

BIRAX Ageing – Call for Research Proposals December 2021

Call for Proposals

BIRAX (the Britain Israel Research and Academic Exchange Partnership) is a £multi-million initiative of the British Council and the British Embassy in Israel together with the Pears Foundation, investing in world-leading research jointly undertaken by scientists in the UK and Israel.

We are proud to publish the second call for proposals under BIRAX Ageing. The first call, published in 2018, has awarded seven research projects focusing on the interplay of ageing and cardiovascular disease, Alzheimer's and neurodegenerative disease, diabetes, bone fragility and macular disease, at a total cost of £2.8m.

We invite research proposals submitted jointly by British and Israeli scientists seeking to further our understanding of ageing and its impact on human health. We are interested in projects that use pioneering techniques, state of the art technologies and that showcase the added value of the synergy between the collaborating labs.

Funding Criteria

- The primary consideration in ranking the proposals will be scientific excellence, novelty, focus on understanding disease mechanisms and use of advanced research strategies;
- Clear and direct relevance to the ageing process and age-related disease;
- Proposals for interventions in the ageing process in order to prevent or mitigate age-related disease;
- Proposals for diagnostic approaches (e.g. use of relevant biomarkers) for predicting the ageing trajectory or overall pathogenesis of disease;
- Use of cutting-edge technologies taking into account ageing-driven phenomena;
- Proposals which are multidisciplinary, integrating diverse areas of ageing-related research;
- Proposals must address at least one of the themes listed below.

Research focus

We invite proposals addressing diverse effects of ageing on human health, exploring the basic mechanisms underlying ageing-related disease. The research proposals can address these issues using a broad range of biological organisational levels and scales, from molecular to cellular, tissues to organs and the entire organism and its environment. Multidisciplinary research plans based on synergising collaborations between the partnering researchers are recommended.

We welcome experimental and observational studies that integrate diverse biological models and different system levels.

We also strongly encourage the application of precision medicine and big data in ageing research. In particular, we are interested in precision diagnostics and personalised effects of treatments specifically for older subjects, preventive measures and predictive analytics for older populations. Research proposals that contain a central "omics" component (e.g. genomics, epigenomics, transcriptomics, proteomics, metabolomics) are encouraged.

Specific research priorities

The effect of ageing on human health: preventive, disease modifying and regenerative medicine approaches to medical conditions and the ageing process.

We invite studies that explore the relation of the ageing process either with individual or multiple diseases and medical conditions, and their mitigation.

In particular, we welcome proposals that advance precision medicine and big data in ageing research. The proposals should aim to identify innovative biomarkers, algorithms, computational and measurement techniques, and to promote advances in precision medicine that would allow the prevention or mitigation of age related conditions or harmful effects associated with ageing. Proposals that build on effective collaboration between basic and clinical research and big data and those facilitating the translation of basic research to clinical practice will be prioritised.

Successful proposals may receive funding – wholly or partially – from one of our partners. Applicants interested in priorities specifically linked to a partner may benefit from familiarising themselves with the partner's research priorities.

Proposals must be relevant to at least one of the priorities below:

- 1. Ageing and Immunity:** We invite research toward drugs and other therapies (geroprotectors and immunoprotectors) targeting ageing processes that contribute to age-related diseases, with a focus on targeting immunosenescence and its related pathologies. We welcome research that aims to explore and control the role of cell and organismal senescence in the individual response to infectious diseases (e.g. COVID-19, influenza, bacterial pneumonia, etc.), involving immune senescence, immune surveillance, pro-senescent effects of infection and the sensitivity of senescent tissues to infection. Alongside the research toward therapies, we invite research toward advanced biomarker assays of the deteriorating ageing immune system, as potential means to predict the risks for the older persons for both infectious and non-infectious diseases, for improving treatments and allocating resources for the protection of those older persons who are most immunocompromised.

