



Annual Reporting for Faculty Supported Research Centres, Core Facilities and Networks

All Centres (provisional Centres; McGill Centres), Research groups, Core facilities and Networks that receive funding from the Faculty of Medicine are required to provide two components of reporting:

- Annual Report of Activities, Outcomes
- End-of-Year Financial Report

The Annual and End of Year Reports covering the period from the 1st May until the 30th April are due by 4pm on May 23rd, 2014. Future funding will be dependent on the prompt receipt of all documents as well as the evaluations made by the committee *and* the Faculty funds available.

The completed Annual Report and the Financial Statement should be forwarded by email to:

Dalia Soliman (riac.med@mcgill.ca)
Faculty of Medicine Research Office
Phone: 514-398-5815

Annual Report for Faculty of Medicine Funded Centres, Core Facilities and Networks

The Annual Report should be set in the context of the Centre's, Core facility's and Network's overall goals and objectives, programs and research priorities, performance indicators outlined in the application (or subsequently developed), activities and strategies.

Please provide the following:

1. Name of Centre, Unit or Institute:
Centre for the Study of Reproduction/Centre d'études sur la reproduction
2. Name and contact information of the Director and/or Administrative Assistant:
Director: Dr. Hugh Clarke hugh.clarke@mcgill.ca **934-1934 x34748**
3. Is the centre recognized as an official Senate approved McGill Research Centre?

Yes No

4. The date the centre received Senate approval as an official McGill Research Centre **1982**
5. A summary of the overall goals and objectives, programs and research priorities and any changes to these that may have occurred during the past year. Please indicate the extent to which the objectives have been met. **(limit 200 words)**

With over two dozen funded laboratories taking leading international roles, McGill holds an enviable position as one of the most comprehensive and intense sites for research in reproduction. The Centre for the Study of Reproduction (CSR) is the home-base for these highly diversified laboratories located across McGill campus. The CSR has four main objectives. First, by providing exceptional training opportunities for graduate students and post-doctoral fellows we build future research capacity in reproductive and developmental biology. Second, by supporting new research collaborations among our members, we increase the interactions among members thus strengthening reproductive research across McGill. Third, through our annual Research Day featuring internationally renowned scientists as keynote speakers, we increase the visibility of the CSR and its members at McGill and in the international community. Fourth, by our active participation in other networks (e.g., RQR, REDIH), we promote interactions with investigators elsewhere in Quebec, Canada, and internationally.

We established these goals in 2008 and have continued to make them the focus of our efforts since then. These objectives respond to the expressed needs of our members and, as listed below, we have been extraordinarily successful in achieving our ends. Notably, 125 members of 27 different labs attended our Research Day 2014. These numbers illustrate that the CSR

serves the needs and is an important component of the research activity of all of our members.

6. Please document **the major achievements** resulting from the use of the Funds from the Faculty, including any advances in knowledge, relevant publications, or international collaboration. You may select from the menu of reporting items/performance indicators in appendix 1 that may be relevant, noting that the menu list is not exhaustive. (Please limit your response to a maximum of **1 page**)

1. **We awarded new salary fellowships to trainees, following review of applications by CSR members not in potential conflict-of-interest. Most recipients of CSR fellowships subsequently obtain provincial or national fellowships, repaying many-fold the initial CSR investment.**

2. **We awarded travel bursaries to trainees. These enable trainees to attend scientific conferences where they can receive critical feedback and build professional networks.**

3. **Recognizing the difficulties imposed on our researchers by the current funding climate, we are developing a new mechanism of support. These ‘project completion wards’ will be given to centre members who have a project that has been favorably reviewed but requires some additional experimentation for which funds are not available. These awards will enable the crucial final work to be done. Hence, the idea is to provide highly targeted funding that will rapidly generate publications. This pilot project will be introduced in the summer of 2014.**

4. **At the same time, we will maintain our popular collaborative seed grant program, whose aim is to support projects at the ‘other end’ - in an early phase of development where preliminary results will greatly strengthen subsequent applications for external funding.**

