Virus-specific and Next-generation T-cell Therapy in Pediatric Hematologic Malignancy

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Patients with relapsed or refractory pediatric blood cancers have limited therapeutic options with little to no appreciable improvements in outcomes in over two decades. Adoptive cell therapy (ACT) is a promising, targeted option for patients with the potential to minimize acute and long-term toxicities. In this lecture I will (1) characterize the development and manufacture if next generation ACT approaches we are developing for pediatric blood cancers - learning from virus specific T cell therapies, and (2) discuss the obstacles when targeting and treating such cancers. The outcomes of the clinical applications of the various cell therapy products are also reviewed along with the future potential, including novel product development and combination therapies. In sum, this lecture serves as a comprehensive review of the clinical trial results we have developed evaluating the safety, feasibility, and efficacy of novel cell therapy products in the clinic for the treatment of pediatric blood cancers and seeks to provide new insights regarding ACT successes, failures, and challenges to benefit a rapidly expanding immunotherapy field.