

## Prof. Dr. Stephanie Kath-Schorr

### Personal Data

Title	Prof. Dr.
First name	Stephanie
Name	Kath-Schorr
Current position	Professor (W2 TT W3)
Current institution(s)/site(s), country	Institute for Organic Chemistry, Department of Chemistry, Greinstr. 4, 50939 Cologne University of Cologne (UoC), Germany
Identifiers/ORCID	<a href="https://orcid.org/0000-0002-5180-360X">orcid.org/0000-0002-5180-360X</a>

### Qualifications and Career

<u>Stages</u>	<u>Periods and Details</u>
Degree programme	Bachelor of Science in Biochemistry, 2001 – 2004, Ruhr-University Bochum, Germany Master of Science in Biochemistry, 2004 – 2006, Ruhr-University Bochum, Germany
Doctorate	2006 – 2010 Mentor: T. Carell, PhD in Organic Chemistry, LMU Munich, Germany
Stages of academic/professional career	Since 2020 W2 Professor (with tenure track W3), Institute of Organic Chemistry, Department of Chemistry, University of Cologne, Germany 2013 – 2020 Group Leader, LIMES Institute, University of Bonn, Germany 2011 – 2012 Postdoctoral Research Associate, University of Dundee, UK, Supervisor: Prof. Dr. David Lilley, topic: Ribozyme catalysis 2006 – 2010 PhD student, LMU Munich, Prof. Dr. Thomas Carell Oct. 2004 – Mar. 2005 Research Collaborator #1, Research stay at the University of Sussex, Brighton, UK, with Dr. M. Paget

### Supplementary Career Information

4 children (\*2015, \*2017, \*2020, \*2020)

### Activities in the Research System

#### **Committee involvement & activities in the field of academic self-governance:**

Since 04. 2023	Member of the Faculty Council, MNF, UoC
Since 04. 2021	Managing Director of the Institute of Organic Chemistry, Department of Chemistry, UoC
Since 2020	Editorial Advisory Board Member <i>Chemical Science</i>
Since 2019	Editorial Advisory Board Member <i>ChemBioChem</i>
Since 2016	Member of the Faculty of 1000 Biology, Section Chemical Biology – Directed Molecular Evolution

**Academic Distinctions:** EU HORIZON-MSCA-2023-DN „MeCHaNiSM“ (2024); Member RTG 2591 "TIDE" (2024); member RTG 2550 "RELOC" (2024); BMBF KMUi-Biomedizin grant "RNA-Stab" (2023); member iHEAD "Immunometabolism in Health and Disease", BMBF/DLR (2023); VW Stiftung Projekt: "Changing the game: Next-generation DNazymes for antiviral therapies" (2022); Perspectives Programme "Plus 3", Boehringer-Ingelheim-Foundation (2018); Nominated as member of the Research Network "AcademiaNet" (2015); "Liebig"-Fellowship, Fonds of the Chemical Industry (VCI) (2013 – 2018); Rückkehrstipendium", DFG (2012); Postdoctoral research fellowship, DFG (2011 – 2012); "Kekulé"-PhD Fellowship, Fonds of the Chemical Industry (VCI) (2007 – 2009).

### Scientific Results

Citations: 808, h-index: 16, i10-index: 20 ([Google Scholar](#), 21.03.2024)

#### **Category A** (\* corresponding author)

1. H. Depmeier, **S. Kath-Schorr**\* "Expanding the horizon of the xeno nucleic acid space: threose nucleic acids with increased information storage" *J. Am. Chem. Soc.* **2024**, 146, 7743–7751. DOI: [10.1021/jacs.3c14626](https://doi.org/10.1021/jacs.3c14626).
2. L. Bornewasser, C. Domnick, **S. Kath-Schorr**\* "Stronger together for in-cell translation: natural and unnatural base modified mRNA" *Chem. Sci.* **2022**, 13, 4753–4761. DOI: [10.1039/D2SC00670G](https://doi.org/10.1039/D2SC00670G).
3. C. Domnick, F. Eggert, C. Wuebben, L. Bornewasser, G. Hagelueken, O. Schiemann\*, **S. Kath-Schorr**\* "EPR distance measurements on long non-coding RNAs empowered by genetic alphabet expansion transcription" *Angew. Chem. Int. Ed.* **2020**, 59, 7891–7896. DOI: [10.1002/anie.201916447](https://doi.org/10.1002/anie.201916447).
4. C. Domnick, G. Hagelueken, F. Eggert, O. Schiemann, **S. Kath-Schorr**\* "Posttranscriptional spin labeling of RNA by tetrazine-based cycloaddition" *Org. Biomol. Chem.* **2019**, 17, 1805–1808. DOI: [10.1039/C8OB02597E](https://doi.org/10.1039/C8OB02597E).
5. C. Wuebben, S. Blume, D. Abdullin, D. Brajtenbach, F. Haege, **S. Kath-Schorr**, O. Schiemann\* "Site-Directed Spin Labeling of RNA with a gem-Diethylisoindoline Spin Label: PELDOR, Relaxation and Reduction Stability" *Molecules* **2019**, 24, 4482. DOI: [10.3390/molecules24244482](https://doi.org/10.3390/molecules24244482).
6. F. Eggert, K. Kurscheidt, E. Hoffmann, **S. Kath-Schorr**\* "Towards reverse transcription with an expanded genetic alphabet" *ChemBioChem* **2019**, 20, 1642–1645. DOI: [10.1002/cbic.201800808](https://doi.org/10.1002/cbic.201800808).
7. F. Eggert, **S. Kath-Schorr**\* "A cyclopropene-modified nucleotide for site-specific RNA labeling using genetic alphabet expansion transcription" *Chem. Commun.* **2016**, 52, 7284–7287. DOI: [10.1039/C6CC02321E](https://doi.org/10.1039/C6CC02321E).
8. T.J. Wilson, Y. Liu, C. Domnick, **S. Kath-Schorr**, D.M.J. Lilley\* "The novel chemical mechanism of the twister ribozyme" *J. Am. Chem. Soc.* **2016**, 138, 6151–6162. DOI: [10.1021/jacs.5b11791](https://doi.org/10.1021/jacs.5b11791).
9. A.M. Pyka, C. Domnick, F. Braun, **S. Kath-Schorr**\* "Diels-Alder Cycloadditions on Synthetic RNA in Mammalian Cells" *Bioconjugate Chem.* **2014**, 25, 1438–1443. DOI: [10.1021/bc500302y](https://doi.org/10.1021/bc500302y).

