UK - Korea Multi-omics Based Research for Precision Medicine Research Initiative 2019

MRC UK CALL TEXT

The UK Medical Research Council (MRC), the Korean Ministry of Science and ICT (MSIT) and the National Research Foundation of Korea (NRF) are pleased to invite proposals to the UK-Korea multi-omics based precision medicine research initiative through the UK's Fund for International Collaboration (FIC).

This initiative will provide funding for one high-quality collaborative research consortium focusing on multi-omics based research for precision medicine.

In total, up to approximately £9 million will be made available for this initiative: up to £2 million of MRC funding in support of the UK component; and up to approximately £7 million from MSIT/NRF in support of the Korean component.

Background

This activity is being run under the umbrella of the Fund for International Collaboration (FIC). FIC aims to enhance the UK's excellence in research and innovation through global engagement. It focuses on bilateral and multilateral partnerships with global research and development (R&D) leaders and is administered by UK Research and Innovation (UKRI).

The MRC has a strategic commitment to encourage international partnerships to tackle important and challenging research goals, while the Korean government is committed to fostering collaboration with the UK. MRC and MSIT have both identified precision medicine as a strategic priority and have made significant recent investments in this area.

MRC and MSIT/NRF share the view that stratification, underpinned by a sound understanding of disease, will enable us to pin point novel targets for the development of new treatments and biomarkers that tell us more about disease progression and response to treatment within appropriate patient groups. Our shared aim is to improve our understanding of how to tailor treatments and interventions to the individual needs of people living with a wide range of diseases and conditions. This is an international and long-term aim. We cannot tackle this problem in isolation - we must bring together the necessary funds and expertise by pooling resources.

Aim

This initiative will provide significant funding for a UK-Korea precision medicine research consortium focussed on addressing a disease for which there is a strong case for scientific advancement and major unmet clinical need, with the aim of:

- Supporting large-scale, interdisciplinary multi-ethnic, multi-omics based collaborative research.
- Providing new insights into disease mechanisms that will enable better tailoring of existing treatments and pave the way for the development of new treatments, diagnostics and care pathways.
- Enhancing existing partnerships and developing new partnerships between the UK and Korea in the area of precision medicine.
- Strengthening the strategic relationship between the UK and Korea.

Objectives and scope

The objective is to deliver research funding for **one** internationally competitive and innovative collaborative partnership between researchers from Korea and the UK that will enable the pursuit of shared research interests.

Precision (also stratified or personalised) Medicine promises new prevention and treatment methods optimised for individual or groups ('strata') of patients characterised by clinical and laboratory information, health records, lifestyle or demographic factors. Research and innovation in Precision Medicine will discover and increase understanding of disease subtypes and provide new insights into disease mechanisms, to enable better tailoring of existing treatments, and pave the way for the development of new treatments, diagnostics and care pathways. Stratification can include e.g. response to treatment, disease subtype or mechanism, endotypes, disease risk, progression rate and/or prognosis. Molecular signatures from multi-omic data (e.g. genomics, transcriptomics, proteomics, metabolomics etc) have the potential to more accurately or effectively define disease subtypes, predict likely drug/therapy response, drug resistance or increased risk of adverse drug reactions (pharmacogenetics). Appropriate samples (tissue, biological fluids, etc) and suitable cohorts will need to be identified to underpin robust findings with the greatest clinical potential.

Applications may address a number of key challenges presented by stratification such as methodology and study design (including reproducibility and statistical design); data handling, integration, and analysis; diverse therapeutic options; and application of research findings between populations with demographic differences, including e.g. ethnicity, age and socioeconomics. Patient involvement is strongly encouraged at all stages of the application. Some evidence of the potential economic benefit of the approach should be included, within the appropriate healthcare system, but full health economic studies are not required within the proposal. A plan for the sharing of Korean and UK multi-omics data across the consortium should be included. Applicants should identify the potential value to future industry Research and Development, with a plan to engage suitable partners if appropriate.

Applications from any disease area are welcomed including, but not limited to, cancer, metabolic diseases, immune or inflammatory diseases, heart diseases, degenerative brain disease neurological, sensory and mental health disorders. Applicants should make a strong case for scientific advancement within an area of major unmet clinical need.

The goals of the project funded through this call should be:

- **Overall goal:** Development of multi-ethnic precision medical technology through analysis of multiple omics (genomics, proteomics, metabolomics, etc.) for diseases with major unmet clinical need
- **Stage 1 goal (1 Sept 2019 - 31 Dec 2022, UK and Korea):** Achievement of multi-omics information for multi-ethnic populations in severe diseases (such as cancer, metabolic diseases, immune diseases, heart diseases, degenerative brain disease, etc.) and identification of multiple 'omics' markers through information integration
- **2nd stage goal (1 Jan 2023 - 31 Dec 2024, Korea only):** Development and utilization of multi-omics precision medical technology based on multiple omics markers

Start Date and Duration

On the UK side, projects must on 1 January 2020. Projects must be three years in duration and have completed by 31 December 2022.

