

SAMHITHA URS, RAMARAJE URS, M.Sc.



A dedicated and budding structural biologist with 5+ years of experience in protein research. Armed with cryo-EM, AFM and advanced protein & structural biology techniques, I am eager to learn, expand my knowledge and grow professionally. Beyond the lab, I am committed to pushing the boundaries of science and transform complex biological challenges to drive impactful, actionable and real-world solutions.

RESEARCH EXPERIENCE

Nationality:

Indian

Mail-IDs:

samhithaurs82@gmail.com

Languages:

English (Professional)
Hindi (Professional)
German (Intermediate)
French (Basic)
Kannada (Native)

Education:


June 2013- June 2018

M.Sc in Molecular Biology Integrated
Bachelors-Masters in Molecular Biology
(5 years) – Grade – 1.58
University Of Mysore, Mysore, India.


Social media profiles:

LinkedIn  -

linkedin.com/in/samhithaurs

Twitter  - @samhitha_urs

Research media profiles:

ORCiD  - 0000-0003-0318-7483

ResearchGate -

researchgate.net/profile/Samhitha-Urs

Research areas:

Hematology, Cancer and
molecular Biology
Structural bioinformatics and
protein biology,

Interdisciplinary skills:

- ♦ Project and lab management
- ♦ Problem solving, resourceful and mentorship
- ♦ Team worker and collaborative researcher
- ♦ Critical and creative thinking
- ♦ Communication - Written, Oral, Interpersonal and Negotiation.
- ♦ Excellent Penmanship

Doktorandin/Wissenschaftliche Beschäftigte - 01/2021- Present (Contract ending on 31/2025) Faculty of Pharmacy, University of Bonn /Institut für Exp. Hämatologie und Transfusionsmedizin (IHT), Universitätsklinikum Bonn, Bonn, Germany

Project : "Structural and functional characterisation of B domain and full length of coagulation factor VIII"

Research area : Hematology and Structural Biology

- ♦ Led the purification processes (for the entire institute), using advanced techniques to ensure high-quality samples for R&D.
- ♦ Directed and optimized structural analysis and research strategies (Hematology and blood transfusion medicine and Hemophilia A) providing critical insights for structure-based therapeutic design.
- ♦ Mentored and supervised master's students and fellow lab members, ensuring the successful completion of lab projects and fostering a collaborative research environment.

Visiting Researcher - 06/2023 – 12/2023

Institut de Biologie Structurale (IBS) and Commissariat a l'Energie Atomique et aux Energies Alternative (CEA), Univ. Grenoble Alpes, CNRS, Grenoble, France

Collaborative project : " Analyzing the different conformational states of full-length coagulation Factor VIII by a combination of computational modeling, atomic force microscopy (AFM) and AFM assembly pipeline"

Research area : Hematology and Structural Biology

- ♦ Responsible for standardizing and executing AFM imaging conducting data analysis for structural characterization.
- ♦ Managed Linux-based systems, including command-line operations and Vi editor for efficient computing tasks

Research Assistant - 08/2018 – 10/2020

Institute of Bioinformatics and Applied Biotechnology (IBAB) Bangalore, India

Project : "Structural characterisation of Polymerase theta" and "CRISPR-Cas9 knockdown studies of DNA Polymerase theta (Polθ) in HR-deficient cancers"

Research area : Structural Biology - DNA repair and Cancer

- ♦ Oversaw the establishment of methods for analysing and characterizing proteins involved in DNA repair and cancer
- ♦ Designed and validated gene editing tools for CRISPR-based applications.
- ♦ Directed cell culture operations, including handling specialized insect cell systems.

Project Trainee - 01/2018-06/2018

Department of Biochemistry, Indian Institute of Science (IISc) Bangalore, India

Project : "Construction of an shRNA for the depletion of Bloom helicase (BLM)"

Research area : Molecular Biology - DNA repair and cancer

SKILLS

- ♦ **Protein and Structural Biology** - Protein purification - HPLC, Affinity, Ion-Exchange and size-exclusion chromatography (ÄKTA), XL-MS, structure analysis and visualization software (YASARA, Gromacs, PyMol, VMD, ChimeraX, Phenix, COOT, AlphaFold)
- ♦ **cryoEM** - Plunge freezing, Grid preparation, Particle picking, Image processing and reconstruction, knowledge of cryo-EM software packages (CryoSPARC)
- ♦ **Atomic Force Microscopy** – Imaging (Nanosurf DriveAFM and Bruker's AFM) and measurements in contact and dynamic mode (on/off-resonance) and image processing (Gwyddion)
- ♦ **Basics of XRC** - Crystallization setup - Vapor diffusion, Hanging drop and screening.
- ♦ **Molecular Biology** - Molecular Cloning, PCR, Electrophoresis (agarose, polyacrylamide gels SDS and Native gels), bacterial transformation, basics of designing and constructing CRISPR-Cas9 plasmids, gRNAs.
- ♦ **Cell culture** - Mammalian (HEK 293, HeLA, U2OS), Insect (SF9 and SF21) and cell free expression systems. Confocal, Bright-field microscopy
- ♦ **Technical Proficiencies** - Operating Systems: Windows, macOS, Linux (Basic Command Line)
- ♦ **MS Proficiencies** - MS-Word, MS- Excel, PowerPoint, Outlook, MS-Teams
- ♦ **Advanced bioinformatics analysis** - Vi editor, fundamental knowledge in Awk scripting, BLAST, FASTA, CLUSTAL-W, Biological databases- AlphaFold, RCSB-PDB, UniProt, NCBI.

