

Dr. Zakrzewski, M.D.



Dr. Zakrzewski recently joined CDI from Memorial Sloan Kettering Cancer Center. His work focuses on the development of innovative therapies for myeloma, lymphoma, and other cancers, as well as T-cell deficiency.

The laboratory is investigating novel strategies for cancer immunotherapy—a type of treatment that helps the patient’s immune system fight cancer— and immunosurveillance— the immune system’s ability to prevent relapse of the cancer following treatment. His group does this by exploiting the thymus’s own ability to generate genetically modified T-cells and harnessing advances in gene therapy and chimeric antigen receptor technology. Moreover, by utilizing immunobioengineering methodologies, the Zakrzewski laboratory is developing artificial organs designed to achieve thymus-independent T-cell generation.

Dr. Zakrzewski’s group is also pursuing a drug development program; they have identified a small molecule that is a drug candidate for the treatment of multiple myeloma and possibly other cancers and autoimmune diseases. It is an NF- κ B inhibitor, which essentially means that the molecule blocks the activity of NF- κ B proteins. These are proteins that are involved in a series of different cellular and organismal processes, including immune and inflammatory responses and survival of cancer cells. They are in the early phases of generating more data for an IND application and are collaborating with a biotechnology company that is helping to support this endeavor. The next step is to obtain preclinical efficacy data in patient-derived xenograft models for multiple myeloma. Essentially, this involves implanting cells from a patient’s tumor into mice and then testing the drug on the mice. Dr. Zakrzewski plans to pursue additional mechanistic studies in parallel with translational and clinical studies of this novel agent for targeted cancer therapy.

Dr. Zakrzewski’s work has been published in leading journals including Nature Medicine, Nature Biotechnology, Cancer Discovery, Cancer Research, and Blood. Over the years his research programs were supported by grants from the NCI, the Leukemia and Lymphoma Society, the Leukemia Research Foundation among others.