On the Korean side, projects must start on 1 September 2019. The project will be divided into two stages:

- First stage: 1 Sept 2019 – 31 Dec 2022
- Second stage: 1 Jan 2023 – 31 Dec 2024

- After the completion of the first stage, the Korean team can move to the second stage subject to satisfactory assessment of the first stage outcomes. However, the proposal should clearly outline the entirety of the research plans across both stages.

Although the UK component of the consortium will not receive funding for the full duration of the project through this initiative, the expectation is that the proposal should clearly outline the entirety of the research plans for both stages, and clearly detail roles and responsibilities within the full project period.

Please refer to the standard MRC Guidance for Applicants for information on what the starting procedure entails; please inform the relevant support staff in your organisation of this requirement to ensure the project starts on time.

Online networking database

MRC, MSIT and NRF will create an online networking database to compile a list of UK and Korean researchers who are interested in finding possible collaborators for this call. Participation in the online networking database is optional.

If you would like to share your details with the research community in the UK and Korea, please complete the online networking template form in English. Researchers completing the form should be aware that these details will be made public.

A copy of the online networking database will be made available online on the MRC call page from Monday 11th March (UK time) and will be updated once per week until Monday 1st April (UK time) with all the networking information received before 9am (UK time) on the date of the update.

Expression of interest submission

Researchers planning to submit to this scheme are asked to submit a short expression of interest (EoI) online form by 10 April 2019. Please note, this step does not form part of the review process and the MRC will not undertake eligibility checks at this point; applicants should not await a response from the MRC following EoI submission, but simply continue with the development of the full proposal to be submitted by the deadline of 24 April 2019. The MRC will use the expression of interest to help prepare for the review process.

Applicants are not expected to submit an expression of interest to MSIT/NRF.

How to apply

UK and Korean applicants must apply separately to their respective funding agencies by 24 April 2019 for the funding component requested within each country, but this must be based around a common research plan and vision. The application must be JOINTLY prepared. **Both partners must therefore submit an identical joint Case for Support (including if applicable a one page methodology annex) and separate optional one page Gantt chart written in English to the MRC and NRF. The submission to NRF should be via NRF's Integrated Research Support System** https://ernd.nrf.re.kr**).** Failure to submit a valid application to both funding agencies will invalidate both submissions.

As there will be a single Case for Support, it is vital that it provides full details of the work proposed for both the UK and Korean components.

UK applicants must submit to the MRC via the UKRI Joint electronic Submission (Je-S) System. The Je-S submissions must be received by 16:00 local UK time on the day of the deadline. UK applicants must complete all sections required for a standard research council grant proposal. Further guidance can be found in the general MRC Guidance for Applicants, the call-specific MRC Guidance for Applicants and the call-specific Guidance for preparing the Case for Support and Gantt Chart.

An identical version (in English) of the call-specific Justification of Resources template should also be submitted to both MRC and MSIT/NRF.

UK and Korean researchers should discuss ethics and Intellectual Property before fully developing their proposal.

Funding available

In total, up to approximately £9 m will be made available for this initiative. The funding agencies intend to use these available funds to support **one consortium**, subject to quality.

MRC will make up to £2m available to cover the UK component of the **one research project** selected for funding under this call. The MRC considers that proposals requesting a contribution from the MRC of between £1.5m and £2m would allow for the research outlined in this call to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting less than £1.5m where fully justified. UK based applicants may therefore request up to a maximum of £2m at 80% fEC to cover the UK component of the research project. The MRC will provide funding under standard arrangements and at 80% of the full Economic Cost (fEC). **The UK element of funding will not cover UK PhD studentships or requests for capital items.**

A MSIT/NRF contribution of 11,160,000,000 South Korean Won (~£7m) will be made available to fund the South Korean collaborators.

UK spending obligations

Due to the tight time scales of this call, successful UK research organisations will need to adhere to strict spending requirements. For this call, the end date of the proposed research should be no later than 31 December 2022. The UK payment profiles are likely to be slightly irregular for this scheme.

Eligibility

This call will fund partnerships between UK and Korean based researchers working in the area of multi-omics based precision medicine. It is important to note that:

- The proposal should be developed by a UK Principal Investigator (PI) and a Korean PI.
- The UK and Korean PIs may only submit one application to this scheme as PI.
- The Korean PI cannot be involved as Co-Investigator (Co-I) in other applications submitted to this call.
- The Korean PI must commit at least 50% of their time to the research project.
- The UK PI may be involved in other applications if listed as Co-I.
- UK Co-Is may be involved in more than one application.

