



## Annual Reporting of Research Units

All provisional and established McGill Centres, Research groups and Networks affiliated with the Faculty of Medicine and Health Sciences (FMHS) are required to provide an annual report to the Dean via the Committee for Oversight of Research Units ([CORU](#)).

The reporting period is May 1, 2023 – April 30, 2024.

The deadline to submit your report to the Faculty's Research Office ([riac.med@mcgill.ca](mailto:riac.med@mcgill.ca)) is

**June 3, 2024**

For units that receive financial support from the Faculty, continued support is contingent upon:

1. the receipt of the reporting documents on time,
2. the alignment of the Unit's structure and workings with [McGill Procedures for Research Units](#), and [Policies on Research Entities](#),
3. the quality of reported activities, and
4. the availability of Faculty funds.

Your collaboration on this exercise, and your continued engagement in the Faculty's mission for research excellence, are truly appreciated.

## Annual Report of Activities and Outcomes

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Name of the Unit: **McGill University Centre for Structural Biology (CSB),**

*which also operates as FRQS-funded Centre de Recherche en Biologie Structurale (CRBS)*

Date of creation: **May 14<sup>th</sup> 2014 (for CSB); April 1<sup>st</sup> 2019 (for CRBS)**

Name of Unit Director: **Prof. Martin Schmeing**

Date of nomination in the role: **Sept 1, 2018 (for CSB); April 1<sup>st</sup> 2019 (for CRBS)**

As per [McGill Procedures for Research Units](#) Section 10.4, Research Units are led by a Director, who is appointed by, reports to, and is accountable to the Dean of FMHS, for a fixed term of 4 years, renewable.

**Mission statement** of the Unit (~2 sentences):

The mission of the CSB and CRBS is to exploit the power of structural biology and biophysics to produce the next wave of scientific breakthroughs in (i) determining the molecular basis of disease and treatments, (ii) leveraging biophysical, chemical and synthetic biology for health, and (iii) nucleic acid biomedical discovery and application. At the same time, we will train a new generation of structural biologists and biophysicists with outstanding expertise in using cross-disciplinary approaches for biomedical research to make structural biology and its many strengths accessible to the broader biomedical research and health community.

### Membership

Ensure the full list of nominative members is featured on the Unit's website. Please refer to [McGill Procedures for Research Units](#) Section 7.

Number of

**Regular Members: 50**

**Associate Members: 0**

**Affiliate Members: 0**

**Trainee Members: 280 graduate students and 40 PDFs**

### Website:

Research Units must have a website with information about their mission statement, research objectives, membership and research activities.

**Please note the website is also required to feature:**

- all sources of funding support (including the FMHS logo),
- the list of Members and their institutional affiliation with appropriate links,
- the activities supported by the Unit,
- all previous Annual Reports.

Website address (URL): <https://www.crbsmcgill.ca>

## Please note the page limits, where indicated.

(minimum font size of 11 pts, use lay language)

### 1. Explain the significance of the Unit's mission at McGill and beyond (1/2 page max.)

Understanding the molecules that underlie all life function, and how they are altered in disease states, is of fundamental importance to health care. Equally, understanding the molecular mechanisms of therapeutics and leveraging new nanotechnologies will be key for the development of next-generation treatments. Practically all medicines are molecules (be they small molecules or biologics) and thus must be understood and developed with molecular level information. Structural biology and biophysics are the suite of multidisciplinary tools that provide precise molecular level information on the form and activity of the molecules of life. Clear examples of the importance of structural biology and biophysics for health include the massive structural biology and structure-function relationship initiatives developed in-house by biotechs and big pharma, the literally millions of lives saved by treatments which structural biology played a key role in developing, the eight Nobel prizes in the last two decades awarded for the use and/or development of structural biology and biophysics techniques, the key role structural biology is assuming in the development of gene editing techniques, and the role structural biology played in understanding and fighting the recent COVID-19 pandemic. Moreover, the influence of structural biology in the health sector is accelerating as researchers using electron microscopy and/or X-ray crystallography are increasingly successful at obtaining structures of more complex, therapeutically relevant targets and medically relevant cellular machines. Furthermore, the multi-disciplinary interrogation of these complexes with both structure determination and complementary biophysical techniques provides an unprecedented level of understanding of the systems and enhanced ability to inhibit or manipulate them to improve medical treatment outcomes. Modern structural biology and biophysics are making a broader impact in health than ever before, because structural information can now be leveraged for target discovery, new modes of action, and lead-to-therapeutic development for small molecules, biologics and gene editing. We are very appreciative of the Faculty's guaranteed ongoing contribution of \$60,000 per year during the FRQ-S funding period (2024-2030).

