BC CHILDREN'S HOSPITAL BioBank

Annual Report

BC Children's Hospital BioBank

APRIL 1, 2018 – MARCH 31, 2019

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1.0 Overview

This is the fourth annual report of the BC Children's Hospital BioBank (BCCHB), which has been operational since January 1, 2015 and made possible by a generous contribution from Mining for Miracles - the BC mining community's longstanding fundraising campaign for BC Children's Hospital. This report will cover operations and finance from April 2018 – March 2019.

The mission of the BCCH BioBank is to provide a comprehensive service for the collection, processing, storage, rapid access and retrieval of biospecimens and clinical information for research projects using a professional and compassionate approach to patient consenting that adheres to the highest standards of research ethics and patient privacy.

The BCCHB has a two pronged approach to supporting research, "general biobanking" and "PI-driven research". In the general biobank specimens are collected under the mandate of the BCCHB for future research. For PI driven research the BCCHB provide researchers with specified services to enable their own research.

Pages 13 – 16 of this report refer to projects that have utilized specimens from the general biobank. The BCCHB has released specimens to a range of projects from antibody research, immunity and responses to infections, cancer and rheumatic diseases.

Pages 18 – 21 describe the extensive list of PI driven studies that the BCCHB has been able to support over the last three years.

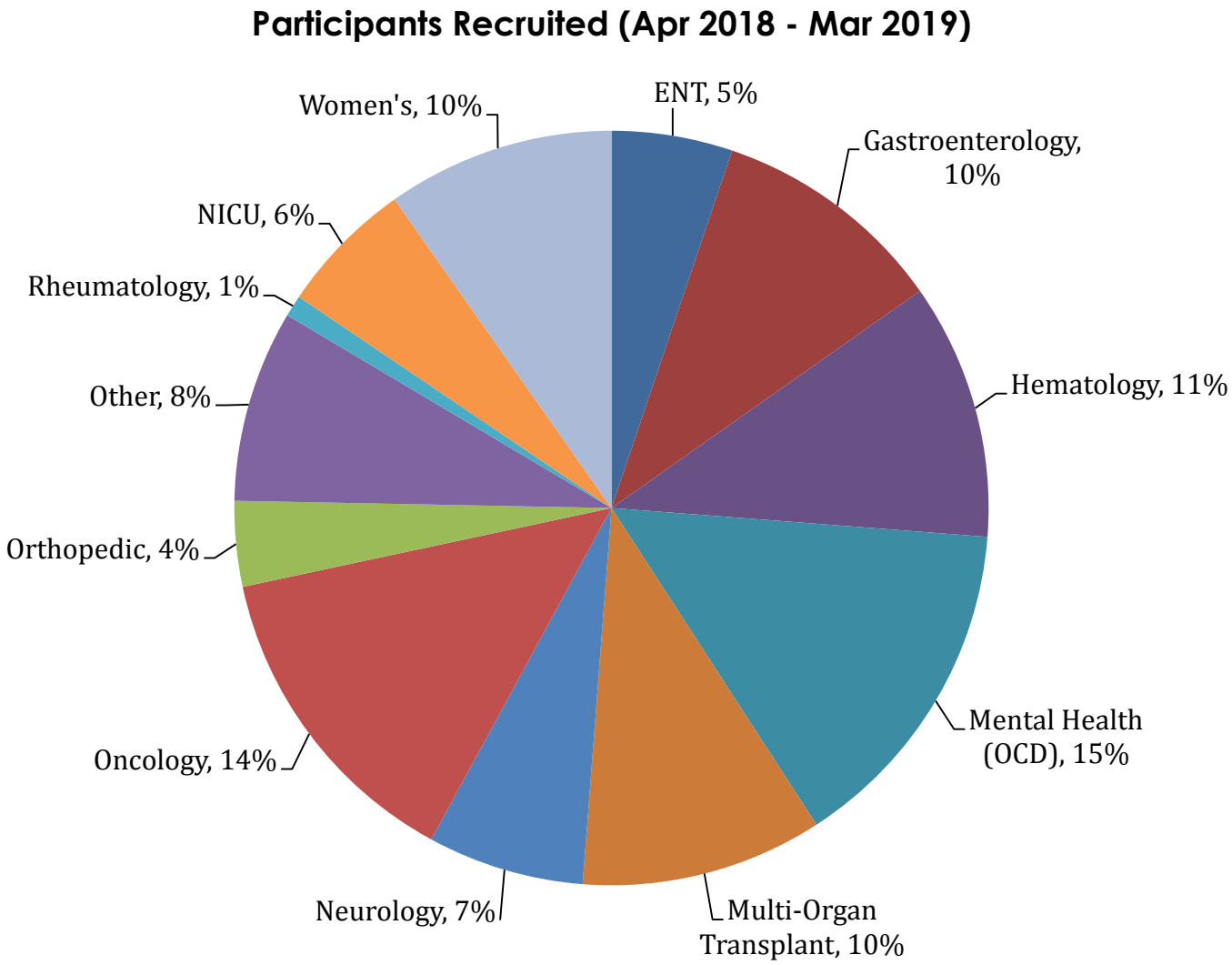
Over the past 2 years Dr. Vercauteren has formed a Pediatric Special Interest Group at the International Society of Biological and Environmental Repositories (ISBER). This is an international group which is leading discussions specifically about pediatric biobanking.

Below are data and other achievements from April 2018 – March 2019.

