

Annual Report 2023

Multidisciplinary Center for Infectious Diseases (MCID)



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MCID Organisation

The Multidisciplinary Center for Infectious Diseases (MCID) is a strategic center of the University of Bern, founded in 2021 through the generous support of the Stiftung Vinetum. The MCID is dedicated to the study and mitigation of healthcare, societal, ethical, and economic risks from infectious diseases. The MCID brings together high impact academic researchers and is active in research, teaching and both national and international outreach.



People

- 78 Full Members
- 8 Postdoctoral researchers / staff scientists
- 19 PhD students

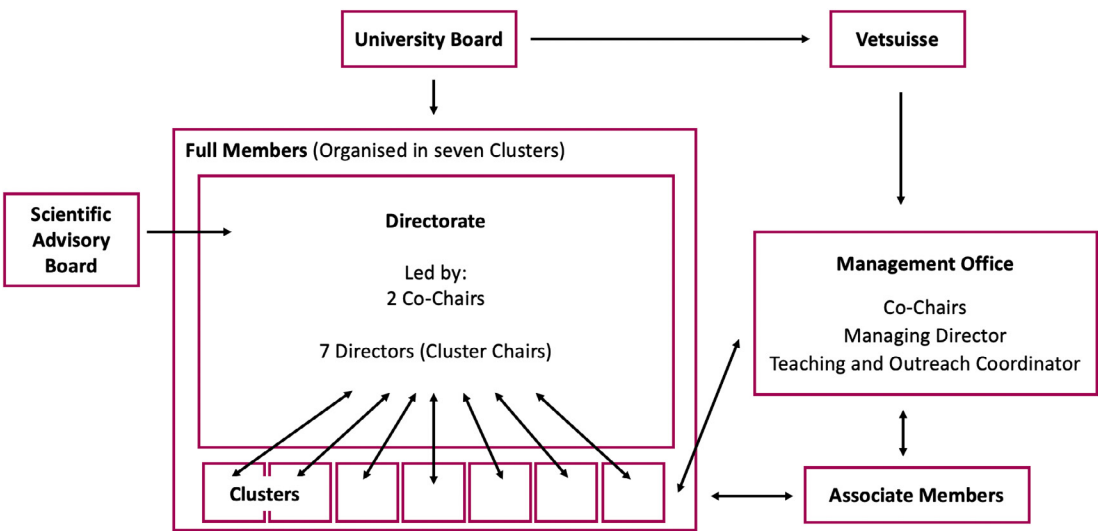
Organisation

- 7 Research Clusters
- 3 Core Activities

Research (to date)

- 23 MCID-funded research projects
- 11 Recipients of MCID early career researcher funding
- 10 Interdisciplinary projects
- 48 Recipients of MCID project funding
- 8.4 Mio CHF project funding distributed to date
- >1.5 Mio CHF Third party-funding obtained by MCID Members to extend MCID-funded research
- >5.5 Mio CHF Third party-funding obtained by MCID Members for topically relevant research

Organigramm



MCID 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 Ganal-Vonburg (DBMR)
Chair, Immunity