### 2. Alignment with the [Faculty's Strategic Research Plan](#) (1/2 page max.)

*The strategic objectives of the CRBS are:* **1.** Facilitate outstanding scientific breakthroughs by providing unfettered access to state-of-the-art scientific equipment, highly skilled support personnel and expert colleagues. **2.** Train a new generation of structural biologists and biophysicists with outstanding expertise in using cross-disciplinary approaches in biomedical research. **3.** Enable collaborative and cross-disciplinary approaches in biomedical research among CRBS members. **4.** Provide access to the power of structural biology, to the broader community of biomedical scientists and clinical researchers. **5.** Increase the influence, reach and knowledge mobilization of the CRBS. *The Faculty's SRP's overarching goal is for McGill to maintain or achieve a high level of excellence in selected areas.* CRBS main research activities align perfectly with three of the four major groupings of the SRP: 1. Infection, Immunity & Inflammation; 2. Cancer and 3; Neuroscience. All CRBS researchers' major initiatives fit into one of these 3 groupings. **Training:** *The SRP's overarching goal is... training the next generation of health researchers in a highly competitive and interdisciplinary research environment.* CRBS is training a new generation of structural biologists and biophysicists with outstanding expertise in using cross-disciplinary approaches for biomedical research to make structural biology and its many strengths accessible to the broader biomedical research and health community. The CRBS has a student stipend program that support the recruitment and retention of high-quality students at McGill, as well as a travel stipend program for students to travel to workshops, courses, conferences and months-long on-site collaborations, as well as a student-run seminar series and many student-oriented outreach activities (bench to bedside, bench to business, bootcamps), all which are important for development and training of our young scientists **Infrastructure:** *The current SRP updates build on solid foundations, consolidate successful strategic research initiatives, and re-emphasize the vital importance of current, sustainable core infrastructure and platforms in the realization of the research mission.* The CRBS manages or contributes to the management of the key McGill biophysical infrastructure platforms including our biophysics core, FEMR, SPR & Mass Spec and NMR. These platforms have contributed to the success of many FMHS faculty members. **EDI:** *The SRP emphasizes the major importance of equity, diversity and*

*inclusion throughout all aspects of research.* We have established an EDI standing committee whose major responsibility will be to ensure that the CRBS is incorporating best EDI practices into its governance and daily operations. The committee will ensure that all CRBS members have multiple avenues to voice opinions and concerns related to EDI, and the committee will be responsible for tracking progress towards EDI milestones and reporting on the effectiveness of measures to the FRQS and CRBS community. The Standing EDI committee and CRBS leadership will make a more concerted effort to keep issues related to EDI at the forefront of decision making by the CRBS. This will be achieved in a variety of ways such as announcing specific EDI-themed activities during CRBS events, sending regular emails to the CRBS community, providing EDI-related information on the CRBS website, and incorporating EDI considerations into our award competitions.

### **3. Highlight the top-5 accomplishments of the Unit over the past 12 months (1 page max.).**

**1. CRBS provincial funding renewed:** CRBS recently re-obtained Centre funding from FRQS of \$4.2M for 6 years. The renewal report was effusive, with comments like "The CRBS has done exceptionally well with the funds from FRQS"; "The management should be commended for running a smooth operation with such a large group"; "A major strength is the top-notch quality of the scientific groups that are part of CRBS and the enthusiasm and collegiality of everyone involved"; "The productivity of CRBS is simply outstanding"; "The platforms have top-of-the-line instrumentation and, importantly, experts who can help train users. That is a major strength. The center has positioned itself as a leader in structural biology in Canada and internationally". The total score was 98/100, an unheard-of achievement for such a competition. McGill leadership and entities were very supportive in the renewal process and more-than-matched the \$4.2M of funding in cash and in-kind contributions. This FRQS funding is renewable every 6 years, putting us in excellent stead for the foreseeable future.

**2. CRBS Annual Symposium:** The CRBS Symposium is the premier dissemination event in biophysics and structural biology in the Quebec/Eastern Ontario region. The 2023 CRBS Symposium was held in person at the McGill New Residences. It featured fantastic talks from CRBS trainees and world-renown, international scientist. Over two hundred attendees (the capacity of the conference setup at New Residences) from CRBS, Quebec and elsewhere participated in this flagship events.

