An Hsp70 peptide initiates NK cell killing of leukemic blasts after stem cell transplantation.

In contrast to solid tumors, leukemic blasts frequently present both Hsp70 and HLA-E on their cell surface and thereby present activating and inhibitory signals to CD94(+) NK cells. In the first 12 months after stem cell transplantation (SCT) CD94(+) NK cells clearly dominate over CD3(+)/CD16(-)/56(-) T and CD3(+)/CD16(+/+)/56(+) NK-like T cells. An incubation of post-SCT-derived peripheral blood lymphocytes with the Hsp70 peptide TKD and IL-15 enhances the cell surface density of CD56/CD94 and initiates the cytolytic activity of NK cells against Hsp70/HLA-E double-positive autologous and allogeneic leukemic blasts. Hsp70 was identified as the target structure for TKD-activated NK cells.