Adoptive Immunotherapy with Autologous Natural Killer Cells

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Technology description

Summary

Dr. Rosenberg and colleagues have clearly demonstrated that T-lymphocytes can mediate the regression of metastatic melanoma. However, not all patients with cancer are eligible for or respond to this type of immunotherapy. In some patients, the tumor infiltrating lymphocytes (TIL) do not expand sufficiently, or do not exhibit sufficient tumor specific reactivity.
Studies in mice have shown that adoptive transfer of NK cells activated in vitro can significantly reduce the load of Acute Myelogenous Leukemia (AML), and intravenously-injected autologous NK cells have been shown to significantly decrease melanoma tumor outgrowths. To this end, Dr. Rosenberg and colleagues have developed an alternative type of immunotherapy, which involves the adoptive transfer of autologous natural killer (NK) cells. This method consists of three parts: a) Isolation and expansion of NK cells ex-vivo; b) Administration of nonmyeloablative lymphodepleting chemotherapy regimen to the patient; and c) Reconstitution of the patient’ s immune system by infusion of NK cells and interleukin 2. This approach also offers the possibility of treating AIDS, immunodeficiency, and autoimmune diseases for which immune cells can impact the clinical outcome.

Institution

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