**3. Travel awards, and the expansion to support collaborations:** Our Trainee Travel Awards supported exciting student presentations at the most important field conferences, including Gordon Conferences, CSHL Meetings, and Biophyscial Society meeting. A new "Collaborating Scholar Award" allowed our trainees to embed in top academic and industrial environments for longer periods. The 2023 collaborating award scholar was Huan Zheng who joined Jan Skotheim's lab, in Stanford University, to Identify the dynamic of key protein regulators that senses the cell size and then triggers G1/S transition using single molecule microscopy. The OMY! program sent our students to the Yale Biophysics symposium and hosted Yale and Oxford trainees.

**4. TREMPLIN training grant activities in full swing:** The CRBS joined with the other McGill FRQS Centres (RI-MUHC, the Douglas, the LDI) to win \$800,000 for 2022-2026 for the 4 McGill centers (\$97,000 for CRBS) to address the career and professional development needs of graduate students and postdocs at our FRQS-funded McGill-affiliated centres. Together the consortium brings together over 1700 research trainees, affiliated with the McGill University RUISSS. CRBS leads the Research Management and Faculty Track program for PDFs. The first cohort of postdocs has been in the training program since September 2023 and we have minimal attrition and overwhelmingly positive feedback.

**5. EDI:** The standing EDI Committee developed the EDI Action Plan in consultation with McGill and especially FRQS. It now acts to implement and refine the EDI Action Plan to ensure that best EDI practices are incorporated into CRBS governance and daily operations. The Committee provides all CRBS members with multiple ways to be heard on EDI matters, critically evaluates advancement towards EDI milestones and reports to the CRBS community. Other important EDI activities include: A. Student award competitions now include an opportunity for CRBS applicants to self-describe obstacles they have experienced which could influence their competitiveness if not considered. B. For all intramural funding opportunities, winning PIs must complete at least one EDI-themed training module offered by McGill's Office of Organizational Development. Failure participate in EDI training during funded period will result in ineligibility for future funding. C. A series of EDI-focussed interviews to highlight positive roll models. D. The CRBS works with other, McGill organizations that have the expressed goal to counter historical imbalances in science. We have

helped fund, advertise, promote, or held joint events with several of these excellent initiatives, including Melville Initiative , Chisasibi outreach with McGill BRANCHES, and the Canadian Organization for Undergraduate Health Research.

**4. Major joint publications over the past 12 months.** Please only feature peer-reviewed publications co-authored by at least two Regular/Associate/Affiliate Members of the Unit:

1. [A sensitive and scalable fluorescence anisotropy single stranded RNA targeting approach for monitoring riboswitch conformational states](#) M. Rivera, O.S. Ayon, S. Diaconescu-Grabari, J. Pottel, **N. Moitessier**, **A.K. Mittermaier**, **M. McKeague**. *Nucleic Acids Res* 2024 Vol. 52 Issue 6 Pages 3164-3179
2. [Dynamics and quantitative contribution of the aminoglycoside 6'-N-acetyltransferase type Ib to amikacin resistance](#) O. d'Udekem d'Acoz, F. Hue, T. Ye, L. Wang, M. Leroux, L. Rajngewerc, T. Tran, K. Phan, M.S. Ramirez, **W. Reisner**, M.E. Tolmasky, **R. Reyes-Lamothe**. *mSphere* 2024 Vol. 9 Issue 3 Pages e0078923
3. [Fluorescent molecular rotors detect O\(6\)-methylguanine dynamics and repair in duplex DNA](#) W. Copp, A. Karimi, T. Yang, **A. Guarné** and **N.W. Luedtke** *Chem Commun (Camb)* 2024 Vol. 60 Issue 9 Pages 1156-1159
4. [Molecular Mechanisms of Neurodegeneration in Parkinson's Disease](#) **J.F. Trempe** and **K. Gehring** *J Mol Biol* 2023 Vol. 435 Issue 12 Pages 168131
5. [A second-generation eIF4A RNA helicase inhibitor exploits translational reprogramming as a vulnerability in triple-negative breast cancer](#) R. Cencic, Y. K. Im, S. K. Naineni, M. Moustafa-Kamal, P. Jovanovic, V. Sabourin, M.G. Annis, F. Robert, **T.M. Schmeing**, A. Koromilas, M. Paquet, J.G. Teodoro, S. Huang, P.M. Siegel, I. Topisirovic, J. Ursini-Siegel, **J. Pelletier**. *Proc Natl Acad Sci U S A* 2024 Vol. 121 Issue 4 Pages e2318093121
6. [PARP-1 improves leukemia outcomes by inducing parthanatos during chemotherapy](#) B. Maru, A. Messikommer, L. Huang, K. Seipel, O. Kovacs, P.J.M. Valk, A.P.A. Theocharides, F.E. Mercier, T. Pabst, **M. McKeague**, **N. W. Luedtke**. *Cell Rep Med* 2023 Vol. 4 Issue 9 Pages 101191
7. [Structure and function of a hexameric cyanophycin synthetase 2](#) L.M.D. Markus, I. Sharon, K. Munro, M. Grogg, D. Hilvert, **M. Strauss**, **T.M. Schmeing**. *Protein Sci* 2023 Vol. 32 Issue 7 Pages e4685
8. [Minimalist Design of Wireframe DNA Nanotubes: Tunable Geometry, Size, Chirality, and Dynamics](#) X. Luo, D. Saliba, T. Yang, S. Gentile, K. Mori, P. Islas, T. Das, N. Bagheri, A. Porchetta, **A. Guarné**, **G. Cosa**, **H.F. Sleiman**. *Angew Chem Int Ed Engl* 2023 Vol. 62 Issue 44 Pages e202309869
9. [Sequence-Controlled Spherical Nucleic Acids: Gene Silencing, Encapsulation, and Cellular Uptake](#) S. Kaviani, H.H. Fakhri, J. Asohan, A. Katolik, **M.J. Damha** and **H.F. Sleiman** *Nucleic Acid Ther* 2023 Vol. 33 Issue 4 Pages 265-276
10. [Attaching organic fibers to mineral: The case of the avian eggshell](#) D.J. Buss, **N. Reznikov** and **M.D. McKee** *iScience* 2023 Vol. 26 Issue 12 Pages 108425

