

## Prof. Amitabha Chattopadhyay

**Present Position and Address:** Deputy Director  
Centre for Cellular & Molecular Biology  
Uppal Road, Hyderabad 500 007  
India

(Adjunct Professor,  
Special Centre for Molecular Medicine  
Jawaharlal Nehru University  
New Delhi, India)

Honorary Faculty Member  
Jawaharlal Nehru Centre  
for Advanced Scientific Research  
Bangalore, India)

**Phone:** Work: +91-40-2719-2578, +91-40-2716-0059

Home: +91-40-2701-5197

**Fax:** +91-40-2716-0311, +91-40-2716-0591

**E-mail:** amit@ccmb.res.in

**URL:** [www.ccmb.res.in/staff/amit/Pages/Index.htm](http://www.ccmb.res.in/staff/amit/Pages/Index.htm)

**Born:** October 9, 1956

### Education:

B.Sc. (Chemistry Hons.), St. Xavier's College, Calcutta, 1977

M.Sc. (Chemistry), Indian Institute of Technology, Kanpur, 1980

Ph.D. (Physical Biochemistry), State University of New York at Stony Brook, 1987

### Professional Positions:

2004-present Deputy Director (Scientist F), Centre for Cellular  
& Molecular Biology, Hyderabad, India

2007 (March) Dozor Visiting Professor, Ben-Gurion University of the Negev, Israel

1993-present Group Leader, Centre for Cellular & Molecular Biology,  
Hyderabad, India

1999-2004 Principal Scientist II (Scientist E II), Centre for Cellular

	& Molecular Biology, Hyderabad, India
2003 (October)	Visiting Professor, Department of Chemistry, University of Melbourne, Australia
2003 (November) 1999 (June)	Visiting Professor, Department of Chemistry, University of Kaiserslautern, Germany
1997 (April-June)	Visiting Faculty, Department of Biology, The Johns Hopkins University, Baltimore, U.S.A.
1994-1999	Principal Scientist I (Scientist E I), Centre for Cellular & Molecular Biology, Hyderabad, India
1992 (Sept-Dec)	Visiting Associate, Department of Biology, University of California, Santa Cruz, U.S.A.
1989-1994	Senior Scientist (Scientist C), Centre for Cellular & Molecular Biology, Hyderabad, India
1987-1989	Postdoctoral Fellow, Department of Biochemistry & Biophysics, University of California, Davis, U.S.A.

**Publications (Total citations > 3200, h-index 30)** (*full texts of papers available in pdf format at [www.ccmb.res.in/staff/amit/Pages/complete\\_publications.htm](http://www.ccmb.res.in/staff/amit/Pages/complete_publications.htm)*):

- (a) **Peer-reviewed Articles in Journals: 138** (*4 articles featured on cover*)
- (b) **Books: 1**
- (c) **Articles in Books and Proceedings: 7**
- (d) **Invited Book Reviews: 2**
- (e) **Others: 3** (*Guest editors of special issues of journals and monographs*)
- (f) **Abstracts 187**

**Patents: 1 U.S. patent granted, 2 applications pending**

**Invited Seminars and Presentations: > 330**

**Teaching Experience:**

“*Biomembranes*” (part of a Graduate level course in Molecular and Cell Biology), Centre for Cellular & Molecular Biology, Hyderabad, 1990, 1993-1998, 2002-2007

“*Molecular Spectroscopy: Fluorescence in Biology*”, invited lectures delivered at the Refresher Course on Advances in Biophysics, Centre for Cellular and Molecular Biology, 2007

“*Biomembranes*” a Graduate level course at the Department of Chemistry, Ben-Gurion University at the Negev, Israel, 2007

“*Biological Membranes: What is Unique about Them ?*” invited special lectures at the Department of Biotechnology, West Bengal University of Technology, 2006

“*Biomembranes: What is Unique about Them ?*”, Summer Science and Research Awareness Series, SUNY Medical Center, Stony Brook, New York, 2005

“*Biophysics of Lipids: Application of Fluorescence Approaches to Membrane Biology*”, guest lectures delivered at the Graduate Course on *Biophysical Methods in Life Sciences*, National University of Singapore, 2005

