



Preface (Part-1 of 6th ICSM Proceedings): Down memory lane

This issue is dedicated to the Proceedings of the “6th International Symposium on Biochemical Roles of Eukaryotic Cell Surface Macromolecules” (6th ICSM) held in Kolkata, India at the Indian Institute of Chemical Biology. Dr. Chitra Mandal, assistant director of the institute, elegantly arranged the symposium. Several papers presented in this symposium covering a wide range of areas such as (i) Host Pathogen Interaction; (ii) Cell Surface Carbohydrates; (iii) Cell Surface Receptors; and (iv) Tumor Biology could be arranged under one theme: “Glycoconjugates and Drug Research” and will be published in two parts in this journal.

At the end of the symposium the organizers requested me to summarize and give a talk on “Down Memory Lane.” Perhaps the organizers thought I would remember all other five ICSMs held in India because I attended all of them. It was my pleasure to give that short talk, and I would like to reproduce that talk in this short preface for the sake of present and future readers of this journal. In 1999 Professor Avadesha Surolia organized the 5th ICSM in Bangalore at the Indian Institute of Science (IIS). The late Professor Bimal K. Bachhawat was convener of the first four ICSMs (1st-1987; 2nd-1990; 3rd-1993; and 4th-1996), all held in New Delhi on every third year.

The idea of the ICSM was conceived quite a few years before 1987. Those who attended the 7th International Glycoconjugate meeting in Roneby (Sweden) in 1983 (July 17 to 23) perhaps remember that one day while we had a dinner discussing the program, we felt that the meeting did not have enough presentations on the Cell Surface subjects. I recall at least 10 to 12 people [Drs. Herbert Wiegandt (Germany), Guido Tettamanti (Italy), Sandro Sonnino (Italy), Sailen Mookerjee (Canada), Asoke and Mukti Shuklas (Germany), Basus (USA) and Debkumar Basu (India)] were present. We decided to hold another International Cell Surface Meeting in Trivendrum, India, in the near future to honor the 65th birthday of Professor Bimal K. Bachhawat.

Being the first graduate student of Professor Bachhawat, Dr. Deb Basu agreed to arrange that on the beautiful Kobalam beach (in Trivandrum) where Dr. D. Basu came from. In fact, the next year when he came to our department (at the University of Notre Dame) as a visiting professor, we two sat and drew the Logo for that meeting as it is used now. However, after he went back and faced some difficulties in raising money for an international meeting, we approached Professor Bachhawat who was not only a famous Glycobiologist but also was quite well known to

the Department of Education of the Govt. of India. Of course, we did not indicate our original intension until the first day of inauguration of the 1st ICSM in January 1987 when the meeting finally took place.

The first ICSM was jointly sponsored by the Delhi University (south campus) and University of Notre Dame because both CSIR (government of India) and NSF (Washington, USA) jointly financed some of the expenses. The meeting was arranged by Professor Bimal K. Bachhawat, head, Department of Biochemistry, New Delhi University-South Campus, and his immunologist friend Dr. S. V. Gangal (director of Patel Chest Research Institute, New Delhi). I remember NSF paid the travel money for at least 15 of us who went from the USA. To name a few out of 30 foreign glycobiologists who attended that first ICSM (total attendance of 150) were Drs. Roger Jeanloz (USA), Sen-itiroh Hakomori (USA); Yoshitaka Nagai (Japan); Eugene Devidson (USA); Charles Sweeley (USA); Herbert Wiegandt (Germany); Charles Pasternak (UK), Sailen Mookerjee (Canada), Michel Monsigny (France), Dipak Banerjee (Puerto Rico), Tushar Ray (USA), Basus (USA) and many others. The Proceeding containing full papers were published by the Indian Journal of Biochemistry and Biophysics. However, after our first successful meeting Professor Bachhawat was kind enough to arrange three more ICSMs in New Delhi at three different places (in 1990 at the International Center, New Delhi; in 1993 at the Hilton Hotel in New Delhi and in 1996 at the Indian Institute of Immunology). The pictures given on the next pages (picture forum) were obtained from all of those six ICSMs. The organizers in India made an effort to raise funds from the Indian Government and private industries. As late Professor Bachhawat used to say, “. . . if you want to generate good science, then arrange a meeting with actively working scientists, bring them under one roof and give them three things: good food, good drinks, and plenty of time to discuss.” We had all those in all six of those ICSMs either arranged by Professor Bachhawat himself or by his ex-graduate student, Professor Avadesha Surolia, the 5th ICSM in Bangalore-1999) and ex-coworker, Dr. Chitra Mandal (Sixth ICSM in Kolkata in 2003). Let me end this article with a few lines remembering about Professor Bachhawat, the original convener of four ICSMs, to whom the Glycobiology field is indebted.

