

Research Guidelines for Radiology Residents

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Rita Zakarian



- Radiology Research Committee
- Philosophy
- Mission / Goals
- Resident's role / Responsibility
- Supervisor's role
- Departmental Support
 - Research personnel
 - Research infrastructure
- Ethics



Radiology Research Committee

Core Team

•Dr. Louis Martin Boucher	Chair of Research Committee	
• Ms. Rita Zakarian	Senior Clinical Research Coordinator	☹
•Dr. Caroline Reinhold	Associate Chair of Research	
•Dr. Sahir Bhatnagar	Statistician	
•Ms. Cathy Torchia	Administrative Coordinator	

Members

- Dr. Lorne Rosenbloom
- ~~Dr. Reza Forghani~~ - replaced by Jesse Klostranec
- Dr. Natalia Gorelik
- Dr. Roberta La Piana

The goal of this presentation is to:

1. Outline the importance of conducting clinical research
2. Expose you to opportunities to participate in clinical research
3. Encourage you to debut your research
4. Enable you to start your own research
5. Ignite a flame of passion for research



Provide the tools and knowledge to Improve healthcare



Provide the clinical context to rally the research towards clinically relevant goal

Two worlds apart ?

The DOUBLE AGENT



- The ***clinician-researcher****, an individual who both conducts research and provides direct services is considered a “double agent” and an important figure in health research.

- Health research would stagnate without the involvement of researchers who have direct clinical experience with the health conditions and service systems being studied.

- Clinician-researchers can serve as effective “bridgers” between the research and practice communities and can facilitate both the development of clinically relevant research and the dissemination of evidence-based treatments into routine clinical services.

* Can also be referred to as the ***clinical scientist*** or the ***scientist-practitioner***



- Radiology is certainly one of the most striking fields where research has revolutionized the clinical work and is still revolutionizing it.
- Radiologists can also make an important contribution to the quality of clinical services, because involvement in research and clinical practice can facilitate an interactive flow of ideas between the clinical and research domains.
- By getting involved in research, you can help direct the future of radiology.

MAYBE YOU SEE YOURSELF ONLY AS A CLINICAN? WHAT IS THE USE OF RESEARCH FOR YOU?

- A research debut occurs through a combination of personal qualities, exposure to research, and the opportunity to participate in research in the workplace.
- Clinicians turned into clinician-researchers usually provide the same types of explanations why they decided to take advantage of the their work place opportunities for a research debut.

Can you identify with any of them?

1. Research suited the person's way of thinking

"to some degree I have always been interested in research because I always ask the question 'why?'. I don't like being told an answer, I like to know why".

2. Research was an interesting aspect of being a professional

"work is part of me and who I am and I like to do it well and I like to do a bit extra".

3. Research was a valuable problem-solving tool

"there was stuff I didn't know, it wasn't in the literature. I wanted to know if there was going to be a way I could help patients".



With completion of a research project (writing a protocol, reviewing literature, collecting data, and writing a well designed manuscript) you will:

- Develop a *structured methodology / critical thinking*.
- Develop a *reasoning process* that must be applied any time radiologists are faced with a clinical scenario requiring a diagnosis
- *Develop objectivity and critical appraisal* of literature to decide how to change and improve your practice
- Understand better the other members of a successful groups (scientists and clinician scientists)



Roche Drawn to Science –Clinical Trials

<https://www.youtube.com/watch?v=5zXuON7Rueo>



PHILOSOPHY- Research Debut – HOW?



By designing and implementing your own research project you will:

- Formulate a research question
- Review the literature
- Provide a background to explain the research question
- Describe the clinical implications
- Formulate the hypothesis
- Describe the methodology
- Describe the data collection process(what will be used)
- Specify the statistical tests that will be conducted
- Report ethics related issues (protecting patients data, reporting adverse events, etc.)

