



BLOOD CANCER AND AI CATALYST GRANT PROGRAM Guidelines and Instructions

Effective July 1, 2023 – June 30, 2024

The Leukemia & Lymphoma Society of Canada
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Key Points

- It is highly recommended to access the LLSC Research Portal, Proposal Central, at <http://proposalcentral.com/> to begin the application process well in advance of any deadlines.
- It is recommended that final submissions at each stage (Letter of Intent/Full Application) be completed prior to the deadline. No aspects of the application will be accepted past the deadline.
- All components of the Application must be present in the order indicated in this document.
- All formatting must adhere to the policy stated in this document.
- The deadlines stated in the Key Dates section are strictly enforced. No exceptions are made to this policy.
- Contact paul.oconnell@lls.org with any questions.

Program Description

The Leukemia & Lymphoma Society of Canada (LLSC) is Canada's largest voluntary health organization dedicated to funding blood cancer research, education and patient services. The mission of LLSC is to cure all forms of blood cancer and improve the quality of life of patients and their families. Since its founding in 1955, LLSC has invested millions of dollars for research specifically targeting blood cancers and continues to fund innovative research to advance more breakthrough therapies.

To this end, LLSC also supports community service programs, advocacy, and public and professional education.

LLSC supports research through the **Blood Cancer and AI Catalyst Grant** program.

LLSC will provide funding up to 5 grants up to a maximum of **\$100,000** for one year.

Early diagnosis and prediction of hematologic malignancies can significantly lower mortality rates and increase survival rates. As the amount of data available for discovery grows dramatically, researchers now have an unprecedented chance to apply computation to produce new information and a deeper understanding of the disease. The usage of Artificial Intelligence (AI) and/or machine learning based approaches may be the best approach to manage this task.

The incorporation of AI and/or machine learning provides various tools and platforms to aid in the understanding and treatment of these life-threatening diseases. Research on clinical oncology is now more focused on decoding the molecular onset of cancer by understanding the complex biological architecture of cancer cell proliferation. Moreover, the use of AI and/or machine learning in clinical decision-making is believed to increase the chances of early disease prediction and diagnosis by NGS sequencing and high-resolution imaging techniques. It could also lead to introduce novel biomarkers for cancer diagnosis, designing novel personalized drugs, and delivery of personalized treatment strategies.

Through our Blood Cancer and AI Catalyst grants, we hope to fund projects that catalyze new research areas and collaborations in machine learning and its application to blood cancers to in the following areas:

Prognosis and Risk Stratification

Personalized prognoses allow measuring the risk of transplantation and drug response.

Genomics and Response Prediction

Better knowledge about the disease biology and genomics could enable choosing the most suitable therapeutics for patients.

Novel therapeutics

Having access to data, researchers can develop and test new drugs in-vitro.

Early and precise diagnosis

Investigating early symptoms of blood cancers to detect disease at the earliest possible stage, which can potentially improve patient outcomes.

We hope to find new ways to prevent blood cancers, improve survival through early detection when the disease is most treatable, and develop more precise and effective treatments with fewer harmful side effects by combining scientific, clinical, and patient expertise in a collaborative, interdisciplinary environment that integrates the power of new technologies and interventions.

The Blood Cancer and AI Catalyst grant is a **one year proof of concept grant** designed to determine the capabilities of artificial intelligence (AI) and/or machine learning based approaches in advancing blood cancer research, diagnoses, and improving therapeutic options and outcomes for those affected by a blood cancer.

Instead of funding research that is the next logical step in a program of work, these grants are meant to fund projects that will "push the needle" in terms of how we approach blood cancer prevention, early detection, and treatment.

Preference will be given to:

- Proposals that are multidisciplinary (i.e. co-investigators come from different disciplines);
- Collaborations with experts in AI and/or machine learning
- Proposals that advance training opportunities for underrepresented groups; and/or
- Proposals that include early-career investigators

Funds for competitive applications will be awarded on the basis of scientific merit, using a priority rating, and will include evaluation of ethical research. The Scientific Review Panel (SRP) will review all applications. New investigators as well as established ones are encouraged to submit applications.

Eligibility

Researchers in any field are encouraged to apply **but the proposal must directly address blood cancer**. **Collaborations with experts in AI and/or machine learning are encouraged**

The Principal Investigator must be based in, or formally affiliated with, a Canadian non-profit Sponsoring Institution at the time funding commences and for the duration of the award. Applicants must hold a primary appointment that permits them to do independent research, supervise students, and publish their findings. Applications from non-academic facilities are not eligible. Applicants should hold a Ph.D., M.D., D.V.M. or equivalent degree.

