BIO-DATA

1. Name and address : Prof. Akhil R. Chakravarty
Department of Inorganic & Physical Chemistry
Indian Institute of Science
Bangalore 560 012 (India)

2. Date of birth & place : May 20, 1953, Burdwan, West Bengal (India)

3. Residential Address : Quarter: NE-24, New Housing Colony
IISc Campus, Bangalore 560 012 (India)
Telephone: +91-(0)80-23605407 (Res)
+91-(0)80-22932533 (Off.)
Fax: +91-(0)80-23600683, +91-(0)80-23601552
E.mail: arc@ipc.iisc.ernet.in

4. Academic Positions held :

01/2002 – 02/2005	:	Chairman of the department
09/1997 – Present	:	Professor, IISc. Bangalore
09/1991 - 09/1997	:	Associate Professor, IISc. Bangalore
09/1985 - 09/1991	:	Assistant Professor, IISc. Bangalore
10/1982 - 09/1985	:	Research Associate, Texas A&M University, USA (Post-doctoral work with Prof. F. A. Cotton)
05/1982 - 09/1982	:	Research Associate, Indian Association for the Cultivation of Science (Calcutta) (Ph. D. Supervisor: Prof. Animesh Chakravorty)

5. Academic Qualifications :

(i) B.Sc. (Hons.) in Chemistry, Burdwan University (1973), Class I, Rank 1.
(ii) M.Sc. (Chemistry; Inorganic Major), Burdwan University (1975), Class I, Rank 1.
(iii) Ph.D. in Coordination Chemistry, Calcutta University, 1982, working at the Indian Association for the Cultivation of Science, Calcutta, under the supervision of Prof. A. Chakravorty (Thesis title: Aspects of the Chemistry of Ruthenium Oxime Complexes)

6. Awards/Honors:

(i) CRSI Silver Medal, 2007
(ii) Fellow, Indian National Science Academy (FNA), 2006
(iii) Shanti Swarup Bhatnagar (SSB) Prize in Chemical Sciences, 1998
(iv) Fellow of the Indian Academy of Sciences (FASc), 1995
(v) Alexander von Humboldt Foundation Fellowship in Germany, 1994-95
(vi) Gold Medals in the B.Sc. & M.Sc. examinations of the University of Burdwan
(vii) Prof. P. Ray Memorial Award of the Indian Chemical Society, 1998

7. Field of Specialization : Inorganic Chemistry

8. Subject area of expertise : Bioinorganic Chemistry related to synthetic Metal-based Nucleases

9. Number of Publications in Refereed Journals : **172** (13 students received Ph.D.)

10. Research achievements :

We have developed the chemistry of 3d-metal complexes showing light-induced DNA cleavage activity. Metal complexes with their versatile structures, redox behavior and physicochemical properties are found to be useful as highly sensitive diagnostic agents as exemplified by the bleomycins or cis-platin in chemotherapeutic applications. Designing molecules that cleave DNA at ~700 nm is of great importance in photodynamic therapy (PDT) of cancer because of significant skin penetration of light in the near IR region. We have prepared a quinoxaline-copper(II) complex which shows metal-promoted efficient DNA cleavage activity on ruby laser irradiation. We have also prepared ternary oxovanadium(IV) and iron(III) complexes having DNA binding ligand and a photosensitizer suitable for DNA cleavage on red light irradiation. Our work provides the first direct evidence for the dual involvement of the d-d band along with the charge transfer (LMCT) band in the photoexcitation processes resulting in the activation of oxygen molecule that leads to DNA cleavage. Complexes of bio-essential metal ions have opened up new avenues for development of PDT agents suitable for cellular use.

11. Selected Ten Publications :

(i) A.K. Patra, S. Dhar, M. Nethaji and **A.R. Chakravarty**, *Chem. Commun*., 2003, 1562-1563.

(ii) A. Mukherjee, M. Nethaji and A.R. Chakravarty, *Chem. Commun.*, 2003, 2978-2978.

(iii) S. Dhar, D. Senapati, P.K. Das, P. Chattopadhyay, M. Nethaji and **A.R. Chakravarty**, *J. Am. Chem. Soc.*, 2003, **125**, 12118-12124.

(iv) S. Dhar, D. Senapati, P.A.N. Reddy, P.K. Das and **A.R. Chakravarty**, *Chem. Commun.*, 2003, 2452-2453.

(v) A. Mukherjee, M. Nethaji and **A.R. Chakravarty**, *Angew. Chem. Int. Ed.*, 2004, **43**, 87-90.

(vi) A. Mukherjee, M.K. Saha, M. Nethaji and A.R. Chakravarty, *Chem. Commun.*, 2004, 716-717.

(vii) M. Roy, T. Bhowmick, R. Santhanagopal, S. Ramakumar and A.R. Chakravarty, *Dalton Trans.*, 2009, 4671-4682.

(viii) B. Maity, M. Roy, S. Saha and A.R. Chakravarty, *Organometallics*, 2009, **28**, 1495-1505.

(ix) S. Saha, R. Mazumdar, M. Roy, R.R. Dighe and A.R. Chakravarty, *Inorg. Chem.*, 2009, **48**, 2652-2663.

(x) P.K. Sasmal, S. Saha, R. Mazumdar, R.R. Dighe and **A.R. Chakravarty**, *Chem. Commun*., 2009, 1703-1705.