GOAL - MISSION:

- **Promote, encourage and facilitate research amongst the residents**
 - Maintain bank of projects
 - Clinical / basic sciences
 - Link residents with supervisors
 - Encourage you during this time of research and be there to help
- **Make sure that you succeed**
 - Ensure that your approach to your question is feasible in the time that you have
 - Ensure that your methodology will allow you to answer your question
 - Ensure that you are able to reach your goals (ethics, collection of data, etc.)
 - Ensure that your deadlines are met
 - Ensure that your research has the potential to be publishable so that it can be added to your CV
- **Organize Annual Research Day** so that you can present your research

THE RESEARCH COMMITTEE



WHAT WE DO:

Review all resident protocols:

- Ensure the question and hypothesis are sound
- Ensure the methodology is well designed & will answer the question
- Provide guidance
- Act as intermediary between the supervisor and the resident

Follow the residents progress & assist with roadblocks

- If you have difficulty in a specific aspect of the research, we will try to guide you through it and put you in touch with experts that can teach you
- *Rita Zakarian – replacement pending*

Ensure that progress is going well

- Request for regular formal update reports
- Formal report must be submitted to RC annually

RC usually meets every 6-8 weeks, but can meet emergently if needed

- Ideally projects should be presented to RC before data collection is started (project / supervisor dependent)

PRESENTING TO THE RESEARCH COMMITTEE



- 1) Make sure you have completed your research training with the RI (CITI and SOPs)**
- 2) Send your proposal to cathy at least two weeks before the scheduled presentation date so that members of the committee have time to review it before the meeting**
- 3) Prepare a short ppt presentation highlighting your project (Introduction, Question, Hypothesis, Inclusion/Exclusion criteria, Data to be collected, How the data will be collected, Ethics, Stats/Sample size, Outline of your planned deadlines, ...)**

THE RESEARCH COMMITTEE



To ensure you succeed & remain within the timelines we might communicate with you to enquire :

- If you have selected a research project
- If your protocol is ready to present
- When are you presenting to the committee
- If you received suggestions/feedback re: proposal
- If you have an interim report
- If you have met with Sahir for statistical guidance
- If you have written up your manuscript yet?

*You may find us annoying at time, but remember,
all we are trying to do is make sure that you
succeed!*

Research evolves very quickly. It is important to remain focused and organized to be able to collect, analyze and report your findings.



RESIDENT REQUIREMENTS



- McGill University Faculty of Medicine and the Royal College have made a research project MANDATORY during the radiology residency.
- Try not to see this as a chore but as a chance to explore your creativity and interests!
- As a resident you will spend your time being told what you need to know and what is important.
- Your research project will provide you with an opportunity to be an engaged learner and explore your creativity and interests for you to make a difference in healthcare.
- Your research project is an opportunity to express who YOU are and to take control of part of YOUR residency. ENJOY IT!



RESIDENT REQUIREMENTS



- Resident must complete *at least one* project, approved by the RC during their residency
- The project must be *hypothesis driven*
 - Case reports / Educational review articles, DO NOT qualify
- The resident must be the *main driver* of the project
- The project must have potential for improving knowledge and understanding in the field of imaging diagnosis or intervention, or could potentially result in a useful device or technique being introduced into the clinic

