to the *Wall Street Journal* of the clinical trial results. “We know very well that doesn’t mean a cure, but that is what is moving us to create this entity.”

Juno will focus on the development of targeted immunotherapies like these, which work by unleashing the power of the body’s own immune system to fight cancer – in particular through a type of white blood cell called a T cell. T cells are part of the body’s natural defense system against infection.

The technology Juno will pursue involves taking a patient’s own T cells and engineering them to recognize a protein that appears on the surface of cancer cells. The modified T cells are then infused back into the patient’s blood stream so they can launch a precise immunologic attack against the cancer.

“Based on the unprecedented antitumor activity seen with this T cell engineering technology, we are pursuing an aggressive and comprehensive clinical development plan to accelerate achievement of regulatory requirements and make this therapy available to cancer patients in the shortest period of time possible,” says [Memorial Hospital](#) Physician-in-Chief José Baselga.

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## A History of Groundbreaking Research

Years of innovative research, technology development, and facility expansion have propelled Memorial Sloan Kettering leadership in the field of cell-based immunotherapy. Dr. Sadelain and two other Memorial Sloan Kettering researchers – Renier Brentjens, Director of Cellular Therapeutics, and Isabelle Rivière, Director of the [Cell Therapy and Cell Engineering Facility](#) – are playing a critical role in the formation of Juno and are founding scientists of the company. (All three researchers will continue in their roles at Memorial Sloan Kettering.)

Among the most exciting results is [Memorial Sloan Kettering research](#) that reported remissions for the first time ever in patients with an aggressive form of [leukemia](#). These patients typically have a very poor prognosis, often living for only a few months. Drs. Brentjens, Rivière and Sadelain will present additional findings at the annual meeting of the American Society of Hematology this weekend reporting complete remission in ten of 12 patients with disease that has either returned after or not responded to initial treatment with chemotherapy.

Over the past decade, Dr. Sadelain reported several innovations in the design of chimeric antigen receptors, or CARs, leading up to the recent advances in the clinic. CARs are artificial receptors used to engineer T cells and are one of the technologies Juno will explore.

Drs. Brentjens, Rivière, and Sadelain, as well as other colleagues in the Center for Cell Engineering, are currently building on the approach in order to expand cell-based immunotherapy to multiple cancers. One such strategy, which allows T cells to recognize two targeted molecules on the surface of cancer cells, could pave the way toward [safer, more-effective cell-based immunotherapies](#) and may be applicable in cancers such as [prostate](#). The nonprofit Stand Up To Cancer is currently funding a [“Dream Team” led by Dr. Sadelain](#), in collaboration with Drs. Brentjens and Rivière and thoracic surgeon [Prasad Adusumilli](#), to further investigate the approach in [lung cancer](#) and [mesothelioma](#).

Additional founders of Juno are Fred Hutchinson President and Director Larry Corey as well as Philip Greenberg, head of Fred Hutchinson’s [Immunology Program](#) and Stanley Riddell, a member of its Clinical Research Division; Michael Jensen, Director of the Ben Towne Center for Childhood Cancer Research at Seattle Children’s Research Institute; Richard Klausner, former director of the National Cancer Institute; and Robert Nelson, co-founder and managing director of ARCH Venture Partners.

Read the [press release about Juno Therapeutics](#).

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