

Prof. Dr. Christian P.R. Hackenberger

born 04.02.1976 in Osnabrück

Humboldt Universität zu Berlin (HU)

Leibniz-Forschungsinstitut für Molekulare Pharmakologie (FMP)

Homepage: www.fmp-berlin.info/hackenbe



Academic career

1996 – 1998	Undergraduate studies in Chemistry (Vordiplom)	Albert-Ludwigs-Universität Freiburg
1998 – 1999	Graduate studies and M.Sc. with Prof. Samuel H. Gellman	Univ. of Wisconsin/Madison, USA
2000 – 2003	Ph.D. research with Prof. Carsten Bolm (<i>summa cum laude</i>)	RWTH-Aachen
2003 – 2005	Postdoctoral work with Prof. Barbara Imperiali	Massachusetts Institute of Technology, USA
2004	Research stay with Prof. Sheena E. Radford	University of Leeds, UK
2005 – 2006	Junior group leader as Liebig-Scholar (FCI)	Freie Universität Berlin
2006 – 2011	Emmy-Noether-Group leader (DFG)	Freie Universität Berlin
2011	Habilitation and <i>venia legendi</i> in Organic Chemistry	Freie Universität Berlin
2011 – 2012	Associate Professor (W2) for Bioorganic Chemistry	Freie Universität Berlin
2012 –	Leibniz-Humboldt-Professor (W3) for Chemical Biology	Humboldt-Universität zu Berlin/FMP

Research interests

- Intracellular non-endosomal delivery of proteins and antibodies
- Next-generation biopharmaceuticals and bioconjugates (ADCs) against viral infections and cancer
- Chemoselective reaction engineering for protein synthesis and modification
- Proteomic analysis of labile posttranslational modifications (pLys and pCys)
- Functional investigation of the Alzheimer-relevant Tau protein
- Engineering of protein-based multivalent scaffolds, metabolic oligosaccharide engineering

Honors and Awards

2020	Breakthrough of the Year-Award (Life Sciences) by the Falling Walls Foundation
2019	Novartis Lecturer and Visiting Professor New York University (NYU)
2018	Leonidas Zervas Award of the European Peptide Society
2018	JSPS Invitational Fellowship (Japan)
2018	Leibniz-Gründerpreis and m ⁴ award for the biotech start-up Tubulis
2018	Visiting Professor at the Leopold-Franzens Universität Innsbruck
2016	Fellow of the Royal Society of Chemistry
2014	“The best 40 under 40 in Germany” (Welt am Sonntag)
2013	Harlan L. and Margaret L. Goering Visiting Professor of Chemistry (UW Madison/WI, USA)
2012	ORCHEM-Award of the GDCh
2011/2012/2014	Recognized as “Top 40 young German scientists under 40” (Capital)
2011	Heinz-Maier-Leibnitz-Award of the DFG
2011	ADUC-Award of the GDCh
2011	Dozentenstipendium of the Fonds der chemischen Industrie (FCI) and the Aventis Foundation
2010	Award in the competition “Junior investigator of the year 2010”
2010	Plus 3-Award of the Boehringer-Ingelheim Foundation
2009	Award of the GDCh section “Macromolecular Chemistry” (FG Makromolekulare Chemie)
2008	Award of the Otto-Röhm Memorial Foundation
2006	Emmy-Noether-Group leader
2005	Liebig-Scholarship of the FCI
2005	Thieme-Journal Award
2003/2005	Postdoctoral fellowship of the DAAD and DFG
2003	Borchers Medal and Friedrich-Wilhelm Preis (RWTH Aachen)
2001	Scholarship for scientific journalism of the FCI
2000/2001	Kekulé-Ph.D.-Scholarship of the FCI and of the Studienstiftung des deutschen Volkes
1998	Study-abroad Scholarship of the Universität Freiburg within the “Academic-Year-Programs”
1997	Scholarship of the Studienstiftung des deutschen Volkes

