***ARTIFICIAL INTELLIGENCE AND HEALTHCARE***

**Bilateral Research Cooperation Program MOST-FRQS**

**Program Category: International collaboration**

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| ***AI AND HEALTHCARE*****PROPOSAL SUBMISSION****AUGUST 23, 2022****4 p.m. (Québec time)** | **FRQS****Program Manager**Fatma Boulouednine514 873-2114 EXT.israel.quebec.ia@frq.gouv.qc.ca  |
| **MOST****Dr. Iris Eisenberg,** **Director of Life Sciences Research****Irise@most.gov.il** |

As science becomes increasingly global and complex, many research questions cannot be addressed without cross-border collaborations between scientists from different sectors. Consequently, Québec and Israel have decided to invest in a Bilateral Research Cooperation Program (hereafter referred as the “Program”) to create cooperative leverage for scientific excellence.

**This Program is implemented through a joint call for proposals launched jointly in Québec and Israel and applications will be duly submitted to FRQS only through their electronic platform.** The main research area of interest is Artificial Intelligence and Healthcare.

This Call for proposals is jointly conducted by (hereinafter called “funding agency”):

* Ministry of Innovation Science and Technology of the State of Israel (MOST)
* Fonds de recherche du Québec - Santé (FRQS)

**CONTEXT**

Artificial Intelligence (AI) is one of the most critical technological developments that our societies are facing and need to tackle. Applied to healthcare, AI is a fast-growing field and is prerequisite for the necessary transformation of health care, aimed at more efficient care for the population. AI in healthcare includes topics as diversified as bioinformatics, computer aided medical procedures, intelligent robotics for health care, machine learning and deep learning algorithms for medical image processing, drug development, and many more. The developments made over the last ten years are all of particular importance for economy and society. Québec and Israel have invested significant efforts in advancing knowledge, technology, and infrastructure in this field. The current call is a further step towards joint achievements. The capacity for discovery and innovation in the specific health sector will be greatly enhanced by pooling different and complementary expertise in the AI and life sciences sectors.

**pROJECT ELIGIBILITY**

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| **Priority themes** | Israeli- Québec research teams are hereby invited to submit joint proposals for research projects in the field of: **ARTIFICIAL INTELLIGENCE AND HEALTHCARE**Specifically, relevant topics where further development of Artificial Intelligence is an added value to the development of products, tools, interventions or applications in the field of health. |
| **Objectives** | The main objective of this program is to establish new collaborative efforts or reinforce existing collaborations to advance knowledge and technology in Artificial Intelligence for Healthcare. The program will also allow to develop a critical mass in Artificial Intelligence research in health and transversal skills.Projects must be structured in such a way as to bring an original added value that researchers, funded by each funding agency, could not reach by themselves. |
| **Language** | **IMPORTANT:** Because this is an international program, and the proposals are common to both teams, **the proposals must be written in English.**  |

**APPLICANT ELIGIBILITY**

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| **Conditions** | **Research team structure*** **One Principal Investigator from Israel** who will represent the project and will assume the internal and management direction, according to the conditions/administrative requirements of MOST
* **One Principal Investigator from Québec** who will represent the project and will assume the internal and management direction, according to the conditions/administrative requirements of FRQS

**Can be added to the team:*** Up to 2 co-Investigators from Israel and 2 co-Investigators from Québec, no minimum
* Collaborators participating to the project without access to funds. Collaborators may come from outside Québec or Israel. No minimum or maximum

The research teams submitting a project under this call for proposals must be composed of researchers working in institutions eligible under the conditions/administrative requirements of the funding agencies to which they refer (hereinafter called the “Affiliated Institution” for Israel or “managing institution” for Québec) (see below for more details). Applicants are expected to propose coherent interdisciplinary research projects, in which the added value of the collaboration, and the complementarity between researchers, are clearly demonstrated.  |
| **Québec** | **Eligible statuses****For Principal Investigators :** * Statuses 1 and 2 as described in the [CGR](https://frq.gouv.qc.ca/app/uploads/2021/07/rgc_2021_va_finale-1.pdf)

