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UNIVERSITÄT
BERN

Multidisciplinary Center
for Infectious Diseases
MCID Bern

www.mcid.unibe.ch

Funding call for research project submissions to the Multidisciplinary Center for Infectious Diseases at the University of Bern (MCID Bern)

This is the first Multidisciplinary Center for Infectious Diseases (MCID) call for submission of scientific project proposals on the topic of infectious diseases. The call includes a dedicated funding scheme to support the next generation of academic talent. **The 2021 call is open to researchers at the University of Bern, the Bern University Hospital/Inselspital and affiliated institutes*.**

1. Introduction to the MCID Bern

The MCID is a newly established research center at the University of Bern, dedicated to the study and mitigation of health, healthcare, societal, ethical, and economic risks from infectious diseases. The promotion of young researchers and of their research to advance the aims of the MCID are a particular priority for the center. The MCID was established in 2021 with the generous support of the Vinetum Foundation.

2. Mission statement

At the MCID, we:

- *Determine the Origin of Risks*

We perform systematic investigations into infectious disease threats and underlying factors for exacerbation using an integrated One Health vision.

- *Prepare for Risks*

We develop and use sentinel and preparedness tools for emerging and future infectious disease risks

- *Study the Management of Risks*

We propose integrated solutions to manage the impact of infectious diseases on animal life, human life, and livelihoods, considering biomedical, social, ethical and economic aspects.

- *Collaborate*

We are a dynamic multidisciplinary community of researchers, integrating scholarship and research excellence to inform effective, protective, and preventive responses to threats from infectious diseases.

- *Foster Talent*

We give dedicated resources to foster the scientific and professional development of the next generation of academic talent on the path to independence.

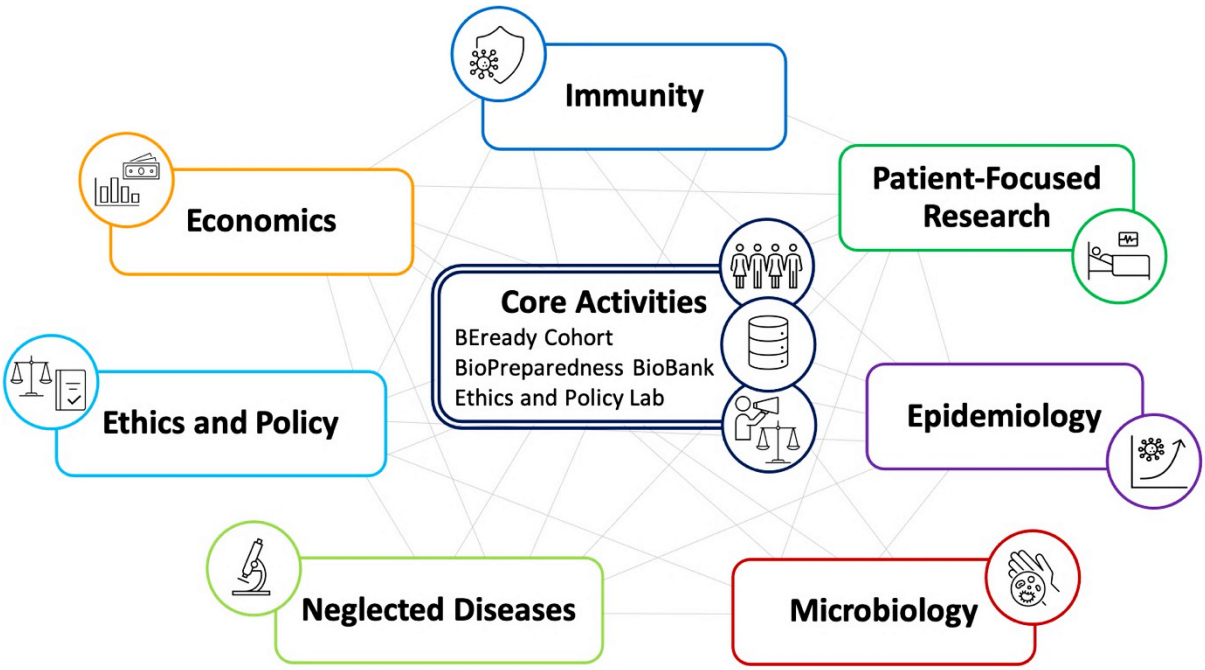
- *Disseminate*

We carry out training and education of researchers, practitioners, and the lay public to increase the success of effective and coordinated responses to threats from infectious diseases.

3. The MCID's academic discipline clusters and core activities

3.1 Clusters

The MCID is composed of seven specialist, interconnected clusters that bring together subject area excellence in a unique constellation to foster innovative, multi- and interdisciplinary investigations.