Further activities/memberships/commissions of trust

2021 –	Selection Committee GO-Bio Initial (BMBF)
2020 –	Selection Committee Research-Fellowships of the Alexander von Humboldt Foundation (AvH)
2020 –	Head of Selection Committee Albrecht Kossel Preis (GDCh)
2020	Co-Founder Tubulis GmbH
2019 –	Member of the Editorial Advisory Board of Chemical Science and RSC Chemical Biology (RSC)
2016 –	Member of the Editorial Advisory Board of ChemBioChem (Wiley-VCh)
2015 –	Associate Editor Organic and Biomolecular Chemistry (RSC)
2012 –	Liaison professor (Vertrauensdozent) of the Studienstiftung des deutschen Volkes
2012 – 2019	Spokesman and Head of the DFG priority program (DFG Schwerpunktprogramm) SPP 1623
2012 – 2014	Member of the Advisory Board of Organic and Biomolecular Chemistry (RSC)
2011 – 2013	Head of the GDCh section in Berlin (Ortsverband Berlin)
2008 –	Elected Member of the Max Bergmann Society, Germany
2008 – 2012	Spokesman and Head of the Research Training Group (Graduiertenkolleg) within the CRC 765
2007 – 2012	Member of the permanent advisory board of the Dahlem Research School
2002 –	Member of the American Chemical Society (ACS)
2001 –	Member of the GDCh
2001	Editorial office assistant and author at the WDR television (Wissenschaftsredaktion)

Conference organization

2019	Emil-Fischer-Symposium in Berlin "What would Emil Fischer do today?" (Head)
2019	8 th Chemical Protein Synthesis Meeting in Berlin (Head)
2015/2017	5 th and 7 th Chemical Protein Synthesis Meeting in Vienna and Haifa (Board member)
2015	ECBS/ICBS "Chemical Biology" in Berlin (Board member)
2012/2014	4 th and 5 th Sion-German Conference "Frontiers of Chemistry" in Beijing and Berlin (Head)
2014	GDCh-Biochemistry Symposium "Bioorthogonal Chemistry" in Berlin (Head)
2012	4 th Sion-German Conference "Frontiers of Chemistry" in
2008	5 th Emmy-Noether-Meeting in Chemistry 2008 at the FU Berlin (Head)
2006/2007	16 th and 17 th symposium "Bioorganische Chemie" for junior researchers (Head)

Selected third party funded research projects

2021 – 2024	Project within the Leibniz Competition Program: Leibniz-Transfer "Selective depletion of plasma cells secreting pathogenic autoantibodies in chronic autoimmune diseases – a potentially curative therapeutic approach" (SAW)
2021 – 2023	Head of project consortium RTK-P5-ADC "Targeted Drug Delivery" (BMBF)
2021 – 2024	Project C1 of the collaborative research center CRC 1449 (DFG) "Semi-synthetic approaches to probe mucin function"
2020 – 2021	Board member "Corona Virus Pre Exploration Project" (Berlin University Alliance)
2019 – 2023	Project within the Research Training Group "Peptide" RTG 2473/1 (DFG)
2018 – 2021	Project within the Leibniz Competition Program: Leibniz-Transfer "Cystein-selective bioconjugation for next generation antibody drug conjugates" (SAW)
2012 – 2019	Coordination of DFG priority program SPP 1623 (DFG)
2016 – 2018	Project "Chemoselective Staudinger-induced Michael-additions to antibodies to analyze protein homeostasis in <i>C. elegans</i> " within the DFG priority program 1623 (DFG)
2012 – 2018	Project "Site-specific functionalization of nanobodies: From labeling to cellular uptake" within the DFG priority program 1623 (DFG)
2008 – 2019	Project B5 of the collaborative research center CRC 765 (DFG), "Synthesis of multivalent ligand binding systems via chemoselective saccharide- and peptide-ligations" and "Site-specific functionalization of proteins for the acquisition of multivalent glycoconjugates"
2010 – 2015	"Plus 3"-Award (Boehringer-Ingelheim Stiftung) "Chemoselective Staudinger-reactions for the modification of peptides and proteins"
2008 – 2012	Head of Research Training Group in the CRC 765 (DFG) "Multivalency in chemistry a. biochemistry"
2007 – 2010	Project BMBF-Glycobiotechnologie (BMBF), "Development of new cellular systems for the acquisition of diagnostic and therapeutic glycoproteins"
2006 – 2011	Emmy Noether Program (DFG), "New synthetic methods for naturally modified peptides and proteins, their structural evaluation and biological function"