RESIDENT REQUIREMENTS



Continued

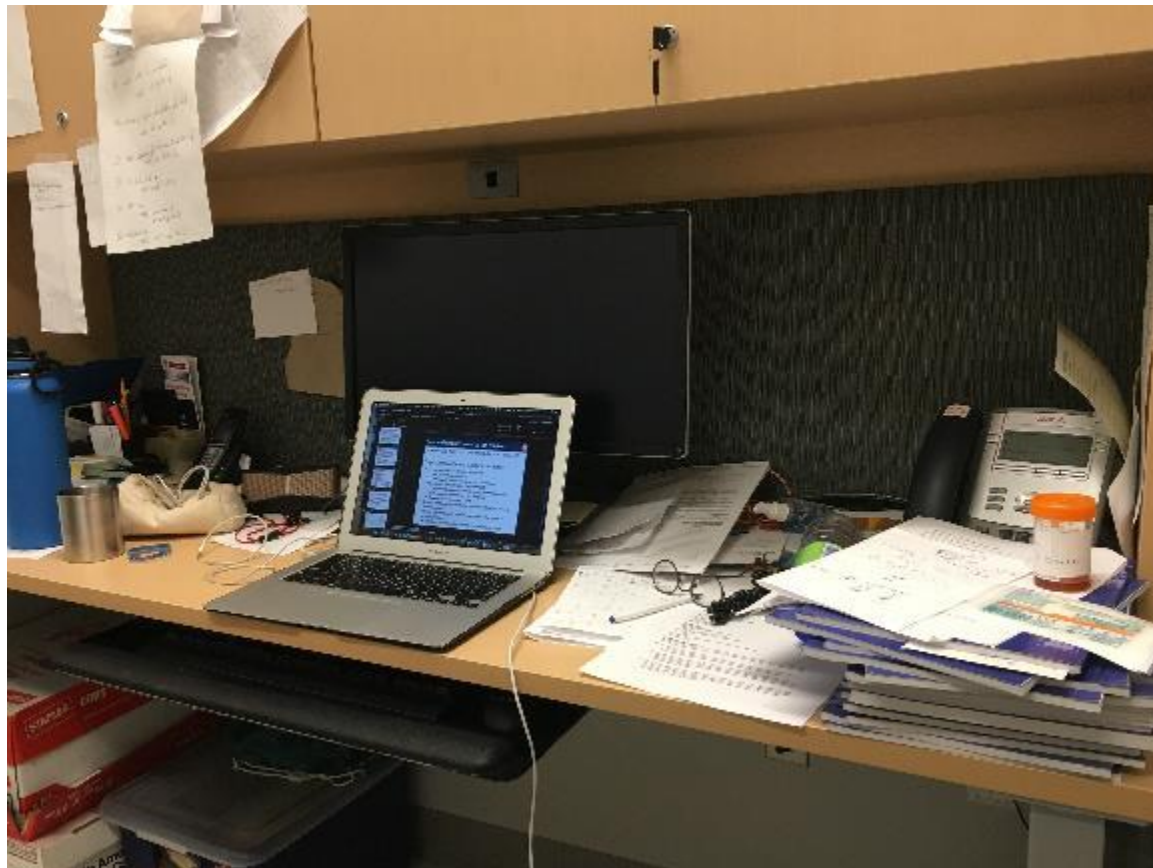
- **Ethics** approval must be obtained for both prospective and retrospective studies
- Project must be completed / presented no later than MUHC Research Day of PGY 4 year
- The project must be written up for a peer-reviewed journal article
- We encourage residents to submit the project as an abstract to a local or national/international meeting (ex: CAR, SCFR, RSNA, ISMRM, ARRS, CAIR, SIR, etc.)

RESIDENT REQUIREMENTS



How do you succeed in this without excess stress!!!

Don't use my approach!!!





RESIDENT REQUIREMENTS

How do you succeed in this without excess stress!!!

ORGANIZATION is the key. Establish deadlines:

- **Get your ethic certificate to do research very early on, preferably end of PGY 1**
- **Choose a project / supervisor at the end of PGY2**
Ask yourself questions!!!!
Talk to us in the RC and to various radiologists
- **Presentation at RC (no later than mid PGY3)**
Prepare detailed protocol with a complete bibliography, purpose and methodology (RC Template), Review with Supervisor / Rita
- **Consult the biostatistician**
During protocol writing and prior to data collection
- **Consult frequently with supervisor/Research committee to ensure smooth progress.**
Best to organize regular monthly / bimonthly meetings

Resources to help:

- **McGill Radiology web site**
 - Guidance document for Resident Research
 - Forms for RC
 - Initial proposal to RC
 - Interim report at 1 year
 - Final report
 - Statistician document
- **Don't hesitate to ask for help – supervisor/me/research committee**

Additional information:

- Residents may be granted up to three months research elective.
- Dedicated time for research ("research elective") is available to the trainee, on a case by case basis (Depending on the scope of the project).
- The time off is granted by the Program Director, in consultation with the project supervisor.
- At the end of the research elective, the resident is required to present his/her work to the supervisor, in order to get credit for the rotation.
- Keep in mind that failure to complete the task during the time off may result in an unsatisfactory evaluation, which receives no credit towards residency completion.