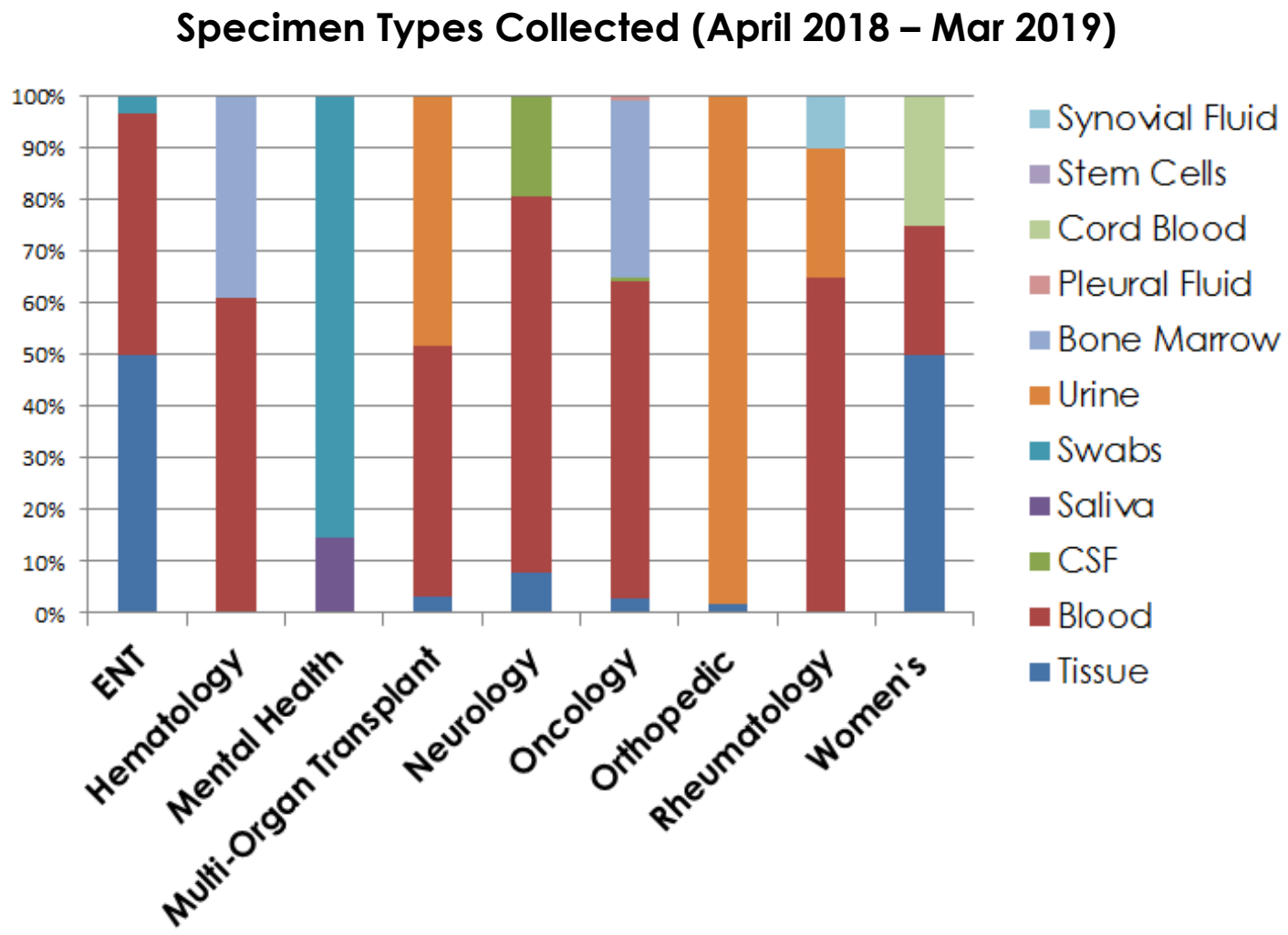
2.0 Participation Rate – General BioBank

	BCCH		BCWH		Total (BCCH + BCWH)	
	2018-19	Total	2018-19	Total	2018-19	Total
Consent Obtained	279	1278	55	369	334	1647
Declined	4	45	N/A	N/A	4	45
Withdrawn	2	14	0	0	2	14
Consent rate	97.9%	95.6%	--		--	

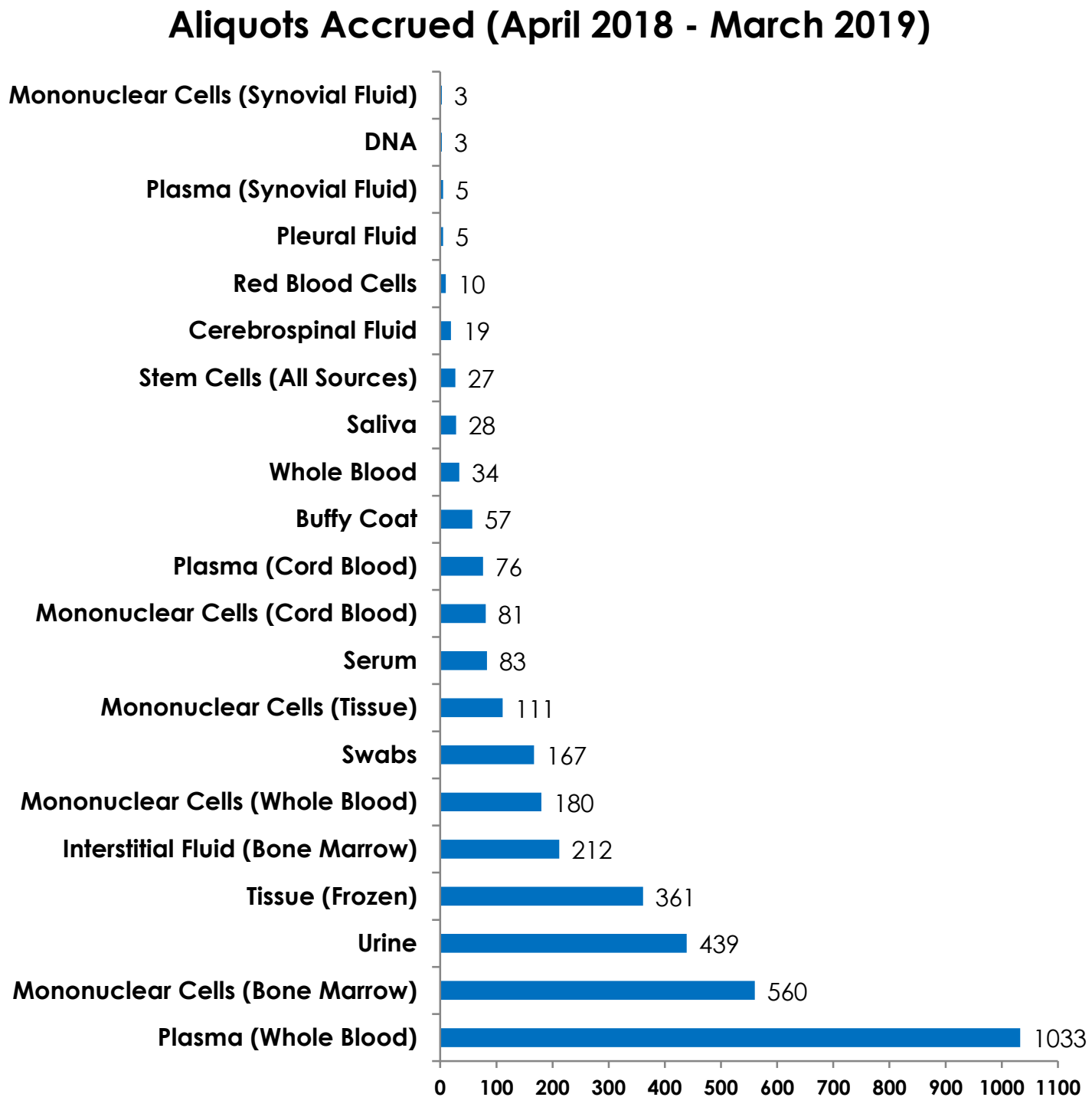
3.0 Clinic Representation – General BioBank