**For co-Investigators :*** Statuses 1, 2 and 3 as described in the [CGR](https://frq.gouv.qc.ca/app/uploads/2021/07/rgc_2021_va_finale-1.pdf)

Postdoctoral trainees are only eligible to this program as collaborators.In addition, all researchers of the Québec team must be affiliated to a Québec university or have an affiliation to a college-level training institution (including college centers for technology transfer (CCTT)), under the conditions described above. |
| **Israel** | The principal investigator (PI) and the co-investigator(s) must be a member of an academic or research institution or a professor emeritus who continues working on research in an academic or research institution. The "Affiliated Institution" must be one of the following:* + - 1. An accredited institution of higher learning in Israel, according to the Council for Higher Education Law, 1958;
			2. A Research Institute which is a nonprofit organization, a government company or a governmental unit.

 For the purpose of this Call, a "Research Institute" in Israel is a research institute whose significant portion of activity is the advancement of cutting-edge scientific knowledge, possessing appropriate infrastructure and equipment, and employing researchers who, inter alia, publish articles related to their research in leading scientific journals in the world, and who present their research at international symposia.In compliance with the MOST Procedures Regarding Scientific Projects Funded by MOST, an Israeli PI that has or will have an active grant from any international cooperation program of the Ministry of Innovation, Science and Technology, whose funding will be concurrent to the funding of this program, is not eligible to apply. Additionally, an Israeli PI wishing to submit a proposal to this program may not do so if he already submitted a proposal as PI to another international cooperation program in 2022. Additionally, an Israeli co-Investigator that has or will have an active grant as co-Investigator from any international cooperation program of the Ministry of Innovation, Science and Technology, whose funding will be concurrent to the funding of this program, is not eligible to apply. Additionally, a co-Investigator wishing to submit a proposal to this program may not do so if he already submitted a proposal as co-Investigator to another international cooperation program in 2022. No parallel funding is allowed in the international cooperation program. |
| **Multiple applications** | A researcher **may submit only one project** under this Call for Proposals as a Principal Investigator and **may submit only one project** as a co-Investigator. |
| **Employment and domicile** | **For Israel:**The PI and the co-investigator(s) must be a member of an academic or research institution or a professor emeritus who continues working on research in an Affiliated Institution as defined above. **For Québec:**The Principal Investigator and the co-Investigators must: * Be employed by a managing institution and be domiciled in Québec at the time the application is submitted (see section 2.1 of the [**CGR**](https://frq.gouv.qc.ca/app/uploads/2021/05/rgc_2020_va.pdf))
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| **Professional associations/orders (Québec)** | Clinical university researchers must prove that they are members in good standing of the Québec professional order governing them, have a valid license to practice in Québec and have a professional liability insurance. |
| **Ethics (Québec)** | Principal Investigator(s) and co-Investigators must comply with the ethical regulations as defined in sections 5.4 and 5.5 of the [**CGR**](https://frq.gouv.qc.ca/app/uploads/2021/05/rgc_2020_va.pdf)). |
| **Ethics (Israel)** | Proposals which involve human subjects, must submit the approval of the relevant Helsinki Ethics Committee before the first payment of their grant.Proposals which include experiments with animals, must submit the approval of the relevant Committee for Experimentation on Animals before the first payment of their grant. |
| **Basic training in research ethics (Québec)** | Basic training in research ethics is mandatory for all FRQS awardees when their research project or program involves human subjects.The term "research project involving human subjects" applies when the research project involves:* Living human subjects
* Cadavers or human remains
* Tissues, biological fluids, gametes, embryos or fetuses, cells or genetic material
* Personal information on file. Personal information is any information concerning a person which allows the person to be identified

Awardees must successfully complete levels 1 and 3 of the [**Online Tutorial in Research Ethics**](http://didacticiel.ethique.msss.gouv.qc.ca/?lang=en) set out by the *ministère de la Santé et des Services sociaux* (MSSS).Principal Investigators and co-Investigators must complete the training **before** **the first payment of their grant**. |

