Prof. Anuradha Lohia
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About

Prof. Anuradha Lohia is a molecular parasitologist who has done extensive research in the field of infectious disease. She is a Senior Professor and past-Chairperson of the Department of Biochemistry at the Bose Institute, Kolkata. Previously, she served as the founding Chief Executive Officer of the UK-India collaborative 'Welcome Trust/ DBT India Alliance' - an organization that supports excellence in medical research. She is currently the Vice Chancellor of the Presidency University, Kolkata

Prof. Lohia was born and raised in Kolkata. She completed her schooling from Modern High School for Girls in 1972, whereupon she entered the world-renowned Presidency College to pursue her bachelors degree in Physiology. She was an outstanding scholar, receiving medals in both her undergraduate and post graduate (MSc Physiology, Rajabazaar Science College, Calcutta University). She completed her doctoral thesis on the cell-surface of *Vibrio cholerae* from the Indian Institute of Chemical Biology, Jadavpur.

Following postdoctoral work at New York University Medical Centre, she joined Bose Institute as a lecturer at the Department of Biochemistry. Her work at the Bose Institute received international acclaim, resulting in her being awarded multiple national and international awards and fellowships, including the Fogarty fellowship and the prestigious Rockefeller Foundation Biotechnology Career Award. She has been a visiting scientist at the Harvard School of Public Health, Boston University, Stanford University and the University of Virginia, USA. She has collaborated with many international scientists at the Bernard Nocht Institute (Hamburg, Germany), the University of Freiburg, Germany and the Technion, Haifa, Israel. She has published many original research papers in peer reviewed international journals, many of which have been cited for their importance. She has

served on the editorial board of several national and international journals and as a committee member of prestigious task forces and scientific evaluation committees of the Government of India.

She received the National award for young women scientist from the Department of Biotechnology, Government of India and several awards from other agencies. She is an elected fellow of the Indian Academy of Sciences and an elected member of the Guha Research Conference, which is a premier body of outstanding scientists. She has received many peer reviewed grants from the Government of India and from the National Institutes of Health (USA).

Qualifications

972-76 B.Sc. (Hons), Presidency College, University of Calcutta, India

1977-79 M.Sc., University of Calcutta, India

1980-85 PhD (Biochemistry), IICB, University of Calcutta, India

Thesis title: Studies on the cell surface of *Vibrio cholerae*
Thesis supervisor: Dr Jyotirmoy Das.

Biography

Prof Lohia's doctoral thesis was on the biochemical structure of the cell surface of *Vibrio cholerae.* Her post-doctoral work at NYU medical Centre, USA was to develop a transfection system for the malaria parasite *Plasmodium falciparum.* After returning to India, she has been working in Bose Institute on understanding teh molecular mechanisms of the cell division cycle of *Entamoeba histolytica* - a protist parasite that is endemic in eastern India. She has made seminal discoveries in her area of study that has been acclaimed widely the world over. She has identified an active compound from a local medicinal plant that has the ability to kill amoeba. Her career path and different appointments are enumerated below.

1980-1986	Graduate student, Biophysics Division, Indian Institute of Chemical Biology, Calcutta.
1986-1988	Post – doctoral fellow, Department of Biochemistry, NYU Medical Centre, USA
1988-1989	CSIR Pool Officer, Department of Biochemistry, Bose Institute, Calcutta.
1989-1992	Lecturer, Department of Biochemistry, Bose Institute, Calcutta.
1993-1997	Senior Lecturer, Department of Biochemistry, Bose Institute, Calcutta,
1997- 2003	Reader, Department of Biochemistry, Bose Institute, Calcutta.
2003-2007	Professor, Department of Biochemistry, Bose Institute, Calcutta.
2007- present	Senior Professor, Department of Biochemistry, Bose Institute, Calcutta.
2009- 2012	CEO, The Wellcome Trust DBT India Alliance, Hyderabad, India

(On lien from Bose Institute)

2009- present	Adjunct Faculty, CDFD, Hyderabad, India
2014-present	Vice-Chancellor, Presidency University, Kolkata.

Research / Administrative Experience

For the promotion of various research activities, Prof Lohia has served on many national and international committees described below.

1. Associate Editor –a) Journal of Biosciences. b) PLoS NTD.

2. Secretary, All India Cell Biology Society. 2005-2007.
3. Member of Task forces and PAC in DBT, DST, CSIR, DRDO, Women's science panel and task force (DST).
4. Trustee, member of Governing body of Manovikas Kendra Rehabilitation and research institute for the handicapped.
5. Member of RAP/SAC committees of NII, New Delhi (2003), NICED, Kolkata (2008) and NCCS, Pune (2003- present).
6. PI and coordinator of DST sponsored IRHPA facility at Bose Institute (2005-2009).
7. Scientist in charge of Bioinformatics centre at Bose Institute (2003-2005).

