Our department is established in 1990, in order to manage the transfusion medicine and the cell processing for hematopoietic stem cell transplantation. Since 2004, we also joined the cell processing and banking as Tokyo Cord Blood Bank, Facility of Cell Processing and Cryopreservation, together with Division of Cell processing.

We have been engaged to study for the development of various cell therapies together with other departments, as follows.

1. **Expansion and regulatory T cells and immune analysis**: Regulatory T cells harbored the immunosuppressive effects and were related to the onset of graft-versus-host disease (GVHD), rejection of organ transplantation and autoimmune disease. We developed the system of *ex vivo* expansion of CD25+FOXP3+regulatory T cells from the small amount of peripheral blood, to apply the cell therapy for severe GVHD, autoimmune diseases (Collaboration with Division of Molecular Therapy).

2. **Expansion of effector T cells against Ph1-positive leukemia**: This project is to aim to prevent the relapse of Ph1-positive leukemia using immunological cell therapy. We analyzed the immunological findings in the patients with Ph1+CML treated with tyrosine kinase inhibitor and have been studied the expansion of antigen specific effector T cells using the unique antigen and culture system (Collaboration with Division of Molecular Therapy).

3. **Analysis of the factor influencing on the cord blood transplantation**: In cord blood transplantation, there have been several problems including graft failure, relapse, GVHD, donor-derived leukemia. We analyze the factors influencing on these problems from the standpoint of cord blood banking.

4. **Exploring mesenchymal stem cells derived from umbilical cord**: In addition to contribute the research use of cord blood banking as the regenerative leading project, we have been explored the new source, mesenchymal stem cells derived from umbilical cord (Warton Jelly) (Collaboration with Division of Molecular Therapy and Department of Stem cell processing).

5. **Room for Clinical Cellular Technology: RCCT**: To promote the cell therapy related to translational research, RCCT has been established in 1997. Until now, following projects have been implemented; 1) Cord blood cell processing for banking (Tokyo Cord Blood Bank), 2) Dendritic cell therapy, 3)Regenerative therapy of alveolar bone derived from bone marrow mesenchymal cells, 4) Gene therapy for renal cancer.
Publications


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29. Nagamura-Inoue T., Tsujimura H., Tamura T. and Ozato K.. IFN consensus sequence binding protein/IFN regulatory factor-8 guides bone marrow guides bone marrow progenitor cells towards the macrophage lineage. J. Immunology, 169, 1261-1269, 2002. *The first two authors are equally contributed to this paper.