ID No.	K1004
Project Title	Clinical development of cord blood derived virus-specific T cell therapy for cord blood transplant recipients in Japan
Principal Investigator	Catherine M. Bollard (Director and Prof., Center for Cancer & Immunology, Children's National Medical Center)
Project Members IMSUT Host Researcher	Satoshi Takahashi (Associate Prof., IMSUT)
Members	Patrick J. Hanley (GMP Facility Director, Center for Cancer & Immunology, Children's National Medical Center) Satoshi Yamazaki (Prof., Tsukuba Univ.)

Report

CB-VST studies has been extended in the studies of Dr. Bollard and her team as shown following resent publications:

- Abraham AA, John TD, Keller MD, Cruz CRN, Salem B, Roesch L, Liu H, Hoq F, Grilley BJ, Gee AP, Dave H, Jacobsohn DA, Krance RA, Shpall EJ, Martinez CA, Hanley PJ, Bollard CM. Safety and feasibility of virus-specific T cells derived from umbilical cord blood in cord blood transplant recipients. Blood Adv. 2019 Jul 23;3(14):2057-2068. doi: 10.1182/bloodadvances.2019000201.
- Keller MD, Darko S, Lang H, Ransier A, Lazarski CA, Wang Y, Hanley PJ, Davila BJ, Heimall JR, Ambinder RF, Barrett AJ, Rooney CM, Heslop HE, Douek DC, Bollard CM. T-cell receptor sequencing demonstrates persistence of virus-specific T cells after antiviral immunotherapy. Br J Haematol. 2019 Oct;187(2):206-218. doi: 10.1111/bjh.16053. Epub 2019 Jun 20.
- Keller MD, Bollard CM. Virus-specific T-cell therapies for patients with primary immune deficiency. Blood. 2020 Feb 27;135(9):620-628. doi: 10.1182/blood.2019000924.

Because this technology needs 20-30 mL of the CB graft (total 100mL), it is difficult to translate to Japanese CB recipients, since more than 80% of CB recipients are adult patients (BW median 55kg). Hence, we aim to develop new strategies to generate CB-derived VST in this collaborative study, such as CB T cell-derived antigen-specific T cell from the original CB graft, but using a smaller volume than the 20% of CB unit, or CB-VST combined with HSPC expansion. We have discussed by email and online meeting how to combine the VST production and hematopoietic stem cell expansion from same cord blood unit using for transplantation in clinic.