



**SickKids<sup>®</sup>**  
RESEARCH  
INSTITUTE

**Core  
Facilities**

The Hospital for Sick Children (SickKids) is Canada's most research-intensive hospital and the largest centre dedicated to improving children's health in the country. The mission of SickKids is to provide the best in complex and specialized care by creating scientific and clinical advancements, sharing our knowledge and expertise and championing the development of an accessible, comprehensive and sustainable child health system. At SickKids we are committed to the idea that innovation and research are critical to our mission to improve child health.

In order to provide for the wide array of technical requirements of our research community, we are home to a series of specialized core facilities. Each of these facilities provides technical expertise and services as well as access to state-of-the art equipment to our researchers on a cost recovery basis. For more information on these facilities and the services that are available, please visit:

**[www.sickkids.ca/research/facilitiesportal](http://www.sickkids.ca/research/facilitiesportal)**

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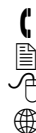
A joint venture between The Hospital for Sick Children (SickKids) and Mount Sinai Hospital, the ABC provides transmission and scanning electron microscopy services to scientists at these two institutions and the research community at large.

## SERVICES

- FEI Tecnai 20 transmission electron microscope with EDX, Gatan image filter, cryo holder and 1k by 1k digital camera
- FEI XL30 environmental scanning electron microscope with EDX
- routine specimen preparation for transmission electron microscopy and scanning electron microscopy as well as specialized procedures and imaging in the areas of immuno and analytical electron microscopy
- projects can be performed entirely by the centre's staff or individuals can be trained to prepare their own samples and to operate the microscopes

## CONTACT INFORMATION

Robert Temkin  
Mount Sinai Hospital  
Department of Pathology and  
Laboratory Medicine  
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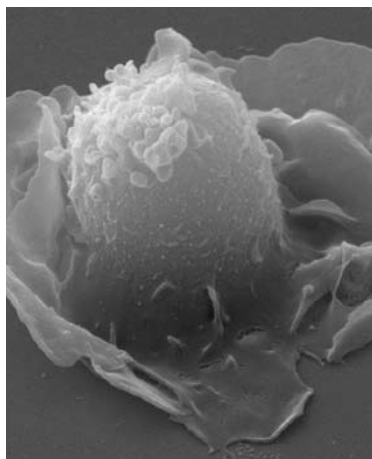


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<http://www.sickkids.ca/ABC/default.asp>



In operation for over two decades, the APTC provides protein analysis services to SickKids and the Canadian research community. They provide analysis in four main functional areas: amino acid analysis; peptide sequencing; peptide synthesis; and mass spectrometry.

### SERVICES

- Amino acid analysis
  - protein purity & quantity estimates
  - tryptophan and/or cysteine content
- Peptide sequencing
- Peptide synthesis
  - large & small scale peptide synthesis
  - high throughput peptide synthesis
- Mass spectrometry
  - protein identification
  - quantitative proteomic profiling
  - de novo sequencing
  - peptide mass mapping



### CONTACT INFORMATION

Christine Dhara  
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<http://www.sickkids.ca/APTC/>

The is a consultation service operated by the Child Health Evaluative Sciences program at SickKids Research Institute. The mandate of the BMU is to improve the quality of clinical research.

**SERVICES**

- Biostatistics consultation
  - study design and methodology (sample size and power)
  - statistical analysis
  - development of statistical methods for peer review publications
- Clinical research database management consultation
  - design of data entry screens
  - documentation of the database development
  - modification, design and programming of tables and reports
  - development of coding guidelines and database checks
- Methodological education of clinical investigators
  - Biostatistics Clinic
- Data entry services

**CONTACT INFORMATION**

Derek Stephens  
 Cristina Goia (Biostatistics Clinic)  
 123 Edward Street, 4th Floor  
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TCAG is comprised of facilities that provide the resources, technologies and expertise essential for disease gene research and other basic and applied genetic and genomic investigations.