5. **Our 5th Annual Research Day was held in May 2013. 155 CSR members and trainees attended to hear talks by Dr. Stephanie Seminara, Massachusetts General Hospital, Harvard Medical School; Dr. Anna-Katerina Hadjantonakis, Sloan-Kettering Institute; and Dr. Erika Matunis, John Hopkins University School of Medicine. Our trainees presented 10 talks and 38 posters.**

6. **Our 6th Annual Research Day was held in May 2014. 135 CSR members and trainees attended to hear talks on human embryonic stem cells by Dr. Amander Clark (UCLA), gonadal differentiation by Dr. Humphrey Yao (NIEHS), genome-based diagnosis and treatment of cancer by Dr. Morag Park (McGill) and epigenetic control of fertility by Dr. Florence Couteau (McGill). Our trainees presented 8 talks and 27 posters.**

7. **We continued our program of hands-on workshops. A new workshop – High Content Imaging and Analysis attracted 12 participants. Drs. Louis Hermo and Carlos Morales repeated their popular workshop on Staging Spermatogenesis, which was attended by 8 trainees.**

8. **We continue to expand our bilingual website, adding regular updates of news, upcoming seminars and meetings, and a paper-of-the-month.**

7. Please provide a **List of Members** (Full, Associate, Trainee noting whether graduate student or post-doctoral fellow) **if not already on your website** and all institutional affiliations current up to the date of the Annual Report. Add rows as necessary.

A list of members is available at <http://www.medicine.mcgill.ca/csr-cer/members.html>

A list of trainees is available at

http://www.medicine.mcgill.ca/csr-cer/members_students.html

8. Please describe how your activities align with the Academic or Research mission of the Faculty of Medicine and/or other Faculties at McGill focusing on the activities for the current year and strategic plans for the subsequent year (**limit 200 words**)

Reproductive and developmental biologists focus on understanding the processes of cellular proliferation, communication, and differentiation during the development of an organism. This knowledge also provides a framework for understanding genetics and epigenetics, the biology of stem cells, and complex multicellular systems. Moreover, understanding how these processes occur normally is essential in order to understand how they become perturbed in disease and cancer. Thus, reproductive and developmental biology underpin biological research.

The CSR supports a range of activities, described elsewhere in this report, that build research capacity in science by training highly qualified personnel. Our members work closely with the McGill-MUHC Reproductive Centre, where advances in basic science are translated to clinical practice. During the next year, we will extend our training mission by providing more technique-workshops. In addition, we will develop and present a series of public lectures on topics related to reproductive biology. These are especially pertinent in view of the new public funding for assisted reproduction, and will enable individuals considering this process to better understand it.

9. Please provide the **URL of the Research Centre's, Core Facility's or Network's web site.**

Note: The Research Centre's, Core Facility's or Network's website should contain the following information:

- all sources of funding support,
- the List of Members and their institutional affiliation,
- the activities supported by the Research Centre, Core Facility of Network, and
- the Annual Report.

<http://www.medicine.mcgill.ca/csr-cer/index.html>

10. Other information:

Please indicate how the Research Centre, Core Facility or Network has:

- Tackled or plans to tackle issues in a manner that may not otherwise have been achievable without the financial support of the Faculty of Medicine
 - Increased or is planning to increase the scale and focus of research activities
 - Facilitated multidisciplinary, multi-institutional or international collaborations
- (Please limit response to **200 words**)

The financial support of McGill is essential to the CSR. The funding (\$55,000 annually) provided to us by the RQR is contingent on the support provided by McGill. The formal commitment made by McGill is explicit in the application that was funded by FQRNT (March 2011 – March 2017). The funding provided by McGill together with the funding from the RQR enables the CSR to maintain our activities. Importantly, this funding structure means that every dollar invested by McGill is more than matched by a contribution from the RQR.

During 2008-2011, the CSR focused on establishing core programs and activities. Our aim over the past two years has been to maintain these while expanding into new areas.

1. We are pleased and proud that the CSR hosted the 2013 annual meeting of the largest group of reproductive biologists in the world, the Society the Study of Reproduction. Well over 1000 scientists attended the meeting held in the Palais des Congrès, and Dr. Clarke (CSR Director) co-chaired the Local Arrangements Committee. The meeting was an excellent showcase for the CSR and for McGill.

