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**UNIVERSITY
OF BERN**

MCID
MULTIDISCIPLINARY CENTER
FOR INFECTIOUS DISEASES

Multidisciplinary Center for Infectious Diseases (MCID)

Brochure 2023

“The MCID brings together relevant competencies at the University of Bern to provide multidisciplinary solutions to better preparedness for future pandemics”



Prof. Dr. Christian Leumann
Rector, University of Bern

Impressum

Photography

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Contents

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The MCID is highly grateful to the Stiftung Vinetum for their generous funding of the Center.

STIFTUNG
vinetum

Introduction

The MCID is the newest strategic center of the University of Bern. It was founded in 2021 with the generous support of the Vinetum Foundation and is based at the Vetsuisse Faculty. The MCID is dedicated to the study and mitigation of health, healthcare, societal, ethical, and economic risks from infectious diseases.

The founding of the MCID was as a direct result of the SARS-CoV-2 pandemic, which revealed the threat that infectious diseases can pose not only to personal health and healthcare, but to all areas of modern life, regardless of individual circumstances. Research is needed to extract lessons from the past and from the ongoing pandemic and to investigate, develop and validate future preparedness approaches to infectious disease outbreaks and pandemic situations.

The MCID has 70 members from the University of Bern, Inselspital Bern and affiliated institutes. It is chaired by Prof. Dr. Volker Thiel and Prof. Dr. Carmen Faso and operations are overseen by a Directorate that includes the Chairs of the seven interdisciplinary scientific clusters.

As part of its first funding cycle (2022-2024) and in response to a funding call and stringent peer review process, the MCID supports 23 multi- and inter-disciplinary research projects. At the center of the MCID and in service to these projects lie three Core Activities: the BEready Cohort, the BioPreparedness BioBank and the Ethics and Policy Lab.

The MCID is active in public outreach and will fully launch teaching activities in 2023.

This brochure provides an overview of the MCID, its structure and activities. More information can be found on the [MCID website](#). Sign up to the [MCID newsletter](#) to receive quarterly news from the center.

MCID Aims

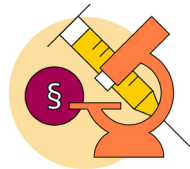
Determination of the Origin of Risks

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



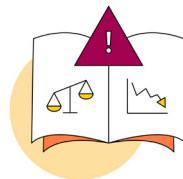
Preparation for Risks

We develop evidence-based sentinel and preparedness tools for emerging and future infectious disease risks.



Management of Risks

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



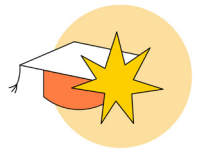
Collaboration

We are a dynamic community of multidisciplinary academic researchers that integrate scholarship and original research into infectious disease threats to inform effective, protective, and preventative responses.



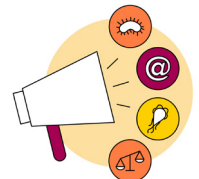
Fostering of Talent

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



Dissemination

We carry out training and education of specialists and the lay public to increase the success of an effective and coordinated response to an epidemic threat.



MCID Management

Directorate



Prof. Dr. Volker Thiel
(IVI / Vetsuisse)
MCID Co-Chair



Prof. Dr. Carmen Faso
(MCID / Vetsuisse / IZB / IFIK)
MCID Co-Chair



Prof. Dr. Rudolf Blankart
(KPM)
Chair, Economics



Prof. Dr. med. Nicola Low
(ISPM)
Chair, Epidemiology



Prof. Dr. Stephanie
Ganai-Vonarburg (DBMR)
Chair, Immunity



Prof. Dr. med. Stephen Leib
(IFIK)
Chair, Microbiology



Prof. Dr. Volker Heussler
(IZB)
Chair, Neglected diseases



Prof. Dr. med. Manuela Funke-
Chambour (Inselspital / DBMR)
Chair, Patient-Focused Research