The Application will require one Principal Investigator (PI) who is responsible for the preparation and submission of the proposal including the budget, the conduct of the research programs and adherence with all stipulations made by LLSC, the LLSC Policies & Procedures document, and the Grant Agreement, if funded. The Principal Investigator must be able to demonstrate a significant track record in the area of hematology and/or blood cancer research.

Investigators must demonstrate that their research environment is equipped and suitable for the proposed study; this includes demonstrated access to patient materials, where applicable. Collaboration between multiple investigators to strengthen the proposed research will be considered favorably, but is not a requirement.

The PI must be an independent investigator, which is defined as a scientist who has dedicated laboratory space, directly hires and supervises laboratory personnel (technicians, graduate students, postdocs and staff scientists) and makes all decisions concerning research activities and use of the grant funds. Individuals in the principal applicant role may not be a trainee or be in a subordinate position (i.e. directed or supervised by another), with respect to the subject matter of the proposed research/activities. Technical support personnel, postdoctoral fellows, research associates, Adjunct Professors, Status-Only Appointments, and investigators working outside of Canada are not permitted to apply as Principal Investigator.

For applicants who do not hold an eligible position, investigators can apply as Principal Investigators if they have a firm offer of an academic position (as described above) at an eligible Host Institution and the appointment is not dependent on the outcome of a pending application. However, the position must start by the grant's start date. In these situations, a letter from an authorized representative of the Host Institution is required, outlining the precise nature of the appointment (including the position title and main tasks), as well as the anticipated start date and duration of the appointment.

“Co-principal investigator” or “co-applicant” refers to a researcher who will be in charge of specific administrative and scientific aspects of the research project, whether or not that researcher has a formal relationship with the Host Institution. Adjunct professors and appointments that are for status only can fall under these categories. These individuals are not eligible to receive grant-funded salary support. Graduate students, postdoctoral fellows,

research associates, technical support employees, and investigators working outside of Canada are not included under these categories.

A “collaborator” or “co-investigator” refers to individuals who will make substantial intellectual contributions to the research project or have contributed to the drafting of the application itself, but who are not eligible to be included as “Co-Principal Investigators” or “Co-applicants”. Students, postdoctoral fellows, research associates, lay contributors (including patient partners) and investigators based outside of Canada may be included in this category. Students, post-doctoral fellows and research associates may receive salary support from a grant.

Individuals who have been affected by cancer are considered patient/survivor/caregiver participants/partners. This category may include anyone who is at high risk of cancer, has been diagnosed with cancer, or provides physical and emotional care to someone with cancer but not in a professional or vocational capacity. Patient partners and caregivers can act as “collaborators” or “co-investigators” depending on responsibilities and impact of contribution to the proposed project.

For any questions of eligibility or unusual circumstances not described above, please contact LLSC (paul.oconnell@lls.org).

A Principal Investigator may only submit **ONE** Application per application cycle and cannot serve as a Principal Investigator OR Co-Principal Investigator on more than ONE Application per cycle. A Co-Investigator (also known as Collaborator) CAN serve as Co-Investigator on more than one Application. A Principal Investigator or Co-Principal Investigator can serve as a Collaborator on other Applications (See **Definitions** below).

Definitions

Co-Principal Investigators, Co-Investigators, Collaborators, and Key Personnel:

- The Co-Principal Investigator is responsible for developing the Aims of the project.
- The Co-Investigator (who can also be referred to as Collaborator) is responsible for carrying out the Aims of the project.
- A Principal Investigator CANNOT be named as a Principal Investigator or a Co-Principal Investigator on another application during the same application cycle.
- A Principal Investigator can be listed as a Co-Investigator or a Collaborator on another application in the same cycle, without limit to the number of applications.
- A Collaborator or Co-Investigator can be named on more than one application or funded grant, without limit.

- Patient Partners are patients or caregivers/family members of patients who have direct experience with the disease or intervention being studied but are not participants in the study that may be a part of the research project. Patient Partners can also be collaborators or co-investigators

Application Process

The application process will occur in **two** phases:

- Phase I: Submission and consideration of a Letter of Intent (LOI).
- Phase II: The invitation for and submission of a Full Application.

All application processes, including both the LOI and Full Application submissions, must be made electronically through the LLSC Research Portal, Proposal Central (<https://proposalcentral.com/>). Application templates can be found on this system. Contact paul.oconnell@lls.org with any questions.

Applications will be reviewed via a peer review process by a diverse group of external experts covering the scientific and medical aspects of the review. Final funding recommendations are approved by our independent Medical and Scientific Advisory Committee and Board of Directors.