**5. Major joint research projects funded over the past 12 months** (including shared software, data repositories; with links, when relevant) involving at least two PI members of the Unit:

#### **Extramural Grants:**

The Ortega co-led CFI-IF 2023 "Multiscale 3D cryo-imaging: From organs to molecules" (with additional CRBS co-applicants Guarné, McKee, Reznikov & Strauss plus five U de M colleagues). This \$20.7M grant focusses on multi-scale structural biology / 3D imaging. It will bring critical cryo-EM (Glacios with autoloader and direct electron detector) and cryo-ET (Aquilos cryo-FIB-SEM) to CRBS/FEMR, that is required for research and training development in all three CRBS research themes (Section B.3.T1-T3).

The Auclair co-led CFI-IF 2023 "Next generation sustainable chemicals and processes" for \$7.9M funds next-gen sustainable chemical biology and enzymology, which is central to the CRBS strategic element of sustainability and sustainable health, and also aids all CRBS research. It will allow CRBS members to leverage electrochemical reactors, mechanoenzymatic reactors, bioreactors, and a latest-generation 500 MHz NMR.

The Sleiman & Dahma co-led CFI-IF 2023 "Nucleic acids for precision medicine" (with additional CRBS co-applicants Luedtke, McKeague, Mittermaier & Moitessier). This \$9.8M award focusses on RNA and DNA drugs and vaccines, central to CRBS Themes 2 and 3. It will give CRBS members access to next-gen DNA/RNA

synthesizers, biomolecular separation apparatuses, and biophysical analyses tools including CD and high-throughput dynamic light scattering.

#### **Intramural funding provided in past 12 months:**

Blue sky funding competition: held in February 2024: 16 applications received, 7 funded (2 CRBS/CRBS, 4 CRBS/partner and 1 CRBS/clinician) for a total of \$240,000 (\$200,000 from CRBS, \$80,000 from partner: GCI, AMR center, IRIC and BIC at UdeM).

Infrastructure competition: held in December 2023. 7 applications received, 1 awarded for a total of \$50,000.

#### **6. Major outreach activities (e.g., seminar series, general public events):**

**1. 5<sup>th</sup> CRBS Annual Symposium** held on Monday, November 6, 2023 at the McGill New Residence Hall with >200 attendees, 3 internationally renowned speakers, local speakers, trainees presentation and poster session. This event has been awarded Silver Sustainable Event certification by the [McGill Sustainable Events](#) program run by the [McGill Office of Sustainability](#).

