

Keio University Annual Report on Research Activities 2004–2005

Design the Future—Toward the Creation of Intellectual Values—



KEIO 150
Design the Future

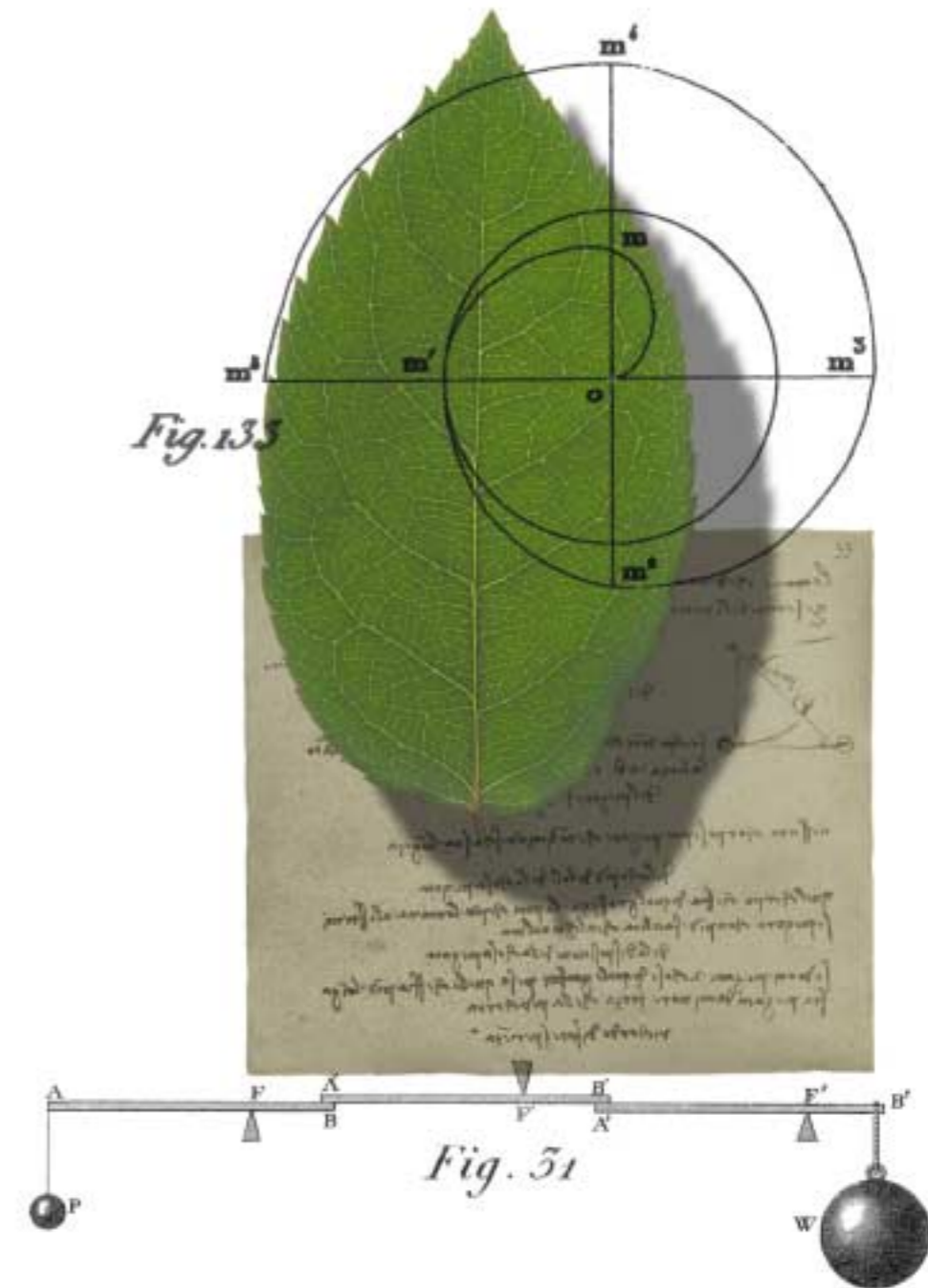
150th Anniversary in 2008

Keio University
Annual Report on Research Activities
2004–2005

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2-15-45 Mita, Minato-ku, Tokyo 108-8345 Japan
TEL +81-3-3453-4511

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Since the first universities were established in Bologna and Paris in the 12th century, the mission of the university has been the creation and accumulation of knowledge. This mission has traditionally involved maintaining a neutral position in relation to society and an outlook that extends beyond short term trends. At a distance from the unpredictable, changing and market driven world, universities have been able to devote themselves to the development of pure knowledge and research, the results of which have played an important role in societal progress.

Universities should reflect the needs of the era, of the country, of the local community, and increasingly of the global community as well. It is clear that we are now facing complex, unprecedented changes on a global scale, and as pillars of society, universities are now expected to play a greater role in contributing to the real world by providing services to the community. Collaborative partnerships with industry and governments, provision of medical services and health care, and training of tomorrow's leaders have been added to the university's more traditional roles of creating and accumulating knowledge.

Imagine the traditional "ivory tower" style university as a circle; a geometric shape with a single, central focus. Keio University believes that universities in the 21st century must broaden their commitments, and can best be represented by an ellipse; a shape with two equal focuses in dynamic balance with one another.

One of these focuses is remaining neutral from economic society in order to promote basic research and the ongoing creation of new knowledge. Economic society is by nature unstable and rapidly changing, so in order for knowledge creation to progress and break ground in new fields, it must take place outside the realm of market driven influences. The other focus is being directly committed to supporting and contributing to society. The university has unique resources which, through innovation and collaboration with community partners, can be put to direct use to improve society.

Keio is taking a variety of steps to realize the University's "double-focus" vision, including the establishment of the Organization for Research Advancement and Administration (ORAA). The Organization was set up to further develop cross-disciplinary research activities, as well as collaborative partnerships with industry, governments and other universities worldwide.

University research activities have always been an important factor in societal progress. Thus, it is very important for universities to communicate their research activities to the public. Keio's Annual Report on Research Activities provides the community with information regarding our strategies and direction, as well as our current research activities. It is our hope that this Report will give you a better understanding of what Keio University is doing to accomplish its double-focus vision and contribute to the advancement of society.

Yuichiro Anzai
President
Keio University

Keio University



c o n t e n t s

Keio University Annual Report on Research Activities

2004-2005

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Organization for Research Advancement and Administration (ORAA)

Advancement of Research at Keio University

Based on "Gakujutsu sendo (leadership for scientific progress)," Keio University believes that its most important mission is to return the fruits of its traditional interests in education and research to society. Keio aims at promoting internationally competitive and creative scientific research in order to make significant contributions to the 21st century, thus serving as a driving force for future society.

Keio University was designated for the 21st Century Centers of Excellence (COE) Program by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Winning twelve COE programs, Keio has the highest number of the COEs of any private university in Japan. In addition, a large number of advanced research projects are routinely underway at each Keio campus: Mita, Hiyoshi, Yagami, Shinanomachi, and Shonan Fujisawa. Research projects at Keio often involve collaborations within the fields of industry, government, and academia. Such research activities, in the form of commissioned research, joint research, and personnel exchanges, are most distinctively being practiced at the Keio Leading-edge Laboratory of Science and Technology (KLL) at Yagami, the Center for Integrated Medical Research at Shinanomachi, Keio Research Institute at SFC, the Shin-Kawasaki Frontier Research and Education Collaborative Square (K-FRECS) in Kawasaki City, and the Institute for Advanced Biosciences in Tsuruoka City.

The Offices of Research Administration on each campus at Keio have long provided practical advice and services to support individual researchers. Keio was a pioneering university when it established the Intellectual Property Center (IPC) in 1998 as a technology licensing organization (TLO). The IPC has successfully and proactively sought to protect and utilize research results as identifiable intellectual property since then. Keio also launched the Organization for Research Advancement and Administration (ORAA) in October 2003 to further facilitate a series of research activities by supporting researchers, generating interdisciplinary and innovative research, and promoting research returns to society. The foundation of the ORAA completed the implementation of a mechanism for strategic advancement of research activities for the entire university.

In FY2004, the "Keio Gijuku Policy for Industry-Government-Academia Collaboration," "Guidelines for Intellectual Property at Keio Gijuku," and "Keio Gijuku Management Policy for Conflicts of Interest" were enacted and revised in the Committee of the ORAA.

Roles and Functions of the ORAA

The ORAA is composed of the Center for Research Promotion, the Incubation Center, the Intellectual Property Center (IPC), the Intellectual Property Mediation Committee, the Research Ethics Committee, etc. It formulates the university's overall strategy for cooperation with industry, government, and academia, from the start of planning to the end of returning the results to society. The major roles and functions of each organization in the ORAA are as follows.

The Center for Research Promotion is an organization dedicated to planning and promotion of comprehensive research projects. More specifically, it: (1) plans and promotes comprehensive and strategic projects with its own surveys and resources; (2) collects the newest information on research grants and subsidies and provides it to researchers; and (3) serves as the university's primary contact point for all inquiries and proposals for industry-government-academia collaborations. To realize its mission, the Center cross-sectionally cooperates, under the guidance of the Advisory Board, with other organizations in the ORAA, namely, the IPC, the Incubation Center, and the Offices of Research Administration.

The Incubation Center is an organization with the objective of supporting and advancing incubation activities of transferring research results nurtured at Keio University to society. It was established to create university ventures by further vitalizing activities between industry-government-academia collaborations. As a start, an incubation facility called "Keio Fujisawa Innovation Village" will be completed by the end of FY2005 at the Shonan Fujisawa Campus under the "Keio University Collaborative Entrepreneur Development Program." The Innovation Village will be co-managed by the Organization for Small and Medium Enterprises and Regional Innovation JAPAN (SMRJ), Kanagawa Prefecture, and Fujisawa City.

The Intellectual Property Center (IPC) is a

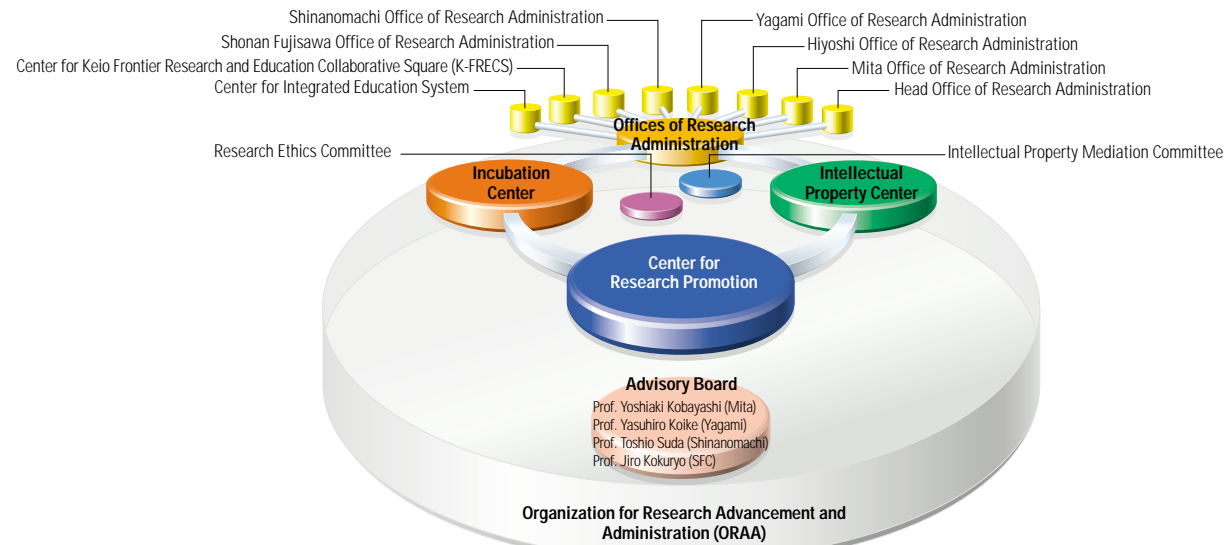
technology licensing organization with a range of responsibilities, from management and operation of intellectual properties to facilitating cooperation with society. Upon the request of an inventor, the IPC closely examines patentability and the potential for licensing considering the inventor's concept for practical applications, makes selections, files an application for a patent, and manages its maintenance. Such activities of the IPC lead to an increased chance of licensing, producing startups, and promoting joint research projects with companies for commercialization.

Inventors at Keio University may lodge objections regarding patent applications with the Intellectual Property Mediation Committee. The Research Ethics Committee, on the other hand, deals with and keeps every party well informed of rules and regulations concerning not only intellectual properties but also research ethics, conflicts of interest and duties, dual employment, and maintenance of confidentiality at Keio at large.

The Offices of Research Administration located at the five campuses, being most close to researchers, provide practical support and services according to researchers' daily needs and also work with organizations within the ORAA. The Offices provide official information on sources of research, facilities environments, and opportunities for subsidies from within and outside the university, and provide a variety of services including support for negotiating and concluding contracts for joint or commissioned research, management of research expenses and research spaces, and compilation and presentation of research results.

Furthermore, the Head Office of Research Administration functions as an umbrella to integrate the Offices of Research Administration on each campus, the K-FRECS, and the Center for Integrated Education System which supports primary and secondary education at Keio Gijuku. The Head Office shares and compiles information on campus research and researchers through development and maintenance of a research database. It is also responsible for supporting transmission of research results from Keio, as in the "Symposium on the 21st Century COE Programs adopted in 2002: Interim Report."

Organization for Research Advancement and Administration (ORAA)



Keio University Research Guide: Where to Contact?

Primary Point of Contact

Center for Research Promotion (CRP)

The Center for Research Promotion (CRP), located on Mita Campus, acts as a primary point of contact for your inquiries concerning future industry-government-academia collaboration with Keio University. Please send an e-mail to the CRP for questions like: "Does Keio have any professors in a specific field of research?" or, "Could we seek advice for this type of technology from a professor at Keio?" Upon receipt of your request, a coordinator at the CRP, or an expert at one of the relevant organizations at the ORAA will contact you at the earliest convenience.
<http://www.crp.keio.ac.jp/>
 (Inquiry forms are available here)
 E-mail: crp@keio.ac.jp

Other Contacts

Intellectual Property Center (IPC)

The Intellectual Property Center (IPC), also located on Mita Campus, has technology transfer managers specializing in legal matters, intellectual property management, engineering, and biology. The managers will provide consultation and assistance in licensing and contract negotiations for startups, technology transfers, etc. Any inquiries in regard to

intellectual property owned by Keio University should be addressed to the IPC.
 (See pages 43-44)
<http://www.ipc.keio.ac.jp/>
 E-mail: toiawasesaki-ipc@adst.keio.ac.jp

Keio Leading-edge Laboratory of Science and Technology (KLL) Liaison Office

The Liaison Office of Keio Leading-edge Laboratory of Science and Technology (KLL) on Yagami Campus responds directly to inquiries regarding research projects conducted in the Graduate School of Science and Technology.
 (See pages 9-10)
<http://www.kll.keio.ac.jp/liaison/index.html>
 E-mail: lialison@educ.cc.keio.ac.jp

Websites

Research information is also available in the following websites.