3.1.1 Immunity

The Immunity cluster focuses on basic and applied immunology. Our expertise covers *in vitro* immunological methods, basic murine immunology,

gnotobiology, infectiology, immunology in farm animals and research in the context of human clinical studies. Our main research interests lie in the mucosal immune system, early-life immune development, trained immunity and vaccine development to study the core question of why immune responses vary between species and within a species. For a detailed description and contacts, please see here.

3.1.2 Patient-Focused Research

The Patient-Focused Research cluster promotes and supports scientific activities as part of patient-centred investigations, interventions and outcomes. Central themes involve identification and protection of vulnerable groups, advanced data science-driven diagnostics and personalized therapeutic and preventive approaches, avoidance of collateral damage, remote patient care and patient empowerment. For a detailed description and contacts, please see here.

3.1.3 Epidemiology

The Epidemiology cluster focuses its work on the study of infections and infectious diseases at the population level. We study the distribution and dynamics of infections and disease in time, place and person (or animal). We also study the effects of interventions for prevention and control. We use a wide range of methods for study design and analysis, including field epidemiology, surveillance, biostatistics, mathematical modelling and genomic epidemiology. For a detailed description and contacts, please see here.

3.1.4 Microbiology

The Microbiology cluster covers diverse aspects of research on on microbial pathogens that cause infectious disease and have pandemic potential. Research areas include host-pathogen interactions, diagnostics, One Health challenges, disease models, sentinel systems, biosafety and biosecurity in the overarching framework of pandemic preparedness. The cluster compromises experts from various fields of human and veterinary infection biology including clinical infectious diseases, microbiology, pathology and synthetic genomics. For a detailed description and contacts, please see here.

3.1.5 Neglected Diseases

The Neglected Diseases cluster focuses on neglected infectious and non-communicable chronic diseases of human and veterinary importance, including zoonotic infections. These are often co-morbidities, which lower thresholds for rapid spread of pandemic pathogens, posing a major threat to health initiatives worldwide, especially in the Global South. Investigations into these conditions employ approaches at both cell and organism levels, benefiting from opportunities provided by "Big Data" for modelling of pathogen transmission and dissemination. For a detailed description and contacts, please see here.

3.1.6 Ethics and Policy

The Ethics and Policy cluster performs research on the social dimensions of pandemics, broadly construed. We investigate social factors driving the spread of an infectious disease, immediate consequences for society and political reactions from the perspectives of social science, jurisprudence and philosophy. For a detailed description and contacts, please see here.

3.1.7 Economics

The Economics cluster aims to analyze the impact of a pandemic on individuals, households and businesses to identify vulnerabilities. These include financial and job security, access to healthcare, and exposure to supply chains with weak links. Identifying inadequate incentives in the pharmaceutical industry is also an important focus. For a detailed description and contacts, please see here.

3.2 Core activities

At the heart of the MCID lie the Center's founding three core activities. These are envisaged as integral parts of the first MCID funding phase. They pursue independent and long-term research aims, in collaboration with MCID clusters.

3.2.1 BEready Cohort

BEready will be a cohort study representing the population of the canton of Bern to collect essential longitudinal data to improve knowledge about existing infectious diseases and preparedness for emerging health threats. BEready plans to enroll approximately 5,000 households, including adults, children and pets, into a population-based cohort. Participants will be characterized both genotypically and phenotypically, with ongoing surveillance for circulating infectious diseases. This research platform will use innovative decentralized data-collection methods, a flexible and novel bioinformatics infrastructure, and a biobank including human and animal (pet) samples. For a detailed description and contacts, please see here.

3.2.2 BioPreparedness BioBank

The BioPreparedness BioBank will provide access to high consequence pathogens with pandemic potential and their synthetic genomes.
This core activity will build and maintain a curated repository and ensure access to high-consequence pathogens with pandemic potential in Switzerland. Through synthetic genomics, the genomes of such pathogens will be maintained in the yeast *Saccharomyces cerevisiae*. For a detailed description and contacts, please see here

3.2.3 Ethics and Policy Lab

The Ethics and Policy Lab will serve policy-relevant activities and outputs of the MCID by translating research findings into policy propositions. Since the application of scientific knowledge to find solutions to societal problems depends on values, a key task of the Ethics and Policy Lab is to determine the ethical dimensions of the research. The aim is that science-based solutions that inform policy will be grounded in insights from a tailored ethical analysis. For a detailed description and contacts, please see here.

