

**PRESS RELEASE
WINNERS ANNOUNCED
1993/1413H KING FAISAL INTERNATIONAL PRIZE
FOR
MEDICINE**

Topic: Acquired Immunodeficiency Diseases

The 1993 King Faisal International Prize for Medicine has been awarded for research on Acquired Immunodeficiency Diseases. The primary disease results from chronic virus infection with progressive destruction of T -lymphocytes causing immune deficiency and leading to death from infections or cancer. It progresses inexorably over a prolonged period from an asymptomatic state, mild symptomatology or generalized lymphadenopathy to the terminal condition commonly known as AIDS (Acquired Immunodeficiency Syndrome). It was first recognized in the early 1980's in homosexual males in the United States. However, AIDS is now known to be mainly a heterosexually-transmitted disease that is global in distribution. It has been estimated that more than 2.5 million people have already developed AIDS and that more than half of them have died, including many infants and young children. More than 14 million people are already infected with the virus. It has been projected that by the year 2000 the number of infected individuals will exceed 40 million. The socioeconomic and demographic consequences of this pandemic are expected to be devastating.

An unprecedented effort is being made in research laboratories around the world to discover ways of combating this disease. The first step that was necessary before work could begin to develop drugs or vaccines was to identify the infecting organism and the ways in which it damages the human immune system. One research team has been outstanding in its contributions to the understanding of this fundamental public health problem. The Prize has therefore been awarded jointly to:

**PROFESSOR LUC MONTAGNIER
DR. JEAN-CLAUDE CHERMANN
and
DR. FRANCOISE BARRE-SINOUSI**

All three are of French nationality. Professor Montagnier was born in 1932 in Chabris and obtained his first degrees in Science from the Universities of Poitiers and Paris, graduating in Medicine from the latter university in 1960. During the next five years he held postdoctoral

research fellowships in virology in the United Kingdom and France under the sponsorship of the Centre Nationale de Recherche Scientifique (CNRS). For seven years from 1965 he headed the Laboratory of the Radium Institute of Orsay, France. In 1972 he was appointed Head of the Viral Oncology Unit of the Pasteur Institute, Paris, where he became Professor in 1985. Professor Montagnier has also directed research units of the CNRS since 1973. In addition to receiving numerous medals and awards, he is a Doctor Honoris Causa of seven universities in six countries. His publications, numbering some 260, include 166 on the topic of AIDS, many of these written with his co-winners and other members of his team.

Dr. Chermann who was born in Paris in 1939 studied at the Pasteur Institute and obtained his doctorate from the Faculty of Science in Paris in 1967. Following three years of postdoctoral study in Holland, Sweden, and the US he continued to teach research students in Paris until joining the Viral Oncology Unit of the Pasteur Institute where he joined Professor Montagnier. He became chief of the Departments of Viral Oncology and of Retroviruses in 1987, as well as becoming Associate Professor at Aix-Marseille II University. In 1988 Dr. Chermann was appointed Research Director of the Laboratory of Retroviruses and Associated Diseases of the Institut Nationale de la Sante et de la Recherche Medicale (INSERM) in Marseille and the following year was promoted to Director. He has published over 200 papers and received a number of medals and awards in Europe.

Dr. Françoise Barre-Sinoussi also studied science in Paris where she received her doctorate in 1974 for studies in immunochemistry. Since 1975 she has worked in the Pasteur Institute, Paris, first in the Viral Oncology Unit and, since 1986, as a member of INSERM in the Retrovirus Biology Laboratory which she currently heads. Dr. Barre-Sinoussi has published some 180 papers and articles since 1971 and has received several French and other European awards for her research.

The work of all three winners has been closely linked and guided by Professor Montagnier. It is recognized by the international scientific community that they were the first to discover and characterize the virus that is responsible for AIDS. In 1983 they were able to isolate the virus they called the "lymphadenopathy-associated virus" (LAV) from the lymph glands of a homosexual man. They demonstrated that it was a previously unknown RNA virus in a group known as retroviruses of which others were known to cause leukemia in humans and various diseases in animals. The following year they and other investigators

described the way in which the new virus, later called HIV 1, attaches to certain white blood cells (CD4+ or T4 lymphocytes) that are normally involved in the cellular response to infection by many types of microorganisms. They showed that HIV 1 progressively destroys all the victims' CD4+ cells with the result that they are no longer able to combat infection or cancer. It is mainly secondary infections that lead to the terminal condition known as AIDS. It soon became apparent from the work of this and other groups that HIV 1 is transmitted by additional mechanisms besides homosexual contact, blood transfusions, or needles shared by drug addicts. These include heterosexual contact and vertical transmission from mother to infant.

The French workers were active in the studies which demonstrated the devastating extent of the AIDS epidemic in Africa. In 1986 Montagnier's group described HIV 2, a second but, less virulent retrovirus which is responsible for AIDS in West Africa. - Their subsequent work has helped to reveal the important role played by co-factors such as cytokines and *Mycoplasma* in the activation of virus production by infected cells.

The seminal discovery of HIV 1 and 2 opened the way to the development of diagnostic methods for AIDS and its prodromal syndrome. Although no vaccine has yet been proved able to combat these viruses and although the few antiviral drugs found to date provide only a temporary respite, the pioneering work of this team has exposed some of the major directions which research must take to halt the advance of this new and steadily increasing pandemic which is one of the greatest health challenges that the next century will face.