Keio Researchers Information System (K-RIS)

Information on Keio researchers, except for researchers at the School of Medicine, is available on the K-RIS database.
http://www.k-ris.keio.ac.jp/index_en.html

Research Achievements Database for the School of Medicine
<http://www.med.lib.keio.ac.jp/kenkyudb/>

Keio Leading-edge Laboratory of Science and Technology (KLL)
<http://www.kll.keio.ac.jp/>

Keio Research Institute at SFC

Visit the website for information on research projects at the Shonan Fujisawa Campus.
 (See pages 13-14)
<http://www.kri.sfc.keio.ac.jp/english/index.html>

Frontier Research and Education Collaborative Square in Shin-Kawasaki (K-FRECS)

Visit K-FRECS website for research projects and activities on Shin-Kawasaki Town Campus.
 (See pages 15-16)
<http://www.k2.keio.ac.jp/>

Tsuruoka Town Campus

Visit the website of Tsuruoka Town Campus of Keio (TTCK) for information on biology research conducted in the Institute for Advanced Biosciences on campus.
 (See pages 17-18)
<http://www.ttck.keio.ac.jp/>

Events

FY2004 (April–March)

DD/MM/YY	Event	Host	Site
17, 19/04/04	Symposium on the 21st Century COE Programs adopted in FY2002: Interim Report	Head Office of Research Administration	Mita Campus
21-22/04/04	Venture Private Conference	Intellectual Property Center	Mita Campus
22/06/04	The 3rd Technology Transfer Forum in Kyushu	Intellectual Property Center	Venue in Fukuoka
27-28/08/04	Bio Finance Guild 2004 (held consecutively since FY2002)	Nikkei BP, Tsuruoka Town Campus	Venue in Tokyo
24/09-25/11/04	Introduction to Bioscience for Tsuruoka Citizens (held consecutively since FY2001)	Tsuruoka Town Campus	Tsuruoka Town Campus
02/10/04	Open Campus 2004 (Shin-Kawasaki)	Shin-Kawasaki Town Campus	Shin-Kawasaki Town Campus
02/10/04	Open Seminars and Lecture Series (eight lectures on Saturdays) at K ²	Shin-Kawasaki Town Campus	Shin-Kawasaki Town Campus
23-24/11/04	SFC Open Research Forum 2004	Shonan Fujisawa Campus	Roppongi Hills, Tokyo
03/12/04	The 5th Keio Techno-Mall	KLL	Tokyo International Forum
08-09/12/04	Venture Private Conference	Intellectual Property Center	Mita Campus
28/01/05	Keio Symposium for Leading-edge Science and Technology: Frontier of Bioscience Research and Outlook for Practical Application of its Technology	Center for Research Promotion	Mita Campus
25/02/05	The 1st Keio Innovation Network	Intellectual Property Center	Mita Campus

FY2005 (April–March)

DD/MM/YY	Event	Host	Site
9, 16/04/05	Symposium on the 21st Century COE Programs adopted in FY2003: Interim Report	Head Office of Research Administration	Shinanomachi Campus and Mita Campus
21/04/05	The 2nd Keio Innovation Network	Intellectual Property Center	Mita Campus
10-11/05/05	Venture Private Conference	Intellectual Property Center	Mita Campus
27/05/05	The 3rd Keio Innovation Network	Intellectual Property Center	Mita Campus
28/06/05	The 4th Keio Innovation Network	Intellectual Property Center	Mita Campus
23/07/05	Center for Research Promotion Symposium "Design the Future: IT Returns to the People"	Center for Research Promotion	Mita Campus
26/07/05	The 5th Keio Innovation Network	Intellectual Property Center	Mita Campus
31/08/05	The 4th Technology Transfer Forum in Osaka	Intellectual Property Center	The Osaka Chamber of Commerce and Industry
12/11/05	Open Campus 2005 (Shin-Kawasaki)	Shin-Kawasaki Town Campus	Shin-Kawasaki Town Campus
22-23/11/05	SFC Open Research Forum 2005	Shonan Fujisawa Campus	Roppongi Hills
02/12/05	The 6th Keio Techno-Mall	KLL	Tokyo International Forum
01/02/06	Keio Symposium for Leading-edge Science and Technology	Center for Research Promotion	Mita Campus

* Listed here are events implemented by the ORAA, or related events at the campus level. There are many other events scheduled and hosted by various research institutes. For details, see the website of each research institute.

Research Centers

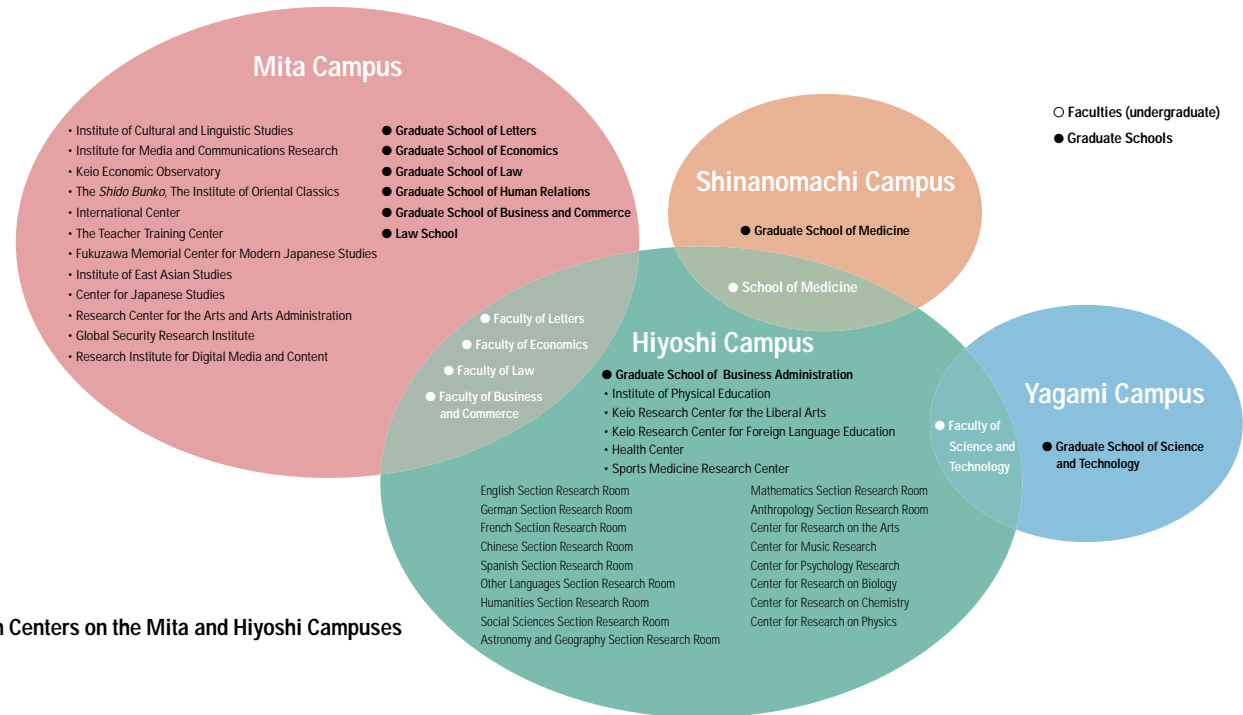


Mita Campus / Hiyoshi Campus

Pathways to the Future for Humanities, Social Science, and Natural Science: Centers for Comprehensive Research and Education



The Mita Campus is home to undergraduate faculties in the humanities and social sciences (primarily for junior and senior students), graduate schools and independent research institutions. The Hiyoshi Campus houses undergraduate faculties in the humanities, social sciences and natural sciences (primarily for freshman and sophomore students), research institutions, and the Graduate School of Business Administration (Keio Business School). Following is an introduction of research institutions located in these two campuses.



Research Centers on the Mita and Hiyoshi Campuses

Institute of Cultural and Linguistic Studies

The Institute of Cultural and Linguistic Studies is an academic institution, independent from the University faculties. The Institute investigates the nature of human cognitive capacities and socio-cultural interactions, adopting an interdisciplinary approach across humanities, social sciences, and natural sciences. Currently, a permanent faculty of the seven scholars, specialized in theoretical linguistics, typological linguistics, psycholinguistics, philosophy of language, Hellenistic literature, Islamic thought, and Vietnamese history, guides the direction of the research projects at the Institute, bringing together faculty members with common interest broadly from all the schools of the university. An outcome of the ongoing projects is reported in the Institute's annual bulletin, *Reports of the Keio Institute of Cultural and Linguistic Studies*, and major results are published in its monograph series. The Institute also offers a range of language courses at undergraduate and graduate level, including Akkadian, Arabic, Cambodian, Egyptian, Hebrew, Korean, Persian, Sanskrit, Thai, Turkish, and Vietnamese.



<http://www.icl.keio.ac.jp>

Institute for Media and Communications Research

The Institute for Media and Communications Research promotes research projects financed by its own research funds as well as special donations to the Institute. During FY2004, the Institute continued to support the following four research projects: "Media Stereotyping," "Power and Journalism," "Internet Development and Civic Culture in Japan," and "Content Distribution in the Asia and Pacific Regions." In addition to these research projects, which were launched several years ago, the Institute has functioned since 2003 as a research unit for a large research project entitled the 21st Century COE Program, funded by the Ministry of Education, Culture, and Science (MEXT). The results of these research projects were published in the Japanese language journal, *Keio Media and Communications Research*, No. 55, 2005. 3 and the English language journal, *Keio Communication Review*, No. 27, 2005. 3. These journals are available as well (See the institute's URL below). A series of books entitled the *Dynamics of a Civic Society in a Multicultural World* consisting of a total of 15 volumes were published as a result of the 21st Century COE Program. The 14th and 15th volumes were published by the researchers of our Institute.



<http://www.mediacom.keio.ac.jp/>

Keio Economic Observatory

Keio Economic Observatory was established in 1959 on the occasion of the 100th anniversary commemoration of Keio University. Since then, we work for the purpose of conducting theoretical and empirical research on economic and industry studies in the context of the existing economic conditions of Japan.

Our institute consists of the three sections: Economics, Law and Behavioral Science. In the 2004 fiscal year, we carried out various projects as follows:

- the research of economic law
- the human resource management
- the method of a personnel evaluation
- the flow of funds analysis
- the Input-Output analysis about environmental problems
- the compilation of the regional Input-Output table
- the productivity analysis
- the economic analysis of uncertainty.

These research achievements are published as *KEO Discussion Paper* and some of these papers are released in the following URL.

http://www.sanken.keio.ac.jp/index_e.html



Shido Bunko, Institute of Oriental Classics

The *Shido Bunko*, or the Institute of Oriental Classics, is an attached institution with a director, six faculty members and four researchers by contract at Keio University. The work comprises the investigation of Japanese and Chinese classical materials at home and abroad, the collection and arrangement of materials microfilmed and digitalized, and the research by the bibliographical method.



The *Shido Bunko* received a research grant (a special area studies A of Grant-in-Aid for Scientific Research) from the MEXT in 2004 academic year for "the research on Japanese and Chinese dictionaries and encyclopedias."

The *Shido Bunko* is even a professional library for public with 140 thousands volume of books and six thousands reels of microfilms.

Otherwise, the *Shido Bunko* has three "Shido Bunko Seminar" for graduate students to learn about the bibliographical method using rare materials in spring and autumn in each term.

Moreover, the *Shido Bunko* opens a lecture once a year. The lecture, a title of "A genealogy on the knowledge of miscellaneous matter from Dunhuang manuscripts to printing book in the Republic of China" by Professor Tokio Takada of the Institute for Research in Humanities at Kyoto University was held in December first in 2004 academic year. *Shido Bunko Ronshu (The Shido Bunko Journal)* No. 39 issued in February 2005 contains six articles and two bibliographies as research results.

<http://www.sido.keio.ac.jp>

International Center

The International Center is at the core of Keio University's international activities. It has concluded agreements with different universities in the world, and is in charge of sending every year numerous students and scholars abroad, as well as welcoming those coming to the university.

The Center provides support to international students on both academic and lifestyle levels, and is also in charge of exchange programs and overseas short-term research programs. For that purpose, it holds information sessions on studying abroad in general, and also provides information on exchange programs.

In addition, in the International Studies and Japanese Studies courses, various lectures and seminars on international and Japanese culture, history, politics and economics are conducted in English, in order for both international students and Japanese students to understand different cultures. Research on intercultural communications is also conducted.

<http://www.ic.keio.ac.jp/>



Fukuzawa Memorial Center for Modern Japanese Studies

This center is being active to achieve three purposes. The first is a role as the school archives, to collect, pigeonhole and safekeep the historical documents and data about Yukichi Fukuzawa and *Keio Gijuku*. The second is a role as the research institute to study about modern Japanese history, placing Yukichi Fukuzawa or *Keio Gijuku* in the eyesight. Then, the third is a role as the education organization to transmit the results, which were gotten through the activity of the two above, to the student and the widely general people by the lecture, seminar and so on. Moreover, in 2004, it has set about compiling the 20 volumes of *Collection of Materials about Keio Gijuku's 150 Years History*, to commemorate the anniversary year of Keio.

<http://www.fmc.keio.ac.jp/>



Keio Institute of East Asian Studies (KIEAS)

The Keio Institute of East Asian Studies (KIEAS) has four research projects simultaneously each year. Four projects were conducted in 2004: Globalism, Regionalism and Localism in Asia, Influences of America's Judicial Review in Asia, One Hundred Year since the Russo-Japanese War and Political Order in Southeast Asia. Each project presented its research achievement at the academic forum which was annually held in the institute. In 2004 the institute held international conferences such as Japan-Korea Security Dialogue, Japan-Korea Four University's President Meeting and Symposium on Japan-China Relationship. The institute also hosted biannual Lecture Series on East Asia. Last year altogether eleven specialists delivered speeches about various aspects of East Asia. It will be published as a book, soon. Please check at our homepage which provides you all kinds of activity information in the institute including other seminars and lectures.

<http://www.kieas.keio.ac.jp>



Center for Japanese Studies

The Center for Japanese Studies offers Japanese language and Japanese Studies courses to international students. In addition, research on various topics related to second-language education is carried out, as well as education of Japanese language teachers.

The Center is in charge of the Japanese language and culture courses offered at the university, and of the 180 students, coming from more than 30 countries and regions, who participate in the Japanese Language Program. It also holds Japanese language courses for the international students enrolled at the undergraduate and graduate levels, and various courses for those who participate in the Program for Teaching Japanese as a Foreign Language.

<http://www.ic.keio.ac.jp/hncenter/>



Research Center for Arts and Arts Administration

The Research Center for Arts and Arts Administration at Keio University is a research center which pursues art activities such as fine art, architecture, music, literature, theatrical play, cinema, dance activities, and their cultural sensitivity in the contemporary society with synthetic and academic stance.

The staff members, faculty members at Keio University and museum curators in cooperation with experts outside of Keio University are developing crossover activities such as seminar, lecture, exhibition, performance, workshop, case study for art management and construction for artists archives. Their novel studies have brought fruitful results.

In 2004, the Center hold the lecture, "Vitra Design Museum and Centre Pompidou-Metz," Butoh performance, workshops and series of lectures. Also the Center published *ANNUAL REPORT 11*, News Letter *ARTLET No. 22*, *CAD and Design*, *ARTLET No. 23*, *Art Therapy and Its Environment* and *BOOKLET No.13*, *Architectural Space as Memory: Isamu NOGUCHI, Yoshiro TANIGUCHI, and Keio University*.

<http://www.art-c.keio.ac.jp/>



Global Security Research Institute (G-SEC)

Global Security Research Institute (G-SEC), established in June 2004, has set up 3 Core Research Subjects to be undertaken by the end of the 2009 academic year. Under their umbrella, specific research projects will be implemented systematically and strategically, and the achievements will be reported in *G-SEC Working Papers*.



I. Studies on Global Innovation Systems

Setting up the interactions between socioeconomic factors and technological innovations as the research subject, the project analyzes theoretically and empirically, the effects of science and technology policies of a State on economy and society, R&D efforts in the private sector on corporate growth, economic development and changes in trade structures. Also delving into human resource development, technological innovation will be environment protection, a comparative index of international competitiveness on innovation is created and applied to examine the innovation potentials of Japan.

II. Studies on Asian Security System

This project analyzes empirically and theoretically the characteristics of the security environment of East Asia, including conventional security issues as well as emerging security concerns. It involves (1) building a database on security-related issues in the region, and (2) establishing a dialogue community among intellectuals and policy makers, and will explore policy alternatives for the formation of a more reliable security system in East Asia.

III. Studies on Emerging Crisis for Human Security

Employing the precise monitoring of time and space regarding various risks and crisis from the past to present at the regional and global environmental levels, this project involves (1) building of a spatiotemporal database on human security, (2) systemization of crisis studies with the viewpoint of human security and (3) designing of alert systems and policy authoring tools regarding human security.

<http://www.gsec.keio.ac.jp/>

Research Institute for Digital Media and Content (DMC)

The Research Institute for Digital Media and Content (DMC) was established in 2004 under a Japanese government-funded program to encourage the development of strategic research centers. The institute promotes the creation of contextual digital content. The DMC is engaged in the development of research, the advancement of international distribution, and the cultivation of personnel resources, in conjunction with other institutions. Through the DMC, Keio University aims to transform the way knowledge is provided to society as well as to support the changing modes of intellectual interaction. This will enhance Japan's leading role as a knowledge-generating nation in contributing to the knowledge of a global society (See pages 19–20).

