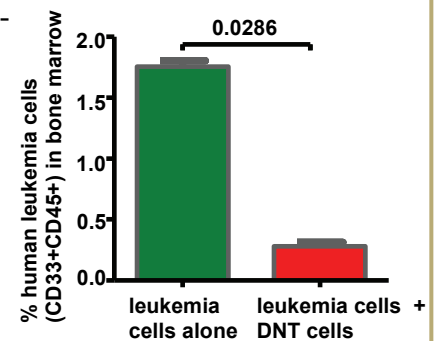


## Novel T-Cell Immunotherapy

### Overview of Technology:

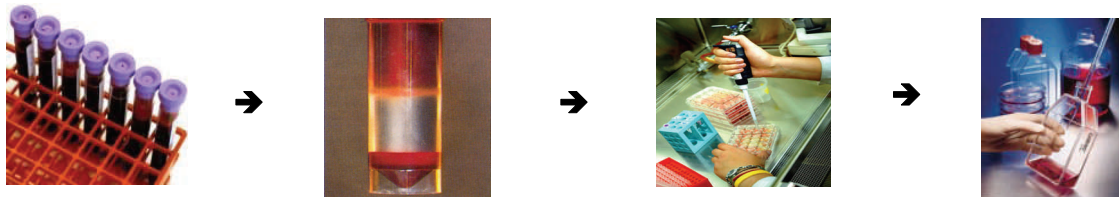
Research at UHN has shown that a subtype of T lymphocytes (termed DNT cells for Double-Negative T cells) have very potent anti-cancer properties. However, human DNT cells only compose ~1% of total peripheral blood mononuclear cells. We have developed a proprietary method to expand human DNT cells *ex vivo*. The DNT cells can then be injected back into patients as supplemental therapy, or a novel adjuvant therapy for cancer. Extensive testing in animal models of cancer has demonstrated a potent anti-cancer effect of DNT cells expanded by this method. The expansion method has been optimized to facilitate clinical application and regulatory approval.

As part of a pre-clinical development effort for this technology – expansion of clinically relevant numbers of DNT cells from acute myeloid leukemia (AML) patients under GMP conditions has been demonstrated. These *ex vivo* propagated patient DNT cells were also demonstrated to be very effective at killing human leukemia cells in a NOD-SCID mouse model.



*Killing of autologous leukemia initiating cells by patient DNT cells in NOD-SCID mice.*

A regulatory consultants review has concluded that most requirements for a US Investigational New Drug (IND) application for this technology have been met.



*DNT Cell Expansion Protocol*

### Related Publication:

Young, K.J., Kay, L.S., Phillips, M.J., & Zhang, L. Antitumor activity mediated by double-negative T-cells. *Cancer Res.* **63**, 8014-8021 (2003)

### Patents:

Method of Modulating Tumour Immunity - US 6,953,576 (Granted-Oct 11, 2005), CA2,355,495 (Filed: Aug 11, 2001)

Method of expanding double negative T cells - PCT/CA2006/001870 - National Phase Entry in US, EU, Canada, India, China and Hong Kong (Applications Filed: Nov 20, 2006)

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*UHN Reference # - 1002*