**2. CRBS Seminar Series:** flagship event hosted by the CRBS student council that features trainee research. ~30 minutes presentations from trainees in CRBS labs. Open to CRBS community and adjacent departments. Held in person 2/month from Sept-April, with 2 trainees presenting at each session. Talks are judged by faculty members and cash prizes are presented to the best presenters at the annual symposium. ~50 attendees per session. This series also included 1 invited speaker, John Pascal from Université de Montréal, Biochemistry (May 14, 2023)

**3. Bench to Bedside event:** 2 events held in hybrid mode

- How Protein Structure can explain why Patient Mutations cause disease - Tuesday, June 20, 2023

- Focus on cardiovascular diseases – from structure to therapy - December 12, 2023

#### **4. Student Outreach & recruitment**

CRBS performs outreach to high schools, CEGEPs and undergraduate programs. For example, the CRBS Outreach Committee has recently given seminars at CEGEP Rosemont and Marianopolis College. In 2023, CRBS worked with the Dean Graduate and Postdoctoral Studies to collaborate for recruitment visits to universities across Canada. These visits allow CRBS members to be at McGill recruitment booths at career days and research days, effectively increasing profile of CRBS with the target recruitment audience. CRBS partners in open houses to engage undergraduates, and runs student outreach activities CRBS-Melville Init (for underrepresented groups) mentorship session: “What is grad school about?”; CRBS-Melville Init undergraduate lab tours; CEGEP & high school student lab tours, “Coffee with graduate students” all of which have both outreach and future recruitment purposes.

**5. CRBS lab tours** for facility managers as part of the CNSP meeting (November 22 2023).

Platform managers welcomed groups of 4-6 visitors, show their instruments and give an overview on their expertise, services, and operations. Student volunteers guided individual groups from one platform to the next.

**6. Research Platforms Fest Workshop** (January 17, 2024): CRBS participated in that event with a 3 minutes pitch from CRBS director Martin Schmeing and a booth.

**7. Representation of CRBS and student council** at McGill Scientista Annual Symposium (February 8<sup>th</sup> 2024)

#### **8. Chisasibi Outreach (March 2024):**

[Outbound Explore McGill’s STEM outreach trip to Chisasibi - McGill Reporter](#)

CRBS member Adam Hendricks worked with students to isolate DNA from strawberries. The hands-on activity kept students engaged, as they considered the protentional that the study of DNA held.

**9. Homework Zone presentation** for high-school outreach (in Kanawake indigenous community) March 27 2024. McGill Branches is a community-based outreach program that works with underserved communities in and around Montreal, specifically Black and Indigenous groups.

#### **10. New Media Communications:**

<https://www.crbsmcgill.ca>

[Centre for Structural Biology Research \(CRBS\) Core Facilities | School of Biomedical Sciences - McGill University](#)



[Academic platforms – Services and Advice - Montréal Invivo \(montreal-invivo.com\)](https://montreal-invivo.com)

[Scientific platforms – Canadian Network of Scientific Platforms \(cnsprcps.ca\)](https://cnsprcps.ca)

[@CRBSMcGill](https://twitter.com/CRBSMcGill) / Twitter

[Centre de Recherche en Biologie Structurale: Overview | LinkedIn](#)

[https://www.facebook.com/cbsbcmcgill/?ref=py\\_c&\\_xts](https://www.facebook.com/cbsbcmcgill/?ref=py_c&_xts)

[@crbs\\_students](#) • Photos et vidéos Instagram

## 7. Governance body

please refer to [McGill Procedures for Research Units](#), Section 5

Each Research Unit must have a governance body, named and adapted to its size and scope, that provides strategic direction, management guidance, and ensures accountability of the activities of the Research Unit.

The Dean of FMHS is responsible for forming, chairing and appointing members to the governance body, which shall be composed at a minimum of: the Lead Faculty Dean or delegate as Chair, Deans or delegates from each of the Faculties involved, the Director, two Regular Members of the Research Unit, and at least one member from every other membership category.

The Vice-President (Research and Innovation) or delegate will serve as a member of a Research Unit's governance body.

The governance body must meet annually at the invitation of the Lead Faculty Dean to review activities and membership, assess progress and performance, approve the annual report, the annual budget for operations, and provide guidance for any issues that may arise.

Provide a detailed list of the existing/proposed governance body.

The organization of the CRBS is designed to be transparent and efficient, to optimally promote and develop high-impact training, research and collaborations. CRBS is led by the directorship team of Martin Schmeing (Director), Chris Thibodeaux (Associate Director) and Natalie Zeytuni (Associate Director). The directorship team is aided by chairs of 8 committees and the heads of the 3 themes into which members are organized .

**The Executive Committee** is led by CRBS Director Martin Schmeing and comprised of the Directors, the chairs of all committees, the theme leads and Administration Head, Annick Guyot. It is responsible for long-term strategies of activities, funding, development and sustainability, and reporting to the oversight bodies. The Executive Committee meets three time per year and heads the town-hall style annual general meeting.