Prof. Dr. Dr. Claus Beisbart
(PHILO)
Chair, Society and Law

Management Office



Dr. Rebecca Limenitakis
Managing Director



Dr. Anita Hochuli
Teaching and Outreach
Coordinator



Dr. Ushasri Sarma
Business Development
Manager

Scientific Clusters

Economics

Producing real-time indicators for the economic consequences of infectious diseases and evidence-based recommendations to prepare for future pandemics



Epidemiology

Focusing on infections and infectious diseases at the population level



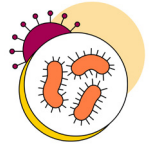
Immunity

Investigating functional immune responses in mammals to micro-organism challenge



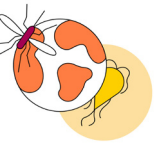
Microbiology

Pursuing diverse aspects of research on microbial pathogens that cause infectious disease, including those with pandemic potential



Neglected diseases

Applying advanced modeling and cutting-edge imaging approaches to understand co-infections and co-morbidity with other diseases



Patient-Focused Research

Pursuing evidence-based patient-oriented research in vulnerable populations



Society and Law

Meeting the challenge of unknown infectious diseases at a broader, societal level, while maintaining democratic decision making and ethically acceptable practices



Core Activities

BEready Cohort

BEready is a participatory project in which people from the canton of Bern will be able to play an active role in infectious disease research.

BEready, «Bern, get ready», is a Canton of Bern-wide Cohort being established through MCID funding to allow monitoring of infectious diseases in the Bernese population. A lack of population-wide infectious disease monitoring in Switzerland, as elsewhere, is likely to have hampered early detection of Covid-19 in the population and thus delayed the adoption of measures to prevent disease spread, as well delaying provision of samples for diagnostic analysis and necessary research. This Cohort will contribute to better preparedness, not least by allowing a rapid reaction to newly emerging infections. The BEready team is led by Prof. Dr. med. Nicola Low and Prof. Dr. med. Gilles Wandeler. Prof. Dr. Annika Frahsa is responsible for community engagement and Dr. Eva Maria Hodel and Ms. Selina Wegmüller manage BEready Cohort activities.

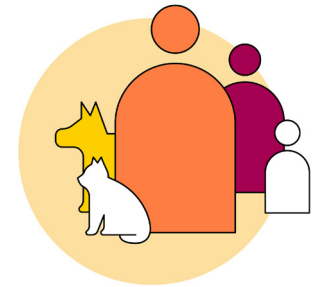
BEready is a prospective population-based cohort study; randomly selected households, consisting of adults, children and pets throughout the canton of Bern will be invited to participate. Cohort members will be followed up at regular intervals over a period of several years, filling out questionnaires and collecting biological samples from themselves and their pets.

BEready Cohort aims

The BEready study has three main aims:

- i) To understand how the population of the canton of Bern has been and continues to be affected by Covid-19.
- ii) To establish how common and widespread different infections are. Linked to this, and focusing initially on respiratory infections, what factors make certain infections more likely to occur? What are factors that keep people healthy and reduce the likelihood of infection? What are the possible social and economic consequences of infectious diseases?
- iii) To become and be maintained as a platform for infectious disease research, which can be used by researchers at the MCID and other institutions to study infectious diseases.

BEready is a participatory project in which people from the canton of Bern will be able to play an active role. Together with the community, the Cohort will answer questions about infectious diseases that are important and relevant to them.



BEready Cohort Team



Prof. Dr. med. Nicola Low
Lead



Prof. Dr. med. Gilles Wandeler
Lead



Dr. Eva Maria Hodel
Manager



Ms. Selina Wegmüller
Manager

Contact

beready.mcid@unibe.ch

More information

www.beready.unibe.ch

Follow us

Twitter: [@BEreadyCohort](https://twitter.com/BEreadyCohort)

Core Activities

BioPreparedness BioBank



The BioPreparedness BioBank guarantees the quality, safety and traceability of high-consequence pathogens stored within its facilities

The BioPreparedness Biobank enables the storage and the provision of highly pathogenic biologic agents, following a «One Health» approach. The biobank is populated by bacteria, viruses, fungi and parasites collected from routine diagnostics, available from reference laboratories and received in the framework of collaborative research. Furthermore, a yeast-based synthetic genomics pipeline enables the safe and contained production of viral genomes and their mutated derivatives, which are then stored within the BioPreparedness Biobank facilities. Collaborations with the Spiez Laboratory and the Institute of Virology and Immunology allow curation of pathogens of the highest risk category and leads to coordinated efforts to standardize and centralize pathogen sample management through the BioPreparedness Biobank.