This year, the CSR is hosting the June 2014 meeting of the CIHR National Training Program in Reproduction, Early Development, and Impact on Health. In 2015, CSR will host the annual meeting of the Réseau Québécois en Reproduction. These activities maintain the high profile of the CSR and McGill and cement our reputation as the leading Canadian centre of studies of reproduction and development and among the strongest world-wide.

2. We will continue to offer technique-workshops, such as the highly popular Introduction to ICSI, bioinformatics (in collaboration with the RQR) and male germ-cell analysis. We have also begun to plan a workshop where participants will observe and then participate in mock grant-reviews.
3. We will institute a guest-lecture program. Each spring and autumn, we will invite an internationally known scientist in the field of reproductive and developmental biology to speak at McGill.
4. To enable us to provide additional support to the research activities of our members, we scaled back the cost of our research day, notably by inviting two rather than three speakers from outside Montreal. We were also able to return to the New Residence Hall, which was under renovation during May 2013. Although the final costs of Research Day 2014 are not available at this time, we estimate it will be about \$5,000 less than in 2013.
5. In its review of our 2011 activities, the University suggested that we try to reduce our administrative costs. We were unable to meet this objective in 2012, owing to existing contractual commitments. In 2013, however, circumstances have enabled us to reorganize our administrative structure. We are currently analyzing the support needs of the CSR and will implement the new structure in the summer of 2014. We anticipate that this will free additional funds for direct support of research activities.

The Year End Financial Report reports on:

- Expenditure of funding provided by the Faculty of Medicine and other sources, towards meeting the objectives of the Research Centre, Core Facility or Network; and
- Details of any in-kind contributions provided to the Centre, Core Facility or Network.
- See **Appendix 2** for the “Year End Financial Report” form to complete

Appendix 1

Menu of Performance Indicators

The following (non-exclusive) list contains possible activities on which Research Centres, Core Facilities or Networks might report.

Quantitative: Include, as appropriate

- Number of graduate and post-graduate students funded to do various activities; **In 2013, we funded scholarships for 4 graduate students. We also awarded travel bursaries to 18 students. These 22 students represent 15 different member laboratories.**

For 2014, we plan to increase the number of scholarship awards.

Please see appendices for details

- Governance: provide details of management meetings. For example, membership, frequency, attendance, the nature of the meetings and the outcomes. **Governance of the CSR is overseen by an Executive Committee, comprising the Founding Director, Director, Associate Director, and Members-at-Large. Executive members are elected at the annual general meeting (AGM) for a 3-year term. In June 2011, Dr. Clarke was elected as Director. Dr. Robaire, outgoing director, was named Founding Director. Dr. Culty, formerly Member-at-Large, was named Associate Director. In response to the substantial increase in CSR membership since 2008, the number of Members-at-Large was increased at the 2011 AGM from two to three.**

Beginning in May 2012, we added a trainee representative to the Executive Committee. This representative is a full member of the Executive, participating and voting in all matters. Gurpreet Manku (PhD student) was elected as the trainee representative.

The Executive Committee meets regularly; 3 meetings were held during the 2013-2014 reporting period. All meetings are minuted, and the minutes are examined and modified if necessary prior to approval at the subsequent meeting. All decisions taken by the Executive are publicized by emails to CSR members and on the CSR website. Deadline dates for all competitions are clearly posted on the CSR website and reminder emails are sent to all members. All fellowship and grant applications are reviewed and ranked by individuals, within or without CSR, having no potential conflict of interest. Blinded rankings are used by the Executive to set cut-offs in accordance with the availability of funds.

The CSR holds an Annual General Meeting (AGM) to which all members are invited. Strategic directions and priorities are discussed at these meetings, after which the Executive carries out the mandate conferred by the membership. The 2013 AGM was held on 21 June; the 2014 AGM will be held in late June.

