Education

10/2010 – 08/2014	Ph. D. in Structural Biology, University of Cambridge, UK.
06/2009 – 06/2010	M. Tech. in Biotechnology, University of Pune, India. Secured O grade (equivalent to >80% marks).
07/2004 – 05/2009	Integrated M. Sc. in Biotechnology, University of Pune, India. Secured O grade (equivalent to >80% marks).

Employment

08/2019 – 07/2022	Anne McLaren Fellow, University of Nottingham UK investigating the "Role of RNA protein complexes in regulating host-pathogen interactions". Full time appointment.
01/2015 – 07/2019	Sir Henry Wellcome Postdoctoral Fellow at University of Cambridge, UK; University of Bonn, Germany and Yale University, USA for "Investigation of the structure and dynamics of HIV Transactivation Complex". Fixed term, full time appointment.

Awards and Fellowships

2015 – 2019	**Sir Henry Wellcome Postdoctoral Fellowship** (Total of £ 250,000 awarded by the Wellcome Trust, UK for performing independent postdoctoral research in biomedical sciences).
2015 – 2017	**Long Term Fellowship** of the European Molecular Biology Organisation (EMBO) (non-stipendary).
2011 – 2013	Society of Chemical Industry (SCI) Messel and Gray Trusts Scholarship. (research stipend of £5000).
2011	**Peter Salamon Award** for Young Scientists by Telluride Science Research Center, USA.
2010	**Dr. Manmohan Singh, Prime Minister of India, Scholarship** for pursuing PhD at St. John's College, University of Cambridge, UK. (full fees and stipend).
2010	Wellcome Trust Fellowship and Clarendon Fund for pursuing D. Phil. in Structural Biology at University of Oxford, UK. (Awarded not taken).
2009	Graduate Aptitude Test in Engineering, India. (ranked within top 0.71% of ~400,000 students).
2008	Junior Research Fellowship of the Council of Scientific and Industrial Research – (CSIR-JRF), India through National Eligibility Test (NET). (Awarded, not taken).
2004 – 2010	**Young Scientist Fellowship (KVPY)** by Department of Science and Technology, Government of India. Stipend equivalent to £3200 for supporting undergraduate and graduate education.

Publications

(1) **Borkar AN** and D'Orso I. Structural basis for assembly and function of the 7SK snRNP complex (2018). Non-coding RNA Investig. 2:70 (invited editorial).

(2) **Borkar AN**, Vallurupalli P, Carillon C, Kay L, Vendruscolo M (2017). Simultaneous NMR characterisation of multiple minima in the free energy landscape of the RNA UUCG tetraloop. Phys. Chem. Chem. Phys., 19, 2797-2804. doi:10.1039/C6CP08313G

(3) **Borkar AN**, Bardaro M, Camilloni C, Aprile FA, Varani G, Vendruscolo M (2016). Structure of a low-population binding intermediate in protein-RNA recognition. Proc Nat Acad Sci, USA. 113(26):7171-7176. doi: 10.1073/pnas.1521349113

(4) **Borkar AN**, De Simone A, Montalvao RW, Vendruscolo M. (2013) A method of determining RNA conformational ensembles using structure-based calculations of residual dipolar couplings. J Chem Phys.138:2153103. doi:10.1063/1.4804301

(5) Kumar D, **Borkar A**, Hosur RV. (2012) Facile backbone (^{1}H, ^{15}N, ^{13}Cα, and ^{13}C') assignment of ^{13}C/^{15}N-labeled proteins using orthogonal projection planes of HNN and HN(C)N experiments and its automation. Mag Reson Chem. 50(5):357-363. doi:10.1002/mrc.3801

(6) **Borkar A**, Rout M, Hosur RV. (2012) A Molecular Dynamics Study of Interaction of HIV-1 Protease Monomer (PR) with Acetic Acid: Insights into the Mechanism of Denaturation of PR. J Biomol Struc Dyn. 29(5):843-1099. doi:10.1080/073911012010525025

(7) **Borkar A**, Kumar D, Hosur RV. (2011) AUTOBA: Automation of Backbone Assignment from HN(C)N Suite of Experiments. J Biol NMR 50: 285-297. doi:10.1007/s10858-011-9518-0