**REQUIRED DOCUMENTS – PROPOSAL**

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| **The FRQS manages this call for proposals on behalf of both funding agencies. All documents necessary for the eligibility and evaluation of the proposal must be duly submitted to FRQS only by the Québec Principal Investigator.****IMPORTANT NOTE: The proposal is transmitted via the electronic form available in the** [**FRQ's electronic Portfolio**](https://frqnet.frq.gouv.qc.ca/portfolio/) **by the Québec Principal Investigator (only one form per team).** **Any document that is missing or does not comply with the rules of the program and electronic forms, but is deemed critical to eligibility or assessment,** **renders the file ineligible.**Items required but absent from the file will not be claimed.All documents received after the filing date of the **proposal** will not be considered and an update of the files will not be possible.A document not required but transmitted with the **proposal** will be removed from the file.*No extension will be allowed. Any form not submitted by the indicated deadlines and times will be automatically rejected.***All members of the team (including co-investigators from Québec as well as co-investigators from Israel) must give their consent to participate to the project. This action must be done in your FRQS electronic Portfolio before the transmission of the form.** For the creation of a FRQnet account, we invite you to consult the document [**FRQnet account creation**](https://frqnet.frq.gouv.qc.ca/researchPortal/faces/jsp/header/terms_of_useV6.xhtml) **/ procedures to follow for co-investigators available in the toolbox*** **The following documents will be required:**
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| **Québec Investigators** | **The complete application must be submitted to the FRQS by the Principal Investigator of the managing Institution and must include:*** Electronic Application form
* [Canadian Common CV](https://ccv-cvc.ca/)*,* ***Funding CV version* for FRQS, FRQNT or FRQSC** *(last update between June 1st, 2021 and the Call for proposals deadline)*
* Detailed contributions *(last update between June 1st, 2021 and the Call for proposals deadline)*.
* Clinician: a letter from the management of the clinical department or the dean of the faculty specifying how many hours will be freed from their clinical obligations to carry out the research project (only for persons who do not hold a FRQS career scholarship)
* Letter of support from the management of the managing institution where the research will be carried out for the Principal Investigator only (maximum 2 pages)
* Letter of support from a collaborator or a partner, if applicable (1 page per letter, maximum of 5 letters)
* Schedule of proposed activities of the cluster (maximum 2 pages)
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| **Israel Investigators** | **The Israeli Investigator should add the following documents:**1. CV (Biosketch format) for the Israeli principal investigator and co-investigator(s)
2. Title and Abstract in Hebrew (500 characters)
3. Budgetary appendix in NIS according to equivalent in shekels to dollars including a table with the total amount per year and a short justification of the expenses (2 pages maximum).
4. Letter of approval of submission from the institution of the PI (2 pages maximum)
5. Letter of collaboration agreement between the research partners that briefly describes the mode of collaboration of the two principal investigators (1 page maximum)

**All documents should be sent to the Québec Principal Investigator who is responsible to submit the form and documents through his/her electronic portfolio.** |

**research location**

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| **Choice of location of research** | **For Québec:**A University of Quebec, a college educational institution, a group, or a recognized centre of the FRQ, or a designated institution of the ministère de la Santé et des Services sociaux (MSSS). Refer to the [managing institutions recognized by the FRQ](https://frqnet.frq.gouv.qc.ca/Documents/Etab_Reconnus_FRQ.pdf).**For Israel:** Research should be conducted in the Affiliated Institution of the Israeli PI. Request for change of location should be done in accordance with the MOST Procedures Regarding Scientific Projects Funded by MOST (the "MOST Regulations").  |
| **Change of research location (for Québec)** | The FRQS expects that, for the duration of the grant awarded, the person holding the award will carry out his or her project in the institution or university that endorsed his or her application.The holder of the grant who wishes to change the place of research must apply in writing to the FRQS. This application will state the reasons for the change and describe any possible consequences for his research project.The university or institution authorities must notify the FRQS in writing that they approve the change.The management of the new research centre or university department must notify the FRQS in writing that it agrees to welcome the person holding the grant.The conditions surrounding changes in research location and all other changes made during funding are described in section 6 of the [**FRQ Common general rules**](https://frq.gouv.qc.ca/en/common-general-rules/)**.** |