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



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



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



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

MCID Management Office



Prof. Dr. Volker Thiel
MCID Co-Chair



Prof. Dr. Carmen Faso
MCID Co-Chair



Dr. Rebecca Limenitakis
MCID Managing Director



Dr. Anita Hochuli
MCID Teaching and Outreach Coordinator

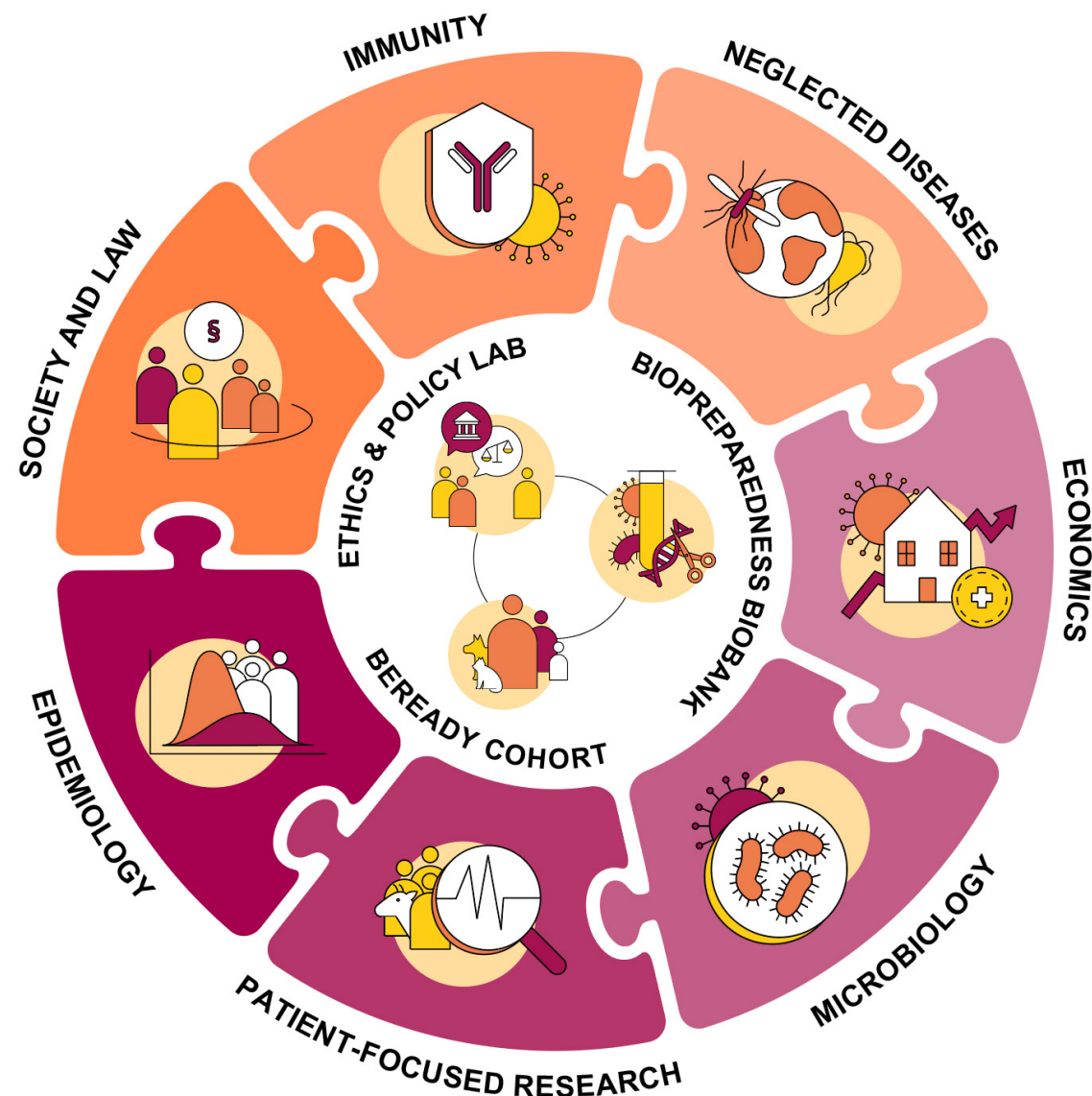
MCID Scientific Advisory Board

- Prof. Dr. med. Steffen Borrmann**, Institute of Tropical Medicine, Universitätsklinikum Tübingen
- Prof. Dr. med. Ralf Jox**, Faculty of Biology and Medicine, University of Lausanne
- Prof. Dr. Salomé LeibundGut-Landmann**, Vetsuisse Faculty, University of Zürich
- Prof. Dr. Céline Mavrot**, Institute of Social Sciences, University of Lausanne
- Prof. Dr. Aleksandra Torbica**, Department of Social and Political Sciences, Bocconi University
- Dr. Maria van Kerkhove**, World Health Organisation
- Prof. Dr. med. Christophe von Garnier**, Division of Pulmonology, CHUV, University of Lausanne
- Dr. David Wentworth**, Centers for Disease Control and Prevention, Atlanta
- Prof. Dr. Nadia Mercader Huber**, Institute of Anatomy, University of Bern
- Prof. Dr. Oliver Mühlemann**, Department of Chemistry, Biochemistry and Pharmaceutical Sciences, University of Bern

MCID Research Structure

Core Activities and Clusters

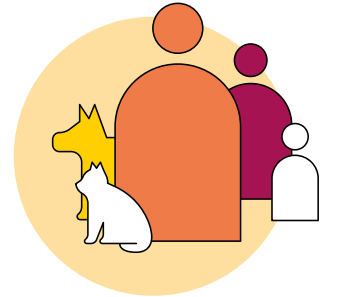
The MCID is comprised of seven interconnected scientific discipline clusters that bring together subject area excellence, fostering innovative, multi- and interdisciplinary investigations. At the heart of the MCID and in service to the specialist clusters, lie the MCID's three founding Core Activities: the BEready Cohort, the BioPreparedness BioBank and the Ethics and Policy Lab.



MCID Core Activities

BEready Cohort

BEready is a Canton of Bern population cohort study, collecting essential longitudinal data to improve knowledge about existing infectious diseases and preparedness for emerging health threats. BEready, currently in its pilot phase, plans to enroll approximately 5,000 households, including adults, children and pets. The research platform will use innovative decentralized data-collection methods, a flexible and novel bioinformatics infrastructure, and a biobank including human and animal samples.



BEready Cohort Core Team

Prof. Dr. med. Nicola Low, Institute of Social and Preventive Medicine (ISPM)
 Prof. Dr. med. Gilles Wandeler, Department of Infectious Diseases, Inselspital / ISPM
 Dr. Eva Maria Hodel, ISPM
 Selina Wegmüller, ISPM

Milestones 2023

Approval for pilot cohort study by ethical committee and veterinary office, March 2023
 Enrolment of pilot study participants completed, April 2023
 Engagement in Pint of Science Bern by BEready Cohort team, May 2023
 Awarding of VITA label (for ethical and legal standards compliance) by Swiss Biobanking Platform, June 2023
 Presentation of BEready Cohort and workshop at MCID Annual Event, July 2023
 Awarding of NORMA label (for operational harmonization) by Swiss Biobanking Platform, September 2023
 "Briefing aus dem Berner Grossen Rat: Vorbereitung und Reaktion auf Pandemien", December 2023
 Presentation of BEready Cohort to "Seniorenuniversität" by Eva Maria Hodel, December 2023

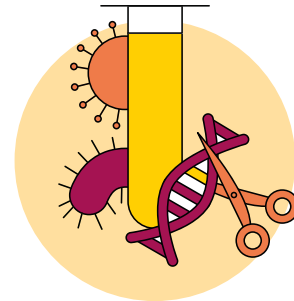
Further information

BEready Cohort website [🔗](#)
 Article in The SPREAD (MCID newsletter) [🔗](#)
 Contact: BEready.mcid@unibe.ch

MCID Core Activities

BioPreparedness BioBank

The BioPreparedness Biobank enables the safe storage and provision of highly pathogenic biological agents. 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 on a long-term basis within the BioPreparedness Biobank facilities.



BioPreparedness Biobank Team

Prof. Dr. med. Stephen Leib, Institute of Infectious Diseases (IFIK)
 Prof. Dr. med. vet. Jörg Jores, Institute for Veterinary Bacteriology
 Dr. Aline Dousse-Bussard, IFIK

Milestones 2023

Awarding of VITA label (for ethical and legal standards compliance) by Swiss Biobanking Platform, March 2023
 Presentation of BioPreparedness BioBank and workshop at MCID Annual Event, July 2023
 Synthetic genomics platform links to MCID-funded projects: successful generation of Wesselsbron virus clone ([Q](#)) and synthetic phages ([Q](#))

Further information

via MCID website [Q](#)
 Contact: mcid.biobank@unibe.ch



MCID Core Activities

Ethics and Policy Lab

The main aims of the Ethics and Policy Lab (EPL) are to bridge the gap between science and public policy and to make ethical dimensions of research and policy decisions transparent. To do so, the EPL offers a variety of services to MCID researchers and to policymakers. The EPL is also active in conducting basic research on political and ethical aspects of infectious diseases, as well as applied research and policy evaluations on behalf of public administration.