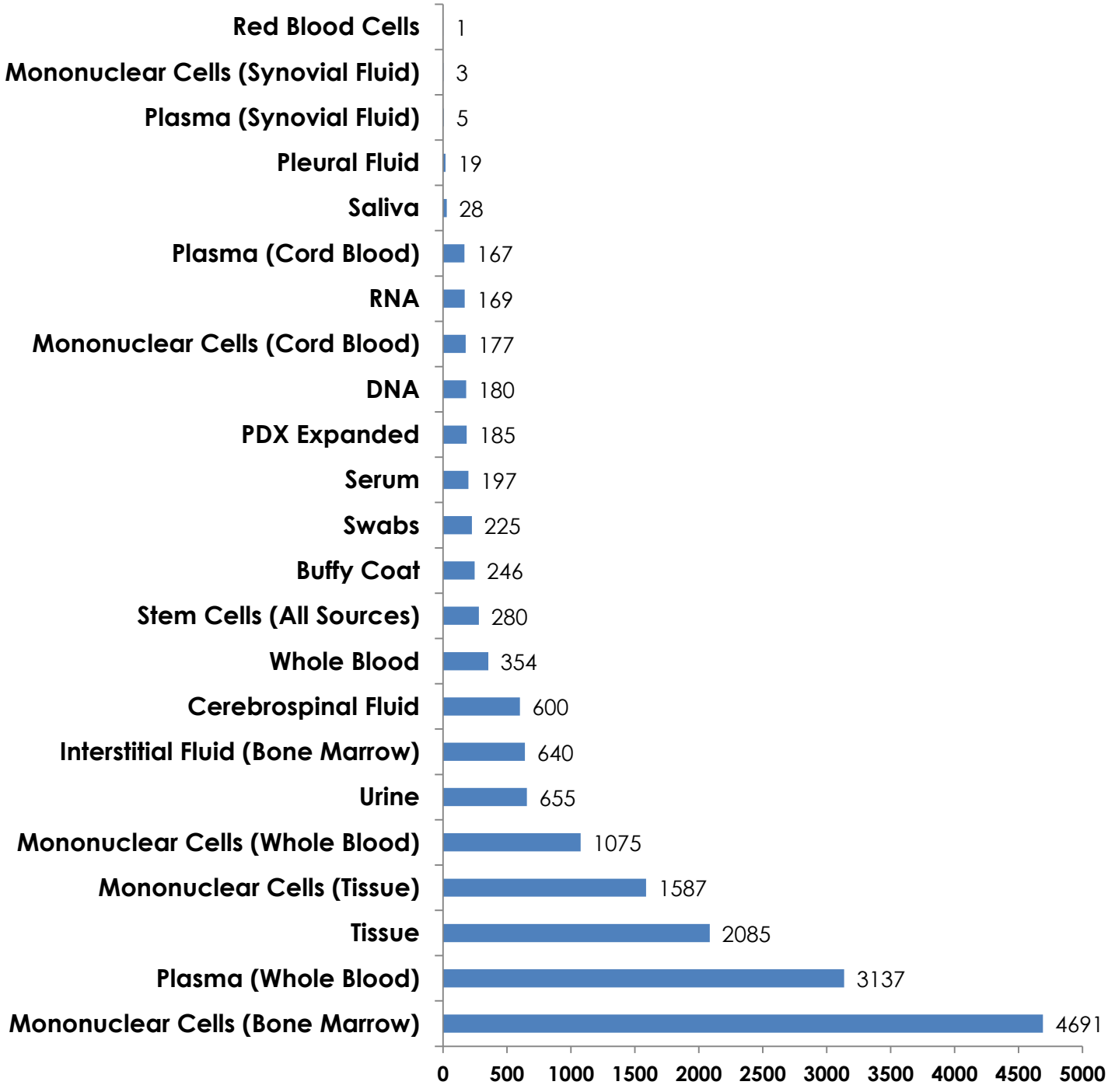
4.0 Specimen Collections – General BioBank



5.0 Aliquots Accrued and Aliquot Availability – General BioBank



Total Aliquots Available as of March 2019



6.0 BioBank Oversight Committee (BOC)

Suzanne Vercauteren Chair of BOC	**Director of BCCH BioBank**
Mike Allard	Head of pathology and Laboratory Medicine, UBC
Kathryn Dewar	Senior Research Manager, WHRI
Julie Van Schalkwyk	Department of Obstetrics and Gynecology, UBC (BCWH Site Head)
Anne Junker	Representative for the Head of Pediatrics, UBC
Peter Watson	External Biobank Expert
Erik Skarsgard	Head of Department of Surgery at BCCH
Soren Gantt	BCCHR Director of Clinical Research
Mike Burgess	External Ethics Expert
Deborah McFadden	Head of Pathology and Laboratory Medicine at C&W
Anthony Bailey	Professor and Chair of Child and Adolescent Psychiatry, UBC
Tamsin Tarling	Administrative Manager, BCCH BioBank (ex-officio) until July 2018
Ashton Ellis	Research Coordinator, BCCH BioBank (ex-officio) as of July 2018