SUPERVISOR ROLE



- **To help the resident come up with a project that is feasible during residency and meet residency research requirements**
 - Scope of work reasonable
 - Retrospective studies more predictable
 - Likely publishable in a peer-reviewed journal
- **To support resident through protocol writing, literature review, data collection, analyzing, presentation and manuscript preparation**
- **To be available for regular meetings**
- **To serve as a liaison between the resident and supporting departments e.g. biostatistics, pathology, clinical departments, medical physics etc.**

Departmental Support: Supervisors



- **Oncological Imaging**
 - Drs. Reinhold, Dr. Forghani
 - Radiomics / radiogenomics
 - Texture imaging
 - Machine learning
 - Quantitative image analysis
- **Data mining and utilization, AI**
 - Drs. Forghani, Dr. Reinhold, Dr. Martin
- **ENT / Neuroradiology / DECT**
 - Dr. Forghani, Dr. Lam
- **Cardiac Imaging**
 - Dr. Friedrich, Dr. Pressaco
- **Interventional**
 - Dr. Boucher, Dr. Valenti, Dr. Bessissow
- **Musculoskeletal**
 - Dr. Gorelik

**ANY SUPERVISOR INTERESTED
IN HELPING AND WHO YOU
WOULD LIKE TO WORK WITH
IS WORTH APPROACHING!!!**



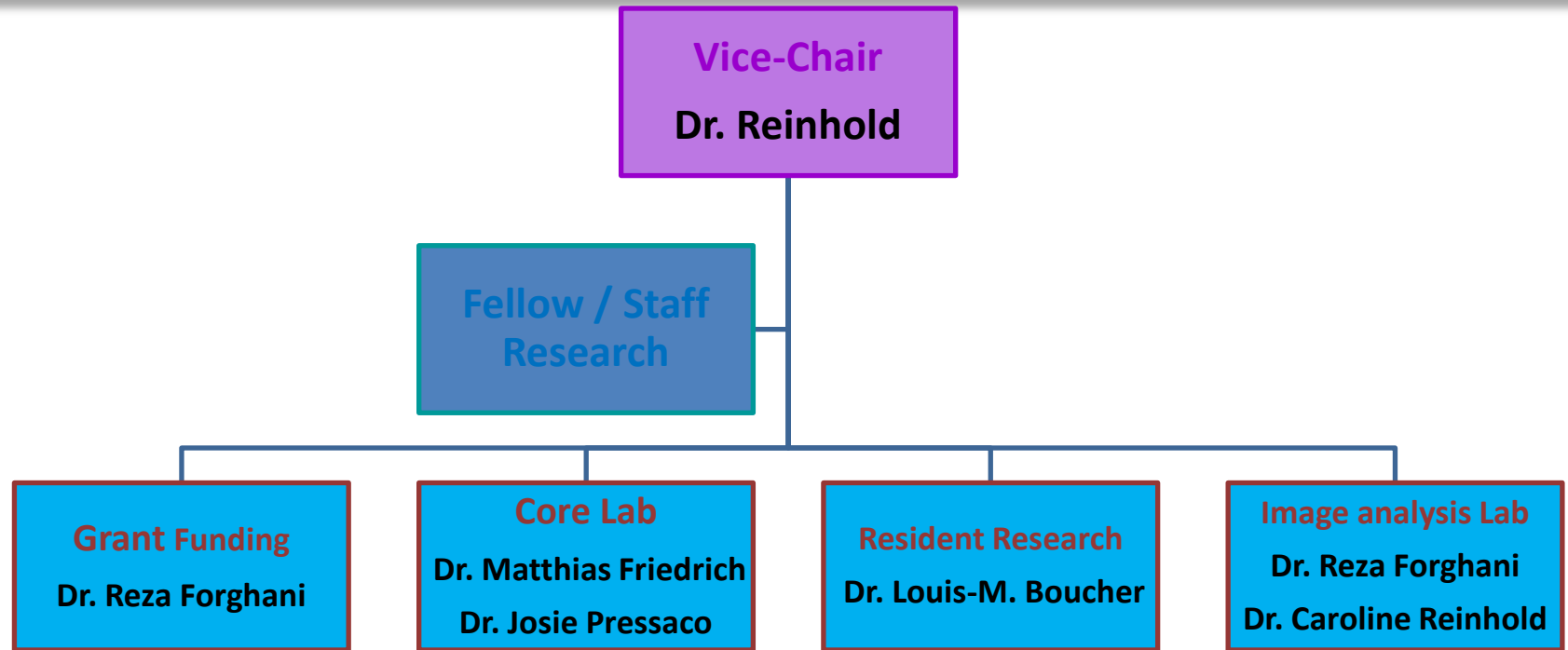
Possible supervisors or collaborators

- Any clinical faculty especially one with with an academic career track record within or outside of Radiology
- Non-clinical faculty
 - Ex: Dr. Peter Savadjiev from computer sciences, Physicists, Master's students from the Department of Engineering, etc.
- Research partnerships with other Departments
 - Hepatobiliary surgery
 - Gynecological Oncology
 - Pathology
 - Medical Physics
 - Neuroscientists (MNH)



- **Research Associate** (*Rita Zakarian – replacement pending*)