Ethics and Policy Lab Team

Prof. Dr. Dr. Claus Beisbart, Institute of Philosophy
 Prof. Dr. Fritz Sager, KPM Center for Public Management (KPM)
 PD Dr. Caroline Schlauffer, KPM
 Dr. Caroline Brall, Institute of Philosophy

Milestones 2023

Ethics and Policy Lab workshop on ethical dimensions of research, March 2023
 Awarding of SNSF NRP79 funding to EPL, March 2023
 EPL awarded Food Safety and Veterinary Office mandate, April 2023
 Franxini boot camp on politics, June 2023
 Presentation at HealthCom 2023 by EPL Ethics Manager, Caroline Brall, June 2023
 Presentation of Ethics and Policy Lab and workshop at MCID Annual Event, July 2023

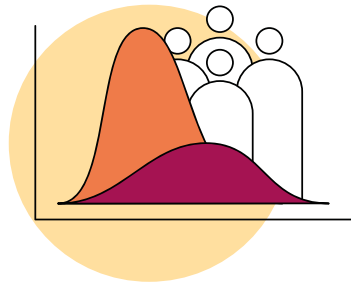
Further information

via MCID website [Q](#)
 Articles in The SPREAD (MCID newsletter): Ethics [Q](#), Policy [Q](#)
 Contact, Ethics: caroline.brall@unibe.ch
 Contact, Policy: caroline.schlauffer@unibe.ch

MCID Research Clusters

Epidemiology

The Epidemiology cluster focuses its research on infections and infectious diseases at the population level, studying the distribution of, and factors affecting, infections and disease in time, place and person (or animal), and the effects of interventions for prevention and control. Cluster members use a wide range of methods for study design and analysis, including field epidemiology, biostatistics, mathematical modelling and genomic epidemiology.



Cluster Members

Chair: Prof. Dr. med. Nicola Low, Institute of Social and Preventive Medicine (ISPM)
Co-Chair: Prof. Dr. med. Gilles Wandeler, Department of Infectious Diseases, Inselspital / ISPM
PD Dr. Christian Althaus, ISPM
PD Dr. med. Salome Dürr, Veterinary Public Health Institute (VPH)
Prof. Dr. Lukas Fenner, ISPM
Prof. Dr. Kevin Heng, Center for Space and Habitability
Dr. Eva Maria Hodel, ISPM
Dr. Jessica Laine Carmeli, ISPM
Prof. Dr. med. vet. Heiko Nathues, Swine Clinic: Department of Clinical Veterinary Medicine
Dr. med. vet. Saskia Keller, Institute for Fish and Wildlife Health
Dr. med. Julien Riou, ISPM
Prof. Dr. Georgia Salanti, ISPM
Prof. Dr. med. vet. Simone Schuller, Small Animal Clinic
Prof. Dr. Gertraud Schüpbach, VPH
PD Dr. Ben Spycher, ISPM
Prof. Dr. Ana Maria Vicedo Cabrera, ISPM
Former Cluster Member: Prof. Dr. Emma Hodcroft (now Swiss TPH)

Highlighted Publications (*)

Riou, J., Hauser, A., Fesser, A., Althaus, C.L., Egger, M., Konstantinoudis, G. (2023). Direct and indirect effects of the COVID-19 pandemic on mortality in Switzerland. Nature communications. [🔗](#)

Heron, L., Mugglin, C., Zürcher, K., Brumann, E., Keune-Dübi, B., Low, N., Fenner, L. (2023). Contact tracing for COVID-19 in a Swiss canton: analysis of key performance indicators. Swiss medical weekly. [🔗](#)

Schüpbach, G., Cunha Silva, L., Buzzell-Hatav, A. (2023). Surveillance plan proposal for early detection of zoonotic pathogens in ruminants. EFSA supporting publications. [🔗](#)

Lüthi, S., Fairless, C., Fischer, E.M., ... Vicedo-Cabrera, A.M. (2023). Rapid increase in the risk of heat-related mortality. Nature communications. [🔗](#)

******Banholzer, N., Zürcher, K., Jent, P., Bittel, P., Furrer, L., Egger, M., Hascher, T., Fenner, L. (2023). SARS-CoV-2 transmission with and without mask wearing or air cleaners in schools in Switzerland: A modeling study of epidemiological, environmental, and molecular data. PLoS medicine. [🔗](#)

* MCID Epidemiology Cluster Members underlined
** MCID-funded research (MCID Members underlined)

MCID-funded projects (*)

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). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

WildGuARDS- Accessing the “Garden Wildlife black box” to improve One Health and infectious disease epidemiology
Dr. med. vet. Saskia Keller (FIWI). *More information:* [🔗](#)

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). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

Overcoming barriers to breastfeeding in Switzerland during infectious disease pandemics
Dr. Jessica Laine Carmeli (ISPM). *More information:* [🔗](#)

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), 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). *More information:* [🔗](#)

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), PD Dr. Ben Spycher (ISPM), Dr. Rowan Iskandar (SITEM). *More information:* [🔗](#)

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). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

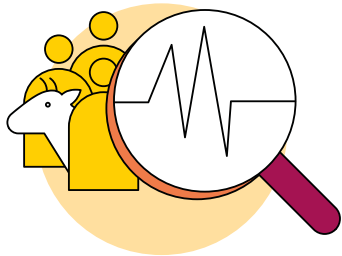
Co-infection of Hepatitis B virus (HBV) and malaria: from population level to immunological and cellular interaction
Prof. Dr. Volker Heussler (IZB), Prof. Dr. med. Gilles Wandeler (ISPM / Inselspital), Prof. Dr. Olivier Guenat (ARTORG). *More information:* [🔗](#)



MCID Research Clusters

Patient-Focused Research

Pursuing evidence-based patient-oriented research in vulnerable populations. Infectious disease pandemics raise significant and novel challenges to the organization and practice of patient care. The Cluster Patient-Focused Research pursues research of salient patient-centred issues involved in preparing for and responding to pandemic disease.



