Abstructs of the 24th Sysmex Hematology Seminar

The Sysmex Hematology Seminar has been held annually, and is focused on academic themes managed by the Scientific Division of Sysmex Corporation.

This year's Sysmex Seminar, which was the 24th in the series, was able to be seen in three other cities via satellite relay from Tokyo which was the main venue on June 30th, 2001. The main theme of the seminar was "Hematology and Virus".

Lectures were given by four well-known doctors in Japan.

In total 840 people participated in this event.

We believe that all participants benefited from the interesting lectures and discussion in the seminar.

We gratefully acknowledge all participants, speakers, chairpersons and all others concerned for their participation and contribution to this seminar.

The following are the summaries of each lecture.

Date : June 30, 2001

Place : **Tokyo, Kobe, Nagoya, Fukuoka**

Lecturers : **Takashi UCHIYAMA, MD**
Department of Hematology/Oncology, Graduate School of Medicine, Kyoto University, Kyoto, Japan
: **Takeshi KURATA, MD**
Deputy Director-General, National Institute of Infectious Diseases, Tokyo, Japan
: **Hiroaki MITSUYA, MD**
Internal Medicine II, Kumamoto University School of Medicine, Kumamoto, Japan
: **Keiya OZAWA, MD., Ph.D.**
Division of Hematology, Department of Medicine, and Division of Genetic Therapeutics, Jichi Medical School, Tochigi, Japan

Chairman : **Shigetaka ASANO, MD (Tokyo)**
The Advanced Clinical Research Center and The Research Hospital, The Institute of Medical Science, The University of Tokyo, Tokyo, Japan
: **Keisei KAWA, MD (Kobe)**
Department of Pediatrics, Osaka Medical Center and Research Institute for Maternal and Child Health, Osaka, Japan

Virus Infection and Hematologic Malignancies

Takashi UCHIYAMA, MD

Department of Hematology/ Oncology, Graduate School of Medicine, Kyoto University, 54 Shogoin-Kawaracho, Sakyo, Kyoto 606-8507, Japan

Since the discovery of a virus by Epstein, and Barr in the cell line derived from a Burkitt's lymphoma patient, several other human virus infection has been demonstrated to cause or to be closely associated with human cancers. These include HTLV-I (Human T cell Leukemia Virus type I) and ATL, hepatitis B virus (HBV) / hepatitis C virus (HCV) and hepatic carcinoma, and human papilloma virus and cervical cancer/ skin tumors. The product (s) encoded by the particular viral gene (s) of these oncogenic viruses interact with various cellular proteins that are critical for cell growth, resulting in transformation of virus-infected cells. In this lecture, I would like to focus on EBV and HTLV-I and review the clinical features of the diseases caused by the viruses and discuss the mechanism of their development.

The Viral Infections Associated with Transplantation

Takeshi KURATA, MD

Deputy Director-General, National Institute of Infectious Diseases, Toyama 1-23-1, Shinjuku-ku, Tokyo 162-8640, Japan

Recent technical and medical progress made it possible successful rehabilitation of patients with serious or end-stage diseases by organtransplantation. For successful transplantation, two points, allograft rejection and infection should be overcome. Therapeutic strategy is contrary to each other. The recipients are considered to be immunocompromised hosts. The risk of infection in recipients, especially due to viruses, is determined by the interaction of exposed pathogens and the state of immunosuppression. In recipients infections are classified i) exposure before transplantation: acute, persistent, and ii) exposure after transplantation: acute, persistent, reactivation. The most important infectious agents in transplantation are in recipient 1) persistent ones like HIV, HCV, etc., 2) reactivation of latent infection of herpes group viruses like cytomegalo, EB, HHV6, varicella-zoster, and also in donors 1) persistent and 2) latent ones. In this lecture, viral infections in organtransplantation under immunosuppression are discussed from the point of viral pathology.

Human Immunodeficiency Virus Infection and Development of Antiretroviral Chemotherapy

Hiroaki MITSUYA, MD

Internal Medicine II, Kumamoto University School of Medicine, 2-2-1, Honjo, Kumamoto 860-0811, Japan

Substantial progress has recently been made in the therapy of acquired immunodeficiency syndrome or AIDS. More than fifteen drugs are now available, and a number of others are in various stages of clinical and preclinical development. However, it has become obvious that with the drugs tested so far, only partial immunologic reconstitution is attained in patients with AIDS. The rapid replication rate of human immunodeficiency virus coupled with the long duration of viral infection favors the emergence of resistant mutants to all currently available antiviral agents. It should also be noted that the improvement attained is only transient and none of the available therapies are curative. The need for drug development in AIDS is as urgent as ever. It is important to continue to search for combinations of drugs with complimentary resistance profiles and less side effects, and to explore new treatment modalities such as structure-based drug design approaches.

Viral Vectors and Gene Therapy

Keiya OZAWA, MD., Ph.D.

Division of Hematology, Department of Medicine, and Division of Genetic Therapeutics, Jichi Medical School, 3311-1 Yakushiji, Minamikawachi-machi, Kawachi-gun, Tochigi 329-0498, Japan

During the past 10 years, many clinical protocols of gene therapy and gene marking have been conducted. More than 4,000 patients have been transferred with marker or therapeutic genes in the world. However, most of the human gene therapy trials have failed to demonstrate clinical benefit, indicating that gene therapy is still in its infancy. Several different viral vectors are in use or under consideration for gene transfer. Retroviral vectors cannot transduce non-dividing cells, but they are still appropriate for gene transfer into hematopoietic cells. As for adenoviral vectors, transgene expression is transient and their cytotoxicity/ immunogenicity may be problem. Adenoviral vectors are suitable for the purposes where transient expression of transgenes is sufficient to get therapeutic effects, and they are widely employed for cancer gene therapy. AAV (adeno-associated virus) vectors can transduce non-dividing cells, and long-term transgene expression can be obtained. AAV vectors, derived from non-pathogenic virus, possess several unique properties and are potentially most appropriate for gene therapy of neurological diseases and muscle-based supplement gene therapy. To succeed in human gene therapy, we must overcome numerous fundamental technical issues with further efforts.