Services

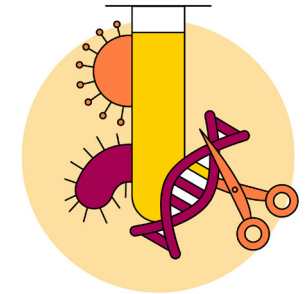
MCID members have facilitated access to Biobank services:

- Access to a centralized and curated inventory of the Biobank's high consequence pathogens
- Production of synthetic viral genomes in yeast
- Deposition, freezing and long-term storage of pathogens in a biosafety level (BSL)-3 facility or BSL-4 facility (Spiez Laboratory) including regulatory aspects (biosafety, material transfer agreement (MTA), Ecogen application)
- Identification of pathogens through sequencing or mass spectrometry
- Transport or shipment of pathogens including packaging according to biosafety requirements and regulatory aspects (MTA, Nagoya protocol)

Significance

The BioPreparedness Biobank guarantees the quality, safety and traceability of the managed pathogens through dedicated qualified personnel, standardized processes, an efficient Biobank Information Management System (BIMS) and automated storage system (SAM-HD in BSL-3 laboratory).

The participation in and recognition by Swiss and international networks allow for the combined promotion of the Biobank inventory and MCID research. Supporting the reception, management, storage and shipment of pathogens in a controlled and standardized manner, the BioPreparedness BioBank provides a reliable and efficient basis for advancing MCID research on high-consequence pathogens.



BioPreparedness BioBank Team



Prof. Dr. med. Stephen Leib
Lead



Prof. Dr. med. vet. Jörg Jores
Lead



Dr. med. Peter Keller
Coordinator



Dr. Aline Dousse-Bussard
Manager

Contact

biobank.mcid@unibe.ch

More information

Via [MCID website](#)

Core Activities

Ethics and Policy Lab

The EPL supports MCID researchers in investigating the ethical dimensions of their research and in better understanding decision-making processes in politics and public administration

Tackling infectious diseases requires policymakers and scientists to work together. Policy solutions involve trade-offs between values and can lead into ethical dilemmas, which need to be examined for effective interaction between science and policy.

Aims

The Ethics & Policy Lab (EPL) has two main aims:

- i) To analyse the ethical dimensions of research and policy responses on infectious diseases and to develop constructive solutions for dealing with related ethical conflicts.
- ii) To feed MCID-funded research outcomes into public policy and to facilitate political decisions that are based on scientific evidence.

The EPL will work with MCID researchers and with policymakers to achieve these aims.

It will support MCID researchers to investigate the ethical dimensions of their research and to better understand decision-making processes in politics and public administration. Together with scientists, we aim to translate relevant findings into policy propositions.

We collaborate with public administration and political decision-makers to design ethical and evidence-based policy solutions.

We also conduct own research on ethical and political aspects of infectious disease management, as well as on the use of science in policymaking.

Services

Our services to MCID researchers include trainings on public policy and ethics, advice on how to engage in policymaking, support in reflecting upon ethical issues, in drafting policy recommendations, policy briefs or white papers, as well as in identifying ethical aspects and policy-relevant research within the MCID.

Our services to policymakers include applied research, policy evaluations, advice on feasible, ethics-based and socially accepted policy measures, on policy implementation, on ethical aspects of infectious disease management, and on preparedness for future public health crises.