Cluster Members

Chair: Prof. Dr. med. Manuela Funke-Chambour, Department of Pulmonary Medicine, Inselspital and Lung Precision Medicine, Department of Biomedical Research
Co-Chair: Prof. Dr. med. Thomas Sauter, Department of Emergency Medicine, Inselspital
Prof. Dr. med. Christoph Aebi, Pediatric Infectious Disease Unit, Inselspital
Prof. Dr. med. Lia Bally, Department of Diabetes, Endocrinology & Nutritional Medicine, Inselspital
Prof. Dr. med. Guido Beldi, Department of Visceral Surgery & Medicine, Inselspital
Prof. Dr. David Ginsbourger, Institute of Mathematical Statistics and Actuarial Science
PD Dr. med. Gunar Günther, Department of Pulmonary Medicine, Inselspital
Dr. med. Philipp Jent, Department of Infectious Diseases, Inselspital
Prof. Dr. med. Alexander Leichtle, University Institute of Clinical Chemistry, Inselspital
Prof. Dr. med. Philippe Schucht, University Clinic for Neurosurgery, Inselspital
Prof. Dr. med. Katharina Stegmayer, University Hospital of Psychiatry & Psychotherapy
Prof. Dr. med. Petra Stute, Department of Obstetrics and Gynecology, Inselspital
Prof. Dr. Raphael Sznitman, ARTORG center for Biomedical Engineering Research



* MCID Patient-Focused Research Cluster Members underlined

Highlighted Publications (*)

Lenoir, A., Christe, A., Ebner, L., Funke-Chambour, M. (2023). Pulmonary Recovery 12 Months after Non-Severe and Severe COVID-19: The Prospective Swiss COVID-19 Lung Study. *Respiration*. [🔗](#)

Michel, J., Schmid, S., Aebersold, E.R., Mettler, A., Sauter, T.C. (2023). Did the pandemic influence telehealth use among Swiss emergency department patients? A sequential explanatory study. *BMJ open*. [🔗](#)

Jakob, M.O. Spari, D., Sánchez Taltavull, D., Beldi, G. (2023). ILC3s restrict the dissemination of intestinal bacteria to safeguard liver regeneration after surgery. *Cell reports*. [🔗](#)

Günther, G., Guglielmetti, L., Leu, C., Lange, C., van Leth, F. (2023). Availability and costs of medicines for the treatment of tuberculosis in Europe. *Clinical microbiology and infection*. [🔗](#)

Hartnack, S., Nilius, H., Jegerlehner, S., Suter-Riniker, F., Bittel, P., Jent, P., Nagler, M. (2023). Determination of the Diagnostic Performance of Laboratory Tests in the Absence of a Perfect Reference Standard: The Case of SARS-CoV-2 Tests. *Diagnostics*. [🔗](#)

Atkinson, A., Ellenberger, B., Piezzi, V., Kaspar, T., Leichtle, A.B., Marschall, J. (2023). Extending outbreak investigation with machine learning and graph theory: Benefits of new tools with application to a nosocomial outbreak of a multidrug-resistant organism. *Infection control and hospital epidemiology*. [🔗](#)

MCID-funded projects (*)

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 (SITE). *More information:* [🔗](#)

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

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). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

MCID Research Clusters

Society and Law

Meeting the challenge of unknown infectious diseases at a broader, societal level, while maintaining democratic decision making and ethically acceptable practices: The aim of the Society and Law cluster is to investigate social factors that influence a pandemic, social consequences of wide-spread infectious diseases and actual and possible societal reactions to these threats with the ultimate aim of informing and guiding future decision making. The cluster combines the perspective of social science with methods from legal analysis and ethics..



Cluster Members

Chair: Prof. Dr. Dr. Claus Beisbart, Institute of Philosophy
Co-Chair: Prof. Dr. Fritz Sager, KPM Center for Public Management (KPM)
Prof. Dr. Silke Adam, Institute of Communication and Media Studies
Dr. Caroline Brall, Institute of Philosophy
Prof. Dr. Mirjam Eggen, Institute of Civil Law
Prof. Dr. Annika Frahsa, Institute of Social and Preventive Medicine
Dr. Susanne Hadorn, KPM
Prof. Dr. Markus Freitag, Institute of Political Science
Prof. Dr. Tina Hascher, Institute of Educational Science
Prof. Dr. Andreas Müller, Institute of Philosophy
PD Dr. Caroline Schläufer, KPM
Dr. Bettina Zimmermann, Institute of Philosophy

Highlighted Publications (*)

Mavrot, C., Sager, F. (2023). Blame-avoidance and fragmented crisis management during the COVID-19 pandemic in Switzerland. European policy analysis. [🔗](#)

Adam, S., Urman, A., Arlt, D., Gil-Lopez, T., Makhortykh, M., Maier, M. (2023). Media Trust and the COVID-19 Pandemic: An Analysis of Short-Term Trust Changes, Their Ideological Drivers and Consequences in Switzerland. Communication research. [🔗](#)

Sager, F., Hadorn, S., Schläufer, C. (2023). Evidence-Based Policy. In: van Gerven, Minna; Rothmayr Allison, Christine; Schubert, Klaus (eds.) Encyclopedia of Public Policy. [🔗](#)

Hahn, L., Thiel, A., Trüb, D., Eschweiler, G.W., Nieß, A.M., Sudeck, G., Frahsa, A. (2023). Patterns of physical activity among nursing home residents before and during the Covid 19 pandemic-a systematic observation. European review of aging and physical activity. [🔗](#)

Filsinger, M., Hofstetter, N., Freitag, M. (2023). The emotional fabric of populism during a public health crisis: How anger shapes the relationship between pandemic threat and populist attitudes. European political science review. [🔗](#)

Brall, C., Porz, R., Jox, R.J. (2023). Clinical ethics during the COVID-19 pandemic in Switzerland. Swiss medical weekly SMW supporting association. [🔗](#)

Zimmermann, B.M., Buyx, A., McLennan, S. (2023). Newspaper coverage on solidarity and personal responsibility in the COVID-19 pandemic: A content analysis from Germany and German-speaking Switzerland. SSM - Population Health. [🔗](#)

* MCID Society and Law Cluster Members underlined

MCID-funded projects (*)

Ethical Considerations of the Relationship and Interactions between Science, Policy and the Media during the COVID-19 pandemic

Dr. Bettina Zimmermann (Philosophy). *More information:* [🔗](#)

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). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

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). *More information:* [🔗](#)

Blame deflection during the Covid-19 crisis

Dr. Susanne Hadorn (KPM). *More information:* [🔗](#)

Comparing the crisis resilience of national policy advisory systems during Covid-19

Prof. Dr. Fritz Sager (KPM). *More information:* [🔗](#)

Covid-19: Science, Narratives and Policy

Dr. Caroline Schläufer (KPM). *More information:* [🔗](#)

Preparedness for surveillance in school rooms: multiple measure approach to estimate transmission and interventions for Covid-19 and seasonal influenza

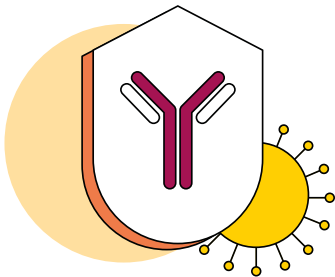
Prof. Dr. med. Lukas Fenner (ISPM), Prof. Dr. med. Philipp Jent (Inselspital), Dr. Pascal Bittel (IFIK), Prof. Dr. Tina Hascher (IES). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)



MCID Research Clusters

Immunity

The Immunity cluster investigates functional immune responses in mammals to micro-organism challenge across species and between different individuals of the same species living under different environmental conditions asking the core question why responses are different between species and within a species according to genetics and different lifetime environmental influences.