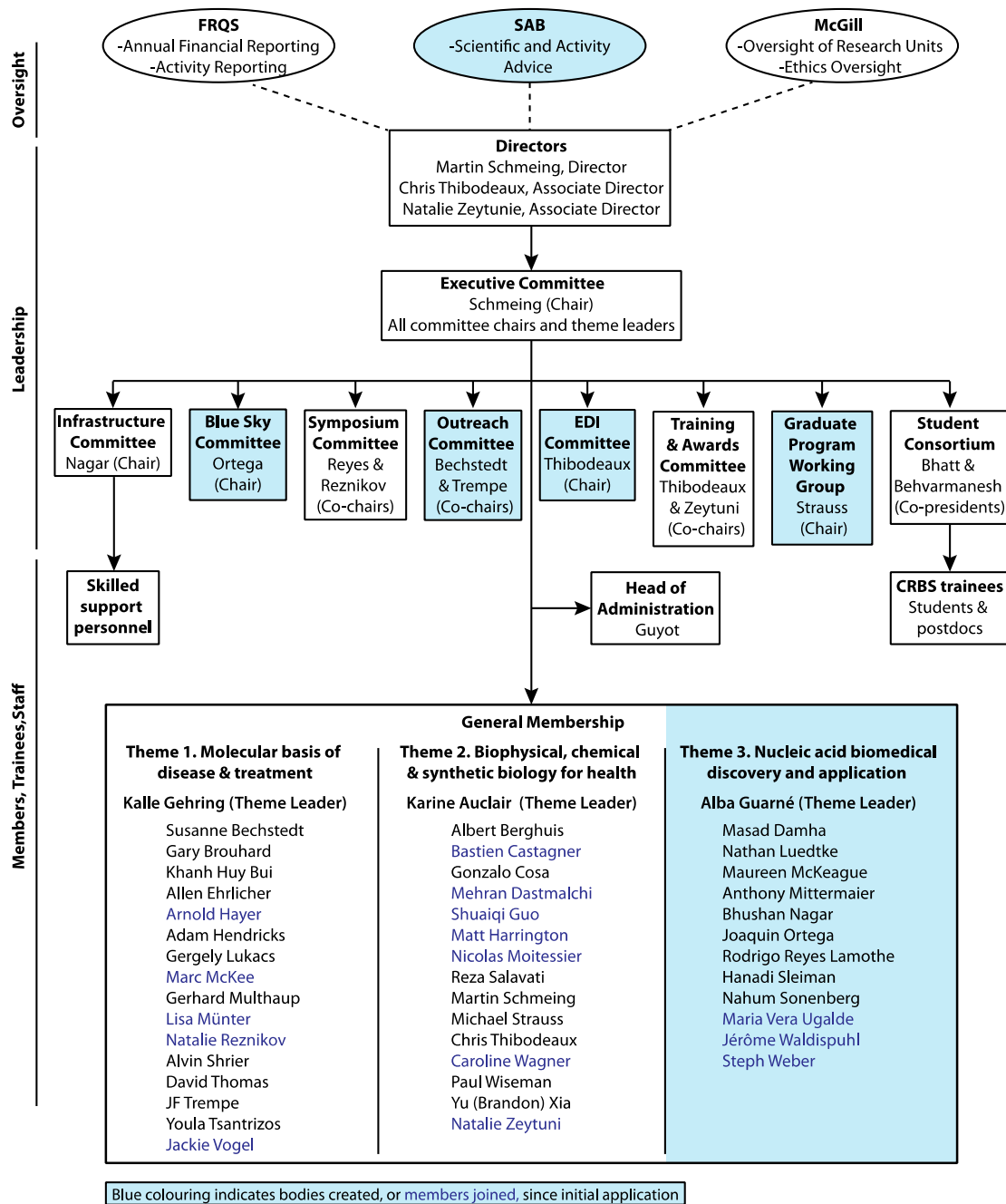
CRBS has three bodies that provide oversight. The CRBS reports to **FRQS** with annual reports, bilan annuel des réalisations, mid-term evaluation and re-application dossiers, as well as fluid interaction informally and in the *Forum des directeurs et directrices de centres*. The CRBS reports to McGill via the **Committee for Oversight of Research Units** with annual reports. Also, all activities in the Centre abide by the McGill research ethics procedures. CRBS has also instituted a **Scientific Advisory Board**. The members of SAB include: Joséphine Nalbantoglu (Associate Provost and Dean of Graduate and Postdoctoral Studies, McGill U.) ; Sylvain Baillet (Associate Dean, Research ; Faculty of Medicine and Health Sciences, McGill U.) ; Philippe Gros (Assistant Vice-Principal Strategic Initiatives, Research and Innovation, McGill U.) ; Marc Therrien – External SAB member, IRIC, Université de Montréal. The SAB meets with the CRBS executive every April to provide oversight and advice on the operations and activities of the Centre. To increase clinical aspects of CRBS activities, the SAB has been expanded to include two clinicians: Dr. Dao Nguyen and Dr. Simon Wing.