Ethics and Policy Lab Team



Prof. Dr. Fritz Sager
Lead



Prof. Dr. Dr. Claus Beisbart
Lead



Dr. Caroline Brall
Manager, Ethics



Dr. Caroline Schläufer
Manager, Policy

Contact

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Policy:
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More information

Via [MCID website](#)

MCID-funded projects

Investigation of infectious threats and underlying factors for susceptibility using an Integrated One Health vision

Theme: Investigation

Deciphering the interplay between viral proteins and host cell mRNA metabolism [🔗](#)

Dr. Evangelos Karousis (DCBP*)

Co-infection of Hepatitis B virus (HBV) and malaria: from population level to immunological and cellular interaction [🔗](#)

Prof. Dr. Volker Heussler (IZB), Prof. Dr. med. Gilles Wandeler (ISPM / Inselspital), Prof. Dr. Olivier Guenat (ARTORG)

Role of sheep and rodent reservoirs for Wesselsbron, a neglected zoonotic flavivirus [🔗](#)

Prof. Dr. Charaf Benarafa (IVI / Vetsuisse), Dr. Obdulio Garcia-Nicolas (IVI / Vetsuisse*)

Interplay of infections and the microbiota on outcomes for host health [🔗](#)

Prof. Dr. med. Andrew Macpherson (DBMR / Inselspital), Prof. Dr. Volker Heussler (IZB)

An integrative One Health network to monitor and characterize influenza A viruses circulating in the human and pig population [🔗](#)

PD Dr. Ronald Dijkman (IFIK), Prof. Dr. med. Andri Rauch (Inselspital), Prof. Dr. med. vet. Heiko Nathues (Swine Clinic, Vetsuisse), Dr. Jenna Kelly (IVI / Vetsuisse*), Prof. Dr. med. Philipp Latzin (Kinderklinik), Prof. Dr. med. Manuela Funke-Chambour (DBMR / Inselspital), Prof. Dr. med. Gilles Wandeler (ISPM / Inselspital), Dr. med. Cédric Hirzel (Inselspital), PD Dr. Franziska Suter-Riniker (IFIK)

Klebsi-mAb: characterisation of intestinal antibody responses [🔗](#)

Dr. Tim Rollenske (DBMR*)

*Recipients of Career Development Grants / Early Career Research Grants for Women

Confronting the rising epidemic of the zoonotic tick-borne encephalitis virus [🔗](#)

Prof. Dr. med. Stephen Leib (IFIK), PD Dr. Marco Alves (IVI / Vetsuisse)

The evolution of senescence and insecticide resistance in vector populations [🔗](#)

Prof. Dr. Deborah Stroka (DBMR / Inselspital)

Theme: Development

menoBalance App: Use of AI methods to design a personalised chronic and infectious disease management medical device [🔗](#)

Prof. Dr. med. Petra Stute (Inselspital), Prof. Dr. David Ginsbourger (IMSV), Dr. Ben Spycher (ISPM), Dr. Rowan Iskandar (SITEM)

Boosting influenza-specific adaptive responses using an adjuvant composed of bacterial lysates [🔗](#)

Dr. Emilie Seydoux (Inselspital / DBMR*)

Tailor-made bacteriophages: treatment of infections caused by multi-drug resistant bacteria [🔗](#)

Dr. Fabien Labrousseau (IVB, Vetsuisse Faculty), Prof. Dr. med. Stephen Leib (IFIK)

Early detection for early action: integrating multiple data sources for monitoring the SARS-CoV-2 epidemic in near real-time [🔗](#)

PD Dr. Christian Althaus (ISPM), Prof. Dr. med. Guido Beldi (Inselspital / DBMR), Dr. med. Julien Riou (ISPM*), Prof. Dr. Raphael Sznitman (ARTORG), Dr. Alban Ramette (IFIK), Prof. Dr. Kevin Heng (CSH), Prof. Dr. Alexander Leichtle (Inselspital)

Liposomal nanotraps: non-antibiotic compounds for the treatment of enteropathogenic infections in humans and farm animals [🔗](#)

Dr. Eduard Babychuk (Anatomy)

WildGuARDS- Accessing the "Garden Wildlife black box" to improve One Health and infectious disease epidemiology [🔗](#)

Dr. med. vet. Saskia Keller (FIWI, Vetsuisse*)

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

Preparedness for surveillance in school rooms: multiple measure approach to estimate transmission and interventions for Covid-19 and seasonal influenza [🔗](#)