Only complete applications received by the submission deadline date will be considered. Applications which exceed page limits will not be considered (see **Letter of Intent Phase Instructions** and **Full Application Phase Instructions**).

Key Dates

Phase	Date
Call for Proposals	November 1, 2023
Letter of Intent (LOI) due	December 6, 2023, 4:00 pm (EST)
Notification of Full Application Invite	December 2023
Full application deadline	February 1, 2024, 4:00 pm (EST)
Review Panel Meeting	April 2024
Notification of Awards	May 2024
Award Start Date	July 2024

The submission deadlines will be strictly enforced through Proposal Central, which automatically shuts down submissions after the deadline has passed.

It is highly recommended that submissions are done well before the deadline, as internet traffic may be slow near the deadline, which may result in difficulties in submission. In addition, LLSC's response time to questions may be delayed by the high volume received near the deadline.

Letter of Intent (LOI) General Information

Each Applicant must submit an LOI that will include a lay summary describing the overall proposal in the following sections with a total character limit of 4000:

1. Background and Preliminary Data
2. Goals and Objectives
3. Expected Outcomes and Scientific Significance.
4. Statement on Patient Partnership and EDI considerations.

The LOI template is found on our grants management website: <https://proposalcentral.com/>

LOIs should provide brief descriptions of how the goals and/or approaches are novel and innovative, and what impact the research may have on blood cancer. All LOIs will be reviewed, and those judged to be the most promising, competitive and responsive to the goals of the program will be invited to submit a Full Application. The Applicant will be notified via e-mail as to whether or not they have been invited to submit a Full Application. If invited for Full Application submission, the Applicant will immediately have access to the application submission capability in Proposal Central.

Letters of Intent are due **Dec 6, 2023 at 4PM EST**.

Full Application General Information

The deadline to submit all Full Applications is **February 1, 2024 at 4 PM EST**. Full Applications will only be accepted via (<http://proposalcentral.com/>). The submission deadlines will be strictly enforced.

Please follow character limits and page lengths carefully. Failure to adhere to these instructions will result in administrative disqualification of your application. Contact paul.oconnell@lls.org with any questions.

Full Applications will be reviewed after the **February 1, 2024** submission deadline by a peer review committee composed of a diverse group of external experts (including patient partner representatives). An application that does not meet the program goals, scope or guidelines will be administratively disqualified. Applications will be assigned an initial score by the primary and secondary reviewers. Only applications that fall above a scoring level determined by program staff and the committee chair will be discussed in detail for final ranking by the entire committee.

Applications will be evaluated for potential significance, novelty, innovation and feasibility. Once ranked by the peer review panel, the highest scoring proposals will be reviewed by the LLSC Scientific Review Panel (SRP). The SRP will identify those proposals to be funded based on scientific merit, responsiveness to programmatic goals and budget availability. Final approval of funding will be made by the appropriate governing boards of the LLSC.

Any Applicant selected for funding will be notified in May 2023 of the funding decision. Please do not call or email LLS to determine whether the Application has been received, when it will be reviewed or the results of the review. Funding decisions are relayed by email only and are not available by telephone. Please also check Proposal Central for the status of your Application.

All priority scores are confidential in that they are available to LLSC's Medical & Scientific Advisory Committee and LLSC's Board of Directors only. Feedback may only be provided for Applications discussed by the full review committee. Written critiques of the Application are not formally provided to Applicants.

Evaluation Criteria

To support the objectives of this funding opportunity, the following evaluation criteria will be used:

Applicant(s)

- Qualifications of the applicant, including prior research training, experience and independence (relative to career stage).
- Expertise of the applicant in the proposed area of research and with the proposed methodology.
- Collaborations with experts in AI and/or machine learning are encouraged

Research Approach

- Direct relevance of proposed research to blood cancer
- Clarity of the research question.
- Completeness of the literature review and relevance to study design/research plan.
- Clarity of rationale for the research approach and methodology.
- Appropriateness of the research design.
- Appropriateness of the research methods.
- Feasibility of the research approach (including recruitment of subjects, project timeline, preliminary data where appropriate, etc.).
- Anticipation of difficulties that may be encountered in the research and mitigation plans for management.
- Inclusion of sex and gender in research design where appropriate.

Originality of the Proposal

- Potential for the creation of new knowledge.
- Originality of the proposed research, in terms of the hypotheses/research questions addressed, novel technology/methodology, and/or novel applications of current technology/methodology.

Impact of the Research

- Research proposed addresses a significant need or gap in the understanding, diagnosis, and/or treatment of blood cancer in Canada.
- Potential for a significant contribution to the improvement of the health of Canadians and/or to the development of more effective health services and products.
- Appropriateness and adequacy of the proposed plan for knowledge dissemination and exchange.

