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From unmanipulated bone marrow to custom tailored stem cell grafts? novel therapies from bench to bedside

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Transplantation of allogeneic stem cells of bone marrow or peripheral blood origin has proven to be the only curative therapy for a variety of malignant as well as non-malignant diseases. The authors describe recent advances in the field of stem cell selection techniques that have enabled the use of selected cell components for differential clinical applications under GMP conditions. The reconstitution of a functional immune system over time has been carefully monitored in several pediatric cohorts following transplantation of positively selected stem cells by V beta spectratyping of the emerging T cell repertoire as well as by TREC analysis.