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A new therapeutic strategy to handle rapid T cell reconstitution in cancer patients and prevent GVH reactions after BM reconstitution

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Efficient therapy of cancers of hematopoietic lineage cells origin, frequently lead to secondary life-threatening conditions requiring bone-marrow (BM) transplantation-which is neither fully efficient nor innocuous. In the adult, T cell reconstitution is poor, much delayed or absent, leading to high susceptibility to infections and reducing immune control of cancer growth. Since full donor/host histocompatibility is rarely available, BM transplants also frequently induce GVH. We will show that full peripheral T cell reconstitution and protection to infections may be rapidly achieved by the combination of neonatal hematopoietic stem cell (HSC) and thymus transplants. Moreover, when these transplanted tissues are recovered from neonatal mice, they are functional even in situations of fully MHC mismatch: allogeneic thymus transplants from neonatal mice were not rejected, allogeneic T cells do not induce GVH, and protect hosts from infection. These results indicate a new therapeutic approach combining anti-tumour efficiency without GVH.

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