His classmate Professor Jagat J. Ghosh, then chairman of the Biochemistry Department of Calcutta University introduced me



Convener of 1st to 4th ICSMs: Late Professor Bimal K. Bachhawat (1925-96)





to Professor Bimal K. Bachhawat in 1976 in Calcutta, when both of us were invited to give seminars there. I had heard of him and his enormous scientific reputation from my mentor and his friend, Professor Saul Roseman, during my graduate student days at the University of Michigan (1961–1965). From 1976 until 1996, we two met almost every year (either in India or in USA) where I have had the privilege of knowing him well almost as my own elder brother.

He was a man of admirable qualities. After obtaining his Ph.D. degree in 1953 from the University of Illinois under the guidance of Professor Carl Vestling, he worked with Professor Minor J. Coon at the University of Pennsylvania and later at the University of Michigan (1957 to 1959) when Dr. Coon moved to University of Michigan. Dr. Bachhawat opted to return to India in 1959 and to start his independent research group in Christian Medical College at Vellore (in the south of India). He established a good neurochemistry laboratory and trained many PhD students (almost 30) at Vellore before he was appointed Director of the Indian Institute of Chemical Biology, Calcutta, in 1976, one of the most famous biochemical institutes in this world now. Since 1987 until 1996 he was head of the department of Biochemistry at the Delhi University's South Campus where he passed away while attending a meeting in New Delhi on September 23rd, 1996, at the age of 71 years (born on August 26, 1925).

Professor Bachhawat discovered HMG-CoA lyase while working in the laboratory of Professor Coon at the University of Michigan, a pioneering contribution to the understanding of ketone body formation in mammals. Later when he began research in the area of neurochemistry and glycobiology at CMC, Vellore, where he studied glycolipids, glycosaminoglycans and glycoproteins in neuronal development and neurological disorders. His group discovered that metachromatic leukodystrophy is the result of the absence of arylsulphatase A. This was yet another pioneering contribution that paved the way to the discovery of enzymatic defects in many glycolipid storage diseases. His research team accomplished the elucidation of biosynthetic and degradation mechanisms of cerebroside-3-sulfate long before the word "Glycolipid" became almost a household word in the Glycobiology field. His group demonstrated for the first time the role of glycosaminoglycans in neuronal development and of glycolipids as cell surface receptors. His work on the

development of carbohydrate-bearing liposomes for targeted delivery of drugs and enzymes to affected organs was again a pioneering contribution with immense potential for application in clinical practice.

Professor Bachhawat received many awards and honors among which were Shanti Swarup Bhatnagar Award, the Golden Jubilee Medal, the Birla Smarak Kosh Award. He was elected to many scientific academies in India as well as abroad. In recognition of his contribution in science, the Government of India bestowed on him one of the highest honors of the nation "Padma Bhusan." He was elected President of the Federation of Asian and Oceanic Biochemists for the term 1983–1985 and as President of the Society of Biological Chemists (India) three times (1970 to 72 and 1990 to 94). He organized the International Union of Biochemistry and Molecular Biology (IUBMB) Congress held in 1994 with his elegant style of 2 to 3 free dinners for all the participants (approximately 2000 scientists attended from all over the world).

Bimalda (as I used to call him as an older brother) was a humble and simple man. He was great at starting from scratch and turning a small laboratory into an internationally famous institution, he proved that three times in his life; the Neurochemistry Laboratory in Vellore, Madras (1959 to 1976); the Indian Institute of Chemical Biology (1976 to 1986); the Department of Biochemistry at the Delhi University South Campus (1986 to 1996). The students trained by him in all these places are now making excellent research/teaching contributions in their respective fields, distributed all over the world. His love of science (in the area of Glycobiology) and his humane qualities coupled with his innate abilities as a builder brought out the best of Professor Bachhawat in shaping the growth of Biochemistry and Glycobiology in India. My acquaintance with him for 20 years (1976 to 1996) was as his affectionate friend and admirer from this country I still remember his last advice to me before he got in the car on my driveway, "...remember Subhash, help others without expectation ..." and I still try to follow accordingly.

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