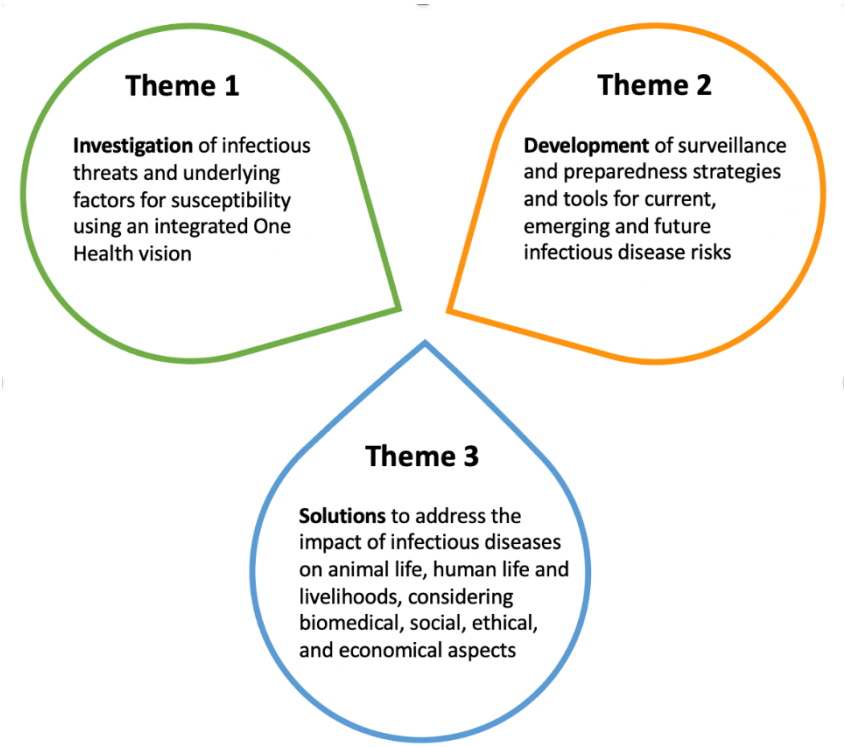
3.3 First funding phase (01.2022-12.2024)

The COVID-19 crisis has revealed that, as a population, the Swiss healthcare infrastructure, economy, education system and society at large, plans, processes and perspectives to estimate, navigate and overcome a global infectious disease pandemic were either lacking or non-existent. The fact that there were successful outcomes (as far as we can assess it today), including several effective vaccines, novel therapeutic approaches, and major advances in digitalization of working practices is fortunate. Some of these advances arose in an *ad hoc* way, which should not be seen as a blueprint for pandemic response plans in the future.
Research is needed to extract lessons from the past and from the ongoing pandemic and to investigate, develop and validate future pandemic preparedness approaches. Research should address existing shortcomings that have been magnified by the pandemic as well as new challenges the COVID-19 crisis has brought forward. Major areas of challenge include:

- Surveillance
- Patient care and healthcare system responses
- Digitalization
- Development and deployment of preventive measures, diagnostics and therapeutics
- Ethics, policy and economic strategies

3.3.1 Three Research Themes

In this first call for applications for MCID project funding, we seek to fund projects linked to three different themes. Together, these themes align to seek innovative developments for infectious disease research.



Theme 1
Investigation of infectious threats and underlying factors for susceptibility using an integrated One Health vision.

- Investigation of infectious threats on human and animal health, with a particular focus on:
    - One Health, zoonoses, spillover events, transmission routes, vectors, infections in resource-constrained countries and host-pathogen interfaces.
- Study of the impact of host-specific exacerbating factors, including:
    - Co-infections, co-morbidities, microbiota, immune status, social factors, age, sex, gender, ethnicity, and other demographic factors.
- Improvement of infectious disease tools and knowledge base suited to meet current and future threats:
    - Epidemiology, diagnostics, animal disease models (and non-animal alternatives), resistance.

Theme 2
Development of surveillance and preparedness strategies and tools for current, emerging, and future infectious disease risks

- Developing novel tools for pathogen surveillance

    - Epidemiology, and standardization of surveillance methods, phylogenetic epidemiology, hospital data, population dynamics, development of methods for statistics/modelling and data analysis.

- Preparedness tools
    - Diagnostics, therapeutics, drugs, prophylactic measures (including vaccines), experimental disease models.
- Developing policies that seek to:
    - Limit the spread of pathogens to protect both human and animal health, reduce infection burdens in resource-constrained countries, prevent resistance to treatments and that aim to increase the financial incentives to develop prophylaxes and treatments.

Theme 3

Solutions to address the impact of infectious diseases on animal life, human life and livelihoods, considering biomedical, social, ethical, and economical aspects.