**Term AND AMOUNT OF THE GRANT**

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|  | **Budget****Israel Team\*****(Maximum)** | **Budget****Québec Team****(Maximum)** |
| Total maximum per project over 3 years | 360,000 NIS | CAN$150,000 |
| Total maximum per year per project | 120,000 NIS  | CAN$50,000  |
| Total budget envelop  | 1,080.000 NIS | CAN$450,000 |
| Duration  | 3 years, non-renewable | 3 years, non-renewable |
| Projects funded | Maximum of 3 projects |
| Announcement of results | November / December 2022 |

**\*Funding for the approved projects depends on the approval of State of Israel budget and the availability of funds on each side.**

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| **Additional amount for eligible co-investigators** **Status 3: College researchers with teaching duties (for Québec)** | **Additional amount for eligible status 3:****College researchers with teaching duties who join a research group** as a co-Investigator shall each receive an additional amount of up to 20% of their gross salary. This amount will be paid directly to the college institution to compensate for part of the salary to release the researcher from teaching duties. A supporting document to this effect must be inserted in the "Clearance - colleges" tab of the FRQnet form. The principal investigator must identify the college researchers for whom a release from teaching duties is requested. Should funding be granted and the principal investigator accept it, a form meant specifically for the amounts related to a release from teaching duties will be available. Details to come at the time of funding. |
| **Source of funding** | Recipients from Israel will be financed by MOST.Recipients from Québec will be funded by the FRQS. |
| **Indirect research costs (Overhead costs)** | **For Israel researchers:**Overhead expenses up to 15% of the total amount of the research project inclusive of the funds provided on the basis of this Call.**For Quebec researchers (statuses 1, 2 and 3):**Grants awarded under this program are eligible to receive an additional amount to cover the institutions’ [**Indirect research costs (IFRs)**.](https://frq.gouv.qc.ca/regles-generales-communes/) Details regarding the reimbursement of indirect research costs will be available at the time of award. |
| **Management and financing rules** | **For Israel:**Upon approval of a project proposal, contracts will be signed in Israel between MOST and the Principal Investigator's institution. Payments will be made by MOST to the PI's institution, in keeping with the provisions of the contracts referred to above.**For Québec:**The list of institutions that can manage grants from the FRQ is limited to the management institutions recognized by the FRQ, including mainly universities, CIUSSS, CISSS, certain institutions in the health network and colleges. The institution managing the grant is the employer institution of the person holding the grant (see section 6.2 of the [[**FRQ Common general rules**](https://frq.gouv.qc.ca/en/common-general-rules/)**)**.](http://www.frqs.gouv.qc.ca/regles-generales-communes)[**List of institutions recognized to manage FRQ**](https://frq.gouv.qc.ca/etablissements-reconnus/) grants. Grants will be managed according to the respective general rules of the funding agencies.**It is strongly recommended that the Québec and Israeli research teams and their institutions enter into agreements regarding intellectual property rights prior to the start of collaborative activities.** |

