

**POSTER 48****FURTHER CHARACTERIZATION OF A HIV-1 RESISTANCE PHENOTYPE IN A HUMAN T CELL LINE**Yanxing Han, Xiaojun Wang, Ying Dang, and Yong-Hui Zheng

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Human T cells expressing viral receptors are normally very susceptible to HIV-1 infection. However, we found that HIV-1 failed to establish productive infection in a human T cell line called CEM.NKR cells, which express regular levels of cell surface CD4 and CXCR4. CEM.NKR is a natural subclone of the human T lymphoblastoid cell line CEM. Although the parental CEM cells are very sensitive to the natural killer (NK) cell-mediated lysis, the CEM.NKR was cloned from a subset of cells survived from this killing. Viral production from CEM.NKR was around  $10^3$ -fold lower than that from the other CEM cell lines such as CEM-SS, CEM-T4, and A3.01. This non-permissive phenotype was not saturable by high multiplicity of infection. Further analyses demonstrated that HIV-1 could finish the first round of replication in CEM.NKR, but virions released from CEM.NKR were poorly infectious. These virions could enter the target cells effectively, but failed to initiate reverse transcription. Notably, when CEM.NKR cells were fused with 293T cells, virions from the heterokaryons were still not infectious. These data suggest that CEM.NKR cells may express an inhibitory gene that potently blocks the wild type HIV-1 replication at a post-entry step. Whether this cell line expresses a novel retrovirus restriction factor is currently under investigation. Further understanding of this HIV-resistance phenotype may lead to a new avenue for more effective HIV prevention.