



THE ROCKEFELLER UNIVERSITY

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1985

A PROPOSAL TO DR. AND MRS. ARNOLD O. BECKMAN

FROM THE ROCKEFELLER UNIVERSITY

The Professor: Scientific Leader

The Rockefeller University has a unique organizational structure in which the role of the professor is distinctive from that which exists at other research institutions and university campuses. Since its founding, the University has been organized into separate laboratories, each headed by one or two tenured members of the staff who report directly to the President. This organization into laboratories rather than departmental structures (which often sets up barriers between disciplines), allows each professor and his colleagues to pursue biomedical research that transcends conventional scientific and medical specialties. At the same time, they are encouraged to be fully involved in a free, yet highly cohesive academic community. A professor's field of interest is never confined by functional or title limitations, nor are laboratories held to a specific disciplinary orientation.

There are now about 55 such laboratories ranging in size from two or three professional staff to as many as 25 or 30 staff and students. The laboratories are devoted exclusively to research. They tend to focus on major problems for comparatively long periods of time and to combine several scientific perspectives in approaching the research problem.

This framework, established 84 years ago and continued with remarkable success today, is based on three ideas: First, that the solution to a genuinely significant scientific problem often requires the integration of many disciplines within a small group of talented investigators. Second, that the combination of disciplines changes from time to time as a problem is more deeply understood or solved. For example, a laboratory devoted to unraveling the mechanisms of tumors may include a biochemist, an X-ray crystallographer, an organic chemist, a virologist, as well as occasional collaborating physicians from the University's clinical research hospital. Third, a laboratory's research direction is determined solely by the senior professors, in consultation with the President, largely unencumbered by any external pressures.

The enormous power in this approach flows from the freedom provided each senior member of the faculty to carry out research without any other obligations, such as routine teaching or patient care. Working full-time and year round on research, senior investigators may draw upon all of the intellectual resources on the campus, and recruit younger research colleagues from any field. Each laboratory charts its work independently but often collaborates with other laboratories (for a month or for years) whenever common needs or interest converge. At many other first-rank institutions, rigid departmental constraints and other traditions or duties make such intensely problem-oriented efforts almost impossible.

Endowed Professorships

All tenured faculty are paid entirely with income from the University's endowment. As a major goal of its ten-year development program, the University is seeking to obtain \$25 million in endowment for professorships. Meeting the goal is critical both to ensure continued support of the senior faculty and to reinforce the University's tradition of complete investigative independence.

At this time, the endowment required to support a professorship in perpetuity at the University is \$1.5 million. Although various fields obviously require differing levels of overall laboratory support, this guideline reflects reasonably accurately the total endowment needed to support a senior member of the faculty. For planning purposes, it is estimated that the endowment principal would be invested, at current earnings, to produce income from which about six percent would be used for professorial salary, employment benefits, and a modest contribution toward general laboratory expenses and supplies. The balance of earnings would be returned to the endowment for the chair to sustain its real value in perpetuity. The University has a demonstrated record of success in managing its endowment assets for sustained growth.

The Laboratory of Biochemistry and Molecular Biology

Within the past three years, the University has opened eight new laboratories, carefully selecting the leaders for each of these groups with three goals in mind. First, to sustain the University's mission of fundamental research. Second, to seize those research opportunities that relate directly to major unsolved human problems--fostering the applications that, over the next generation, will make a genuine difference to the world. Third, to advance our research leadership by adding a new generation of gifted scientists, replacing those who have retired recently or who will retire during the next decade.

One newly established group, the Laboratory of Biochemistry and Molecular Biology, is headed by Professor Robert G. Roeder, who was the James S. McDonnell Professor in Biochemical Genetics at Washington University School of Medicine in St. Louis before coming to the Rockefeller. Dr. Roeder is a biochemist whose research focuses on the molecular basis of gene activity in mammalian cells, particularly in processes such as cell growth, differentiation, and division in both normal cells and in those invaded by infection or transformed by DNA tumor viruses.

The cellular and viral genes that affect these processes are controlled in large part at the level of transcription--the first step in the readout of genetic information from DNA to a substance known as RNA. Dr. Roeder is particularly interested in the biochemical mechanisms involved in this process in individual genes. His pioneering work in transcription began while he was

a graduate student at the University of Washington. It led to the first isolation and characterization of the family of enzymes that copy genetic information directly from DNA, an achievement for which he was honored with the Eli Lilly Award in Biological Chemistry in 1977.

In the late 1970s, Dr. Roeder developed systems outside living cells in which individual genes cloned by recombinant DNA techniques were transcribed precisely as when within the cell. More recently, he has been working to identify various factors within the cell that mediate transcription and describe DNA sequences that are responsible for specific aspects of gene function. By demonstrating how the function of key factors is altered, this research may help clarify the reasons for various growth and developmental abnormalities. Ultimately, it may lead researchers to methods by which these processes--and their pathological consequences, such as cancer--may be controlled.

Dr. Roeder's laboratory group of more than 30 scientists is located in the Tower building. Approximately 9,000 square feet of space has been renovated and equipment purchased at a cost of \$3 million to provide an effective, safe, and efficient research environment. The laboratory is now fully functional, and there is an ongoing effort to seek funding from private and public sources for these continuing research efforts. At the same time, the University is seeking private support to endow the chair which Dr. Roeder holds.

The Proposal

The Rockefeller University proposes that Dr. and Mrs. Arnold O. Beckman consider establishing an Endowed University Professorship through a grant of \$1.5 million. We further propose that this Professorship be awarded to Dr. Robert G. Roeder and, in recognition of this generous support, be named The Arnold O. and Mabel S. Beckman Professorship, should you so desire.

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SmithKline Beckman
Corporation