Research Environment

- Suitability of the environment (mentor[s], milieu, and project) to support the applicant.
- Availability and accessibility of personnel, facilities and infrastructure required to conduct the research.
- Suitability of the environment for the training of personnel.

Patient Partnership

- Is patient partnership integrated into the project?
- Indication of how patient partnership is integrated in project a meaningful way
- Indication of how patient partner partners are recognized and included as members of the project team

EDI considerations

- Is sex, as a biological variable, taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?
- Is gender, as a socio-cultural factor, taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?
- Are diversity considerations (e.g. conditions, expressions and experiences of different groups identified by age, education, sexual orientation, parental status/responsibility, immigration status, Indigenous status, religion, disability, language, race, place of origin, ethnicity, culture, and other attributes) taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?
- Have social determinants of health been taken into account in the research design methods, analysis and interpretation, and or dissemination of findings? These may

include income and social protection, education, unemployment and job insecurity, working life conditions, food insecurity, housing, basic amenities and the environment, early childhood development, social inclusion and non-discrimination, structural conflict

Letter of Intent Phase Instructions

Letters of Intent are due **December 6, 2023 at 4PM EST** via Proposal Central (<http://proposalcentral.com/>).

The Applicant should carefully craft the information requested in the LOI as this information is automatically populated into the Full Application. If the LOI is approved, the Applicant will be notified by an automated email from Proposal Central stating that he/she may proceed to the Full Application phase.

- Project Title (75 characters maximum): Provide a title that adheres to the character limit
- Category: New, or resubmission?
- Principal Applicant Information: The Principal Investigator (or PI) is the Applicant
- Institution and Contacts: Please provide the necessary contact information
- Lay summary that includes the Rationale, Objectives, Methodology, Significance, and a Statement on Patient Partnership and EDI considerations (4000 characters maximum)
- Keywords

Full Application Phase Instructions

Please follow character limits and page lengths carefully. Failure to adhere to these instructions will result in administrative disqualification of your application. All application processes must be completed using our grants management website (<http://proposalcentral.com/>). Contact paul.oconnell@lls.org with any questions.

Attachments must be submitted in NO smaller than size 12 font, single-spaced, with one-inch margins on letter size (8.5" x 11") paper.

The following components comprise the Full Application:

Project Title (75 characters maximum)

Principal Applicant Information

Institution and contacts:

Co-principal investigator (If applicable):

Project Description

- Statement (in layman's terms, not to exceed 1500 characters), for press release.
- Scientific abstract of the proposed research (4500 characters maximum).
- Keywords

Budget Period Details (See Proposal Central form for specific details):

- On these pages, there should be a full justification of funds required. The budget cannot exceed \$100,000.00.
- **Permissible direct costs** include the following:
 - Personnel Expenses including salary, wage, or stipend. **Grants cannot be used to subsidize the salary of the principal investigator(s)**. In total, no more than fifty percent (50%) of the direct costs may be requested for the salary of professional staff with a post-graduate degree (i.e. M.D., Ph.D., D.V.M.) regardless of function or role, including fringe benefits. This restriction does not apply to technical staff (i.e. lab assistants, nurses, etc.).
 - Supplies & Materials requests should be itemized by category.
 - Equipment purchase requests must identify each item of equipment with an acquisition cost of more than \$500.
 - Payment to patient partners with LLSC funds is considered an eligible expense. Please refer to the Policies and Procedures for more details if the work performed by the patient partner contributes toward the direct costs of the research/activities.
- **Publication Costs:** LLSC permits publication costs as part of the Operating Grant, up to a maximum of \$1500 per year or \$3000 total including applicable taxes.
- Attach quotations on equipment and services when appropriate.

- **Impermissible Costs** include patent-related expenses, travel, membership dues, tuition, books and journals.
- **Indirect Costs:** It is the policy of the LLSC not to fund indirect costs of research. Indirect costs (often referred to as Institutional overhead, IDC, M&A, G&A or pooled costs) are those costs incurred for common or joint objectives that cannot be readily identified with a particular project (general maintenance, utilities, library, etc.).

Budget Summary and Justifications (See Proposal Central form for specific details):

- Attach detailed justification of budget items, including personnel, expendables, equipment, and services (2000 characters maximum for each category).

Organizational Assurances

- Please indicate whether the work involves biohazardous materials, animal experiments or human subjects. Appropriate forms may either be appended to the application or provided once notice of funding is given; the applicant will have 45 days to provide the appropriate documents once funding has been approved.