- Solutions to combat the social and economic impact of infectious diseases, solutions for healthcare crisis management:
    - Socio-economic impact, society, shocks to the economy, financial incentives
- Developing an effective science-policy interface to address biotechnological advances in human and animal healthcare.
    - Policy, science-policy interface, crisis management
    - Solutions at the level of patient care and to limit the effect of potential exacerbating factors infectious disease susceptibility and severity:
    - Telemedicine/remote care delivery, neglected diseases, roll out of treatment plans, considering co-morbidities, age, sex, gender, ethnicity, and other demographic factors.

3.3.2 Submission guidelines for applicants

The MCID offers the possibility of project funding according to the three following modalities:

Please consult the MCID Project Funding Application Guidelines for details regarding eligibility for funding as well as a detailed description of the application process for each funding modality.
Deadline for all project funding modalities: **Tuesday, 14th September, 17.00 CEST.**

A. Multi-applicant submissions

Link to application form

The MCID accepts submissions for projects involving two or more applicants. In promoting multidisciplinarity and interdisciplinarity, we particularly encourage submissions of projects whose applicants:

- represent different scientific disciplines (especially across faculties) and/or
- have research interests that span more than one of the MCID academic discipline clusters.

Accordingly, multi-applicant projects may also span more than one theme.

Each co-applicant can be involved in up to two multi-applicant submissions but can only be lead applicant on one. Those eligible for Career Development Grants can be a co-applicant, but not the lead applicant, in a multi-applicant submission.
Given the anticipated complexity of these submissions, applicants are encouraged to submit a short project synopsis for a preliminary administrative check by the MCID office.
Incomplete or ineligible applications will not be considered.
Eligibility: applicants must be principal investigators employed by the University of Bern and/or the Bern University Hospital Inselspital, or affiliated institutes.
Project duration: 3 years (for permitted exceptions, see Application Guidelines).
Budget: the maximum total budget for multi-applicant projects is 240'000 CHF x n (where n is the number of applicants). This maximum budget is capped at 960'000 CHF. The total budget does not need to be evenly divided amongst applicants. For more details, see Application Guidelines.

B. Single-applicant submissions

Link to application form

The MCID supports mono-disciplinary scientific excellence. Single-applicant project submissions intended as precursors for application to highly competitive funding schemes (e.g. SNSF Sinergia, Innosuisse Discovery) will be prioritized.
Incomplete or ineligible applications will not be considered.
Only one single-applicant submission per person is allowed.
Eligibility: applicants must be principal investigators employed by the University of Bern and/or the Bern University Hospital Inselspital, or affiliated institutes.
Project duration: 3 years (for permitted exceptions, see Application Guidelines)
Budget: the maximum total budget for a single-applicant project is 200'000 CHF.

C. Career Development Grant (CDG) submissions

Link to application form

The MCID is committed to the support and promotion of non-tenured researchers who hold great promise as future academic leaders. The goal of the CDG scheme is to provide dedicated resources to support this talent pool on the path to independence.
The CDG is intended as a precursor for application to competitive career and/or project funding schemes.

Only one CDG submission per applicant is allowed. The submission can be made either as a single applicant or as part of a multi-applicant submission.

Eligibility for a CDG submission:

- At the time of submission, applicants must either already be affiliated to the University of Bern and/or the Bern-Inselspital or will become affiliated, at the very latest 2 months prior to the planned discharge of funds (January 2022).
- At the time of application, applicants must fulfill the following eligibility requirements:

Researchers:

a. have a doctorate (PhD) or an equivalent qualification.
b. have acquired at least three years of research experience after their doctorate or equivalent qualification.
c. defended their doctorate or obtained the equivalent qualification to a doctorate no later than eight years ago.
d. present a guarantee of employment at the University of Bern-Inselspital Group or affiliated institutes, for the duration of the grant.

Clinical scientists:

a. have a medical or veterinary exam (state examination or equivalent)
b. completed their medical exam no later than nine years ago.
c. have acquired at least three years of clinical work and were involved in research activities for at least two years after their medical or veterinary exam.
d. present guarantee of employment at the University of Bern-Inselspital Group or affiliated institutes, for the duration of the grant.

Project duration: 2-3 years.
Budget: the maximum total budget for a Career Development Grant is 240'000 CHF.

3.4 Reviewing process and announcement of reviewing outcomes

Four to six expert reviewers per theme will evaluate and rank the submitted proposals. A dedicated MCID Research Funding Committee (RFC) consisting of three reviewers (one per theme), the MCID Sounding Board and the MCID Chair and Deputy Chair, will then issue a final decision on acceptance or rejection of the proposal, within the scope of available funds.
All applicants will be notified of the outcome of the evaluation of their proposal(s) by **30. November 2021**.

For multi-applicant submissions only, those submitting a project synopsis can expect to receive feedback from the MCID Office within ten working days. Synopses can be submitted at the latest by **Wednesday 21st July 2021, 17.00 CEST**.