PUBLICATIONS

RESEARCH ARTICLES & REVIEW PAPERS

- 2024** [Samhitha Urs Ramaraje Urs](#)¹, Jean-Luc Pellequer², Jean-Marie Teulon², Boxue Ma³, Deniz Ugular³, Sneha Singh¹, Jens Müller¹, Simone Gasper¹, Anna Pepanian³, Diana Imhoff³, Johannes Oldenburg¹, Arijit Biswas¹
“Decoding the B-Domain: Exploring Structural and Functional Dynamics in Full-Length Factor VIII” – Manuscript under preparation.
- 2024** Sneha Singh^{1,°}, Gregor Hagelueken^{2,°}, Deniz Ugurlar³, [Samhitha Urs Ramaraje Urs](#)¹, Amit Sharma⁴, Manoranjan Mahapatra⁴, Friedel Drepper⁵, Diana Imhof⁶, Pitter F. Huesgen⁵, Johannes Oldenburg¹, Matthias Geyer², Arijit Biswas^{1,*} “Cryo-EM structure of the human native plasma coagulation Factor XIII complex” *Blood* – Manuscript under minor revisions. PDBIDs: 8MCT, 8CMU (HPUB) IF: 21.0 (2024)
- 2024** Behnaz Pezeshkpoor PhD¹, Nadja Sereda M.Sc¹, Janine Becker-Gotot PhD², Ann-Cristin Berkemeier¹, Isabell Matuschek, M.Sc¹, Jens Müller PhD¹, [Samhitha Urs Ramaraje Urs M.Sc](#)¹, Sneha Singh PhD¹, Natascha, Marquardt MD^{1,3}, J. Oldenburg MD^{1,3}
“Comprehensive analysis of Neutralizing Anti-Emicizumab Antibodies on Drug Efficacy in Acquired Hemophilia A” *Journal of Thrombosis and Haemostasis (JTH)* – Manuscript accepted. IF: 5.5 (2024)
- 2022** Haroon Javed, Sneha Singh, [Samhitha Urs Ramaraje Urs](#), Johannes Oldenburg, Arijit Biswas
“Genetic landscape in coagulation factor XIII associated defects – Advances in coagulation and beyond” *Blood Reviews* - November 2022 . DOI: 10.1016/j.blre.2022.101032 IF: 6.9 (2024)

SELECTED CONFERENCE PAPER

- 2023** [SU Urs Ramaraje](#), D Ugurlar, B Ma, J-L Pellequer, J-M Teulon, D Fenel, H Javed, M M Islam, S Singh, J Oldenburg, A Biswas
“Low resolution cryo-EM maps and AFM analysis combined with alpha fold model of full-length coagulation Factor VIII sheds light on the conformational positioning of the Factor VIII B domain” - GTH Congress 2023 – 67th Annual Meeting of the Society of Thrombosis and Haemostasis Research – The patient as a benchmark. *Hamostaseologie* 2023; 43(S 01) DOI: 10.1055/s-0042-1760512
- 2022** [Ramaraje Urs](#), Sneha Singh, Haroon Javed, Guy Schoehn, Jean-Luc Pellequer, Jean-Marie Teulon, Daphne Fennel, Johannes Oldenburg, Arijit Biswas “Structural Characterization of Factor VIII B Domain to Generate an all atom Full-Length Structure of the Coagulation Factor VIII Protein” - 52nd Hamburg Hemophilia Symposium. *Hamostaseologie* 2022; 42(S 01) DOI: 10.1055/s-0042-1758498

INVITED TALKS

Main Speaker for an invited internal scientific webinar on “Structure of full-length FVIII with focus on the B-domain” – on 19.06.2023 in and by *Takeda Pharmaceutical Company Limited* (across U.S., Germany, and Austria)- Peter L. Turecek, Hon.Prof.(FH) Univ.-Doz

HONORS & ACHIEVEMENTS

- 2023** **Early Career Travel Award** - International Society on Thrombosis and Haemostasis (ISTH) 2023
Oral presentation: “ Structural characterization of coagulation factor VIII”
- 2023** **Rudolf Marx Stipendium** – Visiting research scholar – Institut de Biologie Structurale – 67th annual meeting of the GTH 2023
“Analyzing the different conformational states of full-length coagulation Factor VIII by a combination of computational modeling, atomic force microscopy (AFM) and AFM assembly pipeline”
- 2022** **Best poster award** - 53rd Hamburg Hemophilia Symposium- 2022- Hamburg
Poster presentation: “Low-resolution cryo-EM combined with alpha fold model of Full length coagulation Factor FVIII sheds light on the spatial orientation of B domain”
- 2022** **Reisestipendium** - Deutschen Gesellschaft für Transfusionsmedizin und Immunhämatologie (DGTI) 2022- Mannheim
Oral presentation: “Structural investigations into coagulation factor VIII full-length and B domain”

REFERENCES

Dr. Arijit Biswas. Ph.D., PD

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Institut für Exp. Hämatologie und
Transfusionsmedizin (IHT) Universitätsklinikum
Bonn, Venusberg Campus 1, Gebäude 43, Bonn-
Venusberg 53127

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Dr. Jean-Luc Pellequer

Electron Microscopy and Methods Group
Institut de Biologie Structurale, 71, avenue des
Martyrs, CS 10090, 38044 Grenoble Cedex 9
(Reference provided upon call/mail)

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Prof. Dr. med. Johannes Oldenburg

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Bonn. **Director** - Institut für Exp. Hämatologie und
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