Cluster Members

Chair: Prof. Dr. Stephanie Ganal-Vonarburg, Department of Biomedical Research (DBMR) / Department of Visceral Surgery and Medicine (UVCN), Inselspital
Co-Chair: Prof. Dr. Artur Summerfield, Institute of Virology and Immunology (IVI) / Department of Infectious Diseases and Pathobiology
Prof. Dr. Martin Bachmann, DBMR
Prof. Dr. Olivier Guenat, ARTORG Center for Biomedical Engineering Research
Prof. Dr. Siegfried Hapfelmeier-Balmer, Institute of Infectious Diseases
Dr. med. Cédric Hirzel, Department of Infectious Diseases, Inselspital
Prof. Dr. Sebastian Leidel, Department of Chemistry, Biochemistry and Pharmaceutical Sciences
Prof. Dr. med. Andrew Macpherson, UVCN / DBMR
Prof. Dr. Tim Rollenske: DBMR / Institute of Molecular Medicine & Experimental Immunology, University of Bonn
Dr. Emilie Seydoux, Division of Pediatric Respiratory Medicine and Allergology, Inselspital / DBMR



* MCID Immunity Cluster Members underlined

Highlighted Publications (*)

van Os, L., Engelhardt, B., Guenat, O.T. (2023). Integration of immune cells in organs-on-chips: a tutorial. *Frontiers in Bioengineering and Biotechnology*. [🔗](#)

Herzog, M.K.-M.; Cazzaniga, M., Peters, A.,, Hapfelmeier, S.H., (2023). Mouse models for bacterial enteropathogen infections: insights into the role of colonization resistance. *Gut microbes*. [🔗](#)

Ruggeri, T., De Wit, Y., Schärz, N., Hirzel, C., (2023). Immunothrombosis and complement activation contribute to disease severity and adverse outcome in COVID-19. *Journal of innate immunity*. [🔗](#)

Alings, F., Scharmann, K., Eggers, C., Böttcher, B., Leidel, S.A. (2023). Ncs2* mediates in vivo virulence of pathogenic yeast through sulphur modification of cytoplasmic transfer RNA. *Nucleic acids research*. [🔗](#)

Grant, E.T., Boudaud, M., Muller, A., Macpherson, A.J., Desai, M.S. (2023). Maternal diet and gut microbiome composition modulate early-life immune development. *EMBO molecular medicine*. [🔗](#)

Thalmann, P., Ehrhard, S., Summerfield, A., Ricklin, M.E. (2023). Retrospective Study of Tick Bites Associated with Neurological Disease in a Level Three University Hospital in Switzerland. *Infectious disease reports* [🔗](#)

MCID-funded projects (*)

Interplay of infections and the microbiota on outcomes for host health
Prof. Dr. med. Andrew Macpherson (DBMR / Inselspital), Prof. Dr. Volker Heussler (IZB). *More information:* [🔗](#)

Klebsi-mAb: characterisation of intestinal antibody responses
Prof. Dr. Tim Rollenske (DBMR). *More information:* [🔗](#)

Boosting influenza-specific adaptive responses using an adjuvant composed of bacterial lysates
Dr. Emilie Seydoux (Inselspital / DBMR). *More information:* [🔗](#)

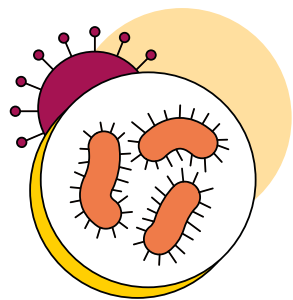
Co-infection of Hepatitis B virus (HBV) and malaria: from population level to immunological and cellular interaction
Prof. Dr. Volker Heussler (IZB), Prof. Dr. med. Gilles Wandeler (ISPM / Inselspital), Prof. Dr. Olivier Guenat (ARTORG). *More information:* [🔗](#)

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), 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). *More information:* [🔗](#)

MCID Research Clusters

Microbiology

The Microbiology cluster covers diverse aspects of research 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.



Cluster Members

Chair: Prof. Dr. med. Stephen Leib, Institute of Infectious Diseases (IFIK)
Co-Chair: Prof. Dr. med. vet. Jörg Jores, Institute for Veterinary Bacteriology (IVB)
PD Dr. Marco Alves, Institute of Virology and Immunology (IVI) / Vetsuisse
PD Dr. Eduard Babychuk, Institute of Anatomy
Prof. Dr. Charaf Benarafa, IVI / Vetsuisse
Dr. Pascal Bittel, IFIK
PD Dr. Ronald Dijkman, IFIK
Dr. Aline Dousse-Bussard, IFIK
Dr. Evangelos Karousis, Department of Chemistry, Biochemistry and Pharmaceutical Sciences
Dr. Jenna Kelly, IVI / Vetsuisse
Dr. Fabien Labroussaa, IVB
PD Dr. Philippe Plattet, Department of Clinical Research and Veterinary Public Health
Prof. Dr. med. vet. Horst Posthaus, Department of Infetious Disease and Pathobiology
PD Dr. Alban Ramette, IFIK
Prof. Dr. med. Andri Rauch, Department of Infectious Diseases, Inselspital
Dr. Kathrin Summermatter, IFIK
PD Dr. Franziska Suter-Riniker, IFIK
Prof. Dr. Volker Thiel, IVI / Vetsuisse

Highlighted Publications (*)

Brigger, D., Guntern, P., Jonsdottir, H.R., Pennington, L.F., Weber, B., Taddeo, A., Zimmer, G., Leborgne, N.G.F., Benarafa, C., Jardetzky, T.S., Eggel, A. (2023). Sex-specific differences in immune response to SARS-CoV-2 vaccination vanish with age. Allergy. [🔗](#)