“*Biomembranes: What is Unique about Them ?*” invited lecture delivered at the UGC Refresher Course in Life Science, University of Kerala, Trivandrum, 2005

“*Approaches to Monitor Membrane Dynamics*” invited lecture delivered at the UGC Refresher Course on *Chemistry of Biomolecules*, Department of Chemistry, University of Hyderabad, 2005

“*Biomembranes: What is Unique about Them ?*” invited lecture delivered at the UGC Refresher Course on *Chemistry of Biomolecules*, Department of Chemistry, University of Hyderabad, 2005

“*Biomembranes*” invited lectures delivered at a Graduate level course in Bioinformatics Program, International Institute of Information Technology, Hyderabad, 2005

“*Application of Fluorescence in Membrane Biology*” a Graduate level course in Graduate Research School, University of Kaiserslautern, Germany, 2003

“*Application of Fluorescence Spectroscopy to Problems in Modern Biology*” invited lectures delivered at the UGC Refresher Course, Department of Physics, Kumaun University, Nainital, 2003

“*Biomembrane Structure and Dynamics*” invited lectures delivered at the Mahabaleshwar Seminar 2002 in Modern Biology on “*Cellular Traffic*”, Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai, 2003

“*Fluorescence in Biology*” (part of a Graduate level course in Molecular and Cell Biology),

Centre for Cellular & Molecular Biology, Hyderabad, 2001

“*Membrane Organization and Dynamics*”, lectures delivered as part of a Graduate level course, School of Life Sciences, Jawaharlal Nehru University, New Delhi, 2001

“*Membrane Dynamics*” (part of a Graduate level course in Molecular and Cell Biology), Centre for Cellular & Molecular Biology, Hyderabad, 2000

“*Membrane Structure and Function*” (a Graduate level course in Biotechnology Graduate Group), Department of Chemistry, University of Kaiserslautern, Germany, 1999

“*Cell Membranes*” (part of a Graduate level course in Cell Biology), Centre for Cellular & Molecular Biology, Hyderabad, 1997, 1999

“*Fluorescence in Biophysics*” workshop conducted at the National Symposium on Cellular and Molecular Biophysics, organized by the Indian Biophysical Society, at the Centre for Cellular and Molecular Biology, Hyderabad, 1995

“*Membrane Proteins*” (part of a Graduate level course in Molecular Biology), Centre for Cellular & Molecular Biology, Hyderabad, 1991

“*Undergraduate Seminar in Biochemistry*”, University of California, Davis, Spring 1988 and Spring 1989

Teaching Assistant, General Chemistry, SUNY at Stony Brook, 1980-1983

Coordinator of the General Chemistry study groups organized by the Learning Skills Center, SUNY at Stony Brook, 1981-1983

Coordinator of the General Chemistry tutorial sessions organized by the Counselling Service, Indian Institute of Technology, Kanpur, 1979

### **Honors and Awards:**

<b>J.C. Bose Fellowship (DST)</b>	2008
The Bires Chandra Guha Memorial Lecture (INSA)	2008
<b>Ranbaxy Research Award (Medical Sciences – Basic Research)</b>	2007
Bimala Churn Law Memorial Lecture (IACS, Kolkata)	2007
Dozor Visiting Fellow, Ben Gurion University, Israel	2006
Fellow, Indian National Science Academy	2005
Honorary Faculty Member, Jawaharlal Nehru Centre for Advanced Scientific Research (Bangalore, India)	2004
TWAS-UNESCO Associateship	2003
Fellow, Andhra Pradesh Akademi of Sciences	2003
International Travel Grant (Biophysical Society, U.S.A.)	2002