**eligible expenditures**

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| Eligible expenses such as salaries, research material, equipment and other expenses related to the project are subject to the regulations and practices of the agency that will fund the project.Exchanges of students and postdoctoral fellows are encouraged. |
| **For the Québec researchers****Eligible** | * In addition to the list of eligible and non-eligible expenses detailed in section 8 of the FRQ [CGR](https://frq.gouv.qc.ca/app/uploads/2021/05/rgc_2020_va.pdf), the following expenses are eligible:
* Travel and accommodation costs for Québec researchers going to Israel (maximum of 1 person / year, reasonable expenses)
* Participation to conferences (up to 3% of the annual grant amount for Québec funding recipients, as of the second year of the grant)
* Costs related to joint publication of articles
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|  **Non-eligible** | * Remuneration of the Principal Investigator(s), co-Investigators and collaborators
* All indirect expenditures related to layout organization or reorganization, facilities leasing and maintenance or the indirect costs covered by the host institution
* Funds cannot not be transferred outside of Québec
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| **For Israeli researchers** | * Funding may be assigned to costs related to the bilateral nature of the project (travel expenses of the researchers, scientific meetings, etc.) as well as to defray costs incurred by the approved research projects (disposables, publication costs, etc.).
* Project funds may be used in accordance with the MOST Regulations. Specific provisions regarding permissible use of project funds are set out in the MOST Regulations and the research contract.
* Participating scientists are encouraged to plan extended visits to their counterparts’ institutions. As long as the visits are an integral part of research collaboration, international travel and in-country living expenses of visiting scientists should be included in the project's budget. International travel costs should be included in the budget of the visiting side. The visits must take place in Québec or in Israel only. Visits to third countries may not be financed by project funds.
* Projects in Israel may include the use of sub-contractors from the private sector, if necessary.
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**Evaluation – proposAL**

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| **Evaluation process** | Each proposal will be reviewed by a joint scientific committee, composed of international experts from clinical and scientific domains, selected by the FRQS and MOST. Members of this scientific committee will be in charge of ranking all proposals, based on discussions during the scientific committee meeting. |
| **Evaluation criteria** | **Research project – 40%*** Compliance with the priority themes of the call
* Clarity of the objectives and scientific excellence of the project
* Originality and innovative aspects of the project
* Scientific and technical appropriateness of the project, choice of methods
* Added-value of the bilateral cooperation on the project and capacity to leverage existing research strengths and resources
* Added-value of AI in response to the specific issue

**Research team 20%*** Complementarity of expertise of the researchers from Israel and Québec involved in this proposal
* Track record of the researchers and international scientific level of the research teams

**Feasibility (including appropriate budget) 20%*** Realism, significance and rigour in defining the project structure, expected results and identification of milestones; contingency plan
* Realism of research schedule and relevance of the follow up indicators
* Efficient use of available resources and infrastructures on both sides
* The requested budget is in line with the proposed project
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|  | **Project Impacts 20%*** Impacts on the research advancement in AI for healthcare for Israel and Québec
* Transfer to the scientific and clinical community
* Impacts of the project on the development of new concepts and models, as well as on the development of novel, unused approaches and methods
* Potential impacts of the proposed approach(es) on health care
* Expected applicability and future technological development

**A project that receives a grade below 70% will not be eligible for funding.** |

**RESEARCH OUTCOMES AND KNOWLEDGE TRANSFER**

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| **Reports submission** | By accepting the funding, recipients commit to provide:**For Israel researchers:**Renewal of project funding for a second year is subject to the submission, by the Israeli PI, of the relevant documents. Scientific and financial reports will be submitted to MOST in accordance with MOST regulations, and as specified in the research contract. If this is not done by any joint project to the satisfaction of MOST, that project might not be funded for the second year.Israeli PIs must submit these documents in English to MOST, two months before the end of the first year's contract. The Israeli team should submit the documents on the appropriate forms together with the annual scientific report to MOST at: Reports@most.gov.il (or via the new online submission system of MOST).The same procedure will be valid the following year for approving the continuation of the project for the third year. Within three months of the conclusion of the project, Israeli PIs must submit a final report in English to MOST at: Reports@most.gov.il (or via the new online submission system of MOST). These include a financial report and a joint final scientific covering the work and cooperation carried out during the entire three-year project period, in accordance with the contract's requirements. **For Québec researchers:*** Annual financial reports and a final financial report at the dates indicated by the FRQS on the grant letter
* Annual scientific reports