7.0 BioBank Executive Committee (BEC)

Suzanne Vercauteren Chair of BEC	Director, BCCH BioBank
Caron Strahlendorf	Member of Research Ethics Board
Wendy Robinson	Member of CFRI
Sheila O'Donoghue	Representative from OBER
Anna Lee	Pediatric and Perinatal Pathologist, Anatomical Pathology, BCCH
Tanya Nelson	Member of Pathology and Laboratory Medicine at C&W
Paul Yong	Member of WHRI
Gregor Reid	Member of CFRI
Adam Velenosi	Research Coordinator, BCCH BioBank (ex-officio)

8.0 BioBank Biospecimen Advisory Committee (BAC)

William Gibson (Chair of BAC)	Member of BCCHR
Suzanne Vercauteren	Director, BCCH BioBank
David Cabral	Member of BCCH
Helene Cote	Member of UBC
Jacob Rozmus	Member of BCCH
Wee-Shian Chan	Member of BCWH
Clare Beasley	BC Mental Health and Addiction Services
Isabel Jordan	Founder of Rare Disease Foundation parent advocacy group
Jefferson Terry	Member of the Department of Pathology and Laboratory Medicine
Veronica Chow	Laboratory Technician, BCCH BioBank (ex-officio)

9.0 Staff

Suzanne Vercauteren	Director
Tamsin Tarling	Administrative Manager (until July 2018)
Nidhi Arora	Senior Laboratory Technician
Adam Velenosi	Research Coordinator
Veronica Chow	Research Technician
Stephen Fung	Programmer/Analyst
Ashton Ellis	Research Coordinator
Heather Van Tassel	Undergraduate Research Assistant (Sept 2017 – May 2018)
Thomas Soroski	Work Learn Student
Rumbidzai Chiwaya	Research Technician
David Yang	Work-Learn Student (May 2018 – August 2018) Undergraduate Research Assistant (Sept 2018 – present)
Yohaan Johnson	Co-op Student (Sept 2018 - April 2019)
Iryna Kayda	Volunteer (September 2018 - December 2018) Research Assistant (January 2019 – present)
Paige Muir	Undergraduate Research Assistant (Sept 2017 – April 2018) SSRP Summer Student (May – August 2018) Work Learn Student (Sept 2018 - present)

Stephen Fung will be leaving the BioBank team April 2019.

10.0 Applications & Biospecimen Release

Between April 2018 and March 2019 the BCCH BioBank has received 11 applications for biospecimens. Applicants and their research project titles are displayed below.

1. Folate status in children with sickle cell disease. Crystal Karakochuk –specimens granted***. 40 serum samples, 40 plasma samples, and 20 RBC samples from pediatric patients with sickle cell disease.***
   Lay summary: Over 65,000 newborns in the US and Canada are born each year with sickle cell disease (SCD), an autosomal recessive disorder that causes the production of abnormal red blood cells (RBCs). Infants born with SCD have an increased risk of anemia, infections, stroke, and death. This study will help to determine if there is a potential risk of excess intake, and will inform the need, optimal dose and/or form of folic acid for children with SCD. Our findings will have immediate applicability to clinical care in regards to the current controversy regarding safe supplementation practices in children with SCD.

2. Cerebrospinal Fluid Metagenomics and Cytokine Profiling in Pediatric Patients with CNS Inflammation. Millan Patel- specimens granted. ***72 cases and 42 controls of whole blood, serum, plasma, and CSF from pediatric patients with CNS inflammation.***
   Lay summary: IBrainD is a complex problem with serious consequences for the children affected, but whose cause is not understood in over half of patients. This is a unique study in which we'll be the first in Canada to develop and validate a metagenomic technique testing cerebrospinal fluid that is both sensitive and specific. Combining pathogen detection with assessment of biomarkers in plasma and serum will allow us to begin to separate the contribution of inflammation due to infection from non-infectious inflammation.

3. Pilot study to establish methods for evaluating the impact of the CPT1A Indigenous variant on T-cell function. Bojana Rakic- specimens granted. ***10 normal peripheral blood mononuclear cells samples from adult controls.***
   Lay summary: A genetic variant in carnitine palmitoyltransferase I (CPT1A), found only in individuals of indigenous descent in coastal BC, Alaska, and across the Canadian North and Greenland, is associated with a small but significant risk of sudden unexpected death in infancy. This project will utilize whole blood samples from adult control donors and biobanked peripheral blood mononuclear cells (PBMC's) to validate assays for the future investigation of this variant and its role in T-cell function and susceptibility to infectious disease.

4. Validation of Biomarker Profiles using a Novel Microfluidic-Based Platform That Enables Automated, Operator-Independent Monitoring in the Clinic. Tom Blydt-Hansen- specimens granted. ***100 urine samples.***
   Lay summary: Ongoing multicenter studies have advanced the use of biomarkers in blood and/or urine as a measure of transplant injury, and several molecules have been found to be predictive of, or associated with, acute and chronic transplant rejection. We have developed a novel transplant urine 'cart' for the rapid analysis of four biomarkers. We plan to validate and refine biomarker cut off values to optimize negative predictive value.

5. 5-HT3 Antagonists (Antiemetics) and Cardiac Safety. Bruce Carlton- specimens granted. ***1 BC sample.***
   Lay summary: This project hypothesizes that clinical and/or genetic factors contribute to risk of 5-HT3 antagonist-induced cardiac adverse effects in children, pregnant women, and women of a reproductive age. Sample was requested from the biobank for the extraction of DNA.