<http://www.dmc.keio.ac.jp/>



Teacher Training Center

The Teacher Training Center has acted as a Keio-wide magnet to attract educational and scholarly activities in all areas of school education. The center provides a teacher-training course for college students who intend to be high school teachers, and has produced many competent teachers since its foundation in December 1982. It is not only a "teacher's college" but also a research institute for teacher education in Keio University; accordingly several research projects regarding educational issues are carried out in the center. In connection with the projects, open seminars are held every year. In addition the center emphasizes recurrent education for in-service teachers, and therefore provides the open summer seminars for teachers every summer and other occasion of in-service training.

<http://www.gakuji.keio.ac.jp/etc/kyoshoku/>



Institute of Physical Education

Institute of Physical Education was established in 1961, as the organization for research and education associated with physical education and sports. It promotes the extensive researches for the mechanism that physical activities contributed to mental and physical development and health, the teaching theory related to physical education and sport science, and the analysis of competitors' performance from.

The research results have been crowned with great success to students, faculties, student-athletes, or residents in Hiyoshi community throughout the extension course/lecture. <http://www.hc.keio.ac.jp/ipe/>



Health Center

Our institute is the center which performs medical studies concerning the support and improvement of daily health for the students from elementary school to postgraduate school and school staff.

To pupils under 15 years of age, the full-time pediatricians are doing clinical researches for growth, obesity, anorexia nervosa, infectious disease and the prevention of future lifestyle-related disease and sudden death etc. To students from 16 years of age and school staff, the full-time internists are doing various researches using the opportunity of an annual checkup. In lifestyle-related diseases, clinical studies are mainly performed about the genotypes relevant to a disease, metabolic syndrome, insulin resistance, hypertension, diabetes mellitus, hyperlipidemia, bone metabolism, and fatty liver. Concerning respiratory diseases, we are doing the examination of bronchial asthma, non-smoking instruction, and the evaluation of a new diagnostic method for tuberculosis (anti-tubercle bacillus antibody). We are also examining the usefulness of plasma BNP concentration measurement for diagnosing new cardiac disease. Moreover, even in the mental side, opinion poll about a psychiatric disorder and investigation about maladjustment are conducted by the full-time psychiatrists.

Our data are positively publishing in several international societies besides publication of each domestic special societies every year.

<http://www.hcc.keio.ac.jp/>



Keio Research Center for Foreign Language Education

The Keio Research Center for Foreign Language Education serves the needs of students and faculty members across all Keio University campuses and affiliated schools. The Center provides foreign language education, research, and service. In terms of education, we provide specialized classes such as those that prepare students for standardized tests, advanced classes, classes that focus on particular skills, and other classes that the individual Faculties are unable to provide. Our goal is to supplement the language classes provided by the various Faculties. In terms of research, we currently have four projects aimed at improving foreign language education: (1) Policy Discussion Forum, (2) Self-study/ICT Development Team, (3) English Placement Development Team, and (4) K-12 English Forum. In terms of service, we provide a variety of lectures, workshops, and study abroad programs.

<http://www.fcenter.keio.ac.jp>



Sports Medicine Research Center

Founded in 1988 at Hiyoshi campus, Research and clinical activity are now conducted in the sports medicine and science under the first theme of health. As the study commissioned by industry, this institute is conducting from a collaboration School of Medicine and Faculty of Science and Technology. Subjects for joint research are now conducted on SET (Safety Exercise Threshold) and EMS, and functional sports-wear in the sports medicine and science and human engineering ergonomics. And clinical study is conducted on the exercise guide for the evaluation of physical activity and the primary prevention for health related diseases.

<http://www.hc.cc.keio.ac.jp/sports/>



Keio Research Center for the Liberal Arts

Keio Research Center for the Liberal Arts was founded in July 2002 in order to search for the ideal form and contents of the "liberal arts" to pass down to following generations. Thus far, it has conducted various full-fledged research and analyses, suggested new systems or curricula based on the proposals brought about by the research, and examined the educational efficacy of those proposals through experimental classes and induction courses.

There are three research programs conducted by the center: "Core Research Program," "Specialized Research Program," and "Individual Research Program." The "Core Research Program," which has been focusing on the curricula of Keio University, has investigated the actual situation of the cross-departmental general education courses at Hiyoshi campus and, in 2004, produced the report *The Status Quo and Issues Concerning the Cross-Departmental General Education Courses at Hiyoshi* as a proposal for an alternative systematic curriculum. The "Specialized Research Program" also published its final reports on "Multi-lateral research on Meta-representative Culture" as a part of the Academic Frontier Promotion Projects under the Ministry of Education, Culture, Sports, Science and Technology.

The center has also actively exchanged their opinions and worked with other academic institutions in Japan and outside of the country.

<http://www.hc.keio.ac.jp/lib-arts/>



Graduate School of Business Administration

The Graduate School of Business Administration of Keio University has several programs including two-year MBA program, Ph.D. program, and executive seminars held under the name of the "Keio Business School." We are committed to promote advanced business researches with emphasis on practical application of the results.

We have unique properties in our research. First, our school adopts "case method" for teaching purpose in class, in which real business problems are identified and investigated. Faculties are encouraged to write case studies, and led to conduct researches in such a way to promote business education.

Second, we have accumulated unique research results in specific majors and fields such as marketing, human resources and organization behavior, medical and pharmaceutical researches, and technology management.

We have several cross-faculties researches. For example, in 2004, faculties conducted researches on "searching for Japanese business management to achieve global competitiveness." Other faculties established research project on "structural reform of Japanese corporation" in which various seminars are held regularly. As commissioned study, our school is chosen as a center of "Management of Technology, Human Resource Development Program" of Japan Ministry of Economy, Trade, and Industry.

<http://www.kbs.keio.ac.jp/index-e.html>



Books and Journals (in Japanese)

Institute of Cultural and Linguistic Studies

Reports of the Keio Institute of Cultural and Linguistic Studies, No. 36
Michio Takahashi, *Hellenistic Poetry and Homer. Studies on Apollonius Rhodius* (March 2005)

Institute for Media Communications Research

Research Institute Bulletins
Keio Media Communication Research, No. 55 (March 2005)
English Bulletin: Keio Communication Review, No. 27
21 COE-CCC Dynamics of Civil Society in a Multicultural World, Vols. 14-15

Keio Economic Observatory

Library of Keio University Sangyo Kenkyujo
Keio University Sangyo Kenkyujo Selection
KEO (Keio Economic Observatory) Discussion Papers

The Shido Bunko, The Institute of Oriental Classics

Shido Bunko Ronshu (The Shido Bunko Journal), No. 39

The Teacher Training Center

Annals of the Teacher Training Center Keio University

Fukuzawa Memorial Center for Modern Japanese Studies

Study on Modern Japan, Vols. 1 (1984)-21 (2004)
Newsletter of Fukuzawa Memorial Center for Modern Japanese Studies (published biannually)
An Inclusive List of the Letters by Yukichi Fukuzawa

Institute of East Asian Studies

Ryosei Kokubun, *Rethinkings of China's Cultural Revolution* (2003)
Motoaki Akagawa, *Frontier of East Asian Economic Studies* (2004)
Newsletter of the East Asian Economic Studies (serial publication)

Center for Japanese Studies

Nihongo to Nihongo Kyoiku (Japanese and Japanese Language Education)

Research Center for the Arts and Arts Administration

Annual Report, No. 11
ARTLET 22: CAD & Design
ARTLET 23: Art Therapy and Its Environment
BOOKLET 13:—Architectural space as memory: Isamu NOGUCHI, Yoshiro TANIGUCHI, and Keio University

Global Security Research Institute (G-SEC)

G-SEC Working Paper Series

Journals Issued by Faculties and Academic Associations on Mita Campus

Shigaku (The Historical Science)
Philosophy

A Literary Magazine Mita Bungaku
Library and Information Science
Journal of Arts and Letters

Mita Journal of Economics
Keio Economic Studies

Journal of Law
Kyoyo-Ronso (Journal of Liberal Arts, Faculty of Law) (supplementary volume of Journal of Law)
Keio Law Review
Keio Journal of Politics
Journal of Law and Political Studies

Studies in Sociology, Psychology and Education

BC Mita Business Review
Keio Business Review

Institute of Physical Education
Bulletin of the Institute of Physical Education

Health Center

The Bulletin of Keio University Health Center
Inform Yourself to Your Health

Keio Research Center for Foreign Language Education
Keio Journal of Foreign Language Education

Sports Medicine Research Center

Bulletin of the Sports Medicine Research Center

Keio Research Center for the Liberal Arts

Research Center for the Liberal Arts Booklet

Graduate School of Business Administration (KBS)

Keio Business Forum

• Hiyoshi Review

Hiyoshi Review
<http://review-keio-up.co.jp/>

For Inquiries:

Mita Campus
2-15-45 Mita, Minato-ku, Tokyo, Japan 108-8345
Tel: +81-3-3453-4511

Hiyoshi Campus
4-1-1 Hiyoshi, Kohoku-ku, Yokohama-shi, Kanagawa,
Japan 223-8521
Tel: +81-45-563-1111



Yagami Campus

Aspiring and Working for the Next Frontiers of Science and Technology

Faculty/Graduate School of Science and Technology

The Faculty and Graduate School of Science and Technology are located at the Yagami Campus, where research and education centered on scientific and technological fields are conducted. In accordance with the principle of pursuing "emerging" themes, work on campus will continue to be more open and multifaceted, in the form of joint studies into various issues in as-yet-unknown interdisciplinary areas that go beyond conventional fields of specialization. Our mission is to foster human resources; to have researchers not only study the leading edge, but also open it up for themselves and become leaders of society.

<http://www.st.keio.ac.jp/english/index.html>

Keio Leading-edge Laboratory of Science and Technology (KLL)

The Keio Leading-edge Laboratory of Science and Technology (KLL), a stage for industry-government-academia collaboration, was established at the Graduate School of Science and Technology in 2000 as a center for leading academic research and new business creation in science and technology. Its goal is to return research achievements to society and to conduct research activities that transcend areas of specialization. The KLL has promoted and advanced research projects which are based on the originality of Keio University and take advantage of its strength as a comprehensive university.

<http://www.kll.keio.ac.jp>

Here is an introduction to activities of the KLL.



Activities of the KLL

Coordination for Research Work

The KLL acts as a point of contact between Keio University and groups outside of Keio University such as industrial circles, promoting cooperation for research work in the pre-patent period, or sprouting time. It promotes the research activities of the Yagami Campus from various perspectives (see <http://www.kll.keio.ac.jp/>), flexibly responds to individual consultations, and establishes an interactive flow between enterprises and university research activities. By utilizing these dynamics, the KLL coordinates optimal joint and commissioned research projects.

Promotion of Research Activities

With the objective of focusing on the development of "germinating" research areas that are expected to be important to society in the future, the KLL calls for research projects ("KLL Specified Research Projects"), and advances research aggressively and systematically in terms of both finances and research space. In order to more vigorously advance general research projects that have been established, "KLL Research Space" is loaned on a fee-paid basis. There is usable space in the *Sousoukan* of the Yagami Campus (a total of 2,519m² available; see page 34), as well as on the Shin-Kawasaki Town Campus. Furthermore, researchers from corporations and elsewhere outside of the university who participate in research are granted the status of "Researcher of KLL." They are able to perform research activities smoothly at Keio by, for example, utilizing the Information and Media Center for Science and Technology (library).

Fostering of Young Researchers

In order to foster outstanding researchers in science and technology areas, the KLL offers research aid in the form of the Research Grants for Doctoral Program, which assists research activities performed by students in the doctoral program. In FY2004, the KLL extended grants of ¥300,000 each to 121 students, thereby financially assisting the start of research activities by the students as bona fide researchers.



Returning of Research Achievements to Society

Annually in December, the KLL holds the Keio Techno-Mall, an exhibition aimed at corporate managers. The exhibition introduces research achievements and explores ways to generate new businesses. In 2004, there were 67 booths introducing research achievements and over 1,500 attendees. (The Keio Techno-Mall 2005 is scheduled for 2 December 2005 at the Tokyo International Forum in Yurakucho.) In cooperation with the Intellectual Property Center, the event supports the patenting and commercialization of research achievements and fulfills the cycle of intellectual creation by returning the achievements to society.

■ KLL Specified Research Projects (FY2004)

Started in FY2002

"The Development of Artificial Gene-regulation Molecules and its Application to Post-genome Industry"
Professor Kazunobu Toshima
Fundamental Science and Technology

Started in FY2003

"Studies on Regulatory Mechanism of Growth Factor Receptor Expression and Their Application for Genome-based Drug Discovery"
Professor Masaya Imoto
Fundamental Science and Technology

"Countermeasures on Heat Island by the Development of Urban Regeneration"
Professor Shuzo Murakami
Science for Open and Environmental Systems

Started in FY2004 (Research to Explore Next-generation Cutting-edge Areas)

"Development of Metallic Biomaterials with Bioactive Surface"
Associate Professor Jun Komotori
Integrated Design Engineering

"Simulation Method for Prediction of Explosion Damage"
Associate Professor Akiko Matsuo
Science for Open and Environmental Systems

"Generation of Quantum Entangled Light and its Transmission and Quantum Processing"
Professor Fumihiko Kannari
Integrated Design Engineering

"Optical Detection of a Single Pair of Charge-transfer Molecules for Angstrom Resolution Bioimaging"
Associate Professor Toshiharu Saiki
Integrated Design Engineering

"High Speed RF Chip with Spread Spectrum Modulation"
Associate Professor Yukitoshi Sanada
Integrated Design Engineering

"Development of Style Design Emerging Methodology Based on Digitized KANSEI Information"
Professor Hideki Aoyama
Integrated Design Engineering

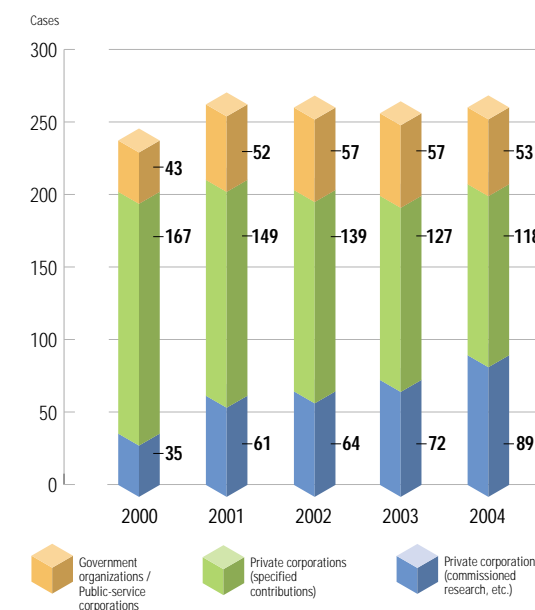
"Development of the Next Generation of Microfluidic Device for Selective Separation of Specific Material"
Associate Professor Yohei Sato
Integrated Design Engineering

"A New e-Learning Paradigm Based on Natural Language Processing"
Associate Professor Hiroaki Saito
Science for Open and Environmental Systems

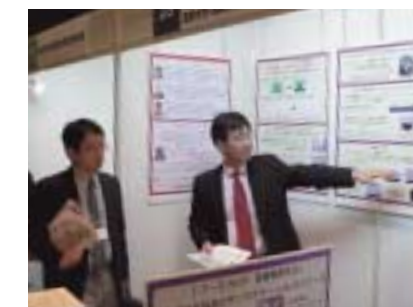
"Development of a Bacteria-based Computer and its Application to Gene Analyses"
(Change of research topic from April 2005)
Professor Yasubumi Sakakibara
Fundamental Science and Technology

"Molecular Evolution of Peptides to Inhibit the Influenza Virus Infection"
Professor Toshinori Sato
Fundamental Science and Technology

■ Number of Commissioned Research and Other Cases Received (FY2000-FY2004)



■ KEIO TECHNO-MALL 2004



Commissioned Research Projects (excerpt)