 - Protocol writing
 - Ethics submission
 - Manuscript preparation
- **Research Assistants**
 - Hired for specific projects by grant funding
 - May have extra time available to devote to a resident project, for eg. Informed consent in a prospective study
- **Research Fellows**
 - 50% Clinical-Research Fellows
- **Graduate and medical students**
- **Biostatistician**

Departmental Resources: Infrastructure



- Cardiac

- PC workstations with Texprad imaging software
- Osirix for MACs
- ODIN and PACS mining tools

- Other Infrastructures available:
 - MUHC / U of M Research Institute
 - McGill University: Graphos (to improve your writing)



Departmental Resources - Funding

Funding and Awards

- Resident / Fellowship Trainee Awards
- SCFR, CAR, RSNA, ARRS, ISMRM, FRSQ, SIR etc.
- MUHC Rad Practice Plan

Resident Awards

- Travel grants
- Best paper awards (RSNA, SCFR etc.)

McGill University's Office of Sponsored Research (OSR)

- Weekly lists of funding opportunities/prizes/awards on their website or you can request to receive email notifications



Permission to conduct research at the MUHC



- All staff involved in REB study submissions and/or recruitment of human subjects at the MUHC must request their [Institutional Human Research Certification](#).
- Certification consists of **online training in ICH-GCP** and **RI-MUHC Clinical Research SOPs**.
- Your supervisor should be eligible for RI research appointment and have Privileges to conduct research prior to you acquiring access to the RI portal and your application for Certification.
- **DO NOT** register through another staff members RI portal access.
- If you do not have RI portal access, go to www.rimuhc.ca, click on "RI Intranet Portal" on the top right to request access.