6. Exploring whether natural killer T cells regulate the expansion of tonsillar B cells following EBV infection and if this virus preferentially infects specific B cells. Peter Van Den Elzen- specimens granted. ***116 plasma transferred and 10 mononuclear cells samples from tonsils.***
   Lay summary: This project aims to investigate whether natural killer T cells regulate the expansion of tonsillar B cells following Epstein-Barr virus (EBV) infection and whether EBV infects specific B cells. By using 10 tonsil samples (5 EBV positive/ 5 controls) donated to us through the BioBank at Children's Hospital we will be able to study the effects of EBV infection on NKT cells and B cells. These preliminary experiments will allow us to determine whether NKT cells may play a role in the acute immune response to EBV and whether EBV has a preference for certain B cell types.

7. Immunity in very early premature infants. Pascal Lavoie- specimens granted. ***10 cord blood samples.***
   Lay summary: This project aims to investigate whether natural killer T cells regulate the expansion of tonsillar B cells following Epstein-Barr virus (EBV) infection and whether EBV infects specific B cells. By using 10 tonsil samples (5 EBV positive/ 5 controls) donated to us through the BioBank at Children's Hospital we will be able to study the effects of EBV infection on NKT cells and B cells. These preliminary experiments will allow us to determine whether NKT cells may play a role in the acute immune response to EBV and whether EBV has a preference for certain B cell types.

8. Cold preservation of human umbilical cords. Caigan Du- specimens granted. ***10 umbilical cord samples.***
   Lay summary: An increased demand for regenerative stromal cells (also known as MSCs) has made scientists prioritize the development of MSC preservation and isolation methods. Umbilical cords are a

suitable source for standardizing preparation of MSCs. In this study, our objective is to develop an effective solution to preserve these umbilical cords for a large quantity of MSC preparation.

9. Studies in support of a new vaccine to prevent invasive Haemophilus influenzae type a (Hia) disease in Canadian Indigenous communities. Marina Ulanova- specimens granted. ***116 plasma samples from pediatric participants of various ages.***
   Lay summary: Haemophilus influenzae type a (Hia) has recently been recognized as an important cause of severe invasive disease in Canadian First Nations and Inuit, as well as in Alaskan Native populations, with the highest rates reported in young children. The reasons behind an increased susceptibility to this infection in certain populations groups are unknown. It is critical to understand at what age children acquire protective antibody in order to develop specific policy for prevention of this infection, including immunization with a new vaccine under development. The objective is to study plasma antibody concentrations in children of various ages.

10. Targeting centrosome amplification in aneuploid childhood leukemia. Chris Maxwell- specimens granted. ***127 peripheral blood mononuclear cells samples from leukemia pediatric patients.***
    Lay summary: Acute lymphoblastic leukemia (ALL) is the most common malignancy in children and is generally low-risk. But, survival rates for relapsed and refractory ALL are poor and these cancers account for 10% of childhood cancer deaths in Canada. Moreover, current treatments can damage many tissues in a young, growing body and cause pathologies several years after the child is cured. Thus, new therapies are needed that target relapsed ALL and minimize long-term effects in young, growing bodies. Our hypothesis is that centrosome clustering is required for viability in B-ALL cells and inhibition of this process will be lethal.

11. Stem cells for assay optimization. Kirk Schultz- specimens granted. ***2 stem cells samples.***
    Lay Summary: In stem cell transplant research, different types of cellular products are processed and banked, including cord blood, bone marrow and stem cell products. In all cases, standard procedure for isolating stem cells is Ficoll/Percoll-based density centrifugation. Despite this, purity of mononuclear cells isolated by this method from different sources of hematopoietic stem cells, in particular banked stem cell products, have not been systematically evaluated. This project aims to validate the biomarkers isolated from donor and recipient peripheral blood samples.

Over the period of April 2018 and March 2019, the following projects requested additional specimens for their studies which had previously been approved.

1. Caigan Du (Vancouver Coastal Health Research Institute)- specimens granted. (***4 umbilical cord samples)***
   Lay summary: In this study, our objective is to develop an effective solution to preserve these umbilical cords for a large quantity of MSC preparation. Additional cord samples were requested to continue this analysis.

2. BRAvE. Gregor Reid, Chris Maxwell, James Lim, Kirk Schultz and Philipp Lange (University of British Columbia, Vancouver, BC)- specimens granted.(***170 BMIF samples where possible)***
   Lay summary: We would now like to expand our analysis from cells to also include the microenvironment. Therefore we will include peripheral blood plasma and bone marrow interstitial fluid (plasma) as additional specimen types analyzed in the BRAVE study. Our goal is to characterize how peripheral blood and bone marrow differ and how cancer-specific molecules modulate signaling patterns in the cancer microenvironment. To this end we will identify and quantify proteins, and mesaure protein interactions in plasma and bone marrow plasma.

3. Dr. David Cabral (University of British Columbia, Vancouver, BC) - specimens granted. (***60 control plasma samples)***
   Chronic Childhood Vaculitis: Characterizing the Individual Rare Diseases to Improve Patient Outcomes.
   Lay summary: Previously, 48-60 plasma samples were requested from children 0 – 18 yrs of age. These samples were used to establish preliminary age relative "normal" intervals of adenosine deaminase 2 (ADA2) enzyme activity and circulating protein concentration. Additional plasma samples from these otherwise healthy children are being requested to further refine the normal ranges of ADA2 enzyme activity and concentration in pediatric patients with ADA2 dysfunction.