For support under this call, applicants must be eligible to apply for funding from their respective country's funding agency:

MRC
For the UK participants, standard UKRI eligibility criteria as described on the UKRI website will apply. Research Organisations that are eligible to apply to the MRC, for example MRC Units and Institutes may apply to this call.

MSIT/NRF
For the Korean participants, standard NRF eligibility criteria as described on the NRF R&D website will apply. Research Organisations that are eligible to apply to the NRF, for example university units, independent research organisations, university medical centres may apply to this call.

UK based researchers should be aware of the following MSIT/NRF Korean eligibility requirements:

- In Korea, each scientist may only participate in up to five research projects supported by the Korean government (up to three projects as PI and up to 2 projects as Co-investigators).
- Korean scientists cannot commit over 100% of their time to their research projects.
- Under this present initiative, the Korean PI must commit at least 50% of their time to the consortium. Therefore, Korean scientists, who have already committed over 50% of their time to other research projects cannot apply as a PI to this call.

The funders are not seeking to support partners outside of the UK and Korea through this initiative. Please contact international@mrc.ukri.org if you are planning to involve co-investigators from a third country in your proposal.

Assessment criteria and decision-making process

To be funded, proposals must be internationally competitive and at a standard equivalent to that normally expected to be supported by each funding organisation.

Each proposal will be peer reviewed by the MRC and MSIT/NRF in parallel using academic experts. Both the UK and Korean peer reviewers will be asked to review the entire proposal including stage 1 and stage 2 of the proposed research.

- The MRC will externally peer review all applications, and all applicants will be offered the opportunity to provide a written response to those reviews. This will be followed by a UK panel meeting.
- The Korean peer review process will include an interview of the Korean Principal Investigator in line with standard MSIT/NRF processes. It is envisaged that all Korean Principal Investigators will be interviewed, but NRF and the MRC reserve the right to adjust this step of the process if a high number of proposals are submitted to the call.

The funders will then jointly agree upon the successful consortium.

	Korea	UK
Peer review:	Review of proposals by Korean review panel through oral presentation (interview)	Review of proposals by UK peer reviewers and panel
Final selection:	Joint MSIT/NRF-MRC decision	

Key assessment criteria for both the UK and Korean peer review of proposals will be:

Evaluation Heading	Details
Research quality and scientific potential (35%)	- Design and feasibility of the project plan - Novelty and innovation - Fit to call - Clarity of research objectives
Research environment and people (30%)	- Track record(s) of the investigators in their fields - Partnership: including strength and clarity of collaborations and opportunities provided, quality of the project management structure proposed, and the added value of the UK-Korea collaboration - Quality and suitability of the research environment and of the facilities - Value for money for Korean and UK science

Significance and impact of the research (35%)	- Contribution potential of the outcomes to scientific community, industry, and nation - Importance and feasibility of delivering proposed research outcomes - Strategies for securing intellectual property - Roadmap for technology transfer and commercialisation - Identification of realistic potential improvements to human or population health - Contribution to relieving disease/disability burden and/or improving quality of life - Identification of potential impacts of research and plans to deliver these

Collaboration agreement and intellectual property

As the research projects will be carried out by multiple research organisations and project partners, the basis of collaboration between the organisations and project partners, including ownership of intellectual property (IP) generated during the project and rights to exploitation, and costs of IP management (this is not an eligible cost to MRC), is expected to be set out in a formal collaboration agreement between the research organisations involved. It is the responsibility of the research organisations to put such an agreement in place within 6 months of the start of the Korean component of the project. The terms of collaboration shall not conflict with MRC and MSIT/NRF terms and conditions.

Further details are provided in the call specific UK application guidance for this call.

Key dates

Call opens: 4 March 2019

Expressions of interest (to MRC only): 10 April 2019

Closing date for proposals to be submitted to both the MRC and MSIT/NRF: 24 April 2019.
The UK deadline is 4pm UK time.
The Korean deadline is 6pm local time.

Assessment of proposals: April-August 2019

Funding decision: August 2019

Project start: 1 September 2019 in Korea, 1 January 2020 in the UK.

Project end: 31 December 2024 in Korea. 31 December 2022 in the UK.

Contacts and guidance

Please read the:

- UK call text (this document)
- the scheme specific UK Guidance for Applicants
- the standard MRC Guidance for Applicants
- the scheme specific guidance on preparing the Case for Support and Gantt Chart.
- any relevant MSIT/NRF guidance, including the Korean call text.

An identical version (in English) of the call-specific Justification of Resources template should be submitted to both MRC and NRF.

Applicants may wish to use the online networking database - please see the online networking database section of this document for details.

For further information, UK applicants should contact: international@mrc.ukri.org

For further information, South Korean applicants should contact: nrfbio@nrf.re.kr