

**Arjun Ray**

CSIR-Institute of Genomics and Integrative  
Biology  
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<https://scholar.google.co.in/citations?user=reRjZdUAAA&hl=en>

**EDUCATION**

2013 - 2017

**Doctor of Philosophy (Ph.D.) (Degree in Awaiting)**

Area: Biology  
CSIR-IGIB, New Delhi, India  
Advisor: Shantanu Sengupta, Ph.D.  
Lipi Thukral, Ph.D.

2009 - 2012

**Master of Philosophy (M.Phil.)**

KTH Royal Institute of Technology  
Stockholm, Sweden  
Major: Biological Physics  
Advisor: Erik Lindahl, Ph.D.  
Björn Wallner, Ph.D.

2004 - 2006

**Master of Science (M.Sc.)**

Visva Bharati University,  
Santiniketan, India  
Major: Organic Chemistry

2001 - 2005

**Bachelor of Science (B.Sc.)**

Visva Bharati University,  
Santiniketan, India.  
Major: Chemistry

**RESEARCH  
EXPERIENCE**

2016

**Guest Researcher**

Heidelberg Institute for Theoretical  
Studies, Heidelberg, Germany.  
Area: Molecular Biomechanics

Laboratory of Dr. Frauke Gräter  
Title: stress transmission through  
protein-membrane systems.

- 2012
- Internship**  
The European Bioinformatics  
Institute (EMBL-EBI)  
Wellcome Genome Campus  
Cambridge, United Kingdom
- Advisor: **Prof. Dame Janet Thornton**, DBE, FRS, FMedSci  
Title: Using nsSNP information on 1KG data using comparative modeling
- 2008
- Project Associate**  
Department of Biosciences and  
Bioengineering, I.I.T. Kanpur
- Advisor: **Dr. Balaji Prakash**  
Title: Study and Characterization of Monofunctional and Bifunctional of Rel Proteins
- 2005
- Visiting Student**  
Department of Biochemistry,  
Cambridge University, U.K.
- Advisor: **Dr. Kenji Mizuguchi**  
**Prof. Sir Tom Blundell**  
Title: Development of the HOMSTRADBETA database
- 2004
- Internship**  
Department of Chemistry, I.I.T. Kanpur
- Advisor: **Prof. Y.D. Vankar**  
Title: Development of new synthetic methods of contemporary interest addressing selectivity including enantioselectivity
- 2004
- Internship**  
Department of Chemistry, Visva-Bharati University
- Advisor: **Prof. G. Brahmachari**  
Title: Study of Anti-Bacterial Activity of Medicinal Plants (*Lymnophila indica*)

2004

**Internship**

Department of Chemistry, I.I.T.  
Kanpur

Advisor: **Prof. Y.D. Vankar**

Title: Synthetic Carbohydrate  
Chemistry of Biological Relevance  
(Oligosaccharide and  
Glycoconjugate Synthesis)