Applying for RI portal access

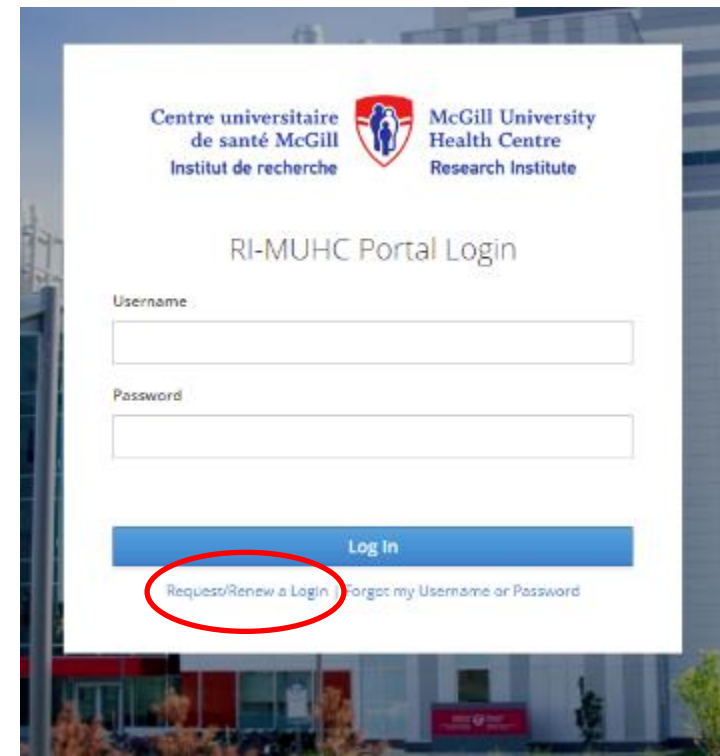


Requesting Access to the RI-MUHC PORTAL

1. Go to the RI-MUHC website : <https://rimuhc.ca/>
2. Click on the blue box “**RI-PORTAL**”



3. In the RI-MUHC Portal Login box, below the Log In, click on “**REQUEST / RENEW A LOGIN**”



Applying for RI portal access



Requesting Access to the RI-MUHC PORTAL

4. If you are a **resident/fellow**, from the drop down menu select “**OTHER**”

If you are a **medical student**, from the drop down menu select “**STUDENT**”

If you are **faculty**, or a **supervising PI** select “**RESEARCHER**”

If you are **administrative/research assistant** select “**RESEARCH STAFF**”

The screenshot shows the 'RI-MUHC Portal Access Request' form. At the top, there is a blue header with the McGill University Health Centre logo and name in both French and English. Below the header, the form title 'RI-MUHC Portal Access Request' is displayed. A instruction box states: 'To request a login, please fill out the fields below and click on the "Request a login" button'. The first field is labeled 'Which of the following best describes your status at the RI?' and contains a dropdown menu. The dropdown menu is open, showing the following options: '- Select from the list -', 'Research Staff', 'Researcher', 'Student', and 'Other'. A blue arrow points from the text 'Resident / Fellow' to the 'Other' option in the dropdown menu.



Applying for RI portal access

Requesting Access to the RI-MUHC PORTAL

5. If you are a **resident/fellow**, complete the fields below with the **text (in red)** provided below and click on **“REQUEST a LOGIN”**.
- ★ If your project supervisor is a **RI-MUHC researcher and has the required research privileges certification** then insert their name in the box RI-MUHC researcher. Otherwise insert the name of the Director of the department of radiology.

To request a login, please fill out the fields below and click on the “Request a login” button

Which of the following best describes your status at the RI? *

Provide reason for requesting access: *

★ RI-MUHC researcher / director you work for: *

Are you renewing an expired Portal access? * ☐ Yes ☒ No

Work Email Address: *

Comments:

Applying for RI portal access



Requesting Access to the RI-MUHC PORTAL

6. Within 48 hours from the time you submit your request, you will receive an email from riportal-support@muhc.mcgill.ca requesting confirmation and validation of additional information. Reply to the email and provide the additional information ASAP.

From: Riportal Support &06CH_CUSM <riportal-support@muhc.mcgill.ca>
Sent: Thursday, March 18, 2021 10:33 AM
To: Radiology resident
Subject: RE: Set up Login for Portal - Radiology Resident

Hello,

Are you a student or a MUHC staff member?

Please confirm the following:

- The site you work at (Glen, MGH, etc.)
- Your complete room [number](#)
- Work phone number

In order to provide you with access to the RI Portal, please ask your supervisor/director to send us an email confirming that you can have access to the RI Portal.

Once we receive the confirmation from supervisor/director, we will provide you with access to the portal.

Regards,

RI Portal Support Team

Applying for RI portal access



Requesting Access to the RI-MUHC PORTAL

- When you reply back to the email, cc your supervisor/director so that they can reply back to the same email to confirm that you need access to the RI Portal.

From: Radiology Resident <radiology.resident@muhc.ca>
Date: Thursday, March 18, 2021 at 10:41 AM
To: Supervisor OR Director Radiology <supervisor.ORDirector@muhc.ca>
Cc: Riportal Support & 06CH_CUSM <riportal-support@muhc.mcgill.ca>
Subject: Set up Login for Portal - Radiology Resident

Dear Dr Supervisor OR Director,
Please see email below and reply to this email to confirm my request to access the RI Portal.
Kind Regards,
Radiology Resident

- Your supervisor/Director needs to respond with one sentence to confirm your access.