We currently do not have the Deans of Science, Engineering, Agriculture and Dentistry on the SAB but can so do.

**Date of the Unit's last Board Meeting:** April 11, 2024

Appendix A.1.1.a Organization organigram

Centre de recherche en biologie structurale - Organization chart





**8. Major training activities** (e.g., summer schools, co-supervision of trainees, practical workshops, 1 page max):

**-Bootcamps:** ITC bootcamps held in person: July 13, 20 27 2023 and November 5, 2023

Mass Spectrometry for Structural Analysis of Proteins and Protein Post-Translational Modifications bootcamp held in person: August 8, 2023 (lecture) ; August 8, 9 2023 (demo)

HDX bootcamp: November 7, 2023

-NanoTemper Workshop day (presentation and demo): September 21<sup>st</sup>, 2023

-CRBS/Molecular Forecaster Meet & Greet (seminar and networking): February 21 ,2024

**-CRBS Studentship award competition 2023-2024:** Held in the Spring, awards for the period Sept. 1, 2023 – Aug. 31, 2024. 36 applications received, 13 awards given, \$12,000 each, for 1 year (6 M.Sc. students, 7 Ph.D. students including 2 co-supervised). The third annual Maximilian Eivaskhani In Memoriam Graduate Scholarship was awarded to Katherine Morelli, PhD candidate in the McGill Department of Biology, for the 2023-2024 academic year.

**-DFW 2023:** 3 awarded through GPS

**TREMPLIN Mentorship program:** in response to a specific request from the postdoctoral trainees, we have established mentorship groups or pairs tailored to the unique needs and interests of the mentees. The participation involves engaging in informal, small-group mentorship sessions, with an anticipated frequency of 3-4 meetings over an 18-month period, each lasting approximately 1-2 hours. The scheduling of these sessions is coordinated based on the preferences of the mentors and mentees and can be conducted in person or online for convenience. During these sessions, mentors have the opportunity to share their personal journeys, discuss the essential attributes required for successful faculty applications in their respective fields or departments, and offer invaluable insights to help the PDFs navigate their academic paths. These meetings also provide an excellent platform for PDFs to seek guidance and explore their career development and progression in academia as they aspire to become independent principal investigators. Furthermore, these sessions foster meaningful discussions on topics related to team management, research administration, and securing research funding. To facilitate these interactions, we provided supporting documentation and discussion prompts, which can serve as conversation starters and general guidelines.

**Introduction to Teaching portfolios and Teaching statements workshop:**

Hosted by Alexander Liepins, PhD, Associate Director of Student Learning and Development, Teaching and Learning Services, McGill University. The event was held in person. Part 1 – Developing your teaching portfolio. This session introduced the design and preparation of a teaching portfolio. Part 2 – The briefest of introductions to course design. This session introduced course design principles. The workshop was followed by 2 Zoom sessions: (i) Building a Teaching Approach and Assessment Strategy and (ii) Identifying Teachables and Finding Avenues for Curricula Development

**-CRBS Travel award competition 2023-2024:** held in the Spring, awards for the period April 1 2023 – March 31 2024. Three categories of awards: Professional Development Awards (up to \$500 for trainees to attend remote conferences or workshops); Travel Awards (up to \$1000 for trainees to present research in person at a conference, or to attend a workshop in person); Collaborating Scholar Award (up to \$2000 for travel/lodging expenses to work on-site in the lab of a collaborator). 27 applications received, 11 awarded (9 travel award, 1 professional development award, 1 Collaborating Scholar Award)

**-OMY!** CRBS has established a tri-lateral arrangement with Oxford Strubi and Yale Biophysics for training and dissemination. The O MY! initiative is an arrangement to cooperate in the training, provision of dissemination opportunities, and experience broadening of each groups' trainees (Oxford McGill Yale). Already, CRBS trainees attended the 2023 Yale Biophysics Symposium (two CRBS PhD students won poster prizes). Trainees from both Oxford and Yale were hosted at the 2023 CRBS Symposium combined with an ITC hands-on workshop the day before and a HDX bootcamp the day after the symposium.