**Schubert, K., Karousis, E.D., Ban, I., Lapointe, (2023). Universal features of Nsp1-mediated translational shutdown by coronaviruses. Molecular cell. [🔗](#)

Anderegg, N., Schwab, T., Borcard, L., Mugglin, C., Keune-Dübi, B., Ramette, A., Fenner, L. (2023). Population-based SARS-CoV-2 whole genome sequencing and contact tracing during the COVID-19 pandemic in Switzerland. Journal of infectious diseases. [🔗](#)

Blacksell, S.D., Summermatter, K., Masuku, Z.M., Kojima, K., Ross, E., Harper, D.R., Hamilton, K. (2023). Investment in biosafety and biosecurity: the need for a risk-based approach and systematic reporting of laboratory accidents to mitigate laboratory-acquired infections and pathogen escapes. The Lancet Microbe. [🔗](#)

Schoepf, I.C., Riebensahm, C., Becchetti, C., Blaser, V., Unternährer, C.V., Banz, V., Hirzel, C., Suter-Riniker, F.M., Berzigotti, A. (2023). Evolution of humoral immune response to SARS-CoV-2 mRNA vaccine in liver transplant recipients - a longitudinal study. Swiss medical weekly. [🔗](#)

* MCID Microbiology Cluster Members underlined

** MCID-funded research

Dashraath, P., Alves, M.P., Schwartz, D.A., Nielsen-Saines, K., Baud, D. (2023). Potential mechanisms of intrauterine transmission of monkeypox virus. The Lancet Microbe. [🔗](#)

Béguelin, C., Atkinson, A., Boyd, A., Falconer, K., Kirkby, N., Suter-Riniker, F., Günthard, H.F., Rockstroh, J.K., Mocroft, A., Rauch, A., Peters, L., Wandeler, G. (2023). Hepatitis delta infection among persons living with HIV in Europe. Liver international. [🔗](#)

Hänke, J., Heller, M., Schnee, C., Weldearegay, Y.B., Franzke, K., Jores, J., (2023). A new duplex qPCR-based method to quantify Mycoplasma mycoides in complex cell culture systems and host tissues. Journal of microbiological methods. [🔗](#)

Neves, A., Walther, D., Martin-Campos, T., Barbie, V., Leib, S.L., Ramette, A., (2023). The Swiss Pathogen Surveillance Platform - towards a nation-wide One Health data exchange platform for bacterial, viral and fungal genomics and associated metadata. Microbial genomics. [🔗](#)

MCID-funded projects (*)

Deciphering the interplay between viral proteins and host cell mRNA metabolism

Dr. Evangelos Karousis (DCBP). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

Role of sheep and rodent reservoirs for Wesselsbron, a neglected zoonotic flavivirus

Prof. Dr. Charaf Benarafa (IVI / Vetsuisse), Dr. Obdulio Garcia-Nicolas (IVI / Vetsuisse; Career Development Grant recipient). *More information:* [🔗](#)

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). *More information:* [🔗](#)

Confronting the rising epidemic of the zoonotic tick-borne encephalitis virus

Prof. Dr. med. Stephen Leib (IFIK), PD Dr. Marco Alves (IVI / Vetsuisse). *More information:* [🔗](#)

Tailor-made bacteriophages: treatment of infections caused by multi-drug resistant bacteria

Dr. Fabien Labroussaa (IVB, Vetsuisse Faculty), Prof. Dr. med. Stephen Leib (IFIK). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

Liposomal nanotraps: non-antibiotic compounds for the treatment of enteropathogenic infections in humans and farm animals

PD Dr. Eduard Babychuk (Anatomy). *More information:* [🔗](#)

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), PD Dr. Alban Ramette (IFIK), Prof. Dr. Kevin Heng (CSH), Prof. Dr. Alexander Leichtle (Inselspital). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

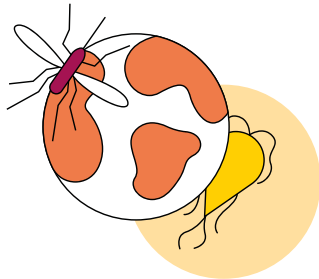
Preparedness for surveillance in school rooms: multiple measure approach to estimate transmission and interventions for Covid-19 and seasonal influenza

Prof. Dr. med. Lukas Fenner (ISPM), Prof. Dr. med. Philipp Jent (Inselspital), Dr. Pascal Bittel (IFIK), Prof. Dr. Tina Hascher (IES). *Article in The SPREAD:* [🔗](#), *More information:* [🔗](#)

MCID Research Clusters

Neglected Diseases

Applying advanced modeling and cutting-edge imaging approaches to understand co-infections and co-morbidity with other diseases. Neglected diseases in the Global South harbour unfettered pandemic potential, which is increasing through major changes in climate and accelerated movement of goods and people. Basic research into pathogen variance and biology allows the narrowing down and characterization of infectious diseases that have the potential to cause pandemics.



Cluster Members

Chair: Prof. Dr. Volker Heussler, Institute of Cell Biology (IZB)
Co-Chair: Prof. Dr. med. Hansjakob Furrer, Department of Infectious Diseases, Inselspital
 Prof. Dr. Carmen Faso, IZB / Vetsuisse Faculty / Institute of Infectious Diseases (IFIK)
 Dr. Obdulio García-Nicolás, Institute of Virology and Immunology (IVI)
 Prof. Dr. Deborah Stroka, Department of Biomedical Resesarch / Department of Visceral Surgery and Medicine, Inselspital
 Prof. Dr. med.Philipp Latzin, Division of Respiratory Medicine, Department of Pediatric Medicine, Inselspital
 Prof. Dr. Britta Lundström-Stadelmann, Department of Infectious Disease and Pathobiology

Highlighted Publications (*)

Gabrielaite, M., Bennedbaek, M., Rasmussen, M.S., Kan, V., Furrer, H., ... (2023). Deep-sequencing of viral genomes from a large and diverse cohort of treatment-naive HIV-infected persons shows associations between intrahost genetic diversity and viral load. PLoS computational biology. [🔗](#)