"Training Program for System Biologists in Keio University"
Ministry of Education, Culture, Sports, Science and Technology (MEXT)
Professor Kotaro Oka
Fundamental Science and Technology

"A Study on Fundamental Technology of Distributed Real-time Network for Human Activity"
MEXT
Professor Yuichiro Anzai
Science for Open and Environmental Systems

"Development of New Tools for *in vitro* Analysis of Protein-Protein Interactions Constructing Networks *in vivo*"
MEXT
Professor Hiroshi Yanagawa
Fundamental Science and Technology

"Highly Dependable Software for Capturing Environmental Information"
MEXT
Professor Shinji Ozawa
Science for Open and Environmental Systems

"Target Gene Exploration for Drug Discovery"
New Energy and Industrial Technology Development Organization (NEDO)
Professor Hiroshi Yanagawa
Fundamental Science and Technology

"Basic and Leading-edge Research on AHS Technology and Evaluation Methodology for Introduction of ITS"
National Institute for Land and Infrastructure Management
Professor Hironao Kawashima
Science for Open and Environmental Systems

For Inquiries:

Secretariat of the KLL
(c/o Office of Research Administration, Yagami Campus)
TEL: +81-45-566-1470
E-mail: staff@kll.keio.ac.jp
<http://www.kll.keio.ac.jp/>

KLL Liaison Office
TEL: +81-45-566-1438
E-mail: liaison@educ.cc.keio.ac.jp
<http://www.kll.keio.ac.jp/liaison/index.html>

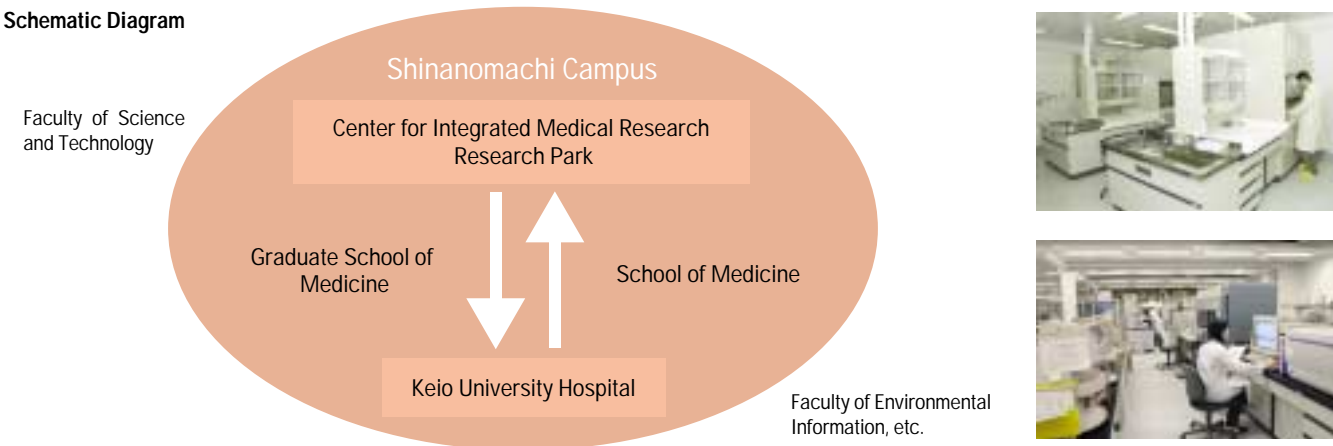
Research Centers



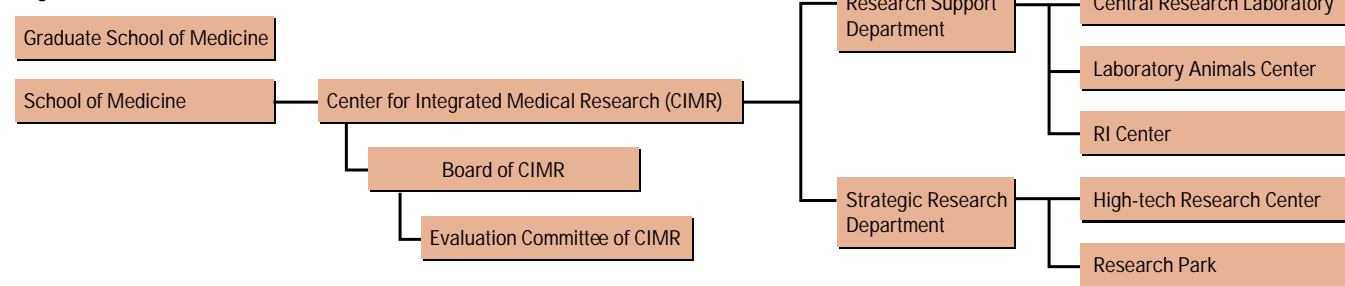
Shinanomachi Campus

Center for Translational Research: From Bench to Bed

Schematic Diagram



Organizational Chart



Major Research Projects

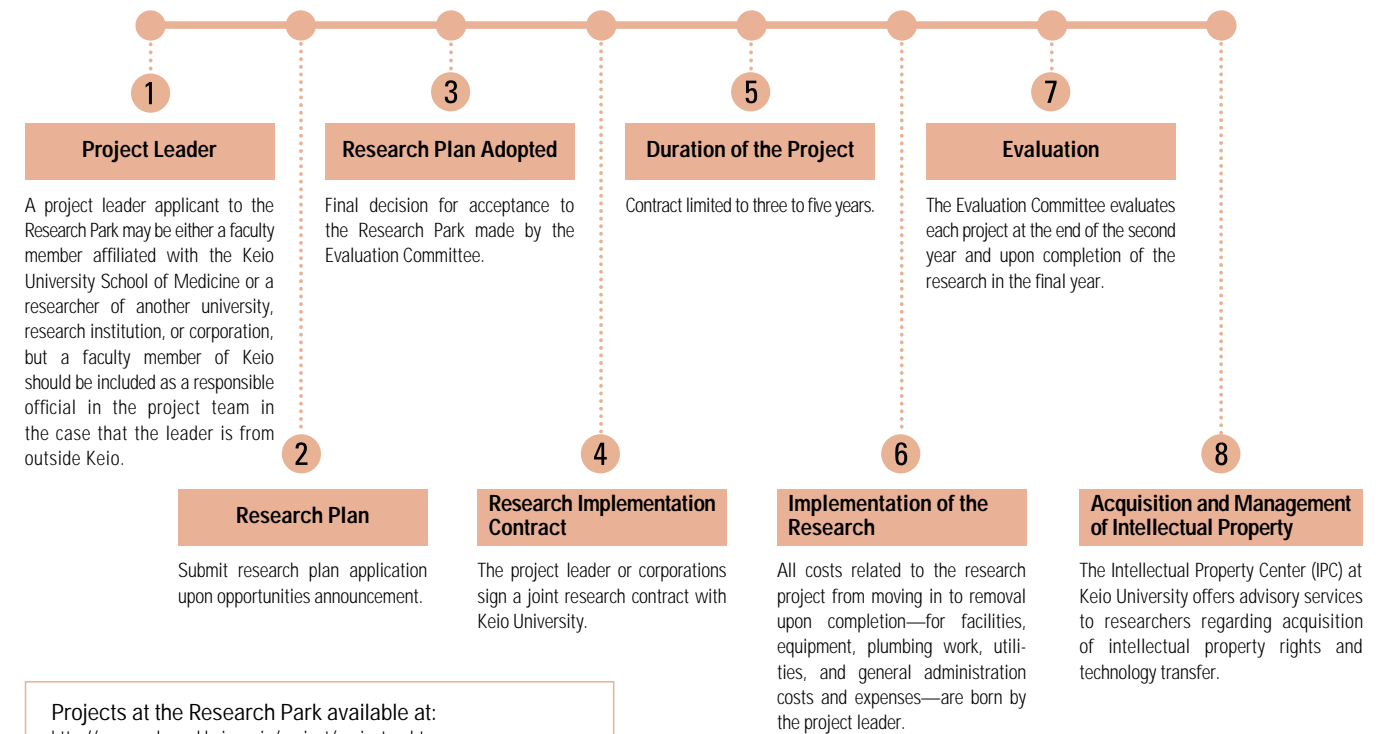
Publicly Funded Projects

<p>Ministry of Education, Culture, Sports, Science and Technology (MEXT)</p> <p>• 21st Century Revolutionary Leading-edge Life Science Technology Development Project</p> <p>Translational Research Programs "Development of Immunotherapy by Intratumoral Administration of Dendritic Cells" Professor Yutaka Kawakami, Institute for Advanced Medical Research</p> <p>• Leading Project</p> <p>Leading Project for Biosimulation "Development and Application of Computer-based Biosimulation Assisted by Metabolome Analyses" Professor Makoto Suematsu, Biochemistry</p> <p>Leading Project of the Regenerative Medicine "Development of Stem Cell Therapy for Spinal Cord Injuries" Professor Hideyuki Okano, Physiology</p>	<p>• Special Assistance for Promoting the Advancement of the Education and Research of the Private University</p> <p>Academic Frontier Promotion Project Application of High Throughput Metabolome Technology to Biomedical Sciences</p> <p>High Technology Research Center Project Project of the Research and Development Center for the Regenerative Medicine and Therapeutics, Keio University School of Medicine</p> <p>Social-Academia Partnership Research Promotion Project Development of Diagnostic and Therapeutic Techniques for the Central Nervous System Diseases</p> <p>• Grants-in-Aid for Scientific Research (Kakenhi)</p> <p>Specially Promoted Research "Regulation of Hematopoietic Stem Cell Division in a Niche" Professor Toshio Suda, Cell Differentiation</p>	<p>Creative Scientific Research "Activation of Stem Cells and Neurogenesis in Adult Brains: Their Regulatory Mechanism and Visualization" Professor Hideyuki Okano, Physiology</p> <p>"Biomedical Application of Gas Biology through Multidisciplinary Approaches" Professor Makoto Suematsu, Biochemistry</p> <p>Japan Science and Technology Agency (JST)</p> <p>"Studies on the Development and Regeneration of Central Nervous System Based on the Stem Cell System" Professor Hideyuki Okano, Physiology</p> <p>"Training Course for Technical Assistants on <i>in vivo</i> Medical Science" Professor Sadakazu Aiso, Anatomy</p> <p>"Neuronal Death-oriented Development of Therapy against Alzheimer's Disease" Professor Masaaki Matsuoka, Pharmacology</p>	<p>NEDO</p> <p>"Clinical Extension of Technologies for Gas-mediated Manipulation of Macromolecular Functions" Professor Makoto Suematsu, Biochemistry</p> <p>"Establishment of Regenerative Therapy Using Peripheral Blood Monocytes" Assistant Professor Masataka Kuwana, Institute for Advanced Medical Research</p> <p>National Institute of Biomedical Innovation (NIBio)</p> <p>"Development of the Regenerative Cardiomyocytes from Human and Simian Embryonic Stem Cells" Professor Keiichi Fukuda, Regenerative Medicine</p>
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Shinanomachi Research Park

The Research Park provides 55 laboratory spaces called units for joint research projects between industry, government, and academia. Durations of the research projects vary from three to five years.

Schematic of Research Park for Participants



Projects at the Research Park available at:
http://www.rpk.med.keio.ac.jp/project/project_e.htm
Research field of Faculty of School of Medicine available at:
http://www.cimr.med.keio.ac.jp/ichiran_e.htm

Privately Funded Research Projects

<p>• Joint Research with Corporations Joint Research Projects</p> <p>Hamano Life Science Research Foundation "Imaging of Higher Order Brain Function" Pfizer Japan, Inc.</p> <p>Nipro "Development of New Therapies for Inflammatory Bowel Disease Using Regeneration Technique of Mucosal Epithelium" Institute of Medicinal Molecular Design, Inc. (IMMD) "Development of Novel Drugs Based on Rational Drug Design Methods" Mitsubishi Pharma Corporation "Development of Platelet Substitutes" Mitsubishi Pharma Corporation "Establishment of Human Monoclonal Antibody" Daiichi Pharmaceutical Co. Kirin Brewery Co. "Identification of Tumor Antigens Useful for Prevention, Diagnosis, and Treatment of Gastroenterological Cancer"</p>	<p>Kowa Company, Ltd. "Elucidation of Mechanism and Investigation of Treatment for Sjogren Syndrome" Toshiba Corporation "Non-invasive Radiology System for the Diagnosis and Therapy of Cancer" Chugai Pharmaceutical Co., Ltd. "Development of Novel Therapy for Hematological Malignancies" Daiichi Santory Pharma Co., Ltd. "Development of the Method Generating Cardiomyocytes from ES Cells and Establishment of Regenerative Therapeutic Technology for Heart Failure" Astellas Pharma Inc. "Vascular Medicine Project" GE Yokogawa Medical Systems Ltd. "Development of Novel Systematic Diagnosis with MDCT and MRI in Cardiovascular System" Roche Diagnostics K.K. "Development of a Quantitative Real-time Diagnosis for Micrometastasis Based on the Sentinel Node Concept"</p>	<p>Medical & Biological Laboratories Co., Ltd. Hitachi, Ltd. Noevir Co., Ltd. Canon Inc. "Development of DNA Chip and its Application" Takeda Pharmaceutical Company Limited "KT-neural Regeneration Project"</p> <p>• Commissioned and Joint Researches</p> <p>• Endowed Laboratory Oriental Medicine Advanced Cardiac Therapeutics Growth and Development Research Bridgestone Laboratory of Developmental and Regenerative Neurobiology Uniden Musculoskeletal Reconstruction and Regeneration Surgery</p>
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For Inquiries:
Office of Research Administration at Shinanomachi
Tel: +81-3-5363-3879
E-mail: ras-shinanomachi@adst.keio.ac.jp
<http://www.med.keio.ac.jp/research/>

Center for Integrated Medical Research
http://www.cimr.med.keio.ac.jp/index_e.htm
Shinanomachi Research Park
http://www.rpk.med.keio.ac.jp/index_e.htm

Monthly Friday Seminar Series at Center for Integrated Medical Research

<p>Seminars to Date (excerpts)</p> <p>19th Seminar: Yoshinori Fujiyoshi, Ph.D. Kyoto University "Structural and Functional Study of Water and Ion Channels as a Stage Struggling to Understand Nervous System"</p> <p>23rd Seminar: Stefan Karlsson, Ph.D. Lund University Hospital "The Role of Smad Signaling in Hematopoietic Cells"</p> <p>24th Seminar: Hachiro Sugimoto, Ph.D. Kyoto University "Chasing a Dream of Discovering Anti-Alzheimer's Disease Drugs"</p> <p>26th Seminar: Urban Lendahl, Ph.D. Karolinska Institute "Notch Signaling During Development and Disease"</p> <p>27th Seminar: Katsuhiko Mikoshiba, Ph.D. The University of Tokyo "Intracellular Ca²⁺ Dynamics and Cell Function: Its Physiology and Pathogenesis"</p> <p>32nd Seminar: Toshiaki Noce, Ph.D. Mitsubishi Kagaku Institute of Life Sciences "Topics in the Relationship between Germ Cell Research and Regenerative Medicine"</p>
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Shonan Fujisawa Campus (SFC)

Contributing to Social Development with Cutting-edge Research Based on Interdisciplinary Cooperation

SFC

Keio University's fifth campus, SFC, was built in 1990 as a site for research and education based on completely new concepts adapted to the changing times. It includes the three faculties of Policy Management, Environmental Information, and Nursing and Medical Care as well as the Graduate School of Media and Governance which opened in 1994. SFC masters programs aim at nurturing "high-quality professionals" who are able to respond to society's diverse needs with expertise and practical experience in identifying and solving problems. Its doctoral program cultivates "top-quality researchers, educators, and specialists" with expert professionalism, precise decision-making capabilities, and abundant creativity. As its daily mission, the SFC strives to contribute back to society by producing graduates who will flourish as next generation professionals and conduct cutting-edge research. In order to respond to the complex and diverse needs of today's society, SFC also opened the Graduate School of Health Management in April 2005. This school further expands and enhances the concept of the Faculty of Nursing and Medical Care by providing a program which enables graduates of the sciences and humanities alike to grapple with the broad theme of "health."