**-CRBS Methods Seminar Series:** Series that introduces the CRBS audience to the wide variety of techniques and methods employed by different research groups at the CRBS. The goal is to make these techniques more accessible to CRBS trainees. Also to foster scientific collaboration within the CRBS by highlighting the infrastructure and the expertise available at the center. Held 1/semester with a 60-minute presentation by a trainee or staff member with expertise in a particular technique, covering basic theory and application of the technique and also showing how the technique has been employed at the CRBS in the past to answer important research questions. (Practical MS and SPR workflow, Mark Hancock March 15 2024, in person).

9. If applicable, **list new members** who joined the Unit in the past 12 months (indicate: Name, title, Regular/Associate/Affiliate Members, affiliation):

-**Anja Geitmann**, Professor and Dean, Full member, FAES, Plant Science  
-**Shuaiqi (Phil) Guo**, Assistant Professor, Full member, FMHS, Anatomy and Cell Biology  
-**Codruta Ignea**, Assistant Professor, Full member, Fac Engineering, Bioengineering  
-**Walter Reisner**, Associate Professor, Full member, Fac Science, Physics  
-**Caroline Wagner**, Assistant Professor, Full member, Fac Engineering, Bioengineering

10. If applicable, **list members who have left the Unit** in the past 12 months (indicate: Name, title, Regular/Associate/Affiliate Members, affiliation):

-**Jerry Pelletier**, Professor, Full member, FMHS, Biochemistry, sadly passed away in September 2023

11. Explain why continued support from the FMHS is crucial to Unit (½ page max):

-The FMHS support allowed us to leverage funding from FRQS (now \$640K per year and projected by FRQS to rise to \$670 next year and \$700K in 2026, renewable) which leads to numerous CRBS activities but FMHS funding is still crucial for all CRBS activities.  
-The letters of support and funding from McGill, with FMHS the biggest supporting body, were clearly vital for securing this funding. FMHS generously pledged to increase its contribution from \$50K to \$60K per year for the duration of the renewed FRQS Centre grant.  
-Specific initiatives that rely on FMHS funding include the Annual CRBS Symposium, intensive bootcamp training programs for students, community outreach and networking events, and essential equipment upgrades and maintenance.  
-CRBS and its members will continue to win additional grants and apply for program funding and the FMHS funding is required to support additional activities that make us competitive when applying for other sources of funding.  
-CRBS holds competitive opportunities for fellowships, seed funding and infrastructure. We are always unbiased and equal-opportunity for all our members, but as our mandate is structural biology and biophysics for health, FMHS members have been recipients of the majority of this funding.  
-We have a full time Research Center officer, Kim Munro, who manages CRBS equipment and facilitates biophysical experiments for CRBS members, FMHS scientist and McGill colleagues. We require full funding from FRQS and FMHS to support this. It is very difficult to otherwise fund support staff.  
-Please note that there are exceptionally funds remaining in our Faculty of Medicine Fund at the end of 2023/24 which we rolled over to 2024/25. These roll-over funds will be spent in 2024/25 for compensatory activities fundamental to the CRBS.  
-The full funding of \$60K as pledged by FMHS at the time of FRQS grant renewal application is required to continue our operations and research facilitation. Many costs have increased because of inflation over the last several years, and all funds are required to continue the CRBS successes, as outlined in the detailed field above ("10. Budget justification and details" )

12. Provide suggestions about how the Faculty could do better to support the Unit (**no page limit but please be specific and unleash your creativity!**)

The CRBS is very grateful for the support of the FMHS.

Any simplification of administration procedures is always welcome. It would be very helpful for us to be able to submit our master budget with all line items instead of the summary budget requested here.

**The most significant need that the Faculty Deans and the VPRI can help address is the lack of a good, holistic suite / program for up-to-date accounting. CRBS worked with AEC for over a year towards this**

**goal, with Power Bi the software used. However, it does not interface with Minerva, and is unable to incorporate future known encumbrances, and so is not fit for purpose. Excel spreadsheets cannot be the best way to do complex multi-million dollar accounting.**

This Word document template is not convenient to use. The boxes keep changing widths, or not letting us paste into them, etc. Please change to instruction document and allow us to use free-form Word document.

One of our main goals is to strengthen ties with the medical community. Support to coordinate efforts with other units/groups (both for students and PIs) within the Faculty would be welcome.