Balmer, E.A., Wirdnam, C.D., Faso, C. (2023). A core UPS molecular complement implicates unique endocytic compartments at the parasite-host interface in Giardia lamblia. Virulence. [🔗](#)

García-Nicolás, O., Godel, A., Zimmer, G., Summerfield, A. (2023). Macrophage phagocytosis of SARS-CoV-2-infected cells mediates potent plasmacytoid dendritic cell activation. Cellular & molecular immunology. [🔗](#)

Memedovski, R., Preza, M., Müller, J., Kämpfer, T.E., ... Lundström-Stadelmann, B. (2023). Investigation of the mechanism of action of mefloquine and derivatives against the parasite Echinococcus multilocularis. International journal for parasitology. Drugs and drug resistance. [🔗](#)

Rüttimann, C., Nissen-Kratzert, A., Mostacci, N., Künstle, N., ... Latzin, P., Hilty, M., Frey, U., Gorlanova, O. (2023). Antibiotics in pregnancy influence nasal microbiome and respiratory morbidity in infancy. ERJ Open Research. [🔗](#)

Beyeler, R., Jordan, M., Dorner, L., He, B., ... Heussler, V. (2023). Putative prefoldin complex subunit 5 of Plasmodium berghei is crucial for microtubule formation and parasite development in the mosquito. Molecular microbiology. [🔗](#)

MCID-funded projects (*)

The evolution of senescence and insecticide resistance in vector populations
 Prof. Dr. Deborah Stroka (DBMR / Inselspital). [Article in The SPREAD](#): [🔗](#), [More information](#): [🔗](#)

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). [More information](#): [🔗](#)

* MCID Neglected Diseases Cluster Members underlined

Interplay of infections and the microbiota on outcomes for host health
 Prof. Dr. med. Andrew Macpherson (DBMR / Inselspital), Prof. Dr. Volker Heussler (IZB). [More information](#): [🔗](#)

Role of sheep and rodent reservoirs for Wesselsbron, a neglected zoonotic flavivirus
 Prof. Dr. Charaf Benarafa (IVI / Vetsuisse), Dr. Obdulio García-Nicolás (IVI). [More information](#): [🔗](#)

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), 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). [More information](#): [🔗](#)



MCID Research Clusters

Economics

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



Cluster Members

Chair: Prof. Dr. Rudolf Blankart, KPM Center for Public Management and Swiss Institute for Translational and Entrepreneurial Medicine (sitem-insel)
Dr. Chantal Morel, KPM Center for Public Management and Swiss Institute for Translational and Entrepreneurial Medicine (sitem-insel)
Former Cluster Member: Dr. Rowan Iskandar (now Medtronic)

Highlighted Publications (*)

Quentin, W., Achstetter, K., Barros, P.P., Blankart, C.R., Wendt, C. (2023). Health Policy - the best evidence for better policies. Health Policy. [🔗](#)

Clausin, M., Rieckhoff, A., Tediosi, F., Morel, C.M., Kaspirovich, Y., Levrat, N., Wernli, D. (2023). Multisystemic resilience to shocks: a temporal analysis of health, fundamental rights and freedoms, and economic resilience during the first wave of the COVID-19 pandemic in 22 European countries. BMJ Open. [🔗](#)

MCID-funded projects (*)

A decision-making framework under severe uncertainty for optimizing future pandemic responses
Dr. Rowan Iskandar (SITEM): project finalised April 2023. *Article in The SPREAD*: [🔗](#), *More information*: [🔗](#)

menoBalance App: Use of AI methods to design a personalised chronic and infectious disease management medical device

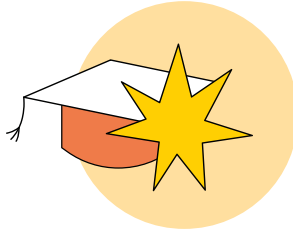
Prof. Dr. med. Petra Stute (Inselspital), Prof. Dr. David Ginsbourger (IMSV), Dr. Ben Spycher (ISPM), Dr. Rowan Iskandar (SITEM). *More information*: [🔗](#)

* MCID Economics Cluster Members underlined

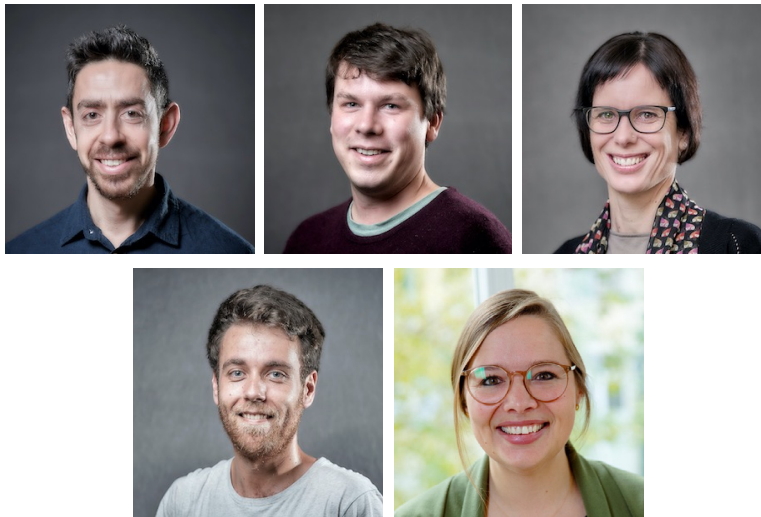
Fostering of Talent

Early Career Researchers

The MCID currently funds 11 grants awarded to early career researchers (ECRs); three as part of multi-applicant projects. 2023 has been a year of exciting career development for a number of MCID ECRs, with successful obtaining of MCID ECR grants contributing to career advancement. Through MCID project funding, 19 PhD students are currently employed at a range of different University of Bern faculties, and take an active role in MCID activities.