Projects funded under this strand may be funded in collaboration with our partners, [BrightFocus Foundation](#), who are interested in research related to this priority in the context of neurodegenerative disease. Please email us for more details

- Age-related Multimorbidity:** We invite research toward diagnosis and treatment of multimorbidities, as prevalent in older people, and how different age-related diseases intersect or exacerbate one another to lead to more debilitating diseases. We seek new approaches toward early diagnosis and prediction of old-age multimorbidity and evaluation of the ageing process as a determinant for multimorbidity – utilizing diverse physiological, functional, genetic, epigenetic and other biomarkers and advanced methods of bioinformatics analysis and data-mining. We invite research on new biomedical approaches for the prevention and alleviation of old-age multimorbidity, with focus on pharmacological and regenerative medicine approaches. Of special interest is the development of evidence-based methods and criteria for the evaluation of the efficacy and safety of treatments against old-age multimorbidity.
- Cardiovascular Disease:** The impact of ageing on cardiovascular disease, exploring new directions toward understanding mechanisms, diagnosis and treatment, including the potential application of regenerative therapies. Studies that tackle the effect of reduced regenerative capacity in the context of CVD would be of interest, as would strategies to enhance capacity in the aged setting. We welcome research across the broad spectrum of age-related heart and circulatory diseases including stroke and vascular dementia.

Projects funded under this strand may be funded in collaboration with our partner, the [British Heart Foundation](#). Please email us for more details.

- How the ageing process impacts on the progression of Type 1 and Type 2 diabetes,** including, but not limited to: understanding the fundamental biological and physiological mechanisms, changes in beta cell regenerative capacity and, in the case of Type 1 diabetes, antigenicity; regeneration of beta cells and the prevention of their destruction; maintaining the survival of extant and newly generated beta cells; restoration of insulin secretion; developing technologies to efficiently generate pancreatic islet cells from non-beta-cell sources and to protect them by cellular engineering and/or encapsulation technology.

Ageing Well with Diabetes: Understanding and addressing the challenges presented by ageing with type 1 and type 2 diabetes, including polypharmacy, menopause, accurate diagnosis, precision medicine, appropriate glycaemic targets, the impact of de-escalation of drugs, and the use of technology (such as challenges in using glucose management technologies with reduced manual dexterity or other health challenges, including dementia). The emphasis should be on strategies to diagnose, prevent and treat effectively with the scope to improve quality of life for people with diabetes.

Projects funded under this strand may be funded in collaboration with our partners, [JDRF](#) and [Diabetes UK](#). Please email us for more details.

5. **Neurodegenerative Disease:** The impact of the ageing process on the development and progression of neurodegenerative conditions, the elucidation of new targets for prevention, diagnosis, disease-modifying and symptomatic therapeutics, as well as the potential of stem cell technology to better model and understand the underlying pathogenic processes or regenerative potential of the ageing nervous system. Neurodegenerative diseases include diseases such as Alzheimer's disease and other dementias, Multiple Sclerosis, Motor Neurone disease, Parkinson's disease, and vision disorders, like age-related macular degeneration and glaucoma.

Projects funded under this strand may be funded in collaboration with our partners, [MS Society](#), [Alzheimer's Research UK](#), [Alzheimer's Society](#), [Parkinson's UK](#), and [BrightFocus Foundation](#). Please email us for more details.

6. **Age-related Frailty and Other Geriatric Syndromes:** We invite research toward enhanced diagnostic evaluation and therapy of old-age frailty, and other geriatric syndromes, including both specific geriatric syndromes, such as functional decline, pressure ulcers, incontinence, delirium and falls, as well as general systemic geriatric syndromes, such as metabolic syndrome, sarcopenia, maladaptation, respiratory syndrome and others. We invite studies exploring the specifics of diagnosis and therapy for older people, rather than non-specific "age-less" populations, with reference to specific medication dosages, regimens, drug interactions, long term effects and systemic dysregulation in people later in life. Research can be done on all levels, from the molecular and cellular to the systemic and include both pre-clinical and clinical effects, but must show specific relevance for the ageing process and older people.

For information on how to apply, please visit the British Council Israel's [website](#).