Research Proposal

- Description of previous related research in 1 page
- Description of proposed research in 5 pages (does not include references, figures, or tables). Any relevant figures, references, and tables can be attached as an appendix. The last paragraph of the application should have the heading “**Significance to hematologic malignancy**”. In this section, the applicant should clearly state how the proposed work addresses the problem of hematologic malignancies

Patient Partnership Plan

- Maximum 1 pg
- The integration of Patient Partners as part of the project team can help transform research design and execution.
- Provide a patient partnership plan that outlines how the study will embed Patient Partners as part of the research to ensure the research is aligned with patient partnership principles. Describe how Patient Partners will be engaged at the various stages of the project. This should include:

- The Patient Partner(s) and/or their communities who will be engaged (e.g., individual Patient Partners, patient advocacy organizations, etc.).
- Roles and responsibilities of the Patient Partners. (Activities could include protocol design, review of patient-facing materials, clinical trial execution, identification of barriers and opportunities, and knowledge translation.)
- Inclusion of a patient partner onboarding process and development of Terms of Reference (especially for longer term research programs)
- Suggested references:
 - Canadian Cancer Clinical Trials Network (<https://3ctn.ca/for-researchers/patient-public-involvement/>)
 - Clinical Trials Transformation Initiative (<https://www.ctti-clinicaltrials.org/>)
 - Strategy for Patient-Oriented Research (<https://cihr-irsc.gc.ca/e/45851.html>)
 - Clinical Trials Ontario (<https://www.ctontario.ca/patients-public/resources-for-engaging-patients/>)

EDI considerations

- Maximum 1 pg
- Recognizing the variable impacts of cancer on different populations and demographics, LLSC expects that sex, gender and diversity dimensions (plus other intersectionalities (SGBA+)) will be considered into research proposal, analysis and dissemination of results.
- Please provide a response for each question, and we urge the inclusion of these dimensions into your proposal, when applicable.
 - Is sex, as a biological variable, taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?
 - Is gender, as a socio-cultural factor, taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings?
 - Are diversity considerations (e.g. conditions, expressions and experiences of different groups identified by age, education, sexual orientation, parental status/responsibility, immigration status, Indigenous status, religion, disability, language, race, place of origin, ethnicity, culture, and other attributes) taken into account in the research design, methods, analysis and interpretation, and/or dissemination of findings
 - Have social determinants of health been taken into account in the research design methods, analysis and interpretation, and or dissemination of findings? These may include income and social protection, education, unemployment and job insecurity, working life conditions, food insecurity, housing, basic amenities

and the environment, early childhood development, social inclusion and non-discrimination, structural conflict

- Suggested resources:
 - The Principal Applicant is encouraged to complete one of the sex- and gender-based analysis online training modules through the CIHR Institute of Gender and Health. Please select and complete the training module most applicable to your research project.
 - For additional information on sex, gender and health research, applicants are encouraged to review the “How to integrate sex and gender in research” section on the CIHR website.

Publications

- Selected list of publications in past 5 years (peer reviewed only); with total number of peer reviewed publications (exclude abstracts). Indicate publications where LLSC support has been acknowledged (if any).

Collaboration/Support Letters (Required)

- Collaborations with experts in AI and/or machine learning are encouraged
- When there are significant collaborations, letters of support are helpful. This is particularly important when access to patient samples, animal models, or specialized equipment outside of the Applicant’s laboratory or department is necessary for the proposed research. If a company asset is required and is not commercially available from scientific supply companies, such as proprietary drugs, a letter from the company supplying this asset should accompany the application. The letters must be signed and be on institutional/company letterhead.

Attachments

- Curriculum Vitae (CIHR biosketch format, Principal applicants and co-applicant(s))
- Publications
- Research Proposal
- Patient Partnership Plan
- EDI considerations
- Relevant figures (Maximum of 5 figures)
- Letter(s) of Collaboration
- Appropriate forms for Human and Animal experimentation and Biohazards.
- Signature Page (Once all of the mandatory fields are complete, the signature page is available for e-signing on Proposal Central and can be e-signed by the appropriate person(s))

- Signatures of principal and co-applicants with dates.
- Name and signature of head of the department or appropriate academic officer (e.g., Dean or Associate Dean Research), with date.
- Name of signature of the financial officer, with date.

Customer Support

Please contact:

PROPOSAL CENTRAL Customer Support

By e-mail: pcsupport@altum.com

By phone: +1 800 875 2562 (Toll-free U.S. and Canada) or
+1 703 964 5840 (Direct Dial International)

Normal Business Hours: 8:30am - 5:00pm Eastern Time
(Available Monday through Friday)