MOMSEN REINCKE, MD
School of Medicine, Stanford University
Department of Anesthesiology, Perioperative and Pain Medicine

SUMMARY

Physician-scientist with a dual background in Medicine and Mathematics. My research focuses on antibodies in neurological autoimmunity, the development of antigen-specific therapies for conditions like NMDAR encephalitis, and the prediction of disease risk using deep phenotyping and electronic health records.

EDUCATION

Dr. med., (Medicine), Charité – Universitätsmedizin, Berlin, Germany   **09/2017**
Thesis Title: Inactivation and Anion Selectivity of Volume-Regulated Anion Channels
Advisor: Thomas Jentsch

Dipl. Math., (Mathematics), Humboldt-Universität zu Berlin, Berlin, Germany,   **09/2014**
Thesis topic: Dirac Operators on pseudo-Riemannian Manifolds
Advisor: Helga Baum

POSTDOCTORAL TRAINING

Postdoctoral Fellow   **05/2023 – present**
Supervisor: Nima Aghaeepour
Department of Anesthesiology, Perioperative and Pain, Stanford University, CA

Residency (Neurology), Charité – Universitätsmedizin, Berlin, Germany   **10/2019 – 04/2023**

Postdoctoral Fellow   **01/2018 – 09/2019**
Supervisor: Harald Prüß
German Center for Neurodegenerative Diseases, Berlin, Germany

FELLOWSHIPS

Clinician Scientist at Berlin Institute of Health, Berlin, Germany   **2022**
Junior Clinician Scientist at Berlin Institute of Health, Berlin, Germany   **2020**

SELECTED PEER-REVIEWED PUBLICATIONS

See https://orcid.org/0000-0002-8132-3527 for a full list of publications.

REINCKE SM*, von Wardenburg N*, Homeyer MA*, Kornau HC, Spagni G, Li LY, Kreye J, Sánchez-Sendín E, Blumenau S, Stappert D, Radbruch H, Hauser AE, Künkele A, Edes I, Schmitz D, Prüss H. **(2023).** Chimeric autoantibody receptor T cells deplete NMDA receptor-specific B cells. *Cell* 186(23):5084-5097 (* equal contributions)

REINCKE SM*, Yuan M*, Kornau H*, Corman VM*, van Hoof S, Sánchez-Sendín E, Ramberger M, Yu W, Hua Y, Tien H, Schmidt ML, Schwarz T, Jeworowski LM, Brandl SE, Rasmussen HF, Homeyer MA, Stöffler L, Barner M, Kunkel D, Huo S, Horler J, von Wardenburg N, Kroidl I, Eser TM, Wiesner A, Geldmacher C, Hoelscher M, Gänzer H, Weiss G, Schmitz D, Drosten C, Prüss H*, Wilson IA*, Kreye

J* **(2022).** SARS-CoV-2 Beta variant infection elicits potent lineage-specific and cross-reactive antibodies. *Science* 375:782-787 (* equal contributions)

Kreye J*, **Reincke SM*,** Kornau HC, Sánchez-Sendin E, Corman VM, Liu H, Yuan M, Wu NC, Zhu X, Lee CD, Trimpert J, Höltje M, Dietert K, Stöffler L, Wardenburg Nv, Hoof Sv, Homeyer MA, Hoffmann J, Abdelgawad A, Gruber AD, Bertzbach LD, Vladimirova D, Li LY, Barthel PC, Skriner K, Hocke AC, Hippenstiel S, Witzenrath M, Suttorp N, Kurth F, Franke C, Endres M, Schmitz D, Jeworowski LM, Richter A, Schmidt ML, Schwarz T, Müller MA, Drosten C, Wendisch D, Sander LE, Osterrieder N, Wilson IA, Prüss H **(2020)**. A therapeutic non-self-reactive SARS-CoV-2 antibody protects from lung pathology in a COVID-19 hamster model. *Cell* 183:1-12 (* equal contributions)

Yuan M*, Huang D*, Lee CD*, Wu NC, Jackson AM, Zhu X, Liu H, Peng L, van Gils MJ, Sanders RW, Burton DR, **REINCKE SM**, Prüss H, Kreye J, Nemazee D, Ward AB, Wilson IA **(2021)**. Structural and functional ramifications of antigenic drift in recent SARS-CoV-2 variants. *Science* 373:818-823 (* equal contributions)

Reincke SM, Prüss H, Kreye J **(2020)**. Brain Antibody Sequence Evaluation (BASE): an easy-to-use software for complete data analysis in single cell immunoglobulin cloning. *BMC Bioinformatics* 21(1):446

Wenke NK, Kreye J, Andrzejak E, van Casteren A, Leubner J, Murgueitio MS, **Reincke SM**, Secker C, Schmidl L, Geis C, Ackermann F, Nikolaus M, Garner CC, Wardemann H, Wolber G, Prüss H **(2019)**. N-methyl-D-aspartate receptor dysfunction by unmutated human antibodies against the NR1 subunit. *Ann Neurol* 85(5):771-776

RESEARCH EXPERIENCE

My research focusses on the intersection of neuroscience and immunology with a special focus on disease risk prediction, autoantibodies and cell therapies using machine learning and deep phenotyping. During the COVID-19 pandemic, I studied the antibody response to SARS-CoV-2 with a focus on prediction of structural features based on antibody sequences.

Postdoctoral Fellow (2023 – present)
Stanford University (PI: Nima Aghaeepour).
- I am developing machine learning models to predict disease risk using structured electronic health record data. These models are used to predict risk of pancreatic or ovarian cancer. Using multiclass instead of binary classification layers, this work improves previous models which lack specificity.

Postdoctoral Fellow and **Clinician Scientist (2018 – 2023)**
German Center for Neurodegenerative Diseases (DZNE), and Charité – Universitätsmedizin, Berlin, Germany (PI: Harald Prüß).
- I developed NMDAR-CAAR T cells, a new cell therapy for treatment of autoimmune encephalitis. This work resulted in two patents and one peer-reviewed publication in *Cell* as first author.
- In response to the pandemic, I started studying COVID antibodies in March 2020, resulting in publications in *Science* and *Cell* as first author. For this, I coordinated an international interdisciplinary team from project inception to publication.
- Implemented a Python tool for immunological annotations, automatic antibody sequence analysis and cloning recommendations for high-throughput antibody production which now is an important part of the antibody generation pipeline.

CURRENT GRANTS

German Research Council (DFG)   **2024 – 2028**
Title: *Preclinical evaluation of NMDAR-CAAR T cells*
Sum: 550K Euro (Co-PI, 33)

German Research Council (DFG); RE/4808/2-1   **2025 – 2031**
Title: *Going deep: From deep phenotyping to complete remission in autoimmune encephalitis*
Sum: 2.1M Euro (PI, 100%)

SKILLS

Programming:	python, R
Libraries:	pytorch, scklearn, Biopython, igblast
Laboratory Skills:	Multicolor Flow Cytometry, Molecular Biology, Antibody Cloning, Cell Culture, Antibody Target Identification
Clinical Skills:	Electroencephalogram (EEG), Neurography, Electromyography (EMG), Neurointensive Care
Languages:	German (Native), English (Fluent), Spanish (Fluent).