### SERVICES

- DNA sequencing & synthesis: Sanger capillary electrophoresis and next-generation sequencing, and synthesis of conventional and labeled oligonucleotides.
- Microarray analysis for gene expression, SNP detection and copy number variation.
- Cytogenomics & genome resources: Karyotyping (G-banded and SKY), FISH mapping, probe labeling, gene and physical mapping services, control DNA samples, and clone retrieval.
- Genetic analysis: microsatellite and SNP genotyping, fine-mapping and genome-wide scans, marker development and mutation analysis.
- Statistical analysis: consulting and analytical services.
- Biobanking & databases: DNA extraction from lymphoblasts, fibroblasts and other cell types, archiving of white cell pellets, preparation and immortalization of cell lines, and databasing and tracking of samples and/or cell lines.



### CONTACT INFORMATION

Jo-Anne Herbrick, Facility Manager  
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<http://www.tcag.ca/>

The CCB provides for the computing, super computing and software needs within the Research Institute and to the greater research community.

## SERVICES

- Desktop support: computer and network support for all Research Institute employees.
- Software, databases & websites: consulting services for the development of research software, databases, and dynamic websites. They also provide website and web applications hosting services.
- Bioinformatics & research: tools and consulting services for bioinformatics research including: drug design, sequence analysis, systems biology, computational chemistry, data analysis, and statistical programming for genome-wide studies.
- Supercomputing: The High Performance Facility (HPF) is also available to handle computationally intensive tasks.

## CONTACT INFORMATION

Dave Fernandes, PhD, Facility Manager  
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## DESKTOP SUPPORT:

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The ES facility provides reliable, high quality technical service and support for the maintenance of embryonic stem cell lines and generation of targeted cell lines. They also provide materials, training and technical assistance to researchers.

### SERVICES

- ES cell lines, including R1, G4, and W4 as well as feeder cells to users
- fully tested, standardized reagents for gene targeting
- electroporation of targeting vectors
- selection and expansion of targeted ES cell clones
- MAP testing preparations



### CONTACT INFORMATION

Valerie Prideaux, Facility Manager  
Jodi Garner, Facility Technician  
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<http://riweb.sickkids.on.ca/escf>

A joint SickKids and UHN facility, the FCF provides cell analysis services using flow cytometry technology. Flow cytometers detect and quantify a number of cellular parameters as cells are carried in a liquid stream through a nozzle that is illuminated by one or more lasers emitting light of defined wavelengths. This level of analysis allows researchers to use multiple experimental parameters when processing samples.

## SERVICES

- analytical flow cytometry
- high speed cell sorting
- basic educational and training materials
- consultation on the design of flow cytometry experiments, including particular kinds of specificity and fluorescence compensation controls
- data analysis

## CONTACT INFORMATION

Sherry Zhao, Facility Manager  
101 College Street, TMDT  
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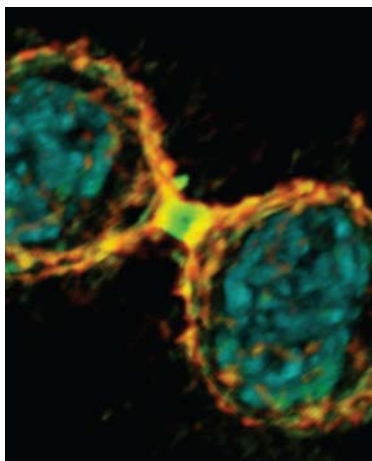
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- 🌐 <http://www.sickkids.ca/fcf/>



The Imaging Facility provides a full range of biological imaging solutions for life sciences research. The facility provides access to cutting edge technologies in biological imaging, which are made available to both academia and industry on a fee for service basis.

### SERVICES

- live cell/long-term imaging
- basic transmission and epifluorescence microscopy
- spinning disc and point scanning confocal microscopy
- access to more advanced technologies – ie. ratiometric imaging, TIR-FM, FLIM, two-photon excitation, FRAP, photo-activation
- laser microdissection, whole slide scanning (immunochemistry and fluorescence slides), fluorescence stereomicroscopy
- analysis workstations are provided free of charge for image analysis and presentation (ie. deconvolution, 3D reconstruction, quantitation, etc.)