(8) **Borkar AN**, Rout M, Hosur RV. (2011) Visualization of early events in acetic acid denaturation of HIV-1 protease: A molecular dynamics study. PLoS one 6(6): e19830. doi:10.1371/journal.pone.0019830

(9) **Borkar A**, Ghosh I, Bhattacharyya D. (2010) Structure and Dynamics of Double Helical DNA in Torsion Angle Hyperspace: A Molecular Mechanics Approach. J Biomol Struc Dyn 27(5):675-712. doi:10.1080/07391102.2010.10508582

Under preparation

(1) **Borkar AN*** and Steitz TA. RHyTEM: A time and cost-efficient method for RNA-protein sample preparation for Transmission Electron Microscopy (in preparation for *Nature Biotechnology)*.

(2) **Borkar AN***, Greifenberg AK, Spott M, Geyer M and Steitz TA. Method for obtaining functionally active, dynamic RNA-protein complexes suitable for structural characterization (in preparation for *Wellcome Open Research*).

(3) **Borkar AN*,** Roy R and Steitz TA. Rapid, affinity based analytical scale purification of native ribosomes.

(4) **Borkar AN**, Lomakin IB and Steitz TA. Structural basis for inhibition of cap-dependent translation initiation of HIV mRNA by TAR RNA element.

(5) Lomakin IB, **Borkar AN**, Dmitriev SE and Steitz TA. High-resolution crystal structure and conformational flexibility of C-terminal domain of human Density regulated protein provide insights into regulation of translation initiation, reinitiation and recycling.

*corresponding author

Presentations

Total **10 invited talks** and **9 poster presentation** selections at international events, such as conferences and workshops in structural biology and RNA biology, and EMBO and Wellcome Trust fellows meetings.
Highlighted presentations:

06/2017 "Bringing structural order to disordered complexes of HIV-1 transactivation process", Poster, 67th Lindau Nobel Laureate Meeting, Germany.

06/2016 "Characterising low-population binding intermediates in RNA protein recognition", Poster, EMBO workshop RNA structure meets function, Sweden.

06/2015 "Constructing free energy landscapes of RNA at atomic resolution", Young scientists speaker program, The 19th Albany conversation, Albany, USA.

07/2015 "Energy landscape of the HIV transactivation process", Sir Henry Wellcome - MIT Fellows biannual meeting, London, UK.

11/2013 "Structure-function relationships in RNA" at SFMBBM Doctoral School, Liége (best talk award).

01/2013 "RNA choreography" Invited talk at Indian Biophysical Society Symposium, Mumbai.

08/2012 "RNA-based drug discovery" at Annual General Meeting of Society of Chemical Industry, UK.

Teaching, Mentoring and other interests

2018 Member of undergraduate (Economics Tripos) admissions **interview panel**, St John's College, University of Cambridge, UK.

2017 – 2018 **Teaching Fellow** with Prof. Michael Koelle and Prof. Julie Park for BIOL 101 course at Yale University, USA.

2017 Reviewer for Yale Institute of Biospheric Sciences internal small grants.

2016 – 2018 **Mentor** for graduate students, Ms Meaghan Sullivan and Ms Helen Sun, as part of the **"Women in Science at Yale (WISAY)"** program.

2016 – 2018 Member of the Molecular Biophysics and Biochemistry Postdoctoral Group, Yale University, USA.

2016 – 2017 **Supervising** undergraduate research thesis on "HIV-1 Reverse Transcriptase MD Simulations" and mentored Yale Chemistry paper of Mr. Zachary Smithline at Yale University, USA.

2016 – 2017 Creative head of South Asian Graduate and Professional Association (SAGA) at Yale Univeristy, USA.

10/2014 Taught "Macromolecular Structure: Concepts, Techniques and Applications" at Refresher Course for lectures of life sciences, Amravati University.

2013 **Co-founder** of the Science Outreach to Schools (SoS) Initiative for Indian students.

2010 **Junior Demonstrator** for Theoretical Chemistry Part 1B practical at Department of Chemistry, University of Cambridge.

2009 **Lecturer** for M. Sc. II year in Immunology at Department of Biotechnology, Institute of Science, Mumbai, India.