In the summer of 2013, Dr. Daniel Bernard replaced Dr. Culty as Associate Director of the CSR. Following the 2014 AGM, Dr. Clarke will step down as Director. The Executive has recommended that Dr. Bernard be elected as new Director, and Dr. Sarah Kimmins, currently a member of the Executive Board, be elected as Associate Director. At the upcoming AGM, additional nominations will be sought for these positions, after which the incoming Director and Associate Director will be elected by the members attending the AGM.

- Number of workshops, conferences or seminars conducted and the number of attendees (include the number of early career researchers, graduate and/or post-graduate students attending);

Workshops

High Content Imaging and Analysis 28 January 2014 12 participants

Spermatogenesis and Cycle Staging 15-16 April 2014 8 participants

Scientific conferences

CSR Research Day 2013 1 May 2013 155 attendees

CSR Research Day 2014 7 May 2014 135 attendees

- Number of visits, both by members to National or International destinations, events, and short and long term visits by visiting scientists to McGill;

Our members are frequently invited to speak at national and international conferences. We also host visitors, such as the guest speakers for our annual Research Day.

Dr. Stephanie Seminara

Dr. Anna-Katerina Hadjantonakis

Dr. Erika Matunis

Dr. Amander Clark

Dr. Humphrey Yao

- Number of publications produced, and their impact factors (only identify those publications that are directly related to the research centre, core facility or network activity);

Our members have published 96 manuscripts listed in PubMed since 2013-01-01. These have appeared in leading general and specialized journals, including Nature Medicine, Nature Communications, Nature Reviews, Cell Stem Cell, PNAS, Human Genetics, Developmental Biology, Endocrinology, FASEB Journal, Biology of Reproduction, and PLoS Genetics.

All relate to the research activities of our members; however, it is not possible to define some as directly related and others indirectly related to the activities of the CSR. A list of the publications is appended.

- Number of targeted activities:
High Content Imaging and Analysis workshop
Spermatogenesis and Cycle Staging workshop

Annual Research Days

Our travel bursaries (18 awarded) enable students to attend and present their research at scientific conferences

- Number of Federal and Provincial grant proposals and number of successful proposals as a result of membership in the Centre, Core Facility or Network;

The CSR provides our members with easy access to a network of collaborators, who can review and critique grant applications and provide complementary expertise to build new projects. Concretely, this has paid off for two CSR members who received their first CIHR grants as McGill PIs in 2013 and two CSR members who were funded for a new collaborative project.

Successful CIHR Operating Grant applications (March 2013, September 2013 competitions)
D. Bernard (\$724,000); D. Bernard (\$694,000); M. Culty (\$520,000); M. Nagano (\$781,000); M. Nagano & A. Ryan (\$374,000); C. O’Flaherty (\$472,000); R. Slim (\$710,000); J. Trasler (\$868,000)

Total funding over the periods of the grants: \$5,143,000

- What/how much additional funding was generated that was directly attributable to activities of the Centre, Core Facility or Network;

\$55,000 awarded by the Réseau Québécois en Reproduction (RQR). The RQR includes many members from McGill and is supported (2011-2017) by the FRQ. This funding is contingent upon McGill maintaining its commitment, specified in the application to the FRQ submitted in 2010. We are enormously grateful that McGill last year renewed this commitment of \$51,000 until at least 2017. The Human Reproduction and Development Axis of the MUHC Research institute will contribute half of the cost of Research Day 2014 (estimated \$6,000).

Qualitative: Describe, as appropriate, aspects of:

- Identify those activities/outcomes which may not have occurred without the formation of the Centre, Core Facility or Network.

Annual Research Day sponsored by the CSR, held each year since 2009, attended by 125-150 members and trainees of the CSR. In 2013 and 2014, over 25 different labs were represented at the meeting.

Fellowship awards ease the burden for support on supervisors, allowing more students to be supported or more resources to be allocated to research and training. They also add weight to our trainees CV’s when they apply for subsequent external funding.

Travel bursaries to graduate students and post-docs enable them to attend conferences where they can make their work better known to national and international colleagues and establish and strengthen contacts for their professional development. .