Situated on a futuristic 330,000 square meter campus, SFC seeks to maintain a balance between the latest technology and a rich, natural environment. Research projects serve as the core of a participatory curriculum which instills students with specialized knowledge and practical skills.

<http://www.sfc.keio.ac.jp/index.html.en>

Keio Research Institute at SFC

The Keio Research Institute at SFC is an affiliate of the three faculties and Graduate School of Media and Governance which promotes research activities at SFC.

As a leading center of cutting-edge research in the 21st century, the Institute works to further enhance society's advancement by performing ground-breaking research based on interdisciplinary cooperation and by nurturing a two-way partnership between educational and research activities at the campus. This includes all related activities with industry, government, and academia both in Japan and overseas. Specific measures to achieve this include promoting joint research projects with other organizations and supporting venture incubation efforts. One of the unique aspects of the Keio Research Institute at SFC is its SFC Research Consortium, which encourages university-led collaborative research by multiple organizations. There are currently 14 such projects underway (as of July 2005).

Additionally, the Institute was commissioned with 230 funded research projects amounting to approximately ¥2.2 billion from government agencies, local governments, and private companies in FY2004.

Researchers for these projects come not only from within SFC, but outside as well—approximately 300 visiting researchers conduct research at the Institute. The Institute is committed to presenting its research achievements widely to the public so that the results of its efforts flow back to society.

<http://www.kri.sfc.keio.ac.jp/english/index.html>

Number of researchers: (as of 6 July 2005)

Full-time staff: 180

Researchers appointed with external funding: 94

Visiting Researchers: 329

Total: 603

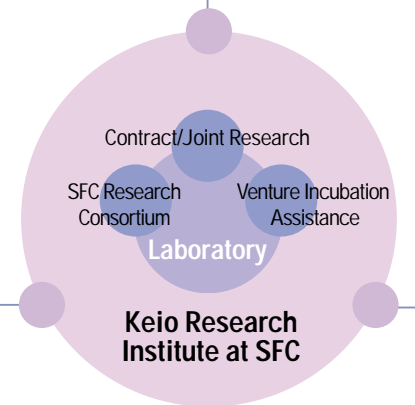


Making Research Achievements Available to the Public

SFC Open Research Forum

The Keio Research Institute at SFC believes returning research achievements to society to be an important social duty. In order to make achievements widely available to the public, the Institute annually organizes an SFC Open Research Forum where various research projects at the Institute are disclosed to industry, national and local government agencies, and academic society. The current status and future plans of projects are made public at the Forum through exhibitions, demonstrations, and symposiums. Furthermore, the Institute holds panel discussions between industrial and political experts and formulates proposals based on the discussions which it offers to society. These efforts aim to strengthen cooperation between industry, government, and academia and incorporate external feedback into the planning of future research projects.

<http://orf.sfc.keio.ac.jp>



Laboratory

The Keio Research Institute at SFC is proud of having laboratory system which enables SFC's researchers to form research groups of those who have different academic backgrounds yet share the same research interests and objectives. These groups carry out interdisciplinary collaborative research projects.

Currently, the following 12 laboratories are in operation:

- Career Resource Laboratory
 - Internet Research Laboratory
 - Geo-informatics Laboratory
 - Digital Cinema Laboratory
 - Bioinformatics Laboratory
 - Auto-ID Laboratory
 - Ubiquitous Computing & Communication Laboratory
 - ID Business and Social Model Research Laboratory
 - Healthcare Informatics Research Laboratory
 - Keitai Laboratory
 - SIV Entrepreneur Laboratory
 - Interaction Design Laboratory
- <http://www.kri.sfc.keio.ac.jp/english/laboratory/laboratory.html>



World-Leading Fusion Research Technology

SFC Research Consortium

SFC Research consortium conducts joint research projects which tackle large issues under the premise of mutual benefit. The university takes the initiative in deciding a research topic and invites participation from multiple external organizations including businesses and government, to extend efforts beyond a single field of study.

Currently, the following 14 consortium projects have been organized:

- Building Conceptual Media and Application Systems
 - VCOM
 - Research on Advanced Next-generation Internet Architecture
 - Building Advanced Information Infrastructures
 - VSI (Virtual Systems Institute)
 - Sharing Human Intellect Project
 - Research Project on Urban Computerization and Public Space
 - E-CELL Consortium
 - DVTS (Digital Video Transport System) Consortium
 - SFC "Design Museum Factory" Consortium
 - DMNET (Digital Media Learning Network)
 - e-Care Consortium
 - SIV Entrepreneur Education Research Consortium
 - Interaction Design Research Consortium
- <http://www.kri.sfc.keio.ac.jp/english/research/consortium.html>

Case Studies

Keitai Laboratory

Given the interrelated nature of technological changes in mobile communications and social transformations, it is of utmost importance to establish a mutually beneficial relationship between the two by focusing on interdisciplinary, composite research.

The Keitai (mobile phone) Laboratory researches the social and cultural impact of the mobile phone from a wide range of perspectives and approaches and attempts to describe the nature of a "ubiquitous society." Cutting across graduate programs, it provides for academic guidance as well as group studies and research.

<http://www.kri.sfc.keio.ac.jp/english/laboratory/Keitai.html>

Building Digital Asia Utilizing GIS Technology

The Digital Asia project is a dynamic, five-year joint project between domestic and overseas research institutions. This project takes an integrated approach to examine a future strategy for the Asian region based on environmental, risk management, and information technology (adopted in FY2004 as a Ministry of Education, Culture, Sports, Science and Technology (MEXT) "Academic Frontier" Project; "Fusion Research for Conceptualizing Regional Strategy through Construction and Operation of Digital Asia").

e-Care Project

The e-Care project consists of integrated research on the creation and applications of an e-Care social model which applies information communications technology to the health care field. By applying advanced infrastructure technology from the fields of nursing, medical care engineering, and information communications, it seeks to build a new social system which can respond to today's declining birth rate and aging population (adopted in FY2005 as a MEXT "High-tech Research Center" Project entitled "Fusion Research for formulation of an e-Care Model Social System and its Applications based on Information Communications Technology").

Venture Incubation

Keio University is expanding incubation facilities (Keio Fujisawa Innovation Village) for entrepreneurs in joint cooperation with the Organization for Small & Medium Enterprises and Regional Innovation (SMRJ), Kanagawa Prefecture and Fujisawa City.

These facilities will be offered for rent at reasonable rates to entrepreneurs who utilize SFC knowledge and information in fields such as IT, biotechnology, environment-conscious technology, nursing and health care, health management, city design, and social system design, and desire to begin a start-up business in alliance with Keio. Applications to rent the facilities have started in fall 2005, with a screening done to decide allocations (entrepreneurs who wish to utilize knowledge from and ally themselves with other campuses may also apply).

Keio University hopes that a variety of new businesses will emerge from these facilities, including listed companies active at the global level and community-based social ventures.

At the facilities, a number of incubation managers will be present to assist the businesses through advice and matching suited to their needs.

Returning Research Achievements to Society

SFC Forum

The SFC Forum provides a setting where business leaders and university staff can engage in discussions that generate and reevaluate the knowledge required by the current age. Its purpose is to give people living in today's dramatically changing society a forum at the university—a place where they can share a wealth of ideas and broad perspectives in order to anticipate issues and build a vision for the future. Specifically, on a monthly basis the Forum holds luncheons and research seminars at which innovative SFC research is introduced, management seminars with member-led discussions, etc. Additionally, it offers Research Conferences for joint and commissioned projects in the pre-launch stage so that members can exchange ideas with SFC researchers in their field of interest.

<http://www.sfc.keio.ac.jp/sfc-forum/>

Keio SFC—DNP Seminar

The Keio SFC—DNP Seminar is a collaborative project with Dai Nippon Printing Co., Ltd. (DNP) that was organized through a Research Conference offered at the SFC Forum. From the view points of social assumptions and technology, the Seminar seeks the future vision toward realization of "the emergent society" produced by changes in diversification of information communications.



For Inquiries and Document Requests:

Office of Research Administration,
Shonan Fujisawa Campus
Tel: +81-466-49-3436
Fax: +81-466-49-3594

E-mail addresses:
Participation in research activities: sec-kri@sfc.keio.ac.jp
Press related: press-kri@sfc.keio.ac.jp
General inquiries: info-kri@sfc.keio.ac.jp
Keio Research Institute at SFC website:
<http://www.kri.sfc.keio.ac.jp/english/index.html>

Research Centers



Shin-Kawasaki Town Campus

Open and Cutting-edge Research Facility Pursuing Industry-Government-Academia Collaboration

The Shin-Kawasaki Town Campus, popularly known as the K² Town Campus, was established in the spring of 2000 as a facility responsible for cutting-edge joint research among industry, government, and academia through collaboration and cooperation with the Kawasaki City. K² ("K Square") represents the double meaning of (1) Keio (one "K") and Kawasaki (another "K") teaming up and thereby producing a squared effect by joining forces, and (2) the campus square (plaza). This is where the Shin-Kawasaki Frontier Research and Education Collaborative Square were established as a frontier research organization within Keio University.

This roughly two-hectare site surrounded by greenery houses four two-story research buildings and one welfare building where a total of approximately 370 researchers including graduate students, joint researchers, and others work day and night to advance research.

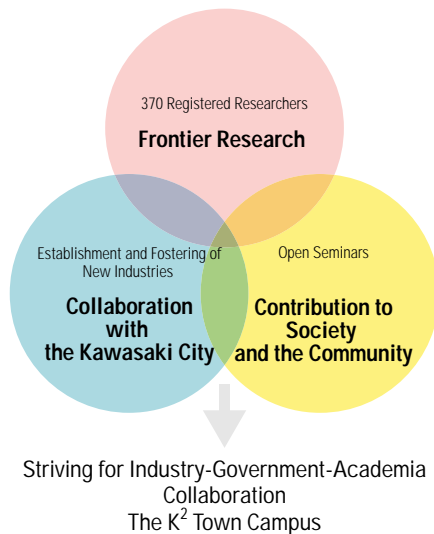
At present, 14 representative Keio University frontier research projects that are rooted in industry-government-academia collaboration are being conducted here. In addition to using frontier research to enhance the technologies of local businesses and cultivate local industry through the generation of new industries, the K² Town Campus also holds open seminars (eight seminars were held in FY2004), open campus days, and other events that serve to make city residents and young people aware of numerous types of learning centered on science and technology.

Toward Industry-Government-Academia Collaboration

The Shin-Kawasaki Frontier Research and Education Collaborative Square (K-FRECS) is a center which aims for not only industry-government-academia collaboration, but also collaboration with the local community. It leads to vitalization of the local community by transmitting its research achievements to the world at large, as well as cultivating new industries and contributing the human resources to support them.

Moreover, Keio University is also participating in the establishment of the Kawasaki Innovation Liaison Council for the purpose of building a network for industry-government-academia collaboration, advancing innovation within the community, and supporting the founding of new business and fostering of entrepreneurs.

The K² Town Campus will continue to work as a center for collaboration that is meaningful to both Keio and the Kawasaki City.



■ Frontier Research Projects

14 frontier research projects rooted in industry-government-academia collaboration are being carried out across faculties and research courses, with a staff of over 370 researchers (including full-time teachers, joint researchers, and graduate students) working day and night to advance research.

■ Contributing to Society through Frontier Research

The campus functions as a center for industry-government-academia collaboration by using intellectual property and research on cutting-edge technology in order to enhance technologies for local businesses, as well as to create and foster new industries.

■ Contributing to Society through Science Education and Awareness Campaigns

Under the cooperation of each frontier research project, various seminars are held in order to inform residents and young people of the numerous types of learning centered on science and technology.

Research Projects * Completed in FY2004 ** New Project starting in FY2005

K-Building	Real-time Network Project Yuichiro Anzai (Professor, Faculty of Science and Technology)*
K-Building	Distributed Real-time Processing Project—Distributed Real-time Information Processing for Humanoids Nobuyuki Yamasaki (Associate Professor, Faculty of Science and Technology)
K-Building	Project on Flexible Network for Hard-real-time and Hard-real-world System Kouhei Ohnishi (Professor, Faculty of Science and Technology)
K-Building	Experimental Research Project on Autonomous, Distributed, Cooperative Control by Space and Outdoor Robots Yoshiaki Ookami (Professor, Faculty of Science and Technology)* / Kazuo Yoshida (Professor, Faculty of Science and Technology)**
K-Building	Technology of Air Cleaning for Creating the Comforts of Life Shigeru Tanaka (Professor, Faculty of Science and Technology)
K-Building	Research Project for Understanding and Analysis of Multiple Camera Hideo Saito (Associate Professor, Faculty of Science and Technology)*
K-Building	Next Generation Broadband Mobile Communication Research Project Masao Nakagawa (Professor, Faculty of Science and Technology)
K-Building	VISOR Project—Flexible Communication Systems Shinichiro Haruyama (Visiting Professor, Faculty of Science and Technology)
K-Building	Genome-based Drug Discovery Project Masaya Imoto (Professor, Faculty of Science and Technology)**

K-Building	NEDO Device Development Project for Next Generation Robot Motion Control Research and Development of System LSI (M-RMTP) for Next Generation Robots Nobuyuki Yamasaki (Associate Professor, Faculty of Science and Technology)**
E-Building	ERATO Koike Photonics Polymer Project—"Fiber to the Display" by High-speed Data Transmission and High-quality Displays Yasuhiro Koike (Professor, Faculty of Science and Technology)
I-Building	Beyond the Human Genome Project DNA Science: Basic Research, Medical Applications and Public Campaign Nobuyoshi Shimizu (Professor, School of Medicine)
O-Building	Future Vehicle Project—Vehicles on the Ground Using the Technology of Drive and Automatic Driving Hiroshi Shimizu (Professor, Faculty of Environmental Information)
O-Building	Next Generation Nano-technology Thin Film Project (Wide Applications of Wet-Process Nano Coating) Seimei Shiratori (Associate Professor, Faculty of Science and Technology)
O-Building	Project for IP-based Wireless Communication Technologies—For a Combination of Cellular and Ad-hoc Networks Masao Nakagawa (Professor, Faculty of Science and Technology)
O-Building	The WIDE Project—Research on IPv6 Jun Murai (Professor, Faculty of Environmental Information)

Open Campus

On Saturday, 2 October 2004, the Open Campus began with greetings from the President of Keio University and the Mayor of Kawasaki City, and was attended by many residents, students, and individuals from businesses, among others.

FY2004 Saturdays Seminars

DD/MM/YY	Topic	Instructor
02/10/04	Towards the Innovation of Space Activities by Cooperating Robots —The 21st Century COE Program: Paradigm Shift from Intelligence to Life—	Yoshiaki Ookami (Professor, K-Building Project)
02/10/04	What is Distributed Real-time Processing? —We Can Meet the Deadline!—	Nobuyuki Yamasaki (Assistant Professor, K-Building Project)
23/10/04	Computer Graphics —Paintings Seen by Computer and Drawn by Computer—	Yoshio Ohno (Professor, Faculty of Science and Technology)
04/12/04	Human Factors Engineering of the Future —Toward Harmonization between Human and Machines for Safety, Security and Amenities in Society—	Yusaku Okada (Associate Professor, Faculty of Science and Technology)
11/12/04	Human-friendly, Environmentally friendly Buildings —Architecture with System Life—	Shuzo Murakami (Professor, Faculty of Science and Technology)
18/12/04	The Evolutionary Transportation Systems: ITS	Hironao Kawashima (Professor, Faculty of Science and Technology)
15/01/05	Genome School for the Young	Nobuyoshi Shimizu (Professor, I-Building Project)
29/01/05	The Forefront of Rehabilitation Engineering —Interface between Medicine and Engineering—	Yutaka Tomita (Professor, Faculty of Science and Technology)

The Open Campus 2005 was held on Saturday, 12 November 2005



Various seminars related to numerous different types of learning centered on science and technology are organized to enlighten residents, young people, and individuals from the business world. In FY2004, a total of eight open seminars and open lectures were held that were attended by many participants. Additionally, numerous seminars are also planned for FY2005.