From: Project Supervisor OR Director of Radiology, Dr <supervisor.ORDirector@muhc.ca>
Sent: March 18, 2021 10:54 AM
To: riportal-support@muhc.mcgill.ca <riportal-support@muhc.mcgill.ca>
Cc: radiology.resident@muhc.ca
Subject: Re: Set up Login for Portal - Radiology Resident

Dear RI Portal Support Team:
I confirm that Radiology Resident requires access to the MUHC RI portal.
Best regards,
Supervisor OR Director Radiology



Applying for RI portal access

Requesting Access to the RI-MUHC PORTAL

9. Once you and your Supervisor/Director reply to the RI portal support email, you will receive an email with your RI Portal login information and your supervisor/director will receive confirmation that you have obtained access.

From: Riportal Support &06CH_CUSM <riportal-support@muhc.mcgill.ca>

Sent: March 18, 2021 2:40 PM

To: Supervisor OR Director Radiology <Supervisor.ORDirector@muhc.ca>

Cc: radiology.resident@muhc.ca

Subject: RE: Set up Login for Portal - Radiology Resident

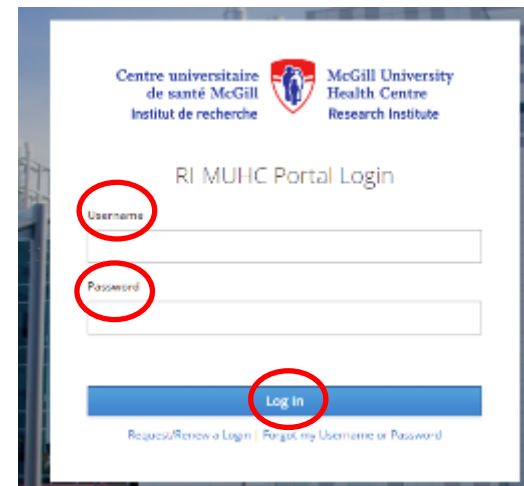
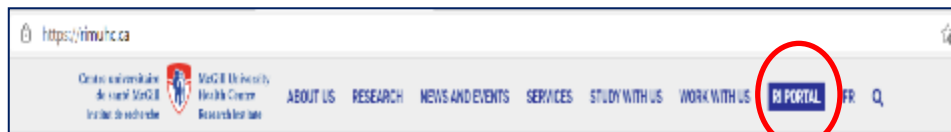
Dear Dr. Supervisor OR Director,

Thank you for your confirmation. Radiology Resident's RI Portal login information was sent to them by email.

Regards,

RI Portal Support Team

10. You are ready to **Log In** to the RI-MUHC PORTAL <https://rimuhc.ca> with your **username** and **password** !



RESEARCH ETHICS BOARD (REB)



Institutional Human Research Certification

- The Research Institute of the McGill University Health Centre has implemented an Institutional Human Research Certification program for all personnel, students and residents conducting human research at the MUHC.
- The Institutional Human Research Certification is mandatory for **ALL** research personnel, students and **RESIDENTS** conducting human research (including biological material, human embryos, fetuses, fetal tissue, reproductive materials and stem cells for living and deceased individuals and/or involved with the REB study review submission process) at the MUHC.
- If research personnel are conducting research with human health records only (not meeting with patients/participants) and are not involved with the REB research submission (only investigator(s) involved), then they only have to do complete Module A of the RI-MUHC SOP Training
- The initial certification process involves two **online** training sessions covering:
 - 1. Good Clinical Practice (GCP):** Comprehensive overview of the ICH-GCP and quiz through the **CITI website** <https://about.citiprogram.org/en/homepage/> requiring several hours to complete. Once on the website, you must register and indicate your affiliation to the Research Institute of the McGill University Health Centre (in order to access the training free of charge).

Important: Once completed, you must send your CITI GCP Certificate to QAclinicalresearch@muhc.mcgill.ca in order for QA to approve this mandatory training for Certification.

2. Standard Operating Procedures (SOPs): Online reading of all approved RI-MUHC Clinical Research SOPs through the Online SOP Reading Application (marking each SOP as "Read") followed by an online SOP Quiz to ensure compliance with RI-MUHC Clinical Research SOPs, ICH-GCP, ethics and Health Canada Division V. **SOP Reading Website** <https://portal.rimuhc.ca/pls/apex/f?p=106:41:4065448292026>

Important: If a research staff member obtains a score of 75% or less after two attempts, they will be instructed to sign up for a mandatory in-class SOP training session.

