Tohoku University

Annual Review 2007
Honored with World-famed Academic Achievements

Our Products are the Most Widely Used Drugs in the World

The drugs generically called Statins, administered to more than 30 million people daily, are the most widely sold drugs in the world. Dr. Akira Endo, the Representative Director for Biopharm of Japan Corporation, is from the Faculty of Agriculture, Tohoku University and discovered ML-236B (Compstatin) the main ingredient of statins.

Specialized in applied microbiology, Doctor Endo studied as many as 6,000 varieties of fungus in the early 1970’s; then in 1972, he discovered a substance in a blue-green mold variety called ML-236B (this report was published in 1976) and also showed how ML-236B dramatically reduces cholesterol in the body. Doctor Endo’s research project was initially triggered by his study experience in the United States at the Albert Einstein College of Medicine. It was here that the increasing number of heart attacks was to top cancer among lifestyle diseases as a cause of death. However, at that time, there was no effective medicine for its treatment. While chemical medicines were thriving at that time, Doctor Endo had the inspiration that an “effective treatment by medicines might be discovered in microorganisms similar to the story of the discovery of penicillin from a blue-green mold by Doctor Reming.”

Doctor Endo has been honored with many awards including the 2006 Massey Prize in the United States and the 2006 (22nd) Japan Prize, presented for his enormous contribution to the advancement of medicine.

Specially Appointed Prof. Akira Endo

Specially Appointed Professor Akira Endo, Graduate School of Agricultural Science http://www.biopharm.co.jp/

Discovering the Mechanism for Reducing Obesity and Diabetes

[Division of Molecular Metabolism and Diabetes]

Professor Yoshitomo Oka

Born in 1949, he graduated from the Faculty of Medicine, University of Tokyo. He worked at the University of Tokyo Hospital, University of Massachusetts Medical School, and then the Faculty of Medicine, Yamaguchi University. In 2001, he joined Tohoku University as professor at the Graduate School of Medicine. Since 2004 he has been the Associate Dean of the Graduate School of Medicine. (Left in the picture)

A research team composed of Professor Hideki Katagiri (Center for Translational and Advanced Animal Research) and Professor Yoshitomo Oka (Department of Internal Medicine) was the first in the world to discover the existence of “an inter-organ neural network for metabolic information.” When fatty liver was induced in mice, the basal metabolism responded actively to reduce fat accumulation in fat tissue. This inter-organ neuronal system functions as a protective machinery against obesity.

Professor Oka states that: “The brain cells receive neural signals sent from the liver and instruct the fat tissue to decompose fats by becoming more actively metabolic. The brain plays the role of conductor for the entire body, the orchestra.” This discovery anticipates great research advances, especially in the fields of biology and medicine. Its clinical application, of course, will be in the prevention of obesity and establishment of new means of treating it. “This discovery opens up a new field for research,” said Professor Katagiri.

Professor Oka has been honored with many awards, including the Japan Diabetes Society Award in 1990. Professor Katagiri was awarded the Japan Society for the Promotion of Science Prize (FY2006), which is given to young researchers who have produced notable research and achievements. Their research results were published in the US journal Science (Vol. 312, June 16, 2006).

[Division of Advanced Therapeutics for Metabolic Diseases]

Professor Hideki Katagiri

Born in 1932, he graduated from the Faculty of Medicine, University of Tokyo. He worked at the University of Tokyo Hospital, and then became a professor at the Graduate School of Medicine, Tohoku University in 2003. (Right in the picture)
**Divisional Major Achievements**

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**Graduate School / Faculty of Engineering**

- **Economics Division**
  - Associate Prof. Yuichi Ogawa succeeded in discrimination of pigments by means of the 0.5GHz precision coherent THz wave revealed molecular defects in organic Materials (Prof. Shin-ichiro Shoda G).
  - World's first direct synthesis of p-nitrophenyl glycosides (Prof. Koji Kato selected as Japan Academy Laureate).

**Graduate School / School of Engineering**

- Technological achievement of enhanced light extraction from light emitting diode using subwavelength grating (Prof. Kazuhiro Hane G).
- Evolution of the pseudogap from Fermi arcs to the nodal liquid in High Tc superconductors.

**Faculty of Science**

- Epidemiological Association in 2006.
- Prof. Hideki Katagiri received the 3rd JSPS Prize.
- Prof. Takashi Shioya was awarded the Mathematical Society of Japan Geometry Prize 2006.
- A.C.Cope Scholar Award for Prof. Yoshinori Yamamoto.

**Graduate School / School of Law**

- The 50th Anniversary Ceremony of the Founding.
- The establishment of Edo man in the central Tohoku region by measurement science of tooth Occlusion.

**Graduate School / Faculty of Education**

- The Regional New Consortium Project: Development of a 3-D Visualization System of Dental.
- The 42nd "Institute for Educational Leadership" for Primary and Secondary School Teachers in Japan.
- "High School Educators in Comparative Perspective: Japan and USA" in the International Symposium on "Dwindling Birthrate, Aging Society, and Gender Equality" organized by the University COE program.

**Graduate School / Faculty of Social Science**

- Cooperation in East Asia" was held.

**Graduate School / Faculty of Humanities**

- Publication began of the half-yearly magazine, Thoughts and Ideas, intended for the students of the lectures, was published.
- Results from the JSPS project "Medicine and Morality" were offered to hospitals as the TUBERO Research Organization.

**Graduate School / Faculty of Letters**

- Medium Enterprises and Regional Innovation - JAPAN (SMRJ) started.
- The construction of the Tohoku University Business Incubator (T-Biz) sponsored by Small &
  - The Tokyo Electron Ltd. (TEL) decided to open a new plant in the suburbs of Sendai, and that taking charge of Tohoku, Kanto and Koshinetsu areas.

**Graduate School / Faculty of Arts and Letters**

- Cooperation Laboratories between NIMS and IMRAM-Tohoku Univ.
- Identification of invasion pathways for trematode parasites and their exotic snail hosts.
- Identification of a gene essential for hydrotropism in roots.
- Researchers.

**Graduate School / Faculty of Education**

- Workshop was held.
- Advanced ICT Educational Program supported by MEXT was adopted, and ICT International...