Within three months of the conclusion of the project, Québec PIs must submit a joint final scientific report in English to FRQS. This report will cover the work carried out during the entire three-year project period and cooperation. |
| **Use and dissemination of the results by the partners** | Subsidy recipients authorize the funding agencies to use the final report and published research outputs (from a scientific publication, a conference, a seminar, a symposium or a e-publication), notably for reproduction, translation, implementation or public dissemination through whatever means, along with other uses (exchange and sharing between funding agencies). This use will solely be for non-commercial purposes and will comply with copyright legislation. |
| **Knowledge mobilization****(only for Québec)** | The FRQS encourages awardees to lead and contribute to knowledge mobilization activities (transfer, sharing, development, outreach and dissemination) with practice settings and the public. More information is available in the [knowledge mobilization](https://frq.gouv.qc.ca/en/mobilization-of-knowledge/) page.  |
| **Open Science** | **Québec:**In accordance with the FRQ’s open access policy (*Politique de diffusion en libre accès des Fonds de recherche du Québec*), all awardees will make their scientific publications available in open access in the twelve months after they are published. Go to the [FRQ’s open science page](https://frq.gouv.qc.ca/en/open-science/) for more information. **Israel:**MOST encourages awardees to have their scientific publications available in open access in the twelve months after they are published. |

**STATEMENT ON equity, diversity and inclusion**

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|  | The partners seek to contribute to the support a research ecosystem based on equity, diversity and inclusion. The individuals who receive funding are encouraged to prioritize the EDI principles within the context of their research activities. Further details are available in the [FRQS’s statements on equity, diversity and inclusion](https://frq.gouv.qc.ca/en/equity-diversity-and-inclusion/).  |

**APPLICANT AGREEMENT**

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| **For Québec** | By submitting a proposal, the candidate commits, among other things, to:* Comply with the obligations outlined in the [**CGR**](https://frq.gouv.qc.ca/app/uploads/2021/05/rgc_2020_va.pdf), the [**Policy Regarding Open Access to Published Research Outputs of the FRQS**](https://frq.gouv.qc.ca/app/uploads/2021/05/politique-libre-acces_en_avril19.pdf) as well as the terms and conditions stipulated in the form and the program rules
* Submit additional files linked to the grant, if requested by the FRQ
* Comply with the ethics, integrity and responsible conduct standards of FRQS as outlined in the document [**Standards en éthique de la recherche et d'intégrité scientifique for the FRQS**](https://frq.gouv.qc.ca/app/uploads/2021/03/standards_frsq_ethique_recherche_humain_2009.pdf), and in the [**Policy for the Responsible Conduct of Research of the Fonds de recherche du Québec**](http://www.scientifique-en-chef.gouv.qc.ca/wp-content/uploads/FRQ_politique-CRR_2014.pdf)
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| **For Israel** | All procedures and activities under this Call or the projects approved hereunder, including the eligibility of institutions via which applications must be filed, are subject to the standard MOST Regulations and to the MOST Standard Contract for Scientific Projects (both referred to hereinafter as "the standard terms"). Applicants are required to familiarize themselves with the standard terms before filing an application under this Call; filing an application constitutes a declaration that the applicant has done so and agrees to be bound by the provisions thereof.Please refer to MOST Regulations appendix on MOST website. |

**HOST INSTITUTION AGREEMENT**

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| **Québec** | The host institution commits to:* Provide functional laboratory or research facilities, equipment and infrastructure necessary to carry out the research project
* Offer an environment that respects ethical and integrity standards as outlined in the ethics and scientific documents for the **FRQS** and the [**Policy for the responsible conduct of research**](http://www.frqsc.gouv.qc.ca/documents/10191/186005/Policy%2Bfor%2Bthe%2BRCR%2B%2BFRQ%2B2014.pdf/c531b847-b95e-4275-a97d-421248178236) of the Fonds de recherche du Québec
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**intellectual property**

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|  | Funding agencies acknowledge that awardee researchers and their host institution possess the intellectual property rights, under the internal regulations of the host institution and in accordance with the terms of the research contract, if applicable for Israel researchers. All institutions involved in the project are encouraged to discuss about a collaboration agreement. |

**PARTNERS**

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|  | **Ministry of Innovation, Science and Technology of the State of Israel****Fonds de recherche du Québec - Santé** |