Prof. Dr. med. Lukas Fenner (ISPM), Prof. Dr. med. Philipp Jent (Inselspital), Dr. Pascal Bittel (IFIK), Prof. Dr. Tina Hascher (IES)

Theme: Solutions

Ethical Considerations of the Relationship and Interactions between Science, Policy and the Media during the COVID-19 pandemic [🔗](#)

Dr. Bettina Zimmermann (Philosophy*)

Divided pandemic society and Public Health. Polarization in the Covid-19 pandemic response in Switzerland [🔗](#)

Prof. Dr. Annika Frahsa (ISPM), Prof. Dr. Markus Freitag (Political Science), Prof. Dr. med. Nicola Low (ISPM)

Preparing the mainstream media for the next pandemic – understanding under which conditions conspiracy-related mainstream media content fosters conspiracy beliefs [🔗](#)

Prof. Dr. Silke Adam (ICMB)

A decision-making framework under severe uncertainty for optimizing future pandemic responses [🔗](#)

Dr. Rowan Iskandar (SITEM)

Blame deflection during the Covid-19 crisis [🔗](#)

Dr. Susanne Hadorn (KPM*)

Comparing the crisis resilience of national policy advisory systems during Covid-19 [🔗](#)

Prof. Dr. Fritz Sager (KPM)

Overcoming barriers to breastfeeding in Switzerland during infectious disease pandemics [🔗](#)

Dr. Jessica Laine Carmeli (ISPM*)

Covid-19: Science, Narratives and Policy [🔗](#)

Dr. Caroline Schlauffer (KPM*)

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



“Preparedness for infectious disease threats requires not only research but also dissemination to the next generation of researchers, to specialists and to the public”



Prof. Dr. Carmen Faso
Co-Chair, MCID



Prof. Dr. Volker Thiel
Co-Chair, MCID

Teaching

The MCID is committed to teaching, with a dedicated budget for the education of undergraduate and postgraduate students, as well as specialists. With a focus on interdisciplinary teaching and sustainability of knowledge related to pandemic preparedness, MCID teaching activities will launch in earnest in 2023 and will include:

MCID seminar series (from Spring 2023)

Featuring MCID experts and external speakers

MCID colloquium: how do we prepare for the next pandemic? (from Autumn 2023)

A multi-discipline, interactive introduction to pandemic preparedness for bachelor students

MCID Module in pandemic preparedness (from 2024)

An agile teaching module on pandemic preparedness covering all MCID disciplines and designed for integration into postgraduate courses offered of all University of Bern faculties

MCID Summer school (from 2023/2024)

Hands-on training led by expert researchers on a range of infectious agents and covering societal as well as biomedical experts of infectious disease research

Workshops on Public Policy (from Autumn 2022)

Educating researchers on ethics in research and on the translation of research findings into public policy, both generally and with a focus on Switzerland

MCID Exchange program (under development)

Facilitating exchange of expertise and promoting cross-discipline interaction

Outreach

As part of its mission to train and educate specialists and the lay public on the subject of infectious diseases and effective responses to combat them, the MCID is active in outreach.

MCID SARS CoV-2 Omicron variant event

The MCID held its first public event in December 2021 in response to the appearance and spread of the SARS-CoV-2 variant Omicron. Experts from the MCID / University of Bern presented and answered questions on topics including the detection, spread, characteristics and impacts of the variant. The event was attended online by more than 500 people.

Mpox (formerly Monkeypox) event

With the rapid spread of monkeypox in Switzerland and worldwide, the MCID held a monkeypox information event in June 2022 via Twitter Spaces. Experts from the MCID and guest speakers gave insight into monkeypox and the current status of this spreading infection. This was followed by a Q&A session with questions from listeners.

MCID @ University of Bern Night of Research

«Attention, infectious»

The MCID contributed to the 4th Night of Research held by the University of Bern in September 2022 with activities for adults and children on subjects including mental health during the Covid-19 pandemic, hand cleanliness, ethical dilemmas and testing of pathogen knowledge.

If you would like to be kept informed about future outreach events, [register here for updates](#).



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