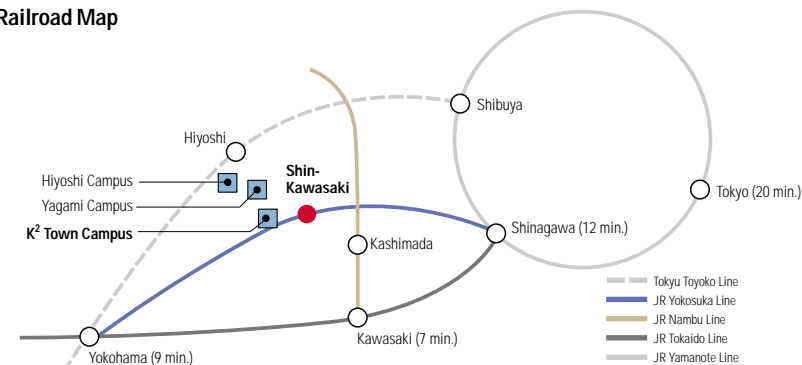
The K² Corner Starts at Kawasaki FM

From January 2005, the Shin-Kawasaki Town Campus (K² Town Campus) has been presented on radio by Kawasaki FM 79.1.

On the third Tuesday of each month, from 13:10-13:40, a researcher of the K² Town Campus appears at the studio and introduces frontier research that is currently being advanced.

Month	Instructor	Content
January	Professor Yasuhiro Koike	Plastic Optical Fiber and Broadband Society
February	Professor Masao Nakagawa	Progress in Mobile Phones and Visible Optical Communication
March	Professor Hiroshi Shimizu	Vehicles in the Near Future
April	Professor Kouhei Ohnishi	Evolving Robot: From Grasping to Touching
May	Associate Professor Seimei Shiratori	Nano Technology Changes Our Life
June	Professor Nobuyoshi Shimizu	The Forefront of Genome Research
July	Professor Shigeru Tanaka	Simple and Convenient Scrubber can Eliminate Indoor Contaminants

Railroad Map



For Inquiries:

Shin-Kawasaki Town Campus
Shin-Kawasaki Keio Frontier Research and Education Collaborative Square (K-FRECS)
144-8 Ogura, Saiwai-ku, Kawasaki-shi, Kanagawa,
Japan 212-0054
Tel: +81-44-580-1580
Fax: +81-44-580-1570
E-mail: k2-1c@adst.keio.ac.jp
http://www.k2.keio.ac.jp/

Access by train
10-minute walk from Shin-Kawasaki Station, JR Yokosuka Line
15-minute walk from Kashimada Station, JR Nambu Line

Research Centers



Tsuruoka Town Campus

This is not just a research institute.
This is a scientific adventure.

In April 2001, Keio University established the Tsuruoka Town Campus of Keio (TTCK) in Tsuruoka City, Yamagata Prefecture, with the cooperation of Yamagata Prefecture and the municipalities of the Shonai region. The cornerstone of the campus is the Institute for Advanced Biosciences (IAB).

Research at IAB is performed at two facilities: the Center Building and the Bio-lab.

TTCK conducts, closely and jointly working with the other campuses of Keio, research and development in advanced areas and enhances research and educational activities. It proactively transfers newly created technologies to local governments and businesses to encourage industry-government-academia collaboration, for contributing to regional development as well as to the advancement of science and technology in Japan.



Bio-lab

Institute for Advanced Biosciences (IAB)

The Institute for Advanced Biosciences (IAB) is a full-fledged laboratory for bioresearch set up at the TTCK in April 2001. The IAB, using the leading-edge biotechnology, cyclopaedically measures and analyzes the cellular activities of organisms and microbes, simulates various cell functions and activities by computer, and applies its findings to areas such as medical care and food fermentation.

The IAB attracts attention of the world as a pioneer of "integrated systems biology," a new IT-driven bioscience.

<http://www.iab.keio.ac.jp/index.html>

Major Research Projects

MEXT Leading Project for Biosimulation
"Development and Application of Computer-based Biosimulation Assisted by Metabolome Analyses"
(2003-2007)

METI, Human Resource Development Programs in Bioindustry
"Fostering of Integrated Systems Biologists"
(2004)

New Energy and Industrial Technology Development Organization (NEDO)
"Development of a Technological Infrastructure for Production Processes Using Biological Functions—Development of Cellular Modeling Technology"
(2001-2005)

Ministry of Health, Labour and Welfare (MHLW), Grant-in-Aid for Cancer Research
"Research on Development of New Medical Treatment Based on Cancer Biology"
(2005)

MEXT 21st Century COE Program
"Understanding and Control of Life's Function via Systems Biology"
(2002-2006)

National Institute of Agrobiological Sciences (NIAS), Program for Rice Genome Research (PRGR)
"Development of the Rice Genome Simulators—Development of Efficient Analysis Systems for Rice Genome Transcription Control Networks"
(2002-2004)

Yamagata Prefecture and Tsuruoka City
"Computer Aided Design of Useful Microbes"
(2001-2005)

Research System

Major Joint Research Organizations

The Faculty of Science and Technology, the School of Medicine, Shonan Fujisawa Campus, RIKEN, and Human Metabolome Technologies, Inc.

Educational Activities

The IAB develops and deploys educational activities for students with different majors in undergraduate or graduate school of Keio University, under the ideal that advanced research and education should be inseparable. In FY2004, 30 students in the spring semester and 35 students in the fall semester participated in the programs and activities offered at TTCK.

• Bio Camp

The Bio Camp is a program for students of the Shonan Fujisawa Campus (SFC) at Keio to spend one semester at the TTCK and experience the basics of biotechnology. The program begins with an introduction to the handling of laboratory instruments because the students have no experience with experiments. Each student extracts his/her own DNA and analyzes the gene for alcohol-degrading enzymes, and self-diagnoses through genetic testing whether his/her level of tolerance for alcohol is high or low. At the end, the students decode the genome sequences through state-of-the-art DNA sequencers.

• Bioinformatics Program

The Bioinformatics Program is a rare graduate program in the world in the sense that students can earn credits from both the SFC (bioinformatics) and the TTCK's IAB (systems biology). At the TTCK, a number of experiments and laboratory trainings are provided, such as "genome sequencing," "metabolome analysis," and "proteome analysis," using most-advanced DNA sequencers, mass spectrometers, etc.

Events

• Introduction to Bioscience for Tsuruoka Citizens

The introductory bioscience course for general public and taught by researchers of the IAB. There were 119 participants in FY2004.

• Summer Bio College

This is a basic hands-on program in biotechnology aimed at high school students in Tsuruoka City, Yamagata Prefecture, and those in the Keio's affiliated high schools. There were 20 participants in FY2004.

• Keio Summer Bio Camp

This is a basic hands-on program in biotechnology for any high school students from all over Japan, in which 19 students participated.

• The Advanced Biosciences Seminar with Experiments

This seminar is offered for teachers at elementary, junior high, and high schools in Tsuruoka City, who are either science teachers or those interested in biosciences. The seminar utilizes the research equipment of the IAB's Bio-lab and literature at the Chido Library, specializing in areas of natural sciences centered on bioscience. There were 17 participants in FY2004.

Commercialization

A Bio-venture Company from Keio University
Human Metabolome Technologies, Inc. (HMT)
<http://www.humanmetabolome.com/>

Human Metabolome Technologies, Inc. (HMT) is a venture company established in July 2003 by Professor Masaru Tomita, Associate Professor Tomoyoshi Soga, and others from the IAB, based on the IAB's measurement and analysis technology for metabolomes. HMT conducts R&D at the IAB aimed at industrial applications in medical care, drug discovery, food fermentation, etc. In October 2003, HMT became the first company to be invested by the Entrepreneur Assistance Fund of Keio University. The company began joint research with Mizkan Group Co. Ltd. in January 2004, Ajinomoto Co., Inc. in June 2004, and Mitsubishi Pharma Corporation in February 2005.



High-throughput and quantitative CE-MS methods which can measure thousands of charged metabolites

Other Related Facilities

Tsuruoka Metabolome Campus is a research facility of Tsuruoka City aimed at cluster formation of bioresearch and development, with the IAB as the cornerstone. HMT began business in 2005. From mid-2006, RIKEN is also expected to open a new institute and joint research with the IAB will start in earnest.

Facility for Incubation and Industry-Academia Joint Research (tentative name)

Main coordinating body: Tsuruoka City
Location: 245 Mizukami Kakuganji, Oaza, Tsuruoka-shi, etc.
Site area: Approx. 1.5ha
Building structure: Two-floors, steel-framed
Building scale: Total floor area approx. 3,700m²
Research unit specs
• Rooms for rent:
29 units: 1 unit = 7m x 10m (approx. 75m²)
Ceiling height: Approx. 2.8m
• Room specs
Floors: Free-access floors
(Floor weight capacity: 500kg/m²)

Groundwork: Chemical-resistant polyvinyl sheet finish
Equipments provided: Electricity (single phase 100V/200V, 3-phase 200V), water supply and drainage, city gas (13A)
Security: 24-hr. access with IC card
• Common-Use Building: Meeting room, lounge, etc.
Monthly rent: (A-Building) 89,000-92,000 yen
(No deposit or guarantee money. Utilities born by tenants.)
Starting date for operation: All services will start on 1 June 2006, but 3 units in A-Building have been rented to HMT since 1 May 2005, and 6 units in B-Building will be available from 1 April 2006.
Duration of tenancy: within five years



Rendering of Facility for Incubation and Industry-Academia Joint Research (tentative name)

Major Awards

November 2001
"Yamagata Keizai Doyukai (Association of Corporate Executives) Grand Prize, Yamagata Landscape Design Award"

June 2003
"Nihon Kogyo Shimbunsha Award in the 17th Dokusousei wo Kirihiraku Sentan Gijutu Taishou (Leading-edge Technology for Originality and Creativity)"

November 2003
"IBM Shared University Research Award"

June 2004
"Industry-Academia-Government Collaborative Distinguished Service Commendation (Award of the Minister of State for Science and Technology Policy)"

April 2005
"First Prize in the 5th Japan Biotechnology Business Competition"

For Inquiries:

Tsuruoka Town Campus
Keio Frontier Research and Education Collaborative Square (K-FRECS) at Tsuruoka
14-1 Baba-cho, Tsuruoka-shi, Yamagata, Japan 997-0035
Tel: +81-235-29-0800 (main)
Fax: +81-235-29-0809
E-mail: office@ttck.keio.ac.jp
<http://www.ttck.keio.ac.jp/>

Research Centers



Nowton Court Keio University

An International Center for Transmission of Knowledge

The Humanities Media Interface (HUMI) Project of the Humanities Media Research Center at Keio University conducts research on digital archiving of rare and valuable books and manuscripts. The digital photography and related imaging technologies developed through the project have been contributing to the preservation and disclosure of rare and valuable books both in Japan and overseas. Since the spring of 2001, the HUMI Project, based at Nowton Court, has implemented digitization of valuable books of global importance in Europe, including the Bury Bible (Cambridge University), the Caxton Press edition of *The Canterbury Tales* (The British Library), the *Nara Ehon* (The British Library, Chester Beatty Library), Gutenberg Bible (Pelplin Diocese Library, National Library of Scotland) and the Winchester Manuscript of *Le Morte D'Arthur* (The British Library). HUMI Project also hosted the "Nowton Court Colloquium on the History of the Book and Digitization" in 2002 and 2004, where experts in the fields of historical bibliography, English literature of the Middle Ages, the history of books, art history, and digital archiving met together to discuss the digitization of rare and valuable books from varied points of view.

On 9-10 March 2005, the "Keio Workshop on International Collaboration in Digital Media and Content" was held as a workshop of the Research Institute for Digital Media and Content (DMC) (see below) launched in July 2004. The workshop started with the attendees expressing their evaluations of the DMC's activities to date and expectations for the future. Then, a keynote address titled "Digital Libraries and Digital Editions" and four sessions ("Capturing, Modeling, and Archiving of Human Activities," "Context Creation and Management for Multimedia Data," "Digitization of Rare Books and Manuscripts," and "Digital Media and Networking Technology") were held in the course of the following two days of the workshop. The two-day event welcomed many Japanese and overseas researchers, as well as British media representatives.

Research Centers



Research Institute for Digital Media and Content (DMC)

The "Encouraging Development of Strategic Research Centers" of the Special Coordination Fund for the Promotion of Science and Technology, MEXT

Keio University was selected as one of the "Encouraging Development of Strategic Research Centers," a program of the Special Coordination Funds for Promoting Science and Technology of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), in FY2004. The goal of this program is to foster excellent researchers and personnel of internationally competitive standards, and to establish an efficient research center through structural reform of existing R&D organizations based on outstanding vision and leadership on the part of top management. The Research Institute for Digital Media and Content (DMC) promotes digitization of any contents residing not only at Keio but also throughout society, aggressively transmits them from Japan to the international community, and leads the way in generating and disseminating new knowledge to the knowledge-based society of the 21st century. The DMC also advances the activities of the Digital Media and Content Consortium in order to engage in cooperation with businesses.

Advanced Research Section

The Advanced Research Section is comprised of six research units.

- **Content Design Application Research Unit**
This unit contextualizes existing contents in three categories (i.e., goods, information and people) through digitization, and aims to conduct research on memory accession systems for the community, to design, classify, and combine each of the contents, and to consequently create new content.
- **e-Learning Unit**
This unit pursues the nurturing of instructional designers as professionals by developing processes for converting e-Learning content into educational materials. It also conducts research on desirable forms of e-Learning application at institutions of higher education, cooperating with research institutes in Japan and overseas.
- **Advanced Media Technology Unit**
This unit promotes research and development of leading-edge media technologies that serve as the foundation for creating attractive media contents. It provides communication environments that facilitate cross-sectional collaboration between studios and develops easy-to-use authoring tools.

- **Advanced Content Technology Unit**
This unit creates advanced and next-generation contents through research and development of, for example, technologies that capture three-dimensional contents, generate user interfaces, and reconstruct towns using virtualized reality technology.
- **Networks and Security System Unit**
This unit experiments with graduate/undergraduate teaching using a highly realistic course instruction system. Run over ultra high-speed networks and based on a framework of international collaboration, the system is unfettered by the time and regional differences that pose obstacles in the case of traditional schooling.
- **International Intellectual Property and Standardization Strategy Unit**
This unit considers rules and regulations concerning digital intellectual property centered on copyrights, and conducts research on digital copyright management systems. It also works with the e-Learning Unit to develop e-Learning materials for interdisciplinary education which nurture professionals in the area of technology standardization.

Vice-Director, Advanced Research Section	Hideyuki Tokuda	Professor, Faculty of Environmental Information, Graduate School of Media and Governance
Vice-Director, Context Integration, System Research & Development Section	Yasushi Kiyoki	Professor, Faculty of Environmental Information
Vice-Director, International Collaboration Section	Masahiro Kuroda	Professor, Faculty of Business and Commerce
Vice-Director, Production Section	Yutaka Ohga	The DMC
Content Design Application Research Unit Leader	Yoichi Sumi	Professor, Faculty of Letters
e-Learning Unit Leader	Shinya Sugiyama	Professor, Faculty of Economics
Advanced Media Technology Unit Leader	Hiroaki Chiyokura	Professor, Faculty of Environmental Information
Advanced Content Technology Unit Leader	Shinji Ozawa	Professor, Faculty of Science and Technology
Networks and Security System Unit Leader	Sadayasu Ono	Professor, Graduate School of Media and Governance
International Intellectual Property and Standardization Strategy Unit Leader	Naoki Koizumi	Professor, Keio Law School
Organization (as of March 31, 2004): Researchers...20 Cooperating personnel at Keio...33 Temporary Researchers...24 RAs...27		

International Collaboration Section

This section has overseas centers in the US, UK, China, and the Republic of Korea. It advances international collaboration with research organizations and educational institutions, and has also introduced an internship program to foster young researchers and professionals.

[Events in FY2004]

The DMC's symposia and workshops are widely open to the public so that results of research activities may be disclosed to society.

15	November	2004	Open Courseware Workshop
6	December	2004	DMC Opening Symposium
29	January	2005	DMC Symposium "The Virtual and the Real in l'Encyclopedie"
8-9	February	2005	Exploring the Roles of Academic and Educational Institutions in Knowledge Sharing —The Possibilities in the Public Domain and Fair Use
9-10	March	2005	Keio Workshop on International Collaboration in Digital Media and Content
28-29	March	2005	DMC Workshop on Promoting the Digitization Project of Chinese Classics

Production Section

Digital content studios have been installed and put into operation at each of the five campuses, Mita, Hiyoshi, Yagami, Shinanomachi, and SFC. Production facilities are also attached to the studios on Mita and Yagami Campuses. Each studio assigns personnel and instructors for content production on-site to support and assist students and teaching and administrative staff in creating digital contents.