11.0 PI Driven Studies

#	Study Name	PI	Services Provided	Sample Processing	Storage
1	SLED	Dr. Dina Panagiotopolous & Dr. Megan Levings	Receiving, labeling, recording, & processing the specimen Long-term storage	Serum Plasma Buffy Coat PBMC	- 80°C Liquid Nitrogen
2	Adult SLED	Dr. Jan Dutz	Receiving, labeling, recording, and processing the specimen Long-term storage	Serum Plasma Buffy Coat PBMC	- 80°C Liquid Nitrogen
3	Epilepsy & Genomics (EpGen)	Dr. Michelle Demos & Dr. Mary Connolly	Receiving, labeling, recording, and aliquoting the specimen Long-term storage	DNA Extraction	- 80°C
4	CAUSES	Dr. Jan Friedman	Receiving, labeling, recording, and aliquoting the specimen Long-term storage	Storage of whole Blood	- 80°C
5	SWAVE-U (study closed)	Dr. Jefferson Terry	Consenting patients and delivering the placenta to Anatomical Pathology	None	Store in the BioBank box in AP
6	mTOR (study closed)	Dr. Rebecca Deyell	Receiving, labeling, recording, and processing the specimen	Protein Lysate (PBMC)	Temporary storage only (-80°C)
7	UST1D (study closed)	Dr. Jan Dutz	Receiving, labeling, recording, and processing the specimens Long-term storage	Serum Plasma PBMC Whole blood	- 80°C Liquid Nitrogen
8	Genome wide assessment of genetic alterations in pediatric acute leukemia (LBRWN)	Dr. Lindsay Brown	Consenting and data collection	None	None
9	Understanding the risk of sudden death in families: cascade screening in CPVT (CARDIO)	Dr. Shubhayan Sanatani	Coordinating the collection of patient blood samples to FTA blood spot cards Long-term storage	Blood spot card	Room Temp.
10	TREASuRE (study closed)	Dr. Suzanne Vercauteren	Consenting	None	None

#	Study Name	PI	Services Provided	Sample Processing	Storage
11	Vitamin B12 status in South-Asian and European pregnant women and their newborns (study closed)	Dr. Hilary Vallance	Labeling, recording, storage	None	- 80°C
12	Broady Lab	Dr. Raewyn Broady	Labeling, recording, storage	None	Liquid Nitrogen
13	Levings Lab (study closed)	Dr. Megan Levings	Labeling, recording, storage	None	Liquid Nitrogen
14	A randomized controlled pilot study to examine the effects of goal-directed fluid therapy on post-operative outcomes in children undergoing scoliosis repair (study closed)	Dr. Zoe Brown	Labeling, recording, storage	None	- 80°C
15	Kingella Kingae (study closed)	Dr. Ghada Al-Rawahi	Identifying eligible patients, deliver kits, consent patients	None	None
16	Overcoming the barriers to successful immune therapy for acute leukemia	Dr. Gregor Reid (Dr. Nina Rolf)	Consenting	None	None
17	PedVas	Dr Kelly Brown	Aliquoting, labeling, recording, Long-term storage	None	- 80°C Liquid Nitrogen Room Temp.
18	AKI	Dr. Cherry Mammen	Processing, aliquoting, labeling, recording, storage	Urine (aliquoting)	- 80°C
19	EOE (study closed)	Dr. Edmond Chan	Labeling, recording, storage	Freezing Tissue	- 80°C
20	TED (study closed)	Dr. Linda Casey	Consenting and coordinating	None	None
21	POG cf DNA	Dr. Ryan Morin	Processing	Plasma Buffy Coat	- 80°C
22	BC-SICR	Dr. Srinivas Murthy	Labeling, recording, storage & processing	Whole blood aliquoting PBMC Plasma DNA	- 80°C Liquid Nitrogen

#	Study Name	PI	Services Provided	Sample Processing	Storage
23	CAN-TBI Sub study	Dr. William Panenka	Labeling, recording & processing Long-term storage	Plasma PBMC	- 80°C Liquid Nitrogen
24	STRIDER	Dr. Kenneth Lim	Labeling, recording, and storage	None	- 80°C
25	CROPS	Dr. Jan Dutz and Dr. Kevan Jacobson	Labeling, recording, storage & processing	Serum Plasma PAX gene PBMC	- 80°C Liquid Nitrogen
26	iPSC	Dr. Francis Lynn	Labeling, recording, storage & processing	PBMC	Liquid Nitrogen
27	Rheumatology	Dr. David Cabral and Dr. Kelly Brown	Labeling, recording, storage & processing	Whole blood aliquot Plasma PBMC	- 80°C Liquid Nitrogen
28	ABLE-Glyconet	Dr. Kirk Schultz	Consenting and coordinating	None	None
29	Preeclampsia	Dr. Kenneth Lim	Consenting and coordinating	None	None

12.0 Key Performance Indicators (KPI)

	Key Performance Indicators	January 1, 2015 – March 31, 2016	April 1, 2016 – March 31, 2017	April 1, 2017 – March 31, 2018	April 1, 2018 – March 31, 2019
1	# of participants recruited	402 per year (+ carry-over from CCBR) 27 per month	310 per year 26 per month	417 per year 35 per month	334 per year 28 per month
2	# of requests for specimens from general biobank	4 per year 0.2 per month	7 per year 0.6 per month	12 per year 1.2 per month	14 per year 1.2 per month
3	# of PI driven research projects supported (cumulative, because some studies continue to store samples despite being closed)	17	23	29	29
4	# of aliquots released from General BioBank (per year)	51	485	305	624
5	Sample QC (two methods) i) Mononuclear cells (post thawing) Recovery Viability ii) DNA A260/280 A260/230	 62% 75% 1.84 1.93	 90% 85% 1.86 2.20	 83.3% 96.3% 1.84 1.73	 59.3%* 73.1%* 1.84 1.90
6	# of successful grants for BCCHB specific projects (per year)	1	4	1	4
7	# of successful grants/special award that proposed using BCCHB specimens/data (per year)	2	1	3	3
8	# of publications with BCCHB specimens/data (per year)	1	1	2	4
9	# of conference presentations/posters (per year)	7	4	1	3

*Recovery and viability this year were self-reported by researchers on fewer released mononuclear cells than in previous years, resulting in lower average percentages from a significantly smaller sample size.

