



Form and Function of Biomolecules

**Macromolecular
crystallography**

**in
India**

**A Historical Profile through
Publications**

(1981-2010)

PREFACE

The relation between form and function is at the core of biological processes. Molecular structural biology involves the determination of the structures of biological macromolecules and the elucidation of the structural basis of function. Macromolecular crystallography is central to structural biology and indeed to modern biology as a whole. Although India has a long and distinguished tradition in crystallography and biophysics, the initiation of serious experimental macromolecular crystallography studies was delayed primarily on account of paucity of resources. Efforts in this direction started in the late seventies and early eighties at the Indian Institute of science, Bangalore and the Bhabha Atomic Research Centre, Mumbai, and the first preliminary publications appeared in 1981, some 30 years ago. The work really got off the ground after the Department of Science & Technology (DST) extended generous support under their Thrust Area Programme to the Bangalore centre in 1983. The mandate of the Bangalore centre included functioning as a nucleus for the development of the area in the country. Since then macromolecular crystallographic studies expanded in India and are now being carried out in 30 institutions spread across the country. In addition to DST, agencies such as the Department of Biotechnology (DBT) and the Council of Scientific and Industrial Research (CSIR) also now generously support these studies. The compilation presented here seeks to trace the history of the development of the area in the country during the past 30 years through publications till the end of 2010.

The publications in macromolecular crystallography from the country during the past three decades have been divided into three phases, each roughly corresponding to a decade. In each phase, the publications are listed institution-wise so that the trajectory of the development of the area is clearly seen. We are still in a phase of rapid growth and there are many institutions where the effort has started, but papers are yet to emerge up to the end of 2010. The names of these institutions have been listed at the end of the compilation. Where foreign authors are also involved in publications, only those in which affiliation to an Indian institution is clearly indicated are included in the list. Thus the compilation is an authentic representation of the development of the area in the country.

I have had the great good fortune to be among the initiators of the area in the country. Students and post doctoral fellows trained in the Bangalore laboratory and their academic descendents form a major chunk of macromolecular crystallographers in India. Those who have come from other laboratories have effortlessly merged into the community; happily, they have been as close to me as my own former colleagues have been. It is also a matter of great satisfaction that the biological macromolecular crystallography community of India is now an integral part of the larger biology community in the country.

I thank my colleagues in different laboratories in the country for providing inputs for preparing this compilation. The bulk of the work in preparing the material was carried out by C. Pankaja. I am deeply grateful to her. I acknowledge the help provided by my colleagues K. Suguna and K. Sekar and student K.V. Abhinav. A symposium organized by Shekhar C. Mande, R. Sankaranarayanan and others on October 16 and 17, 2011 at Hyderabad to mark my 70th birthday provided the immediate impetus for preparing this compilation. I thank them for their affectionate gesture.

As can be seen from the compilation, the achievements of biological macromolecular crystallographers in India have been impressive. I am confident that they are poised to scale still greater heights in the years to come.

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Bangalore
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THE BEGINNINGS

1981-1989

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