8. Member of Governing Body, NII, New Delhi 2014-2017.

9. CEO- The Wellcome Trust/DBT India Alliance, Hyderabad.

10. Research Advisory committee member, LVPEI, Hyderabad.

Teaching / Other Experience

Her research collaborations/appointments in different universities are described below-

Visting Scientist at-

1991-1996	Harvard School of Public Health.
1996	National University of Singapore.
1997	Bernard Nocht Institute, Hamburg, Germany.
2004-2007	University of Freiburg, Germany.

2005-2008 University of Virginia, USA.

2006-2008 Technion, Haifa, Israel.

2006-2009 Stanford University.

Post Graduate Supervision

12 PhD students; 4 post-docs and 10 summer students

Academic Memberships

Awards and Affiliations:

1992 Outstanding Young Person Award by North Calcutta Junior Chamber of Commerce.

1992-94 Rockefeller Foundation Biotechnology Career Fellowship.

1996 UNESCO Molecular and Cell Biology network award

1997 Elected Member of Guha Research Conference, India

1998 Elected Member of National Academy of Sciences, Allahabad, India.

2001 DBT National Award for Young Woman Bioscientist.

2005 Zee Astitva award.

2005 Stree Shakti Science Sanman.

2006 Elected Fellow of Indian Academy of Sciences, Bangalore, India

Publications

1. Lohia, A., Chatterjee, A.N. and Das, J. (1984) Lysis of Vibrio cholerae cells: Direct isolation of the outer membrane by treatment with urea. J.Gen.Microbiol.130,2027-2033.

2. Lohia, A., Mazumdar, S., Chatterjee, A.N. and Das, J. (1985) Effect of changes in the osmolarity of the growth medium on Vibrio cholerae cells. J.Bacteriol. 163, 1158-1167.

3. Lohia, A., Haider, N. and Biswas, B.B. (1990) Characterisation of a repetitive DNA family from Entamoeba histolytica which contains Saccharomyces cerevisiae ARS consensus sequences.Gene, 96,197-213.

4. Sengupta, T.K., Chaudhuri, K., Mazumdar, S., Lohia, A., Chatterjee, A.N. and Das, J. (1992) Interaction of Vibrio cholerae cells with b-lactam antibiotics: Emergence of resistant cells at a high frequency. Antimicrob.Agents.Chemother.36,788-795.

5. Lohia, A. and Samuelson, J. (1993) Molecular cloning of a p34 cdc2 homologue from Entamoeba histolytica. Gene,127,203-207.

6. Lohia,A. and Samuelson, J. (1993) Molecular cloning of a ras homologue (rho) from Entamoeba histolytica.Mol.Biochem.Parasitol.58,177- 180.

7. Lohia, A. and Samuelson, J. (1994).Molecular cloning of a protein serine/threonine kinase from Entamoeba histolytica. Biochem.Biophys.Acta 1222, 122-124.

8. Shen, P.S., Lohia, A. and Samuelson, J. (1994) Molecular cloning of ras and rap genes from Entamoeba histolytica.Mol.Biochem.Parasitol.64,111-120.

9. Ray, S.S., Samuelson, J. and Lohia, A. (1994) Effect of serum starvation on the ras superfamily genes of E.histolytica. Proceedings of DAE symposium on Stress and adaptive responses in Biological systems. pp 268-273.

10. Lohia, A. and Samuelson, J. (1996) Heterogeniety of E.histolytica genes encoding homologues of p21 rac. Gene 173, 205-208.

11. Ghosh, S., Lohia, A., Kumar, A., and Samuelson, J. (1996) Overexpression of P-Glycoprotein gene 1 by transfected Entamoeba histolytica confers emetine-resistance. Mol. Biochem. Parsitol. 82, 257-260.

12. Lohia, A., Ray, A. and Sinha, P. (1996) Isolation and sequence analysis of CEN5 mutations in yeast. J.Genet. 75, 173-180.

13. Ray, S.S., Gangopadhyay, S.S., Pande, G. and Lohia, A. (1997) Characterisation of cell division cycle regulating genes of Entamoeba histolytica using flow cytometry. Arch. Med. Res., 28,122-123.

14. Samuelson. J., Caplivski, D., Ramirez, K.S., Kretzinger, K., Descoteaux. S., Hernandez, G., Vargas, G., Mammo, R., Newton, O., Santos, J., Vega, H.D.L., Robbins, P., Ganguly, C., and Lohia, A.(1997) A proposal for a molecular biologic system for classifying isolates of Entamoeba histolytica and Entamoeba dispar. Arch. Med. Res. 28, 274-275.

15. Gangopadhyay, S.S., Ray, S.S., Sinha, P. and Lohia, A. (1997) Unusual Genome organisation in Entamoeba histolytica leads to two overlapping transcripts. Mol. Bioch. Parasitol.89, 73-83.

16. Ray, N., Poddar, A., Lohia, A. and Sinha, P. (1997) The mcm 17 mutation of yeast causes size dependent segregational defect of a minichromosome. Current Genetics 32, 182-189.

