REMARKS OF PROF.
JANET ROWELY
On Occasion of the Awarding
Of 1988 King Faisal International Prize

Your Roya1 Highness Prince Nayif bin Abd Al-Aziz
Your Highnesses, the Princes
Your Eminences, the Ulama
Your Excellencies
Ladies & Gentlemen

I am extremely pleased and honored to receive the King Faisal International Prize in Medicine, which is dedicated this year to leukemia. I appreciate the generosity of the King Faisal Foundation. It is to be congratulated for the remarkable series of grants and awards that it has made to support medical research in many countries. The award to me and indirectly to my colleagues in Chicago and around the world, who study the chromosome changes in leukemia and lymphoma, recognizes the important contributions that these investigations have made to our understanding of leukemia. I am sure that the physicians and scientists at the King Fahd Children's Medical Center, soon to be opened in Riyadh, will add to our knowledge of this devastating, but conquerable disease.

I began to study the pattern of genetic changes in cells from patients with leukemia in 1965. It was thought at that time that the changes were random and that they were the result, rather than the cause of the leukemia. My research and that of others in many countries showed that this idea was wrong. We discovered that there are a number of very specific recurring chromosomes changes each one associated with a particular type of leukemia. These changes are present only in the leukemic cells, not in other normal cells from these patients. The changes most often involve breaks in two chromosomes, which are the structures that contain the genes, and a switching of the pieces of the two chromosomes. This results in the abnormal position of the genes

that are located at the breakpoints of the two chromosomes.

We have begun to understand the mystery of the genes and of the specificity of these chromosomes changes. Our continuing efforts to unlock the secrets contained in many chromosomes changes will provide a number of benefits in the future. First, this is a very important way to identify the genes that are critical in one step of the leukemogenic process. Second, we can examine the function of these genes in normal cells and their abnormal function in malignant cells.

This information can be used for improved diagnosis and, I am sure, for better treatment. When we understand, in a fundamental sense, the features that distinguish a normal from a 1eukmic cell, we can use this difference to target the leukemic cells specifically and this should lead to more precise, more effective, and one would hope, less toxic treatment for these diseases.