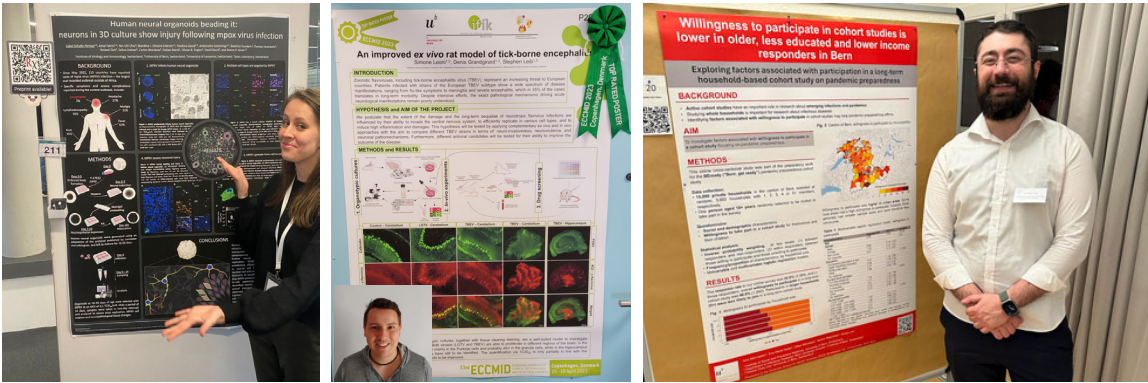
Career Development Highlights 2023



Dr. Evangelos Karousis: Holcim Stiftung Fellowship and junior group leader position from Jan. 2023. **Prof. Tim Rollenske**: Emmy Noether Fellowship and tenure-track professorship, University of Bonn from Feb. 2023. **PD Dr. Caroline Schlauffer**: Habilitation, University of Bern, May 2023. **Dr. med. Julien Riou**: Tenured position, Unisanté-Lausanne from Sep. 2023. **Dr. Susanne Hadorn**: Professorship and Institute co-direction, University of Applied Sciences Northwestern Switzerland from Feb. 2024

MCID-Supported PhD Student Highlights 2023

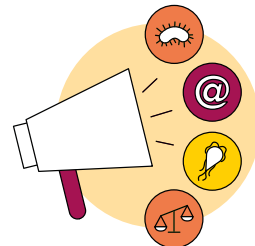
MCID-funded projects were presented at a wide-range of academic conferences during the course of 2023, with three PhD students winning prizes for posters presenting MCID-funded projects: **Isabel Schultz-Pernice** at the EMBL Symposium "Organoids: modelling organ development and disease in 3D culture"; **Simone Leoni** at the European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) 2023 (both project [🔗](#)); **Aziz Mert Ipekci** at the Graduate School of Health Sciences symposium 2023 (project [🔗](#))



Dissemination

MCID Teaching and Outreach

The MCID is committed to the dissemination of knowledge through teaching and outreach activities. 2023 has seen the launch of both an MCID Colloquium on Pandemic Preparedness and an MCID seminar series. MCID Members have been active in public discourse through events and engagement with the media on a range of topics. The launch of the MCID newsletter, The SPREAD, now allows the center to keep interested parties up-to-date on MCID activities as well as to provide insights on a wide range of topics linked to infectious disease research.



Teaching highlights 2023

MCID Colloquium on Pandemic Preparedness: Autumn 2023 saw the launch of the MCID's first Colloquium on Pandemic Preparedness, a course aimed at Bachelor and Master students, and in particular exchange students. Development of the course was supported by the University of Bern Vice Rectorate Development "Additional Courses in English- EnglL" scheme. The aim of the course was to provide a multidisciplinary introduction to pandemic preparedness, focusing both on biomedical and on societal aspects of preparing for infectious disease threats. The colloquium was designed around the scientific discipline cluster structure of the MCID and over a series of seven sessions, MCID experts from each cluster conducted lectures and led hands-on exercises and discussion sessions.

MCID Seminar Series: In early 2023, the MCID launched a multidisciplinary seminar series, inviting expert speakers from a range of scientific topic areas and with seminars being suitable for interest parties of all disciplines. Topics to date have included policy aspects in antibiotic research and development, immune escape of SARS-CoV-2 and public trust in health systems.

Teaching on ethics and policy: The MCID Ethics and Policy Lab have been active in providing teaching and training on i) the ethical dimensions of research and how to obtain ethical approval and ii) on politics and policymaking, with a focus on the Swiss political system (held together with the Franxini Project)



Outreach highlights 2023

MCID newsletter, The SPREAD: In early 2023, the MCID launched The SPREAD, a newsletter aimed at communicating MCID research and ongoing activities, as well as providing exciting spotlights on a wide range of different topics linked to infectious diseases and pandemic preparedness [2](#).

Public engagement in 2023: the MCID and its Members were involved in a range of public-facing events in 2023, including: the **BReady Cohort team** at the Pint of Science Bern event, "Briefing aus dem Berner Grossen Rat" and a lecture by Dr. Eva Maria Hodel on Pandemic Preparedness to the University of Bern "Seniorenuniversität"; the **"Divided pandemic society and Public health" project team** in focus group discussions (ongoing), MCID Member **Prof. Dr. Rudolf Blankart** on antibiotic resistance with the Round Table on Antibiotics at the sitem-Insel 2023 open day.

MCID Members share expertise in the media: MCID Members have been active in engagement with the Swiss media, including: **Prof. Dr. med. vet. Gertraud Schüpbach** on the spread of avian influenza [2](#); **Prof. Dr. Dr. Claus Beisbart** on artificial intelligence [2](#); **Prof. Dr. med. vet. Artur Summerfield** on African Swine fever [2](#) and **Prof. Dr. Silke Adam** and team on fake news and disinformation in the media [2](#).

MCID Co-Leading role in Cluster of Research Excellence, Genomics for Health in Africa: In June 2023, Genomics for Health in Africa (CoRE-GHA) was awarded status of ARUA-The Guild Cluster of Research Excellence, to be Co-Lead by Prof. Dr. Carmen Faso and Prof. Dr. Volker Thiel, MCID Co-Chairs, together with Prof. Dr. med. Shahida Moosa and Prof. Dr. Tulio de Oliveira at Stellenbosch University and Prof. Dr. med. Olaf Riess and Prof. Dr. med. Tobias Haack at the University of Tübingen. The primary aim of CoRE-GHA will be capacity building on the African continent for the application of genomics to tackle infectious diseases, rare diseases and rare cancers. As part of outreach linked to CoRE-GHA, Prof. Dr. Carmen Faso had the opportunity of meeting with the South Africa Parliament's Portfolio Committee on Higher Education, Science and Innovation on their tour of Switzerland (image below).



IMPRINT

Publisher:
Multidisciplinary Center for Infectious Diseases (MCID)
University of Bern
Hallerstrasse 6
CH-3012 Bern
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Layout: Dr. Rebecca Limenitakis

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