- Mita Studio...B1, West Annex, Mita Campus
- Hiyoshi Studio...4F, 5th Bldg., Hiyoshi Campus
- Yagami Studio...3F, Information and Media Center for Science and Technology, Yagami Campus
- Shinanomachi Studio...Institute of Integrated Medical Research 3S8, Shinanomachi Campus
- Shonan Fujisawa Studio...B1, Shonan Fujisawa Media Center, Shonan Fujisawa Campus

Context Integration, System Research and Development Section

This section contemplates and builds the ideal shape of the systems for integrating, accumulating, and disseminating the content scattered throughout Keio, as well as the content newly developed and created at both the Advanced Research and Production Sections.



For Inquiries:

The DMC
c/o Keio University
2F, West Annex, 2-17-22 Mita, Minato-ku, Tokyo 108-0073
Tel: +81-3-5418-6432
Fax: +81-3-5418-6437
E-mail: info@dmc.keio.ac.jp
http://www.dmc.keio.ac.jp/en/

Topics: Partnerships and Collaborations

Any organization which grows in size is prone to becoming compartmentalized, and a university is no exception. Keio University established the Organization for Research Advancement and Administration (ORAA) in October 2003 to enhance the university's ability to generate new and innovative research overall through horizontal alliances that minimize the adverse effect of vertically divided administrative functions. Today's universities are being called upon to disseminate research outward rather than keep it behind walls. Research collaboration becomes more and more important, going beyond physical distance between the campuses and disciplinary boundaries.

A variety of new approaches for research collaborations at Keio from FY2004 onward will be introduced in this section.

1 Promotion of Exchanges between Keio Researchers

Breakfast Meeting for Interdisciplinary Exchanges

Keio's campuses are dispersed throughout the Tokyo and Kanagawa areas, and young, front-line researchers are often heavily caught up in routine duties, leaving limited time for researchers from the different campuses to actually meet. To increase the chances of contact, and encourage interest in other fields of study, the Center for Research Promotion, at the suggestion of the advisory board, started monthly breakfast meetings with coffee and sandwiches.

At the breakfast meeting, the lecturer for the day gives a talk on his/her own recent research topics and then participants conduct free discussion with the advisory board members. The discussions are always lively and high-spirited. In some cases, a political scientist may throw questions from an alien perspective at an engineer, and in others, researchers from the humanities and the sciences surprisingly share a common awareness of the issues.

The breakfast meeting is just a first and small step toward offering a meeting place for researchers from different fields. The second step to be taken for all of Keio University is the provision of effective support and necessary services to leading researchers of the next generation.

October 2004	Professor Keigo Komamura	Faculty of Law	"Between Vengeance and Forgiveness"
January 2005	Instructor Masahiro Toda	School of Medicine	"Translational Research"
February 2005	Associate Professor Nobuyuki Yamasaki	Faculty of Science and Technology	"Distributed Real-time Processing Technology for Sustaining Secure and Safe Infrastructure"
March 2005	Associate Professor Manabu Omae	Graduate School of Media and Governance	"Development of Automatic Driving Vehicle and its Prospect"
April 2005	Professor Yoshio Higuchi	Faculty of Business and Commerce	"The Analysis of Trend toward Income Class Stratification and its Effect on the Marriage Age and the Number of Children based on Keio Household Panel Survey"
June 2005	Assistant Professor Yuko Kasuya	Faculty of Law	"Explaining Divergence and Convergence of Party Policy Positioning in Two Party Systems"
July 2005	Professor Toru Takebayashi	School of Medicine	"Strategy for Disease Prevention Based on Epidemiologic Approach: Bridging between Medical Science and Society"



Assistant Professor Yuko Kasuya giving a rousing lecture

2 Transmission of Research from the University to Society

Symposia

University-hosted seminars and symposia have generally centered on individual research institutes and groups in related fields of study. Typical examples are the SFC Open Research Forum (ORF) staged each year in November at Roppongi Hills by Keio Research Institute at SFC (see page 13), and the Keio Techno-Mall hosted every December at the Tokyo International Forum by Keio Leading-edge Laboratory of Science and Technology (KLL) (see page 9).

Program of "Keio Symposium for Leading-edge Science and Technology"		January 2005
Title	Speaker	
"Molecular Mechanisms for Maintaining the Stemness of Hematopoietic Stem Cells"	Professor Toshio Suda, School of Medicine	
"Therapeutic Strategies for the Treatment of Central Nervous Diseases"	Instructor Masahiro Toda, School of Medicine	
"Development of Immunotherapy and Gene Therapy through Basic Research on Cancer Biology"	Professor Yutaka Kawakami, School of Medicine	
"Metabolome Analysis and Cell Simulation"	Professor Masaru Tomita, Faculty of Environmental Information/Institute for Advanced Bioscience	
"Biosimulation"	Professor Makoto Suematsu, School of Medicine	
"Total Analysis System for Drug Discovery"	Professor Hiroshi Yanagawa, Faculty of Science and Technology	
"Noninvasive Diagnosis of Ischemic Heart Disease with Multidetector-row CT"	Professor Sachio Kuribayashi, School of Medicine	
"Medical Robotics"	Professor Kohei Onishi, Faculty of Science and Technology; Professor Yasuhide Morikawa, School of Medicine	
"Key Success Factors for Japanese Bio-tech Ventures"	Professor Hiroshi Nakamura, Graduate School of Business Administration	
Panel Discussion on "the 21st Century Bioscience Research of Keio University"	Professor Kuribayashi, Professor Yanagawa, Professor Tomita, Professor Kawakami, Professor Suda, and Professor Suematsu	

In addition to orthodox, discipline-based events, the Center for Research Promotion tried for the first time to organize an interdisciplinary symposium in January 2005 at the Mita Campus. Titled "Symposium for Leading-edge Science and Technology: Frontiers of Bioscience Research and its Outlook for Practical Application," and based on the common thread of life science, the symposium

aimed at introducing to the public the current state of research from foundation to applications in the fields of science and technology, information science, and medical science. After the symposium, the participating researchers and corporate executives exchanged frank and lively views and opinions at the reception.



Panel Discussion at "Symposium for Leading-edge Science and Technology"

While the January symposium was mainly directed at business people, another cross-sectional symposium entitled "Design the Future: IT Returns to the People" in July 2005 targeted students and the general public as its audience. The central theme implied in the title was how changes in technology could positively impact your future life, and what should be done in order to take advantage of such positive changes. Lectures and a panel discussion were held on IT utilization in education, health-care, and security, on safety and security and on technologies useful in everyday life.

Following opening remarks by President Yuichiro Anzai, President Shouhei Kimura of SECOM Co. Ltd. and Professor Tadahiro Ohmi of Tohoku University gave keynote speeches. Professor Jun Murai, Vice-President of Keio, Director Yasuhiro Koike of Keio Leading-edge Laboratory of Science and Technology (KLL), and

Associate Professor Toshiharu Furukawa of the Law School and School of Medicine also introduced visions and leading-edge technologies based on their own expertise.

Finally, at the panel discussion titled "Security and Regional Health Care in an IT Society," attended by the three Keio speakers and Professor Yoshio Higuchi, Faculty of Business and Commerce, a remote real-time communication with a gigabyte high-speed line was demonstrated to speak live with medical doctors at Suginami-ward's *Ishi Kaikan* (Medical Hall), 20 km away from the university. It looked and sounded real and completely natural without any lag in either image or hearing, as if the panelists and the doctors were in the same room.

In conjunction with the talks and in cooperation with several corporations, plastic optical fibers, displays, and some of the latest IT products and technologies were displayed in four booths set up in

the entrance hall lobby to give visitors a real sense of "IT Returns to the People."

Keio University is determined to deepen exchanges and cooperation with society and to transmit research results to society in the form of symposia and other media.



'Design the Future' symposium: visitors viewing booths

3 'Organization to Organization' Research Collaboration

Cross-disciplinary Industry-Academia Collaboration Project

On June 1, 2005, Fast Retailing Co., Ltd. (UNIQLO) announced a scientifically-designed sportswear named "BODY TECH". This was the result of a joint research contract signed in FY2004 between the company and Keio University through its Center for Research Promotion. The joint research involved three university organizations: the Faculty of Science and Technology on Yagami Campus, the School of Medicine on Shinanomachi Campus, and the Sports Medicine Research Center on Hiyoshi Campus. The sportswear has been commercialized with technologies developed by Professor Shohei Onishi, Vice-Director of the Sports Medicine Research Center. The special cut of the stretch fabric is designed to reduce muscular fatigue, offer breathing support, and limit elevation of body temperature. BODY TECH has sold well and an additional lines produced through the joint research will also enter the market.

This particular project was led by a coordinator

from the Center for Research Promotion. The coordinator and UNIQLO discussed and negotiated the concept of the research, specific goals for product development, marketing analysis, and the roles and responsibilities of both sides. In the meantime, the coordinator approached researchers at the university in relevant fields and succeeded in launching the business-academia project consisting of a joint force of three university organizations and a company.

It is often the case that joint and/or commissioned research projects start on the initiative of personal connections between a university researcher and a company, but the UNIQLO project is a good example of utilizing the Center for Research Promotion as a contact point for collaboration. A key factor behind the success in quickly concluding the contract for the project was using the center as a one-stop contact point, because it benefited the company to negotiate with only one counterpart representing the university. At the same time, the researchers could take advantage of the center to avoid often time-consuming administrative burdens in contracting

and project management, despite the size and cross-sectional nature of the project.

Keio University will continue to promote individual joint and commissioned research projects as in the past, but will also actively seek to nurture research cooperation with other universities, research institutes, and the government and private sectors through an organization-to-organization approach that utilizes the combined potential of the university as the whole.



Professor Onishi delivering an explanation to the press

The 21st Century COE Program

Since its foundation in 1858, Keio University has been at the forefront of education and research in Japan. For 147 years, Keio has consistently fulfilled its mission to contribute back to society through its academic and research achievements in fields such as industry and medicine. Keio has also made substantial contributions through fostering the leaders of society and creating new areas of knowledge.

Keio University continues to be a driving force in creating the future of Japan and the global community.

The University's application to participate in the 21st Century COE Program for FY2002 and FY2003 is an opportunity to advance its fundamental mission through two main focuses: neutrality and a firm commitment to society. The 21st Century COE Program opens up new possibilities to focus upon the creation of significant intellectual values and human resource development, while remaining impartial and unaffected by the short-term trends of society. Keio University will reinforce its commitment to society by actively contributing to discussions of current social issues.

Keio University aims to become a leader in the global society of the 21st century through the creation of dynamic development and integration of these two focus points at an international level, based upon a unique elliptical model.

Links to each of the 9 fields and 12 programs at Keio University are available at the following URL:
http://www.21coe.keio.ac.jp/index_en.html
 Please refer to the Japan Society for the Promotion of Science website for more information about the 21st Century COE Program:
<http://www.jpsps.go.jp/j-21coe/>

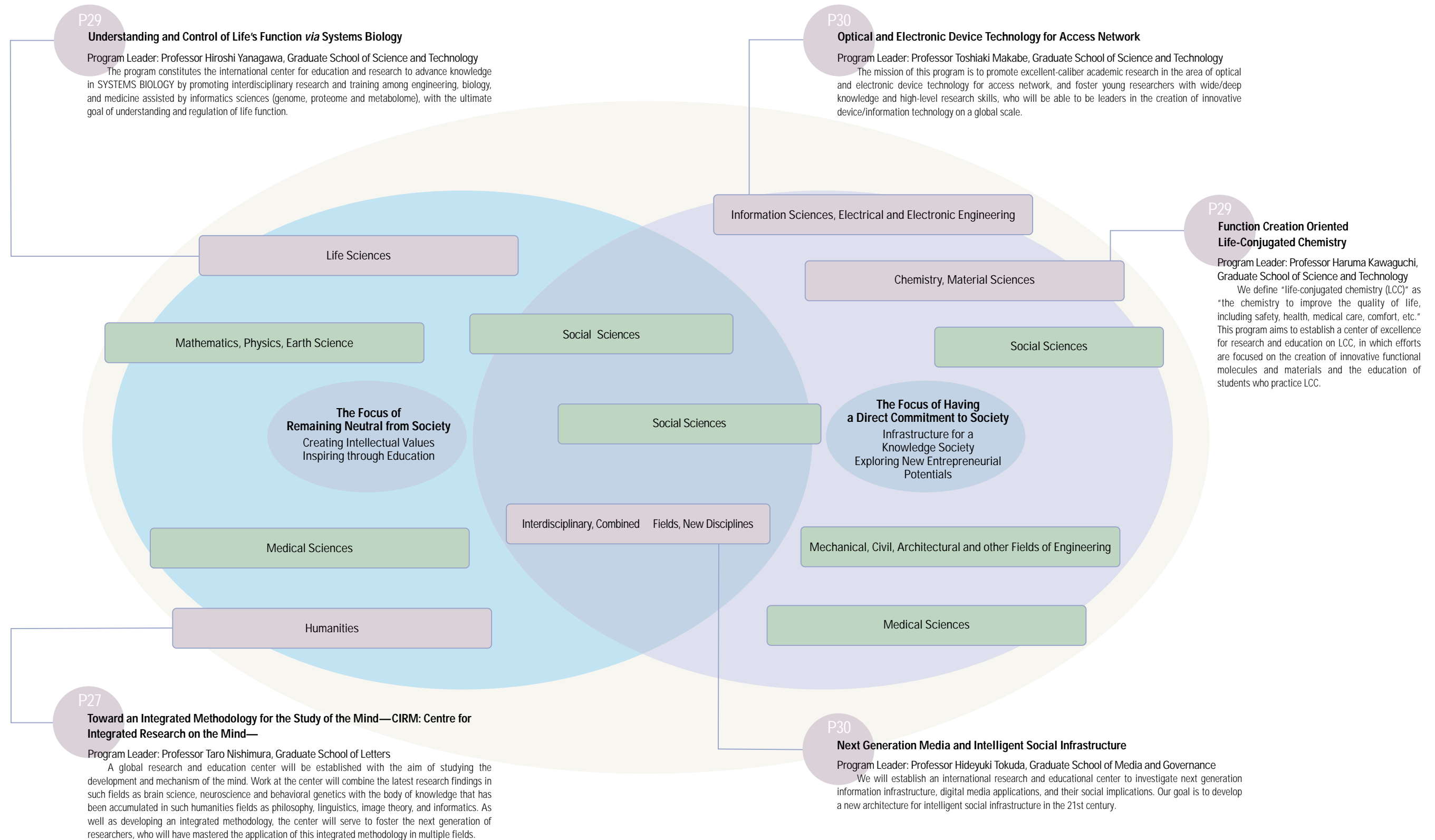


FY2002



FY2003

FY2002



P28

Designing toward the Ordering of Political Society in a Multi-cultural and Pluri-generational World

Program Leader: Professor Yoshiaki Kobayashi, Graduate School of Law

With the globalization that has been progressing in recent years, clashes in the area of multiculturalism have made themselves apparent in many states and societies. On the consideration that these problems cannot be resolved at the level of political leadership alone; the program proposed will establish mechanisms to clarify the ways citizens' attitudes is promoted, developed and changed, and to consider the direction in which multicultural communities are moving.

The eventual aim is to establish a "multicultural citizens' attitudes research center" and to establish an enlarged "citizens' attitudes data archive," targeted at a variety of countries. Together they will constitute Japan's first internationally-oriented human research network. Research plans: to increase data and related analyses regarding citizens' attitudes in a multicultural world; establishing the causes of conflicts, while carrying on investigation into conditions that will make it harder for such conflicts to arise. Research will be undertaken into the outlook for political society in the 21st century; the differences in attitudes of political society within multiculturalism in particular

comparison between the generation responsible for contemporary society and the generation who will bear that responsibility in the future. Education-related plans: providing research funds for younger researchers on a competitive basis, as well as organizing graduate students to participate in surveys relating to the main area of proposed research, giving instruction on the implementation of citizens' attitudes surveys and related analyses. Moreover, in order to make known the results of research undertaken in foreign languages, along with the publication of a foreign language review, it is proposed to subsidize travel expenses for those presenting at international conferences.