10. **S. Kath-Schorr**, T.J. Wilson, N.-S. Li, J. Lu, J.A. Piccirilli, D.M.J. Lilley\* "General acid-base catalysis mediated by nucleobases in the hairpin ribozyme" *J. Am. Chem. Soc.* **2012**, 134, 16717–16724. DOI: [10.1021/ja3067429](https://doi.org/10.1021/ja3067429).

## Category B

### Publications

1. R. Dörrenhaus, P.K. Wagner and **S. Kath-Schorr**\* "Two are not enough: synthetic strategies and applications of unnatural base pairs" *Biol. Chem.* **2023**, 404, 883–896. DOI: [10.1515/hsz-2023-0169](https://doi.org/10.1515/hsz-2023-0169).
2. **S. Kath-Schorr**\* "Trendbericht Organische Chemie 2023 - Oligonukleotide" *Nachr. Chem.*, **2023**, 71, 54–55. DOI: [10.1002/nadc.20234135542](https://doi.org/10.1002/nadc.20234135542).
3. **S. Kath-Schorr**\* "Trendbericht Organische Chemie 2022 - Oligonukleotide" *Nachr. Chem.*, **2022**, 70, 68–69. DOI: [10.1002/nadc.20224122453](https://doi.org/10.1002/nadc.20224122453).
4. H. Depmeier, E. Hoffmann, L. Bornewasser, **S. Kath-Schorr**\* "Strategies for covalent labeling of long RNAs" *ChemBioChem* **2021**, 22, 2826–2847. DOI: [10.1002/cbic.202100161](https://doi.org/10.1002/cbic.202100161).
5. **S. Kath-Schorr**\* "Chemical modifications in natural and engineered ribozymes" in *Ribozymes: Principles, Methods, Applications* (Eds.: S. Müller, B. Masquida, W. Winkler) **2021**, chapter 18, 487–504. DOI: [10.1002/9783527814527.ch18](https://doi.org/10.1002/9783527814527.ch18).
6. **S. Kath-Schorr**\* "Trendbericht Organische Chemie 2021 - Oligonukleotide" *Nachr. Chem.* **2021**, 69, 55–56. DOI: [10.1002/nadc.20214105947](https://doi.org/10.1002/nadc.20214105947).
7. **S. Kath-Schorr**\* "Trendbericht Organische Chemie 2020 - Oligonukleotide" *Nachr. Chem.* **2020**, 67, 74–75. DOI: [10.1002/nadc.20194085243](https://doi.org/10.1002/nadc.20194085243).
8. **S. Kath-Schorr**\* "Cycloadditions for studying nucleic acids" *Top. Curr. Chem. (Z)* **2016**, 374, 1–27. DOI: [10.1007/s41061-015-0004-0](https://doi.org/10.1007/s41061-015-0004-0).
9. S. Schneider, **S. Schorr**\*, T. Carell\*, "Crystal structure analysis of DNA lesion repair and tolerance mechanisms" *Curr. Opin. Struct. Biol.* **2009**, 19, 87–95. DOI: [10.1016/j.sbi.2009.01.005](https://doi.org/10.1016/j.sbi.2009.01.005).
10. T. Reißner, **S. Schorr**, T. Carell\* "Once Overlooked, Now Made Visible: ATL Proteins and DNA Repair" *Angew. Chem. Int. Ed.* **2009**, 48, 7293–7295. DOI: [10.1002/anie.200904042](https://doi.org/10.1002/anie.200904042).