CURRENT MATERNAL AND INFANT RESEARCH AT BC WOMEN'S HOSPITAL

A summary of relevant BC Women's Hospital research studies which currently require biological specimens is provided below. **If you agree to take part in the BioBank, a portion of your biological sample(s) may be utilized for some or all of these studies**, depending on the suitability and specific study requirements. In addition, remaining samples will be stored in the BioBank for future research.

If you are interested in obtaining more detail about any of the following studies, please contact the investigator, as indicated.

STUDY: A new role for the molecule ADA2 in the development of human immune cells (ADA2 Study)

Background & Purpose: We study a rare childhood disease called Deficiency of Adenosine Deaminase (DADA2). DADA2 causes a range of health issues, the most serious being the inability to make immune cells that keep us healthy. We know that children with DADA2 have defects in a protein called ADA2 but we don't know how ADA2 is involved in immune cell development. In entirely new areas of research like this, scientists would typically use laboratory mice to tackle such questions, but mice don't have ADA2. Therefore, we plan to use human umbilical cord blood to obtain immature blood cells that can be used to model the development of human immune cells in the lab.

This is the first study to look at how, when and why ADA2 is produced during immune cell development, and we hope our findings will help us better understand the unique and devastating symptoms in children with DADA2 and many other immune cell disorders.

What's required? Umbilical cord blood

Who's eligible? Everyone

Principal Investigator: Dr. Kelly Brown	kbrown@bcchr.ca	http://kbrownlab.ca/
Primary contact: Stephanie Hughes	sthughes@bcchr.ca	604-875-2000 x7625

STUDY: Understanding the immunological basis for early-life infections in preterm infants

Background & Purpose: Normal umbilical cord blood contains primitive blood cells. After your baby is born, the umbilical cord is cut and the placenta, or "afterbirth," is delivered soon thereafter and usually discarded. However, at this time, the blood can be collected from the cord and then used for research. Understanding how normal blood cells are produced is important because it helps us better understand disease processes. For instance, from studying normal blood cells in healthy full-term infants we can detect vulnerabilities in a premature baby's immune system, or learn how to better treat blood diseases, or improve transplant therapies

The goal of this project is to understand how the immune system of healthy babies born at term differ from babies born earlier or from healthy adults

What's required? Umbilical cord blood

Who's eligible? Everyone

Principal Investigator: Dr. Pascal Lavoie plavoie@cw.bc.ca

STUDY: Making placenta stem cells from term placentas

Background & Purpose: The formation of a healthy placenta during pregnancy is extremely important for the short- and long-term health of the developing baby and mother. The placenta transfers and makes nutrients, antibodies, and hormones needed for fetal growth and development, and for protection against infections during the first few months following birth. Given how important the placenta is for an individual's health, it is surprising how little we know about the cell biology of the placenta.

The Beristain laboratory at the BC Children's Hospital Research Institute has recently replicated a new approach to make a type of placenta cell, called a placenta stem cell, from adult tissue. Specifically, this new technique partially reprograms adult tissue fibroblasts into trophoblast stem cells (also known as placenta stem cells), while other cell types (e.g., pluripotent stem cells) are selectively inhibited. Placenta stem cells enable researchers to understand how specific genes and biological processes control the formation of important parts of the placenta.

The goal of this project is to determine if placenta stem cells can also be made from placentas delivered at term. If successful, placenta-derived placenta stem cells can be used to help identify associations between abnormal processes underlying placenta development and poor pregnancy outcomes.

What's required? Donation of the placenta

Who's eligible? Women having a healthy pregnancy who are scheduled to have an elective C-section post 37 weeks' gestation.

Principal Investigator: Dr. Alexander Beristain **Co-Investigators:** W. Robinson, J. Dennis, J. Bush

Contact for more information: Alexander Beristain alexander.beristain@ubc.ca
https://beristainlab.ca