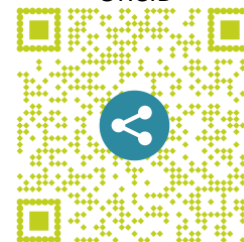


# Rhythm Shukla

Expertise in Biology, Biochemistry, Microscopy and NMR Spectroscopy

- 📍 Born on 16<sup>th</sup> June 1995
- 🗣️ Hindi (Native), English (Bilingual), French (Basic), Dutch (A1 level)
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ORCID



## EDUCATION

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**2013-2018** *BS-MS, Biological Sciences*, Indian Institute of Science Education and Research, Mohali, India

## RESEARCH EXPERIENCE

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**2019-till date** PhD candidate, Utrecht University, The Netherlands.

Major topics: Mechanism of action of Antibiotics, Solid-state NMR, Super-resolution microscopy, Protein-Lipid interactions. Supervisor: Dr. Markus Weingarth; Promotor: Dr. Eefjan Breukink

**2018-2019** Research Intern, Indian Institute of Science Education and Research, Mohali

Major topics: Immunobiology, Host-pathogen interaction, Effector proteins of *Salmonella Typhimurium*, Confocal microscopy, Supervisor: Dr. Arunika Mukhopadhaya

**2017** Internship, CIB, CSIC, Madrid, Spain.

Major topics: Interactomics study of bacteria and eukaryotic cells, Probiotics, Confocal microscopy. Supervisor: Dr. Paloma Lopez Garcia

**2016** Internship, Indian Institute of Science Education and Research, Mohali.

Major topics: Immunomodulatory responses, Bacterial infection in mouse model, Stem Cell-culture. Supervision: Dr. Arunika Mukhopadhaya

**2014** Internship, Indian Institute of Science Education and Research, Mohali.

Major topics: Neurobiology, Fluorimetry. Supervision: Dr. Samarjit Bhattacharyya

## SCHOLARSHIPS AND AWARDS

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**2022** Awardee at 'Netherlands L'Oréal-UNESCO For Women in Science Rising Talent'

**2022** Manrao-Rastogi Travel Award, 63<sup>rd</sup> Experimental NMR Conference, Orlando, FL, USA

**2013-2018** INSPIRE Fellowship, for the 5 years of *BS-MS* by the Govt. of India.

(Reserved for the top 1% of Indian students pursuing Science for higher education)

## PUBLICATIONS

(\*shared authorship)

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- 2022**      **Shukla, R**; Lavore F.; Maity S.; Derks M.G.N.; Jones C.R.; Vermeulen, B.; Melcrova A.; Morris M.A.; Becker L.M.; Wang X.; Kumar R.; Medeiros-Silva J.; Beekveld R.; Bonvin, A.M.J.J.; Lorent, J.; Lelli, M.; Nowick J.; MacGillavry H.; Peoples A.J.; Spoering A.; Ling L.; Hughes D.; Roos W.H.; Breukink, E.; Lewis K.; Weingarh, M.; Teixobactin kills bacteria by a two-pronged attack. (2022) *Nature*.
- 2021**      Zhao X; Wang X; **Shukla R**; Kumar R; Weingarh M; Breukink E; Kuipers OP; Brevibacillin 2V exerts its bactericidal activity via binding to Lipid II and permeabilizing cellular membranes. (2021) *Frontiers Microbiology* 12:694847.  
Zhao X, Wang X, **Shukla R**, Kumar R, Weingarh M, Breukink E and Kuipers OP Brevibacillin 2V, a novel antimicrobial lipopeptide with an exceptionally low hemolytic activity. (2021) *Frontiers Microbiology* 12:693725.
- 2020**      **Shukla, R\***; Medeiros-Silva, J.\*; Parmar, A.; Vermeulen, B.; Das, S.; Lucini Paioni, A.; Jekhmane, S.; Lorent, J.; Bonvin, A.M.J.J.; Baldus, M.; Lelli, M.; Veldhuizen, E.; Breukink, E.; Weingarh, M.; Mode of action of teixobactins in cellular membranes. (2020) *Nature Communications*, 11, 2848. *Highlighted in the press*
- 2019**      Gulati, A; **Shukla, R**; Mukhopadhaya, A; *Salmonella* effector SteA suppresses proinflammatory responses of the host by interfering with I $\kappa$ B degradation. (2019) *Frontiers Immunology* 10:2822.

## Book Chapter

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Derks, M., Smid, Leanna, S., Kumar, R., Becker, L.M., **Shukla, R.**, Breukink, E., Weingarh, M., *High-resolution NMR Studies of Antibiotics in Membranes*, in: *NMR Spectroscopy for Probing Functional Dynamics at Biological Interfaces*, RSC Advances, (ISBN 978-1-83916-209-1)

## ORAL COMMUNICATIONS

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- 2022**      EUROMAR, Utrecht, Netherlands  
Young Scientist Symposium, 63<sup>rd</sup> Experimental NMR Conference, Orlando, Florida, USA
- 2021**      42<sup>nd</sup> FGMR, Annual German NMR Conference, online, Germany  
Science for Life conference, Utrecht, Netherlands  
Annual Bijvoet Symposium, Utrecht, Netherlands  
CHAINS, Dutch National Chemistry meeting, online, Netherlands
- 2020**      Dutch Biophysics Conference, Houten, Netherland

## POSTER COMMUNICATIONS

- 2022 63<sup>rd</sup> Experimental NMR Conference, Orlando, Florida, USA  
Bijvoet Symposium, Utrecht Netherlands
- 2021 62<sup>nd</sup> Experimental NMR Conference, online, USA  
CHAINS, Dutch National Chemistry meeting, online, Netherlands  
Annual Dutch NMR Conference, online, Netherlands
- 2020 Dutch Biophysics Conference, Houten, Netherlands
- 2019 Utrecht Chemistry Day, Utrecht, Netherlands

## TEACHING AND ASSISTANCE

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### Student Supervision

- 2022 Mia Rafferty (Master)
- 2021-2022 Daphne Matser (Master)
- 2020 Lea M. Becker (Master)

### Teaching and assistance

**Assistant** *NMR-spectroscopy en molecular modelling*, BSc. level course 50 hours/year with Professors Marc Baldus and Alexandre Bonvin; Utrecht University, editions **2020, 2021**.

**Assistant** *Biology Laboratory I*, B.Sc. level course 50 hours/year with Dr.Kaushik Bhattacharyay; IISER,Mohali, **2017**.

## OTHER ACTIVITIES

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### Outreach, press releases and media coverage

*Mode of action of teixobactins in cellular membranes (widespread international coverage)*

- 11 news outlets: [altmetric.com/details/83469236/news](https://altmetric.com/details/83469236/news)
- [uu.nl/en/news/uncovering-the-tricks-of-game-changer-antibiotic-teixobactin](https://uu.nl/en/news/uncovering-the-tricks-of-game-changer-antibiotic-teixobactin)
- <https://www.uu.nl/en/news/three-erc-consolidator-grants-for-utrecht-based-researchers>
- <https://www.enc-conference.org/Manrao-Rastogi-Travel-Awards>

### Courses

- Advanced Bimolecular Mass Spectroscopy
- Adobe Illustrator
- Writing a Scientific Paper
- The Art of Presenting Science
- Dutch A1/A2 language course