13.0 BioBank Lifetime Utilization

Clinic	# of Participants Recruited	Sample Types	Aliquots Accrued	Aliquots Available	Aliquots Released	% Utilization
Mental Health	81	Swab (Buccal)	240	240	0	
		Saliva	28	28	0	
		Total Aliquots:	**268**	**268**	**0**	**0%**
Multi-Organ Transplant	84	Whole Blood (WB)	2	2	0	
		Buffy Coat	30	12	18	
		Mononuclear Cells (WB)	186	183	3	
		Plasma (WB)	557	542	15	
		Urine (All)	481	332	149	
		Tissue (Frozen)	2	1	1	
		Total Aliquots:	**1258**	**1072**	**186**	**14.8%**
Orthopedics	38	Urine	319	299	20	
		Mononuclear Cells (WB)	2	2	0	
		Plasma (WB)	8	8	0	
		Tissue	5	5	0	
		Total Aliquots:	**334**	**314**	**20**	**6.0%**
Rheumatology	25	Whole Blood (WB)	12	12	0	
		Buffy Coat	10	10	0	
		Cerebrospinal Fluid	20	20	0	
		Plasma (Synovial Fluid)	25	5	20	
		Mononuclear Cells (Synovial Fluid)	3	3	0	
		Mononuclear Cells (WB)	35	33	2	
		Plasma (WB)	97	97	0	
		Tissue (Frozen)	2	2	0	
		Urine (All)	13	13	0	
		Total Aliquots:	**217**	**195**	**22**	**10.1%**

Clinic	# of Participants Recruited	Sample Types	Aliquots Accrued	Aliquots Available	Aliquots Released	% Utilization
Women's	376	Whole Blood (WB)	53	53	0	
		Buffy Coat (WB)	5	5	0	
		MNC (WB)	52	49	3	
		Plasma (WB)	272	272	0	
		Serum (WB)	128	128	0	
		Mononuclear Cells (Cord Blood)	177	177	0	
		Plasma (Cord Blood)	167	167	0	
		Tissue (Frozen)	1191	1191	0	
		Total Aliquots:	**2045**	**2042**	**3**	**0.1%**
Neurology *(General BioBank only)*	298	Whole Blood (WB)	243	243	0	
		DNA	65	65	0	
		Buffy Coat (WB)	9	9	0	
		Cerebrospinal Fluid	14	14	0	
		Plasma (WB)	86	83	3	
		Serum (WB)	15	15		
		Mononuclear Cells (WB)	54	54	0	
		RNA	2	0	2	
		Urine (All)	8	8	0	
		Total Aliquots:	**496**	**491**	**5**	**1.0%**
ENT	145	Whole Blood (WB)	30	16	14	
		Buffy Coat (WB)	3	3	0	
		DNA	102	102	0	
		Mononuclear Cells (WB)	116	52	64	
		Plasma (WB)	319	105	214	
		Serum (WB)	46	40	6	
		Mononuclear Cells (Tissue)	2012	1574	438	
		Cell Culture	13	11	2	
		RNA	155	155	0	
		Tissue (Frozen)	759	679	80	
		Cerebrospinal Fluid	8	8	0	
		Mononuclear Cells (BM)	7	7	0	
		Interstitial Fluid (BM)	7	3	4	
		Total Aliquots:	**3577**	**2755**	**822**	**23.0%**

Clinic	# of Participants	Sample Types	Aliquots	Aliquots	Aliquots	%

	Recruited		Accrued	Available	Released	Utilization
Gastroenterology	78	Tissue (Frozen)	45	45	0	
		Plasma (WB)	25	25	0	
		Total Aliquots:	**70**	**70**	**0**	**0%**
General Pediatrics	16	Mononuclear Cells (BM)	6	6	0	
		Interstitial Fluid (BM)	6	6	0	
		Tissue (Frozen)	13	13	0	
		Mononuclear Cells (WB)	6	6	0	
		DNA	13	13	0	
		RNA	14	14	0	
		Total Aliquots:	**70**	**70**	**0**	**0%**
Hematology	129	Whole Blood (WB)	41	41	0	
		Mononuclear Cells (WB)	213	213	0	
		Plasma (WB)	131	105	26	
		Buffy Coat (WB)	21	21	0	
		Serum (WB)	55	35	20	
		Red Blood Cells	9	9	0	
		Mononuclear Cells (BM)	563	545	18	
		Interstitial Fluid (BM)	51	49	2	
		Cerebrospinal Fluid	25	25	0	
		Urine	3	3	0	
		Total Aliquots:	**1112**	**1046**	**66**	**5.9%**

Clinic	# of Participants Recruited	Sample Types	Aliquots Accrued	Aliquots Available	Aliquots Released	% Utilization
Oncology	460	Tissue (Frozen)	151	139	12	
		Mononuclear Cells (Tissue)	1	1	0	
		Cell Pellet (WB/BM)	25	24	1	
		Expanded Cells (PDX)	260	185	75	
		Mononuclear Cells (BM)	4541	4133	408	
		Interstitial Fluid (BM)	612	582	30	
		Whole Blood (WB)	28	28	0	
		Buffy Coat (WB)	161	161	0	
		Mononuclear Cells (WB)	491	483	8	
		Plasma (WB)	2208	2005	203	
		Serum (WB)	14	14	0	
		Red Blood Cells	1	1	0	
		Stem Cells (all sources)	318	280	38	
		Cerebrospinal Fluid	555	533	22	
		Pleural Fluid	19	19	0	
		Total Aliquots:	**9386**	**8588**	**797**	**8.5%**

- Clinics marked with an * are new clinics and we would not anticipate utilization at this stage.

14.0 BCCHB Publications

No new publications from the BCCHB this year.

Dr. Vercauteren is editor on a special pediatric edition of Biopreservation and Biobanking which is due to be published in the winter of 2019. The BCCHB will have a number of papers in this journal and writing is in progress at this time.

Publications Acknowledging the BCCHB

The following peer-reviewed publications have acknowledged the BCCHB for the utilization of general biobank specimens and clinical data in their research.

