The University of Bern - McGill University Partnership

Call for Seed Grant:

Sequencing 500 Whole Genomes

2 x 250 whole genome/exome sequencing of samples collected at the University of Bern

Grant value: 110,000 CHF

The University of Bern – McGill Partnership Seed Grant provides funding for 500 whole genome/exome sequencing (WEGS)* samples collected at the University of Bern for 2 research projects (2 x 250 samples) to support a clinical research project with a collaboration at McGill. This initiative aims to facilitate and kick-start innovative clinical research in personalised health and genomic medicine, while also strengthening the strategic partnership between these two universities. The grant is open to projects across all therapeutic areas and supports various clinical study designs, including both observational and interventional studies. Researchers are encouraged to propose studies that integrate WEGS to address unmet needs in medicine, contribute to advancing precision health, and strengthening the academic and research ties between the University of Bern and McGill University.

Call for grant: February 3rd, 2025

Final date for submission: March 31st, 2025

Decision notification date: April 15th, 2025

Send proposal to: anna.tief@unibe.ch

Send questions to: tobias.erlanger@mcgill.ca

The University of Bern – McGill Partnership

The University of Bern – McGill Partnership aims to establish a robust international collaboration between the two universities, focusing on advancing precision health and medicine. This initiative addresses the global burden of metabolic diseases such as diabetes and obesity but also includes other therapeutic areas where precision health and medicine can be advanced.

The partnership emphasizes training the next generation of scientists, fostering interdisciplinary and interinstitutional collaboration. By combining genomic insights, biomarker innovations, and digital tools, the partnership aims to create actionable strategies for preventing and treating diseases. Ultimately, this collaboration seeks to strengthening the academic and research ties between Switzerland and Canada.

University of Bern – McGill Partnership Seed Grant

The University of Bern – McGill Partnership Seed Grant provides funding for 250 WEGS* samples for 2 research projects (2 x 250 samples to be collected at the University of Bern / Inselspital) to support a clinical research project based at the University of Bern with a collaboration at McGill University. This initiative aims to facilitate and kick-start innovative clinical research in personalised health and genomic medicine, while also strengthening the strategic partnership between these two universities. The grant is open to projects across all therapeutic areas and supports various clinical study designs, including both observational and interventional studies. Researchers are encouraged to propose studies that integrate whole genome sequencing to address unmet needs in medicine, enhance patient care, and contribute to advancing precision health.

Project Eligibility Criteria

- Primary investigator is affiliated to the University of Bern and/or Inselspital.
- Collaboration with a McGill University-affiliated researcher.
- All samples will be collected on the University of Bern side and will be transferred for WEGS* at McGill. WEGS and phenotypic data will be shared for joined analyses.
- All samples will have to be ready for sequencing by **end of September 2025** for WEGS by **December 2025** and to start data analysis in **January 2026**.
- Research agreement between University of Bern and McGill University in place by August 2025.

* Bhérer, C. et al. (2024) ‘A cost-effective sequencing method for genetic studies combining high-depth whole exome and low-depth whole genome’, NPJ Genomic Medicine, 9(1), p. 8. doi: 10.1038/s41525-024-00390-3.

Evaluation Criteria for Application Success

Contribution to the University of Bern – McGill Partnership

The research project must make a significant and meaningful contribution to the University of Bern – McGill Partnership by achieving the following:

1. **Fostering Collaboration:**

   Promote and strengthen active collaboration between research groups at both institutions, leveraging complementary expertise and resources to achieve shared goals.

2. **Enhancing Methodological Capabilities:**

   Advance and expand genomic research methodologies, ensuring cutting-edge techniques are accessible and integrated into ongoing and future projects.

3. **Establishing a Foundation for Growth:**

   Serve as a catalyst for additional WEGS initiatives, paving the way for larger-scale studies and facilitating the acquisition of external funding to sustain and expand collaborative efforts.

This framework ensures the project aligns with the strategic objectives of the partnership and fosters long-term, impactful collaboration.

Scientific Rigor

To ensure the highest standards of scientific rigor, proposals must address the following criteria:

1. **Application and Development of Cutting-Edge Technologies:**

   Implement and advance state-of-the-art methodologies in genomics and personalized medicine to enhance research quality and relevance.

2. **Adequate Study Power and Sample Size Planning:**

   If the statistical power of the research project is limited, outline a plan to increase the sample size in a follow-up study and/or through collaborations with other labs that have access to similar data and are willing to share it.

3. **Preference for Randomized Controlled Trials (RCTs):**

   While for some research questions only observational designs are ethical, RCTs should be prioritized whenever feasible to strengthen causal inference and minimize bias and confounding.

4. **Data Management:**

   Outline a short data management plan that ensures the preservation, accessibility, and sharing of scientific data and resources generated by the project. Acknowledge potential vulnerabilities in genomics research, such as data theft and cyber threats.

Clinical Relevance

Proposals should demonstrate a clear and significant potential to enhance patient outcomes while ensuring the efficient use of healthcare resources. Key aspects include:

1. **Maximizing Patient Benefit:**

   Proposals should prioritize research outcomes that directly improve patient care, quality of life, and clinical outcomes. If surrogate endpoints are used, provide a clear justification of their relevance to patient outcomes.

2. **Implementation and Impact:**

   Clear pathways for the translation of research findings into practice should be detailed.

3. **Open Science and Data Sharing:**

   Adherence to open science and FAIR (Findability, Accessibility, Interoperability, and Reuse) principles is strongly encouraged but not required.

Feasibility

Proposals must provide clear evidence of feasibility, demonstrating that the research objectives can be successfully achieved within the proposed timeframe and with the available resources. The following criteria must be addressed:

1. **Timeline and Milestones:**

   Provide a detailed plan to ensure the collection of all samples in Bern for sequencing by the end of **September 2025**. WEGS will be done at McGill University in Montréal, Canada. Support for logistics will be provided by McGill University which has already experience with whole genome sequencing in Canada with samples from Switzerland. Outline a clear strategy for initiating data analysis by **January 2026**, including intermediate milestones and contingency plans.

2. **Infrastructure:**

   Demonstrate access to state-of-the-art facilities and resources required for the project, including data storage, and computing capabilities for genomic analyses.

3. **Personnel and Expertise:**

   Identify the project team, emphasizing the availability of qualified personnel with expertise in the disease of interest and, through collaboration with McGill, in genomics, bioinformatics, and data analysis. Highlight prior experience with similar projects to establish the team's capability to manage complex workflows and deliver results on time.

4. **Risk Mitigation:**

   Identify potential risks (e.g., delays in sample collection or equipment failure) and present robust mitigation strategies to minimize their impact on the project timeline.

5. **Commitment for Pivotal Follow-up Project:**

   Applicants must outline how this seed grant will serve as a foundation for pivotal follow-up projects, scaling up to include higher patient numbers and broader clinical impact. The proposed study should establish a proof-of-concept that paves the way for larger, more comprehensive research initiatives.

Ethical Compliance

The research project must comply with the Federal Act on Research involving Human Beings (Humanforschungsgesetz, HFG). However, ethical approval by the ethics committee is not required at the time of submission. Medical interventions must comply with Good Clinical Practice and the Declaration of Helsinki. Provide details on the type of informed consent to be obtained, including aspects such as consent for re-contacting participants, data sharing, the use of anonymized data for future research, withdrawal rights, and potential risks and benefits associated with participation.