Both courses take 4-6 hrs to complete. GCP needs to be renewed every 2 yrs.

RESEARCH ETHICS BOARD (REB)



Animal studies

University Animal Care Committee - Theory Course

<https://darwin.research.mcgill.ca/eSirius2011D/>




Welcome to **Darwin**, your access to Animal Care Committee and animal care information and management system.

Log in using the McGill Short Username (such as jdoe or jsmith4):

Short Username:

McGill Password:

[For questions, assistance and requests, contact us.](#)

 **McGill**



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Prior to start a study

You and your supervisor will have to go through the REB study submission process. All MUHC human research studies must be submitted to the REB for study review such as ethics, Scientific and site specific assessment electronically.

Submit & Manage Projects on NAGANO

The MUHC Research Ethics Board (REB) uses a web-based platform called **NAGANO** for the submission and review of all studies conducted at MUHC.



How to **request access** to Nagano:

1. Send an email to **info.nagano@muhc.mcgill.ca**
2. Your email **subject** should read **Request Access to Nagano**
3. In the email, explain your **status as radiology resident** and that you will be working on a project **under the supervision of Dr.** “indicate the name of your supervisor.
4. Include your **UIN which is the bar code number from your MUHC ID card.**

Connecting to Nagano

1. Go to: <https://nagano.muhc.mcgill.ca/login>
2. Type in your username and password emailed to you by Nagano and click “se connecter” .



The screenshot shows the Nagano login interface. On the left, a white panel with the Nagano logo and a welcome message in French. It lists two steps: 1. Connect to follow projects, and 2. Click the validation button to check if the version is still valid. A 'valider un document' button is at the bottom. On the right, a dark grey panel with the 'PROVILÉ PAR semi' logo. It has a title 'Connexion à Nagano' and instructions to connect with credentials or contact the institution. It features input fields for 'Nom d'utilisateur' and 'Mot de passe', and a 'se connecter' button. At the bottom, a yellow box provides contact information for Nagano access. The footer includes logos for the Centre universitaire de santé McGill, McGill University Health Centre, neuro, and McGill, along with version and date information.

NAGANO^{v3}

Bienvenue sur la plateforme Nagano
Centre universitaire de santé McGill

- 1 connectez-vous pour suivre vos projets ou
- 2 cliquez sur le bouton de validation de documents pour vérifier si votre version est encore valide

[valider un document](#)

PROVILÉ PAR **semi**

Connexion à Nagano
connectez-vous à l'aide de votre identifiant
ou contactez votre établissement pour en obtenir un

Nom d'utilisateur

Mot de passe

[se connecter](#)

Accès à Nagano / Nagano Acces
Pour créer ou récupérer un accès à Nagano, contactez nous à :
To create or reset a Nagano access, please contact us at:
info.nagano@muhc.mcgill.ca

Centre universitaire de santé McGill  McGill University Health Centre  **neuro**  **McGill**

Nagano 2.0.1 (2018)
Downloaded from Nagano by 10.101.101.101
Date: 10/10/18 11:11



- Keep in mind ethics is one thing you don't control & can slow you down
- Once the Research Committee has approved your proposal start the submission process of your project on Nagano
- Retrospective study review
 - Delegated review
 - Usually takes **2-3 weeks** (even less)
- Prospective study review
 - Full Board review
 - Usually takes **4-6 weeks**



- Single centre institutional review
 - MUHC (RVH, MCI, MGH, MCH, MNH*)
- Multicentre review
 - St-Mary's, JGH, CHUM hospitals, CISS/CIUSS
- National/international review
 - Each centre reviews and provides ethics approval
 - Included in your institutional review



Make sure you keep good records!

- Health Canada Inspection
- Quality Assurance of the Center of Innovative Medicine (CIM)
 - Random QA/QC for RI-MUHC investigators
 - Includes residents/students

One more message before we finish



- **If you are a PGY3 (or PGY2) – book your day to present to the research committee NOW!**

Dates for 2021:

- Wed Sept 22
- Wed Nov 17
- Wed Jan 19
- Wed March 16

- **If you have not obtained your CITI and SOP certificates, get them before you present to the research committee**

Sounds like a lot, but after your first project, all is easier, so this is a good time to start!