**PEER-REVIEWED JOURNAL ARTICLES**

**(TOTAL IMPACT FACTOR: 44.767) (TOTAL CITATION: 206)**

1. **Ray, A.**, Gräter, F. and Thukral, L., 2018. Probing molecular forces in multi-component physiological membranes. *Physical Chemistry Chemical Physics*. Nov 27. doi: 10.1039/c7cp05981g. [Epub ahead of print] **(Front Cover Article) (Featured in “2017 HOT Articles”)**
2. **Ray, A.**, Jatana, N. and Thukral, L., 2017. Lipidated proteins: Spotlight on protein-membrane binding interfaces (Review). *Progress in Biophysics and Molecular Biology*. Sep;128:74-84. doi: 10.1016/j.pbiomolbio.2017.01.002.
3. Bansal, T., Chatterjee, E., Singh, J., **Ray, A.**, Kundu, B., Thankamani, V., Sengupta, S. and Sarkar, S., 2017. Arjunolic acid, a peroxisome proliferator-activated receptor  $\alpha$  agonist, regresses cardiac fibrosis by inhibiting non-canonical TGF- $\beta$  signaling. *Journal of Biological Chemistry*, 292(40), pp.16440-16462.
4. Paul, D., Sinha, A.N., **Ray, A.**, Lal, M., Nayak, S., Sharma, A., Mehani, B., Mukherjee, D., Laddha, S.V., Suri, A. and Sarkar, C., 2017. A-to-I editing in human miRNAs is enriched in seed sequence, influenced by sequence contexts and significantly hypoeedited in glioblastoma multiforme. *Scientific Reports*. May 26;7(1):2466. doi: 10.1038/s41598-017-02397-6.
5. Silla, Y., **Ray, A.**, Thukral, L. and Sengupta, S., 2015. Molecular modeling indicates that homocysteine induces conformational changes in the structure of putative target proteins. *Journal of Proteins & Proteomics*, 6(3).
6. Bose, D., Nahar, S., Rai, M.K., **Ray, A.**, Chakraborty, K. and Maiti, S., 2015. Selective inhibition of miR-21 by phage display screened peptide. *Nucleic acids research*, 43(8), pp.4342-4352.
7. Nahar, S., Ranjan, N., **Ray, A.**, Arya, D.P. and Maiti, S., 2015. Potent inhibition of miR-27a by neomycinbisbenzimidazole conjugates. *Chemical Science*, 6(10), pp.5837-5846.
8. Quality assessment of protein models. [Thesis]. Stockholm: KTH Royal Institute of Technology;. Trita-FYS, 2012:07. (2012)
9. **Ray, A.**, Lindahl, E. and Wallner, B., 2012. Improved model quality assessment using ProQ2. *BMC bioinformatics*, 13(1), p.224.
10. **Ray, A.**, Lindahl, E. and Wallner, B., 2010. Model quality assessment for membrane proteins. *Bioinformatics*, 26(24), pp.3067-3074

## MANUSCRIPTS IN PREPARATION/SUBMITTED FOR REVIEW

1. Kumar, V., Peter, J.J., Sagar, A., **Ray, A.**, Ashish, Mapa, K., 2017. Atypical domain communication and domain functions of a Hsp110 chaperone. bioRxiv, p.220798. doi:10.1101/220798 (under review)
2. **Ray, A.**, Sengupta, S. and Thukral, L., 2017. Specific cholesterol binding drives drastic structural alterations in apolipoprotein A1. bioRxiv, p.228627. doi:10.1101/228627 (under review)
3. Yumnam Silla, Swati Varshney, **Arjun Ray**, Trayambak Basak , Angelo Zinellu, Varatharajan Sabareesh, Ciriaco Carru , Shantanu Sengupta. Hydrolysis of homocysteine thiolactone results in the formation of Protein-Cys- S-S-homocysteinylation. (under review)
4. Arpita Ghosh, Natalya Degyatoreva, Casey Kukielski, Sandra Story, Sayantan Bhaduri,
5. Krishnagopal Maiti, Smita Nahar, **Arjun Ray**, Dev P Arya\* and Souvik Maiti\*. Small Molecule Mediated Interference in miR-21 Biogenesis to Revert Epithelial to Mesenchymal Transition (under review)
6. **Ray, A.**, Sengupta, S. and Thukral, L. Deciphering the self-assembly of ApoA1 in oligomeric complex. (in preparation)
7. Kavita Yadav, Prabhu Srinivas Yavvari, Sanjay Pal, Sandeep Kumar, Vijay Soni, **Arjun Ray**, Siladitya Padhi, Priyanka, Smriti Verma, Varsha Komalla, Neha Khare, Arti Kapil, C. V.Srikanth, Lipi Thukral, Vinay Nandicoori, and Avinash Bajaj. Directing at Salmonella induced gut infection and inflammation using bile acid amphiphile: Importance of hexyl chain! (in preparation)
8. Large-scale membrane modulation by autophagy ATG17 protein (in preparation)

## ACADEMIC AWARDS AND ACHIEVEMENTS

- **President, ISCB RSG-INDIA**  
Voted into the position to head the ISCB Regional Student Group (RSG) –India
- Ranked highest amongst the stand-alone methods for globular protein model quality assessment, CASP 9, CASP 10 and 11.
- Developed the pioneering method for model quality assessment dedicated for membrane proteins.