Carlow, D. A., Tra, M. C., & Ziltener, H. J. (2018). A cell-extrinsic ligand acquired by activated T cells in lymph node can bridge L-selectin and P-selectin. *PloS one*, *13*(10), e0205685. doi:10.1371/journal.pone.0205685

Lam, A. J., Macdonald, K. N., Pesenacker, A. M., Juvet, S. C., Morishita, K. A., Bressler, B., … Levings, M. K. (2019). Innate Control of Tissue-Reparative Human Regulatory T Cells. *The Journal of Immunology*, *202*(8), 2195–2209. doi: 10.4049/jimmunol.1801330

Leclair, P., Liu, C. C., Monajemi, M., Reid, G. S., Sly, L. M., & Lim, C. J. (2018). CD47-ligation induced cell death in T-acute lymphoblastic leukemia article. *Cell Death and Disease*, *9*(5). https://doi.org/10.1038/s41419-018-0601-2

Wu, D., Han, J. M., Yu, X., Lam, A. J., Hoeppli, R. E., Pesenacker, A. M., … Levings, M. K. (2019). Characterization of regulatory T cells in obese omental adipose tissue in humans. *European Journal of Immunology*, *49*(2), 336–347. doi: 10.1002/eji.201847570

Publications Not Acknowledging the BCCHB

The following peer-reviewed publications have not acknowledged the BCCHB for the utilization of general biobank specimens and clinical data in their research.

Abeysekera, J. M., Ma, M., Pesteie, M., Terry, J., Pugash, D., Hutcheon, J. A., … Rohling, R. (2017). SWAVE Imaging of Placental Elasticity and Viscosity: Proof of Concept. *Ultrasound in Medicine and Biology*, *43*(6), 1112–1124. https://doi.org/10.1016/j.ultrasmedbio.2017.01.014

Klein, T., Fung, S. Y., Renner, F., Blank, M. A., Dufour, A., Kang, S., … Overall, C. M. (2015). The paracaspase MALT1 cleaves HOIL1 reducing linear ubiquitination by LUBAC to dampen lymphocyte NF-κ B signalling. *Nature Communications*, *6*. https://doi.org/10.1038/ncomms9777

15.0 Grants (awarded in 2018/2019)

Women's Health Research Institute Catalyst Grant. Co-applicant with Dr. Pascal Lavoie; $25,000; *BC Women's Hospital Preemie BioBank*

UBC Strategic Investment Fund Proposal. Co-applicant with Dr. Peter Watson; $119,905; *Biospecimen Navigator Platform (BNP).*

16.0 Presentations (2018/2019)

International Presentations:

- Tarling, T. (May 2018). A Survey to Address the Effect of a Biobank Education session on the Opinions of Adolescent Students and their Parents about Biobank Participation. International Society of Biological and Environmental Repositories (ISBER) conference, Dallas, TX, USA.
- Velenosi, A. (May 2018). Children Are Not Small Adults: Insights into Pediatric Biobanks. International Society of Biological and Environmental Repositories (ISBER) conference, Dallas, TX, USA.
- Soroski, T. (May 2018). Determining Quality of Biobanked Tissue Samples. International Society of Biological and Environmental Repositories (ISBER) conference, Dallas, TX, USA.

Local Presentations:

- Tarling, T. Privacy Regulations Presentation (May 2018)
- Vercauteren, S. Fueling Research by Saving Body Bits: BC Children's Hospital BioBank. Pathology Day (May 2018).
- Vercauteren, S., Tarling, T. Patient Experience Council (June 2018)
- Vercauteren, S., Tarling, T. VSSS Biobank Presentation (June 2018)
- Tarling, T. Office of Biobanking and Education Resources Meeting Presentation (July 2018)
- Vercauteren, S. Giving patients, the public, and health-care providers/researchers a voice in pediatric biobanking, Grand Rounds Presentation (November 2018)
- Vercauteren, S. SPOR Webinar (November 2018)
- Velenosi, A. Gastroenterology Rounds (November 2018)
- Velenosi, A., Ellis, A. Discovery Days (December 2018)

17.0 Communication

Over the past year the BioBank has focused this year on writing white papers to present the findings of focus groups of stakeholders in both general pediatric biobanking as well as pediatric mental health biobanking. Both reports are in their final stages and will be presented to senior staff on this campus when completed.

Our YouTube video about the BCCHB has been viewed 2,492 times.

Website: www.bcchbiobank.ca
YouTube: https://www.youtube.com/channel/UCS1LxeGRJTRiejLRXw9heMw

BCCHB Newsletter: Summer 2018, Spring 2019

18.0 Financials

Full financial details for financial year ending March 2019

	Q1	Q2	Q3	Q4	Total
Opening Balance ($)	**512,634**	**441,888**	**347,986**	**321,367**	**512,634**
Total Revenue ($)	**6,679**	**17,904**	**49,524**	**23,263**	**97,371**
Total Salaries ($)	**72,912**	**93,378**	**71,400**	**89,851**	**327,541**
Total Operating Expenses ($)	**6,679**	**18,429**	**4,743**	**23,263**	**37,797**
Total Expenses ($)	**77,425**	**111,806**	**76,143**	**99,963**	**365,338**
Unexpended Balance ($)	**441,888**	**347,986**	**321,367**	**244,667**	**244,667**

Comment on Financial status:

All operating expenses and salaries are now need to be paid for from the UBC income account and the CD theme grant account.

A comparison of predicted and actual expenditure and income is shown below:

Expenditure

	FY2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	Total (up 2018/19)
Actual	142,172	818,846	474,664	680,428	291,442	365,338	2,772,890
Predicted	978,500	290,000	313,000	592,500	433,200	415,000	3,022,200

Income

	FY2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	Total (up 2018/19)
Actual	565	10,395	48,536	79,476	117,966	97,371	354,309
Predicted	0	16,000	35,000	70,000	100,000	140,000	361,000

19.0 Abbreviations

BCCH – BC Children's Hospital
BCWH – BC Women's Hospital
PHSA – Provincial Health Services Authority
UBC – University of British Columbia
WHRI – Women's Health Research Institute
REB – Research Ethics Board

20.0 Sign Off

Report compiled for the BCCH BioBank by:

Veronica Chow, Ashton Ellis, Adam Velenosi

Report reviewed by:

Suzanne Vercauteren, BCCH BioBank Director

Approved by:

BCCH BioBank Oversight Committee

Report signed off on behalf of the BCCH BioBank Oversight Committee by:

Suzanne Vercauteren, BCCH BioBank Director

Name _____ _____ February 25 2020 _____
Date