17. Chakraborty, R., Deb, C., Lohia, A. and Roy, P. (1997) Cloning and characterisation of a high copy number novel insertion sequence from chemolithotropic Thiobacillus ferroxidans. Plasmid 38, 129-134.

18. Gangopadhyay, S.S., Ray, S.S., Kennady, K., Pande, G. and Lohia, A. (1997) Heterogeneity of DNA content in axenically growing Entamoeba histolytica HM1:IMSS clone A. Mol. Biochem. Parasitol. 90, 9-20.

19. Ray, S.S., Gangopadhyay, S.S., Pande,G., Samuelson, J. and Lohia, A. (1997) Primary structure of Entamoeba histolytica g-tubulin and

localisation of microtubule organising centres. Mol. Biochem. Parasitol. 90, 331-336.

20. Mukhopadhyay, C. and Lohia, A. (1998) Homology modeling of Entamoeba histolytica ferredoxin. J. Biomol. Str. Dynam. 15, 663-672.

21. Lohia, A., Hait, N.C. and Majumder, A.L.(1999) L - myo -Inositol 1 - phosphate synthase from Entamoeba histolytica: characterisation of the gene and the enzyme. Mol. Biochem. Parasitol. 98, 67-79.

22. Maji, A.K., Ghose, T.K. and Lohia, A. (1999) Use of AFLP DNA fingerprinting to differentiate pathogenic strains of Entamoeba histolytica J. Paras. Dis. 23, 77-79.

23. Ghosh,S., Frisardi,M., Ramirez-Avila, L., Descoteaux, S., Sturm-Ramirez, K., Alberto Newton-Sanchez, O., Ignacio Santos-Preciado,J., Ganguly, C., Lohia, A., Reed, S. and Samuelson, J. (2000) Molecular Epidemiology of Entamoeba spp.: Evidence of a Bottleneck (Demographic Sweep) and Transcontinental Spread of Diploid Parasites. J. Clin. Microbiol.38 3815-3821

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25. Ganguly, A and Lohia A (2000) The Diaphanous protein from E.histolytica controls cell motility and cell division. Arch. Med. Res. 31, 137-138.

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29. Banerjee S and Lohia A (2003) Molecular analysis of repetitive DNA elements from Entamoeba histolytica, which encode small RNAs and contain matrix/scaffold attachment recognition sequences-Mol. Biochem. Parasitol. 126, 35-42.

30. Lohia A (2003) The cell cycle of Entamoeba histolytica-Mol. Cell. Biochem. 253: 217-222.

31. Roy,D and Lohia,A (2004) Sequence divergence of Entamoeba histolytica tubulin is responsible for its altered tertiary structure.-Biochem. Biophys. Res. Comm. 319, 1010-1016.

32. Ghosh,SK, Sau, S., Lahiri,S., Lohia, A. and Sinha, P.(2004) The Iml3 protein of the budding yeast is required for the prevention of precocious sister chromatid separation in meiosis I and for sister chromatid disjunction in meiosis II. Curr Genet 46, 82-91.

33. Kaur, GK and Lohia, A (2004) Inhibition of gene expression with double strand RNA interference in Entamoeba histolytica-Biochem. Biophys. Res. Comm.320, 1118-1122.

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genome of the protist parasite Entamoeba histolytica Nature ,433, 865-868.

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43. Dastidar P.G. and Lohia A (2008) Bipolar spindle frequency and genome content are inversely regulated by the activity of two N-type kinesins in Entamoeba histolytica. Cell Microbiol 10:1559-1571.

44. Mukherjee C., Clark CG and Lohia A (2008) Entamoeba shows reversible variation in ploidy under different growth conditions and between life cycle phases PLoS NTD 2(8):e281.

45. Mukherjee C, Majumder S, Lohia A.(2009) Inter-Cellular Variation in DNA Content of Entamoeba histolytica Originates from Temporal and Spatial Uncoupling of Cytokinesis from the Nuclear Cycle. PLoS Negl Trop Dis.3(4):e409.

46. Dam S, Lohia A (2010) Entamoeba histolytica sirtuin EhSir2a deacetylates tubulin and regulates the number of microtubular assemblies during the cell cycle. Cell. Microbiol. 12(7):1002-14.

47. Manna D, Dutta PK, Achari B, Lohia A (2010) A novel galacto-glycerolipid from Oxalis corniculata kills Entamoeba histolytica and Giardia lamblia. Antimicrob Agents Chemother. 54:4825-32.

48. Manna D, Grewal JS, Sarkar B, Maiti S, Lohia A.(2013)Polyunsaturated fatty acids induce polarized submembranous F-actin aggregates and kill Entamoeba histolytica.Cytoskeleton 70(5):260-8.

49. Grewal JS, Padhan N, Aslam S, Bhattacharya A, Lohia A.(2013) The calcium binding protein EhCaBP6 is a microtubular-end binding protein in Entamoeba histolytica. Cell Microbiol.

50. Grewal JS and Lohia A (2013) The mechanism of cell division (Book chapter in press) Springer Verlag.