Wellcome Trust Fellowship	2002
<b>Shanti Swarup Bhatnagar Prize in Biological Sciences</b>	2001
<b>(by the Prime Minister of India for Outstanding Research Achievements)</b>	
Sreenivasaya Memorial Award (Society of Biological Chemists, India)	2000
Fellow, Indian Academy of Sciences	1999
Fellow, The National Academy of Sciences, India	1998
Member, Guha Research Conference	1997
Raman Research Fellowship (CSIR)	1996
Wood/Whelan Fellowship (IUBMB)	1992
International Union of Biochemistry (IUB) Travel Fellowship	1991
Samuel A. Talbot Award (Biophysical Society, U.S.A.)	1986
Graduate Research Fellowship (SUNY, Stony Brook)	1983-87
Graduate Teaching Assistantship (SUNY, Stony Brook)	1980-83
Devaprabhakara Memorial Award (Chemical Society, IIT Kanpur)	1979
MCM Fellowship (Indian Institute of Technology, Kanpur)	1978-80

### **Research Students:**

(a) *Ph.D. Students*: 8 (Ph.D. awarded), 7 (current Ph.D. students)

(b) *Summer Students*: 19

(c) *Postdoctoral Fellows*: 9

### **Society Memberships:**

Biophysical Society, U.S.A.

International Society for Neurochemistry

Society of Biological Chemists, India (Life Member)

Indian Society of Cell Biology (Life Member)

Indian Biophysical Society (Life Member)

Indian Photobiology Society (Life Member)

Indian Academy of Neurosciences (Life Member)

Society for Neurochemistry, India (Life Member)

Indian Peptide Society (Life Member)

ARC/NHMRC Network for Fluorescence Applications in Biotechnology and Life Sciences

Association of British Scholars, Hyderabad Chapter (Life Member)

Chemical Research Society of India (Life Member)

Indian Science Congress Association (Life Member)

### **Research Interests:**

❖ Membrane structure, function and dynamics

- ❖ Application of spectroscopic techniques to biological problems
- ❖ Organization and dynamics of molecular assemblies such as micelles and reverse micelles
- ❖ Membrane hydration with special reference to the interface
- ❖ Fluorescence probes for membrane structure and dynamics
- ❖ Organization, dynamics, and function of ion carriers and ion channels
- ❖ Lipid-protein interactions in membranes and its relevance in health and disease
- ❖ Membrane domains especially in neuronal membranes
- ❖ Transbilayer organization of membrane cholesterol
- ❖ Localization, photophysics and function of membrane-bound tryptophans
- ❖ Organization, dynamics, and function of membrane lytic peptides
- ❖ Solvent relaxation dynamics in membranes and proteins
- ❖ Fluorescence microscopy
- ❖ Fluorescence recovery after photobleaching (FRAP)
- ❖ Fluorescence Correlation Spectroscopy (FCS)
- ❖ Membrane receptor dynamics and signaling: testing the ‘mobile receptor hypothesis’
- ❖ Interactions of anesthetics and alcohols with membrane lipids and receptors
- ❖ Membrane organization, dynamics and function of the serotonin<sub>1A</sub> receptor: interaction with membrane lipids
- ❖ Interaction of the serotonin<sub>1A</sub> receptor with membrane sterols: cholesterol modulation in neuronal membranes and its relevance in health and disease
- ❖ Application of fluorescence in studying receptor-ligand interactions
- ❖ Role of membrane lipids in the entry of pathogens into host cells
- ❖ Pathogenicity involving defective cholesterol biosynthesis
- ❖ Effect of cholesterol and its evolutionary precursors on the structure and function of membranes

### **Professional and Academic Services:**

Member, Editorial Board of *Biophysical Journal* (Cell Press), 2009-present.

Regional Editor, the *Journal of Fluorescence* (Springer), 2009-present

Member, Sectional Committee (Biochemistry and Biophysics) of the Indian National Science Academy, 2008-2011

Member, Editorial Board of *Biochimica et Biophysica Acta – Biomembranes* (Elsevier), 2007-present

Member, Advisory Editorial Board of *European Biophysics Journal* (Springer), 2005-present

Member, Editorial Advisory Board of *Chemistry and Physics of Lipids* (Elsevier), 2004-present

Member, Editorial Board of the *Journal of Fluorescence* (Springer), 1999-present

Member, Editorial Board of *Cellular and Molecular Neurobiology* (Springer), 2003-present

Member, Editorial Advisory Board of *Molecular Membrane Biology* (Taylor & Francis), 1996-present