### CONTACT INFORMATION

Michael Woodside  
Paul Paroutis  
McMaster North Annex / TMDT - 11-303  
Monday–Friday, 9:00 a.m. to 5:00 p.m.  
Access: 24/7



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<http://imaging.ccb.sickkids.ca/>

This facility provides space for cells and tissues in liquid nitrogen freezers within a controlled environment.

### SERVICES

- liquid nitrogen supply & storage
- cold room/warm room decontamination and maintenance

### CONTACT INFORMATION

Rosanna Sheppard, Facility Manager  
Room B312 (Facility)  
Room 9510, Hill (Office)  
24 hour access



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The Monoclonal Antibody Facility produces high quality monoclonal antibodies and antibody purification services to the Canadian research community on a fee for service basis.

### SERVICES

- hybridoma generation from peptides or proteins supplied by the customer
- rescue and subcloning of existing hybridoma cell lines
- monoclonal and polyclonal antibody purification
- isotyping of hybridoma cell lines
- large scale (1 litre) production of existing cell lines
- supply epitope-tag mouse monoclonal antibodies for research purposes only



### CONTACT INFORMATION

Dr. Sudha Arya, Facility Manager  
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<http://riweb.sickkids.on.ca/maf/index.html>

RTSS provide repair and maintenance services to research and lab equipment employed throughout the research institute. These services are provided exclusively for laboratories and equipment owned and operated at SickKids.

## SERVICES

- preventative maintenance and repair of a variety of research and lab equipment
- design modification and manufacturing of different non-standard tools
- design and fabrication of plexiglass shields, boxes, trays and platforms
- repair and calibration of pipettes, and CO<sub>2</sub> incubators
- liaise between laboratories and suppliers of replacement parts
- software or hardware design for data acquisition
- device interfacing
- facilitate Canadian Safety Association (CSA) approval for electrical equipment

## CONTACT INFORMATION

Andrew Chong, Facility Manager  
Room 9538, Gerrard Wing  
Monday–Friday, 9:00 a.m. to 12:00 p.m.  
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[http://riweb/tech\\_support/index.html](http://riweb/tech_support/index.html)



The Signalling Identification Network Facility (SIDNET) supports high-throughput screening projects by providing access to automation platforms, liquid handling systems, detection technologies, and cDNA expression and shRNA knock-down libraries to the academic research community in a cooperative and interactive environment. SIDNET staff are available to assist in the development of custom assays and automation protocols.

## SERVICES

A variety of in vivo cell based screening approaches to identify the role of specific genes and gene families in cell signalling pathways and networks are available utilizing the clone archive of expression-ready cDNA and shRNA libraries:

- **Liquid Handling:** integrated liquid handling, cell culture and detection technologies provide uninterrupted workflow resulting in increased quality and quantity of data.
- **High-Throughput Detection Technologies**
- **High-Content Screening**
- **SIDNET Archive:** Functional sets of protein-encoding open reading frames (ORFs) and shRNAs allows functional studies of the corresponding proteomes.



## CONTACT INFORMATION

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A centralized facility which provides sterilization and glassware services exclusively to SickKids research personnel.

### SERVICES

- sterilization and glassware processing
- ultrapure water system

### CONTACT INFORMATION

Rosanna Sheppard, Facility Manager  
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Monday–Friday, 6:30 a.m. to 2:30 p.m.



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The Research Institute at The Hospital for Sick Children (SickKids) undertakes child-centred research across the life continuum from fetal origins to adult outcomes, including fundamental discovery, applied research, and outcomes and impact.

Research activities are coordinated under seven major research programs that undertake internationally competitive research and training in areas of research relevant to child health in its broadest sense. Institute scientists are also key leaders and players in Hospital-wide interdisciplinary centres that focus on specific key problems in childhood health and disease.

### RESEARCH PROGRAMS

- Cell Biology
- Child Health Evaluative Sciences
- Developmental & Stem Cell Biology
- Genetics & Genome Biology
- Molecular Structure & Function
- Neuroscience & Mental Health
- Physiology & Experimental Medicine

### CONTACT INFORMATION

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