## PROFESSIONAL AFFILIATIONS AND SERVICES

### Professional Organization Member

International Society for Computational Biology (ISCB)

### Committee Member

- ISCB-RSG India, Core Committee Member (2015- )
- After-Party Organizing Committee Member, ISMB Conference (2010)

- Organizing Committee Member – Membrane Protein and Bioinformatics Workshop, Stockholm University (2009)
  - Secretary – Ph.D. Student Council, Department of Biochemistry and Biophysics, Stockholm University (2009-2010)
  - After – Banquet Party Organizer, ISMB Conference (2009)
  - Principal Student coordinator of National Royal Chemical Society Annual Conference, India (2006)
  - Chief Editor of the departmental wall magazine “Entropy” (2003)
  - Executive Committee Member of the Department of Chemistry, (Siksha Bhavana) for the Annual Excursion (2003-2004)
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## ACADEMIC PRESENTATIONS

### *TALKS*

- Visva Bharati University, India (2011)
- Departmental retreat, Stockholm University (2010)

### *POSTERS*

- IXth European Symposium of the Protein Society, Sweden (2011)
  - CASP9 Protein Folding Conference, U.S.A. (2010)
  - ISMB Conference, U.S.A. (2010)
  - ISCB Student Council Symposium, U.S.A. (2010)
  - FP7 MARIE CURIE ‘TRANSYS’ ITN International Research Conference “*Membrane protein structure, biogenesis and bioinformatics*”, Italy (2010)
  - ISMB Conference, Sweden (2009)
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## WORKSHOP

- CoE Workshop on Biomolecular Interactions, Bangalore (2015)
- Protein Structure Prediction Workshop, Budapest (2009)
- Ion Channel Workshop, Stockholm (2009)
- Membrane Protein and Bioinformatics Workshop, Stockholm (2009)
- AMD / GPU Computing Workshop, Stockholm (2008)

## TEACHING EXPERIENCE

### *INSTRUCTOR*

Spring 2011                      Design and supervision of bioinformatics experiments for BEST (Board of European Students of Technology) (2011)

### *TEACHING ASSISTANTSHIPS*

Fall 2015                      Teaching assistance for graduate course for “Protein and Proteomics”, CSIR-IGIB  
Fall 2014                      Teaching assistance for graduate course for “Protein and Proteomics”, CSIR-IGIB  
Fall 2010                      Teaching assistance for “Introduction to bioinformatics” course, Stockholm University.

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## TEACHING INTEREST

**Lectures:** Introduction to Bioinformatics, Molecular Mechanics, Dynamics in Biology, Structure Prediction, Drug Designing

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## *EXTRA-CURRICULAR ACTIVITIES*

- Basketball Tournament(Men), Eastern Zone in University Level- 2001
  - National Swimming Meet ,Zonal Swimming Meet ,Regional Swimming Meet, Participation and Positions held- 1995
  - National Swimming Meet ,Zonal Swimming Meet ,Regional Swimming Meet, Participation and Positions held- 1996
- Won the Second Prize for Inter-School (District) Badminton- 1999
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## PERSONAL DETAILS

Date of birth: 13<sup>th</sup> August 1982

Present Address: #305, 3C, Silver City – II, Greater Noida – 201308, U.P (India)

Father’s name: Dr. Amit Ray

Mother’s name: Mrs. Madhumita Ray

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## REFERENCES

1. **Dr. Shantanu Sengupta**  
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Web: <http://www.igib.res.in/ssg/index.html>
2. **Dr. Lipi Thukral**  
(Ph.D. Co-supervisor)  
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4. **Prof. Amitabha Chattopadhyay**  
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6. **Prof. Dame. Janet Thornton**  
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