

MADHUMATI SEVVANA

STRUCTURAL IMMUNOLOGY & VIROLOGY

Purdue University, Indiana, USA

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ABOUT

Over 15+ years of experience as a structural biologist in leading more than 20 collaborative research projects to decipher the atomic details of complex bio-molecular mechanisms with a broader goal of designing structure-based therapeutics.

TECHNICAL SKILLS

X-ray Crystallography	Cryo-Electron Microscopy			
Cro-Electron Tomography	Molecular Modeling			
Molecular Biology	Molecular Virology			
ITC	SPR	DLS	CD-Spectroscopy	Mass Spectrometry
Structure-based Protein Design	Python Programming			

TECHNICAL COMPETENCIES

| Twinned Crystal Structures | Structural Virology |
| Virus-Antibody Complexes | BSL2 Sample Preparations |
| Crystallography and Cryo-EM Methods Development |
| High-Resolution Crystallography and Cryo-EM Structures |

KEYWORDS/AREAS OF INTEREST

| Antibody therapeutics | Anti-viral therapeutics |
| Structure-based antibody and antigen design |
| AI-based antibody engineering |

MENTORSHIP AND COLLABORATIONS

- Research mentoring of 20+ graduate students and postdocs
- Structural biology training of 50+ graduate students
- Teaching: 25+ undergraduate students/year (2006-2016)
- Collaboration projects: 20+ national and international

LEADERSHIP

- Lab inventory lead to optimize resources (7 y's)
Purdue University and FAU Erlangen-Nuernberg
- Structural biology consortium lead for SFB796 (8 y's)
FAU Erlangen-Nuernberg
- Team lead for *in house* and synchrotron crystallography (10 y's)
FAU Erlangen-Nuernberg
- Lead System and IT Network Administrator (10 y's)
FAU Erlangen-Nuernberg
- Facilitating Academia to Industry Transitions (1 y)
Sci-ROI Leadership team
Science and Research Opportunities in India

PEER-REVIEWED PUBLICATIONS

Peer-reviewed publications: 33+

<https://pubmed.ncbi.nlm.nih.gov/?term=sevvana>

| H-index: 18 | Citations: 1519 |

LANGUAGES

| English | German | Hindi |

<https://www.madhu-sevvana.com/>

EDUCATION

2006 - 2010

Postdoctoral Fellow

FAU Erlangen-Nuernberg, Germany

2003 - 2006

PhD Structural Biology

George August University, Germany

2001 - 2003

M.S Molecular Biology

Max Planck Research School, Germany

1999 - 2001

M.Sc Biochemistry

University of Hyderabad, India

EXPERIENCE

2016 - Present

ASSISTANT RESEARCH SCIENTIST

Purdue University, USA

RESEARCH AREAS

| Zika virus neutralization by antibodies | Structure-guided
HCV vaccine design | Anti-virals against alphaviruses |
| Structure-based flavivirus antibody design |

ACCOMPLISHMENTS

| Zika virus-Antibody complex structures for DARPA as
part of Pandemic Protection Platform program |
| Zika virus-Antibody structures for vaccine design |
| Zika virus-Antibody structures for biologics design |
| *In silico* AI driven flavivirus therapeutic antibody design |
| Lead structure-guided design efforts of HCV vaccine |

| Cryo-EM studies of BSL2 samples and optimization |
| Optimized tomogram data collection and processing |
| Research mentor for diverse structural biology projects |
| Highly cited Publications and Reviews (13) |

2006 - 2016

SENIOR SCIENTIST

FAU Erlangen-Nuernberg, Germany

RESEARCH AREAS

| Human apolipoprotein in Atherosclerosis |
| HCMV infection mechanism |
| Mechanism of Antibiotic Resistance |
| Crystallographic Methods Development |

ACCOMPLISHMENTS

| Expert solution for challenging crystal structures (>25) |
| Structure-based design of binding pocket in proteins for
drug delivery and stable complexes |
| Designed peptido-mimetics based on 3D structure |
| Successful Grant Application - SFB796 for 12 years |
| Service crystallography lead and co-ordination |
| Successfully lead international project collaborations |
| Highly cited publications including papers in
crystallographic methods development (11) |