



UNIVERSITY OF
CALGARY



*Department of Pathology and Laboratory Medicine
Division of Hematology and Transfusion Medicine*

Cellular Therapy Laboratory (CTL) 3-Day Course

**Goals and Objectives
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GOALS & OBJECTIVES

DEFINITION:

The CLS Cellular Therapy Laboratory (CTL) processes all products for paediatric and adult transplant performed by the Alberta Blood and Marrow Transplant Program (BMT Program). CTL, in conjunction with the Alberta BMT Program, is internationally accredited through the Foundation of Accreditation of Cellular Therapy (FACT). The Cellular Therapy Lab is in the Division of Hematology and Transfusion Medicine at Calgary Laboratory Services (Foothills Medical Centre). Blood and marrow cell transplantations (commonly referred to as blood stem cell transplants) are employed to cure various malignancies and genetic disorders. CTL plays a critical central role by ensuring all products (peripheral blood stem cells, bone marrow, cord blood) used in the transplant are of ultimate quality and consistency.

GENERAL OBJECTIVES:

This one week long CTL module is designed to familiarize the trainee with the technical and theoretical aspects of blood and marrow transplant product processing, manipulation, and quality. The trainee will develop a clear and detailed understanding of the processing, manipulation, and quality control involved in the processing of transplant products. Learning tools will include direct observation and hands-on experience in product preparation/processing, quality control, clinical and quality indicator analysis, and overall quality assurance. The trainee will review selected product processing files, plus current products, with the Laboratory Director and/or MLT III. *At the completion of the module the trainee will be able to assess and recommend product processing procedures, interpret and utilize CTL product reports, and evaluate clinical and laboratory indicators of product quality.*

General Expectations:

1. Attendance at scheduled training & learning sessions.
2. Attendance at the weekly BMT clinical meeting.
3. Self-study of relevant talks/lectures, papers, and texts.
4. Professional interaction with laboratory staff.
5. Participate in quality assurance activities in the lab.
6. Complete the end-of-module test.
7. Participate in module/preceptor evaluation.

Recommended Reading:

- *Hematopoietic Stem Cell Transplantation in Clinical Practice*. Ed. J. Treleaven and A. J. Barrett. Elsevier, Toronto 2009
- *Cellular Therapy: A Physician's Handbook*, 1st Edition. E. Snyder, MD and N.R. Hale, MD. AABB 2004
- *Cellular Therapy: Principles, Methods and Regulations*. Ed E. M. Areman & K. Loper. AABB 2009.
- *Cord Blood: Biology, Immunology, Banking and Clinical Transplantation*. Ed. H.E. Broemeyer,. AABB 2011
- *FACT-JACIE International Standards, 5th Edition*. Foundation for Accreditation of Cellular Therapies, 2012. www.factwebsite.org
- *Hematopoietic Cell Transplantation*, 3rd Ed. Thomas, Blume & Forman, Blackwell Science 2004
- *Cord Blood Characteristics: Role in Stem Cell Transplantation*. Cohen, Gluckman, Rubinstein & Madrigal (eds). Blackwell Science, Inc. 2000
- *Essentials of Stem Cell Biology* 1st Ed. Lanza, Thomas, Thomson, Pedersen, Gearhart, Hogan, Melton, and West Eds. Academic Press, 2005.

SPECIFIC OBJECTIVES:

At the completion of the training week, the trainee will be familiar and will have acquired an understanding of the following competencies:

Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate understand of the clinical relevance of Cellular Therapy Product (CTP) processing in human stem cell transplants
- Demonstrate ability to apply relevant information to clinical practice
- Demonstrate effective communication of product processing needs

Specific Requirements

- Demonstrate an understanding of the sources of hematopoietic stem/progenitor cells for transplant and their unique properties
- Demonstrate knowledge of hematopoietic stem/progenitor cell biology
- Demonstrate an overall understanding of the principles and technical aspects of processing CTPs (Peripheral Blood Stem Cells (Apheresis), Bone Marrow, and Cord Blood)
- Display knowledge of the key quality indicators of CTPs and their impact on clinical outcome
- Appreciate the role of mesenchymal stem cells and other therapeutic cells in disease treatment
- Demonstrate ability to advise and consult on appropriate transfusion requirements for patients undergoing ABO/Rh incompatible allogeneic transplants
- Demonstrate ability to advise and consult necessary processing for autologous and allogeneic transplant products, including processing of ABO/RH incompatible products.
- Demonstrate ability to effectively order the collection, processing and infusion of CTPs.

Communicator

General Requirements:

- Establish effective working relationships with CTL staff, CTL Director and BMT Program partners
- Listen and respond effectively to concerns and needs of transplant partners
- Discuss appropriate information with the health care team

Specific Requirements:

- Understand the role of CTL in transplants
- Understand the role CTPs quality indicators play in clinical outcome
- Understand how effective and timely communication of adverse events and engraftment variances to CTL ensures ongoing quality and ultimate patient care
- Assist in the continuing education of other members of the health care team
- Communicate information regarding CTPs effectively with patients, medical colleagues, nursing and technical staff verbally and through written reports

Collaborator

General Requirements:

- Work effectively with BMT Program partners
- Contribute effectively to other interdisciplinary team activities

Specific Requirements:

- Experience in CTP processing is essential to achieve a sound understanding of the effects of CTP selection and processing on clinical management
- Demonstrate the ability to advise on the appropriateness of processing procedures, non-conforming product issues, and transfusion requirements for transplant patients

Manager

General Requirements:

- Utilize resources effectively to balance patient care, turnaround time, and educational/research needs
- Allocate finite health care resources wisely
- Work effectively and efficiently in a health care organization
- Utilize information technology to optimize patient care, life-long learning and other activities

Specific Requirements:

- Demonstrate knowledge of the principles of laboratory management and administration
- Demonstrate knowledge of the methods of quality control in CTL processing
- Demonstrate knowledge of the methods for quality assurance as applied to CTL Processing
- Demonstrate knowledge of national and international standards for CTP processing laboratories
- Demonstrate competence in basic computer skills with emphasis on electronic reporting, electronic communication and search strategies

Health Advocate

General Requirements:

- Contribute effectively to improved health of patients and communities
- Recognize and respond to those issues where advocacy is appropriate
- Understand the role CTL plays in patient's care

Specific Requirements:

- As members of an interdisciplinary team of professionals responsible for individual and population health care, the clinician will endeavour to ensure that laboratory practices are regularly evaluated to determine that they meet these community needs
- Reinforce to the public and to the profession the essential contribution of laboratory medicine health

Scholar

General Requirements:

- Develop, implement and monitor a personal continuing education strategy
- Critically appraise sources of medical information
- Facilitate learning of patients, house staff/students and other health professionals
- Contribute to development of new knowledge

Specific Requirements:

- Propose a research question relevant to CTP processing and/or CTP utilization in transplant

Professional

General Requirements:

- Deliver highest quality patient care
- Exhibit appropriate personal and interpersonal professional behaviours
- Practise medicine ethnically consistent with obligations of a physician
- Demonstrate the knowledge, skills and attitudes relating to gender, culture, and ethnicity

Specific Requirements:

- Act as an appropriate role model for students and others
- Demonstrate a professional attitude to colleagues and other laboratory staff
- Have an appreciation of the crucial role CTL has in providing quality patient care
- Develop the necessary knowledge to understand limitations and the necessity of seeking appropriate second opinions