Member, Editorial Board of *Bioscience Reports* (Springer), 2004-present

Member, Editorial Board of the *Journal of Biosciences* (Indian Academy of Sciences and

Springer), 2004-present

Convenor, *8<sup>th</sup> International Symposium on Biochemical Roles of Eukaryotic Cell Surface Macromolecules*, Centre for Cellular and Molecular Biology, Hyderabad, 21-25 January, 2008

Course Co-ordinator, Workshop on “*Advanced Microscopy and Cellular Dynamics*”, held at the Centre for Cellular and Molecular Biology (sponsored by Carl Zeiss), Hyderabad, during 10-14 November, 2005

Convenor, Satellite Symposium of XIII International Biophysics Congress on “*Membranes, Sensors and Cell Surfaces*”, held at the Centre for Cellular and Molecular Biology, Hyderabad, during 15-17 September, 1999

Manuscript referee for *Biochemistry, Biophysical Journal, Biochimica et Biophysica Acta, Journal of Physical Chemistry, The Journal of General Physiology, Langmuir, FEBS Letters, Analytical Biochemistry, Faculty of 1000 Biology Reports, Journal of Fluorescence, Molecular Membrane Biology, Neuroscience, Journal of Colloid and Interface Science, Journal of Biosciences, Indian Journal of Biochemistry & Biophysics, Current Science, and Proceedings of the Indian Academy of Sciences*

Member, Executive Council of the Asian Pacific Society for Neurochemistry (2004-2006)

Member, Executive Committee of the Indian Academy of Neurosciences (2005-2006)

Member, Executive Committee of the Indian Biophysical Society (1999-2005)

Member, Executive Committee of the Society for Neurochemistry, India (2003-2005, 2007-2009)

Member, Executive Committee of the Indian Society of Cell Biology (2003-2005)

Member, Executive Committee of the Indian Photobiology Society (1999-2001)

External observer for the Annual Research Talks of the Molecular Biology Unit, Tata Institute of Fundamental Research, 1997

Grant proposal referee, National Science Foundation (U.S.A.), Molecular Research Council (U.K.), Department of Science & Technology, Department of Biotechnology, Council of Scientific and Industrial Research, Indo-French Centre for the Promotion of Advanced Research, Indo-US Science and Technology Forum

Member, Project Monitoring Expert Committee, Department of Biotechnology, Government of India

Joint organizer, IX National Symposium of the Indian Photobiology Society, held at the Centre for Cellular & Molecular Biology, Hyderabad, during 4-5 March, 1994

Ph.D. and M.Phil thesis examiner for Indian Institute of Science (Bangalore), Tata Institute of Fundamental Research (Mumbai), National Centre for Biological Sciences (Bangalore), Indian Institute of Technology (Kanpur), Indian Institute of Technology (Mumbai), Indian Institute of Technology (Guwahati), Bose Institute (Kolkata), Saha Institute of Nuclear Physics (Kolkata), National Institute of Mental Health and Neuro Sciences (Bangalore), University of Hyderabad, and Indian Association for the Cultivation of Science (Kolkata)

Co-convenor, Indo-U.S. workshop on “*Membrane Structure and Function: The State of the Art*”, held at the Indian Institute of Science, Bangalore, and the Centre for Cellular & Molecular Biology, Hyderabad, during 7-18 January, 1991

Member, Faculty Selection Committee, School of Life Sciences, Jawaharlal Nehru University, and School of Life Sciences, University of Hyderabad

Member, Academic Committee, JNU-CCMB Ph.D. program

Consultant, Hindustan Unilever Limited (Mumbai, India)

Member, Scientific Advisory Committee, Apollo Stem Cell Therapy Unit, Apollo Hospitals, Hyderabad  
Adviser, Agricultural Scientists Recruitment Board, Indian Council of Agricultural Research

**Institutional Services:**

Member, JNU-CCMB Academic Committee  
Member, Management Council  
Member, Summer Student Selection Committee  
Member, International Deputation Committee  
Member, Honorarium Committee  
Member, Stores and Purchase Committee  
Member, Canteen and Guest House Committee  
Member (Co-Chairman), Dispensary Committee