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Lentivirus Vector rHIV7-shI-TAR-CCR5RZ-transduced Hematopoietic Progenitor Cells

National Cancer Institute

Source

National Cancer Institute. *Lentivirus Vector rHIV7-shI-TAR-CCR5RZ-transduced Hematopoietic Progenitor Cells*. NCI Thesaurus. Code C101371.

Autologous, CD34-positive hematopoietic progenitor cells (HPCs) transduced with rHIV7-shI-TAR-CCR5RZ, a lentiviral vector encoding three anti-human immunodeficiency virus (HIV) RNA genes, with potential antineoplastic activity. The 3 RNA products produced by the lentivirus are: a short hairpin RNA (shRNA) targeted to an exon of the HIV-1 genes tat/rev, designated as shI; a decoy for the HIV TAT reactive element, designated as TAR; a ribozyme targeting the host cells CCR5 chemokine receptor, designated as CCR5RZ. Upon administration, lentivirus vector rHIV7-shI-TAR-CCR5RZ-transduced hematopoietic progenitor cells expressing the 3 species of RNAs display 3 separate mechanisms of action: the shRNA blocks the transcription of tat/rev, the TAR decoy binds to the TAT protein that is essential for HIV replication, and CCR5RZ catalyzes CCR5 which is needed for viral attachment and entry into the host cells. Altogether, infusion of these HPCs may ultimately inhibit HIV replication and suppress HIV infection.