Ten most important publications

1. **C.E. Stieger, L. Franz, F. Körlin, C.P.R. Hackenberger**
Angew. Chem. Int. Ed. **2021**, *60(28)*, 15359-15364
Diethynyl Phosphinates for Cysteine-Selective Protein Labeling and Disulfide Rebridging
2. **A.F.L. Schneider, M. Kithil, M.C. Cardoso, M. Lehmann, C.P.R. Hackenberger**
Nature Chem. **2021**, *13*, 530-539
Cellular uptake of Large Biomolecules Enabled by Thiol-reactive Cellpenetrating Peptide Additives
3. **A.L. Baumann, S. Schwagerus, K. Broi, K. Kemnitz-Hassanin, C.E. Stieger, N. Trieloff, P. Schmieder, C.P.R. Hackenberger**
J. Am. Chem. Soc. **2020**, *142(20)*, 9544-9552
Chemically induced vinylphosphonothiolate electrophiles for thiol-thiol bioconjugations
4. **D. Lauster, S. Klenk, K. Ludwig, S. Nojumi, S. Behren, L. Adam, M. Stadtmüller, S. Saenger, S. Zimmler, K. Hönzke, L. Yao, U. Hoffmann, M. Bardua, A. Hamann, M. Witzenrath, L.E. Sander, T. Wolff, A.C. Hocke, S. Hippenstiel, S. DeCarlo, J. Neudecker, K. Osterrieder, N. Budisa, R.R. Netz, C. Böttcher, S. Liese, A. Herrmann, C.P.R. Hackenberger**
Nature Nanotech. **2020**, *15*, 373-379
Phage capsid nanoparticles with defined ligand arrangement block influenza virus entry
5. **M.-A. Kasper, A. Stengl, P. Ochtrop, M. Gerlach, T. Stoschek, D. Schumacher, J. Helma, M. Penkert, E. Krause, H. Leonhardt, C.P.R. Hackenberger**
Angew. Chem. Int. Ed. **2019**, *58(34)*, 11631-11636
Ethynylphosphonamidates for the rapid and cysteine selective generation of efficacious Antibody-Drug-Conjugates
6. **M.-A. Kasper, M. Glanz, A. Stengl, M. Penkert, S. Klenk, T. Sauer, D. Schumacher, J. Helma, E. Krause, C. Cardoso, H. Leonhardt, C.P.R. Hackenberger**
Angew. Chem. Int. Ed. **2019**, *58(34)*, 11625-11630
Cysteine-Selective Phosphonamidate Electrophiles for Modular Protein Bioconjugations
7. **H.D. Herce, D. Schumacher, A.F.L. Schneider, A.K. Ludwig, F.A. Mann, M. Fillies, M.-A. Kasper, S. Reinke, E. Krause, H. Leonhardt, M.C. Cardoso, C.P.R. Hackenberger**
Nature Chem. **2017**, *9*, 762-771
Cell-permeable nanobodies for targeted immunolabelling and antigen manipulation in living cells
8. **D. Schumacher, O. Lemke, J. Helma, L. Gerszonowicz, V. Waller, T. Stoschek, P.M. Durkin, N. Budisa, H. Leonhardt, B.G. Keller, C.P.R. Hackenberger**
Chemical Science **2017**, *8*, 3471-3478
Broad substrate tolerance of tubulin tyrosine ligase enables one-step site-specific enzymatic protein labeling
9. **J. Bertran-Vicente, M. Penkert, O. Nieto-Garcia, J.-M. Jeckelmann, P. Schmieder, E. Krause, C.P.R. Hackenberger**
Nature Comm. **2016**, *7*, Article number: 12703
Chemoselective synthesis and analysis of naturally occurring phosphorylated cysteine peptides
10. **O. Reimann, C. Smet-Nocca, C.P.R. Hackenberger**
Angew. Chem. Int. Ed. **2015**, *54(30)*, 306-310
Traceless Purification and Desulfurization of Tau Protein Ligation Products

Supervised scientists 2008-2022

- 19 Postdocs
- 31 Doctoral Candidates