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**Series: Molecular Medicine Institutions**

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**The Department of Molecular Medicine at the University of Istanbul, Institute of Experimental Medical Research****Turgay İsbir, Ph.D. Professor of Biochemistry and Chair/Director of the Department of Molecular Medicine**

The Department of Molecular Medicine (Fig. 1) at the İstanbul University Institute of Experimental Medical Research is an interdisciplinary scientific branch that analyzes the molecular biology of cells and organisms, particularly from a medical point of view.

Recent advances in molecular and cellular biology have required enormous amounts of research and practice. In all areas of medicine, molecular biology has played a key role and its importance to medical research is increasing every day. It is therefore impossible to disregard this fast-growing area. Biotechnology and molecular biology will certainly play major roles in clarifying the causes of some of the unsolved mysteries of modern medicine, such as heart disease, hypertension, major psychiatric illness, rheumatic disease, and many others. Work in these fields may also help us to gain insight into broader aspects of human biology including development, aging, and evolution, adding to the importance and necessity of molecular medical research.

**Current Research Overview**

The University's Department of Molecular Medicine is involved in many aspects of metabolic diseases that affect several million people worldwide, including atherosclerosis, hypertension, diabetes, and Alzheimer's disease. Another branch of the department is dedicated to cancer research. In all of these areas, research on free oxygen radicals is being conducted, as well as molecular biological analyses of several substances such as apolipoprotein

E, angiotensin, angiotensinogen, lipoprotein lipase, and cholesterol ester transfer protein polymorphism. In the laboratory the application of molecular biological methods is used to assess the prognosis and treatment of cancer. The main areas in our cancer research include myc protein, casein kinase, p53 protein, and glutathione S-transferase polymorphism.

**Postdoctoral and Graduate Student Program***Graduate Students*

Masters and Ph.D. programs are offered in the Department of Molecular Medicine under the aegis of the Institute of Health Sciences. Graduate students at the department carry out thesis research under the supervision of staff members. Generally, these students have completed their major course work requirements for the M.S. and doctoral degrees and are engaged in full-time research. During the past few years, 13 students have worked here, supported by training grants to the University of İstanbul or by investigation research funds from the state. During the past 4 years, six students have completed their degrees in the Department of Molecular Medicine.

The program allows young investigators to develop skills in research methodology and interpretation. It is generally agreed that establishment of high technology in both medicine and biology will help Turkey in becoming a developed state. In other words, the status of a country that exports more than it imports is achieved only by maintaining enough technical knowledge of molecular biology, physiology, biophysics, biochemistry, genetics, and immunology, etc., to combine this knowledge with practice,



**Fig. 1. The Department of Molecular Medicine, Istanbul University Institute of Experimental Medical Research, academic staff.**

creating more new information in these areas. Thus an education in molecular medicine has basically a very important place in the development of Turkey. The main aim of the Department of Molecular Medicine is to prepare students for work in high technology, which is the real necessity of our country.

#### *Postdoctoral Training Program*

The postdoctoral training course consists of a series of lectures and discussion intended to expand the training of junior scientists at the Department of Molecular Medicine. Traditionally, we have asked faculty to provide in their lectures reviews of new research areas, new techniques,

and new concepts in molecular medical research. The emphasis is more didactic than in most seminars and discussion groups at the Department of Molecular Medicine.

#### **Conclusion**

In summary, researchers in the Department of Molecular Medicine at the Institute of Experimental Medical Research are involved in several important lines of biomedical research that we hope will contribute to the development of new and more effective strategies for the prevention of human disease.