Technique workshops offer our trainees an opportunity to learn specialized techniques from experts. Some are offered regularly (Staging spermatogenesis, ICSI), and new subjects are introduced (High Content Imaging and Analysis) to expand the range of new techniques offered to our trainees.

Support for new collaborations provide seed money for new collaborations. Drs. Culty and Nagano/Ryan each used seed money from the CSR to generate data that led to successful applications for both to the CIHR for operating funding in 2013.

- What sort of different sharing /collaboration (research ideas, facilities, etc) arose because of the Centre, Core Facility or Network;
- Effectiveness of governance processes in place;
Our competitions draw large numbers of applications and our Research Day attracts 125-150 enthusiastic participants every year. These numbers testify to the effectiveness of the CSR as a community-building organization for reproductive and developmental biologists at McGill and to their satisfaction with the manner in which the centre operates. We further

note that our programs support trainees from many member laboratories.

- Different kinds of research generated – research building capacity, or removing impediments to research;
Our Fellowship, New Collaborations, and Travel Bursary programs all build research capacity.
- Breadth of Centre, Core Facility or Network - qualitative aspects;
We have more than 25 faculty members, whose research interests span a wide range of reproductive biology, and who are physically located throughout main campus and at MacDonald College.
- Multi-disciplinary collaboration
- Increased or new collaboration and partnerships as a result of Centre, Core Facility or Network activities, and with different types of end users (e.g. industry, government and community groups);
What workshops and similar meetings the Centre, Core Facility or Network provided financial support to – number, the level of engagement, the purpose and the outcomes (including the number of opportunities for inter-disciplinary research);

Workshops

| | | |
|--|-------------------------|------------------------|
| High Content Imaging and Analysis | 28 January 2014 | 12 participants |
| Spermatogenesis and Cycle Staging | 15-16 April 2014 | 8 participants |

Scientific conferences

| | | |
|------------------------------|-------------------|----------------------|
| CSR Research Day 2013 | 1 May 2013 | 155 attendees |
| CSR Research Day 2014 | 7 May 2014 | 135 attendees |

- What mechanisms are in place for communication within the Centre, Core Facility or Network membership (e.g. email, newsletters, website, etc);
We host a fully bilingual website that is regularly updated with news, announcements of upcoming competitions, seminars and meetings, and a paper-of-the-month published by a CSR member. We extensively redesigned our website this year to give it a more modern, attractive and user-friendly interface.

All competitions, seminars and meetings are also advertised to all members and trainees through multiple emails.

- National, International activities and/or visitor programs - information about the level of engagement at seminars and workshops (e.g. number of participants) and how these events have contributed or are likely to contribute to the strategic goals of the Centre, Core Facility or Network;
We invite internationally recognized speakers to participate in our annual Research Day. These speakers also meet individually with CSR members and trainees. This enables our members to make new contacts and offers opportunities for new collaborations and research initiatives.
- What exceptional successes, if any, have occurred during the reporting period;
We are pleased that our members have been very successful at obtained major grant

support (eg, CIHR) despite the current funding climate. We continue to be able to attract exceptional scientists from outside McGill to participate in our Research Day.

We are also pleased that investigators who obtained support through our seed grant program have subsequently obtained CIHR support for these projects (Culty; Nagano/Ryan).

What disappointments, if any, occurred during the reporting period;
We regret that we have insufficient funds to support more of our highly talented graduate students and post-docs, or to provide larger grants through our New Collaboration program.

- How new skills have been acquired as a result of research technology;
Participants in our technique workshops acquire new and highly specialized skills. For this reason, we are forced to limit enrollment in each workshop.
- Any surveys carried out of members to ascertain any benefits gained from membership of the Centre, Core Facility or Network;
All participants in workshops and research days are requested to fill out evaluation forms. We are always pleased by the high response rate (as well as by the positive feedback) and use the responses to improve our programmes.
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- Linkages with international Research Networks;
We work closely with the Réseau Québécois en Reproduction (RQR) and the CIHR Training Program in Reproduction, Early Development and the Impact on Health (REDIH). We are hosting a REDIH meeting in 2014 and the RQR Research Day in 2015.