Through these research and educational approaches, we aim to establish a program of global research and education, not only carrying out opinion surveys into citizens' attitudes, but effecting research and education of the highest international standard into the topic of global civil governance.

P27

Development of a Theory of Market Quality and an Empirical Analysis Using Panel Data

Program Leader: Professor Naoyuki Yoshino, Graduate School of Economics

Since the early 1990s, the Japanese economy has been in a long recession. Our 21st COE Program is premised on the belief that the fundamental cause of this long lasting recession is the lack of high quality markets within the Japanese economy. We believe that improving the quality of Japanese markets is the key to revitalizing the economy. Motivated by this belief, our program aims to reveal the determinants of market quality by combining theoretical and empirical analyses with a broad range of historical and institutional case studies.

On the one hand, the importance of "quality" has been emphasized in various facets of managerial sciences. On the other hand, issues related to quality have not been fully examined in economics, perhaps due to difficulties associated with quantifying a "quality." In particular, market quality has never been presented as a subject for serious economic analysis. Gathering leading economists and managerial scientists at Keio University, our program intends to shed light on this new research subject and hopes to develop a new school of thought guiding economic policymaking.

In order to conduct sound quantitative analyses of market quality, high quality data is indispensable. In order to build such data, in our program, we design and build longitudinal panel data; longitudinal panel data tracks, for a large number of economic agents, activities of each agent over a long span of time. Unfortunately in Japan, unlike in the U.S. and Europe, the accumulation of longitudinal data, in particular on consumption, remains poor. We are determined to make continuous and long lasting efforts to become a leading center of longitudinal panel data in Japan.

Data that we can confirm to be reliable will be made usable for public. We are certain that these data will greatly contribute not only to understanding market quality but also to research in various fields of social science beyond our research theme.

P28

Policy Innovation Initiative: Human Security Research in Japan and Asia

Program Leader: Professor Moriyuki Oe, Graduate School of Media and Governance

The purpose of this program is to establish a network of research and training organizations in Japan and Asia. This network will enable researchers and practitioners to cooperate in finding the "problems" in need of solutions, in identifying and developing the resources to be mobilized for the solutions, and in generating consensus in the methods of solving the problems. We also aim at realigning existing methods of inquiry in a manner conducive to finding and solving the "problems" attendant upon the rapidly increasing pressures of globalization, demographic change, and environmental change. Our purpose is to develop a new mode of analysis and practice for effective policy formation and to form a new policy innovation "community" where scientific and practical knowledge can be joined.

As enunciated in the 1994 Human Development Report of the UNDP, "freedom from fear and freedom from want" represent the essence of human security. We join in this formation of policy imperatives. The specific issues requiring innovative policies for promoting "human security" are diverse. Common to all these issues are the threats and the unmistakable condition of insecurity each poses to the individuals, to the communities, and to the regions involved, regardless of their stages of economic development.

P32

Integrative Mathematical Sciences: Progress in Mathematics Motivated by Natural and Social Phenomena

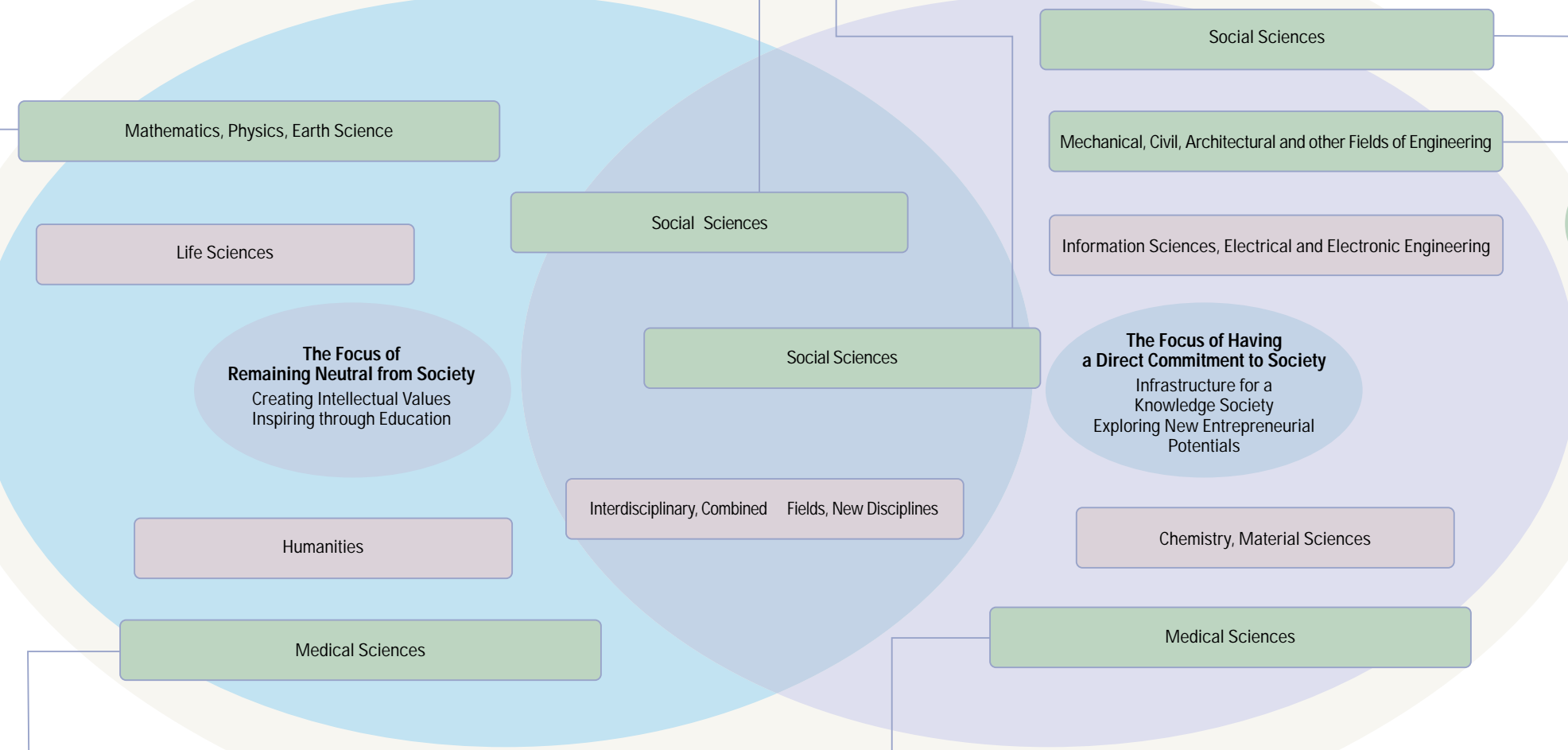
Program Leader: Professor Yoshiaki Maeda, Graduate School of Science and Technology

The Integrative Mathematical Sciences program is designed to open up new horizons in mathematics by bridging the gaps between pure mathematics and application-oriented mathematics, and to investigate new concepts and leadership methods for mathematical sciences. The core of the research and educational program is built on pure mathematics, as supported by data science and experimental mathematics. Data science serves as the interface to various data-intensive phenomena, and experimental mathematics supports the experimental aspect of mathematical sciences.

The main objective of our program is to promote the construction of international educational and research centers through integrating these three aspects of mathematical sciences. To facilitate our efforts further, the Center for Integrative Mathematical Sciences at Keio will be established under the auspices of the President at the earliest possible opportunity.

As well as our research projects, we have a strong mandate to encourage Ph.D. students and young researchers internationally. For this purpose, we have already started weekly interdisciplinary seminars and colloquia to enhance interdisciplinary exchanges.

Another important aspect of our COE programs is domestic and international collaborations in mathematical sciences with educational and research institutions overseas. We also invite researchers to give lecture series for graduate students, both to inform the students of progress in recent important problems in mathematics, and to encourage research collaborations with the COE program. We also plan to organize an international workshop each year.



P31

Basic Study and Clinical Application of Human Stem Cell Biology and Immunology: Approaches Based on the Development of Experimental Animal Models

Program Leader: Professor Hideyuki Okano, Graduate School of Medicine

The Keio University Graduate School of Medicine boasts an excellent staff in two academic fields: (1) stem cell biology and regenerative medicine, and (2) immunology and autoimmune disease research using animal models of human diseases. The COE takes maximum advantage of the traditional joint research system approaches based on the development of experimental animal models since the founding of the school, and while ensuring ethicality and safety based on the achievements of basic medicine, the basic and clinical staffs collaborate in endeavoring to elucidate the pathophysiology of incurable diseases and to develop new treatment methods. It will form a "self-renewing" educational center that will foster and turn out many researchers with a broad perspective. The COE will be characterized by I) incorporation of basic biology, taking advantage of Drosophila genetics, into the medical area, II) development of *in vivo* experimental medicine using human cells and original animal models of human disease, and III) application of the results by the university hospital that possesses state-of-the-art clinical capabilities. It will also establish an evaluation system that will enable the maintenance of high-level studies by introducing research projects at the Research Park.

P31

Establishment of Individualized Cancer Therapy Based on Comprehensive Development of Minimally Invasive and Innovative Therapeutic Methods

Program Leader: Professor Masaki Kitajima, Graduate School of Medicine

In this COE program, we will attempt to establish individualized cancer therapies based on the comprehensive development of minimally invasive and innovative therapeutic methods through translational research. Research will be conducted in three main areas: 1) development of diagnostic methods enabling individualized treatment, including genetic diagnosis and new RI imaging; 2) development of minimally invasive treatments, including endoscopic and robotic surgery; and 3) development of new cancer treatments, including immunotherapy, gene therapy and molecular target therapy. This research will be mainly performed at the Keio University Center for Integrated Medical Research, which has several new research facilities like the Laboratory Animals Center, RI Center and Central Research Laboratory, as well as at Keio University Hospital. To conduct this program efficiently, strong collaboration between the basic and clinical departments of the Keio University Graduate School of Medicine and the Graduate

School of Science and Technology as well as between Keio University and outside academia and industry will be required. The center's Shinanomachi Research Park will provide research space for collaborations. Updated cancer research information on basic and clinical topics will be made available to graduate students, young researchers and medical doctors to enhance their research capabilities. International symposia and worldwide teleconferences will help to provide a global perspective on learning. Through these efforts, we will attempt to establish a world renowned cancer center that can quickly translate basic research into clinical applications while training the next generation of researchers and medical doctors needed for the future advancement of cancer medicine.

Toward an Integrated Methodology for the Study of the Mind—CIRM: Centre for Integrated Research on the Mind—

Program Leader: Professor Taro Nishimura, Graduate School of Letters
<http://www.cirm.keio.ac.jp/en/index.php>

In the year 2004-2005 "Centre for the Integrated Research on the Mind" has launched, in cooperation with various academic institutions outside Keio University, a series of symposia, workshops, and conferences. One of them is the symposium on "the Aesthetic of the Media/Cognitive Science and Virtual Image" (as one of serial workshops on "Digital Art: New Technology, Creativity, and Society"), to which a number of delegates from France participated (October 2004). In Nov. 2004, an international symposium on "Animal Logic" was held at Vienna in collaboration with Konrad Lorenz Institute for Ethnology and the two institutions reached an agreement on further collaboration in research. In December, a series of symposia, all open to the general public, were held at Mita campus, on the topics including "the Linguistics of Mind and Feeling," "Is English necessary for elementary school education?," and "Mind and the Act of Reading: A Comparative Study of Reading Figures in Eastern and Western Art." A workshop on NIRS, to which specialists from other institutions participate, are being held at a regular basis.

The interim report of the project indicated that the collaboration with other academic institutions were both effective and crucial for the development of the integrated methodology for the study of mind, and as a result, further international symposia and workshops, organized jointly with European universities and institutions, are being planned. A second symposium on Animal Logic is planned for summer 2005 at Budapest. There will also be the second international symposium on "Images, Reason, and Reasonings" that will follow up the first one at Ecole Normale Supérieure (March 2003), to be held at Mita campus. An international graduate conference on Representations and Media is being scheduled for 2006 in England.

To promote the doctoral and post-doctoral researches of young scholars, CIRM had, from its outset, posts for research fellow and COE researchers. Research fellows include mostly post-doctoral scholars from Keio and foreign institutions, whereas COE researchers (both full-time and part-time) are mostly doctoral candidates in the closely related fields. There is also annual research grant scheme for young scholars; in 2004-2005, the grant was offered to 15 individual researches by graduate students in the Ph.D. course. In 2005-2006, we have considerably increased the budget for this and are subsidizing both doctoral and post-doctoral researches by young scholars. The CIRM has so far published three collections of essays in English, *Comparative Analysis of Mind, Image and Reasoning, Minds of the Past*. In all of these, research fellows, COE researchers, and doctoral candidates at Keio Graduate School are active contributors.



"Japan-France Joint Symposium" (October 2004 Mita Campus)

Development of a Theory of Market Quality and an Empirical Analysis Using Panel Data

Program Leader: Professor Naoyuki Yoshino, Graduate School of Economics
<http://www.coe-econbus.keio.ac.jp/>

The purpose of this research is to enhance quality of the market function which was not fully analyzed in economics in the past. In order to analyze the quality of the market, the analysis of the panel data of households is required not only for Japanese households but also Asian households. Furthermore, firm level data including small business data, public expenditure data etc. will be collected to analyze qualitative changes in various market. Based on these analysis, the new economic policy recommendations of which improve the market function will be addressed. Importance of the legal and institutional factors will also be analyzed in order to improve the quality of the market.

International Network of Research

Two international journals are published from this research project. In the field of economic theory, *International Journal of Economic Theory* (Blackwell) which is jointly published with Economic Research Institute at Kyoto University. In the field of policy research, *Asian Economic Papers* (MIT Press) is jointly published with Columbia University and Korea Institute of International Economic Policy (KIEP).

Research Network has been established, such institutes as CASS (Chinese Academy of Social Sciences), Renmin University, National Development Bank (China), Seoul National University, KIEP (Korea), Bank

Indonesia, MOF (Indonesia), University of Hong Kong, ISIS Malaysia, Thammasat University (Thailand), MOF (Thailand), Georgetown University (USA), Free University (Belgium), Göteborg University (Sweden), OECD (France).

Research Center of the Panel Data Planning and Analysis (Prof. Yoshio Higuchi), Research Center of Economic Theory Analysis of Market Quality (Prof. Makoto Yano) are established.

Continuous research on households data, firm level data, public sector data Asian panel data will be collected in order to keep on conducting research.

Education and Research with Graduate Students

Many graduate students get jobs in various universities and research institutes. Many students go abroad, such as USA, England, etc., in order to continue their research.

21st Century COE Program produces many joint research works between faculty members and graduate students.



Designing toward the Ordering of Political Society in a Multi-cultural and Pluri-generational World

Program Leader: Professor Yoshiaki Kobayashi, Graduate School of Law
<http://www.coe-ccc.keio.ac.jp/en/>

As a program dedicated to the promotion of research on public opinion and attitudes in a global and multicultural world, building international research networks constitutes one of the core strategies of the Center for Civil Society with Comparative Perspective. The Center has established collaborative partnerships with 30 universities and 33 researchers both in and outside Japan, including, for example, an ongoing joint project on public opinion survey and analysis jointly launched and managed with Yonsei University, Korea. To further facilitate research networking, the Center regularly organizes workshops and hosts an annual symposium. In 2004, our symposium had 38 speakers from other Japanese universities and 13 speakers from abroad, attracting a total of 500 participants. The Center's publications also serve as an important link with other educational and research institutions in disseminating our research efforts. The *COE-CCC Newsletter* and the Center's web site (<http://www.coe-ccc.keio.ac.jp>), regularly updated in Japanese and English, provide an easily-accessible source of information about our research activities. Our English-language academic journal, the *Journal of Political Science and Sociology*, has been added to the library collections of more than 60 universities worldwide. The main work of associated researchers has been compiled in a 15-volume book series entitled *Dynamics of Civil Society in a Multicultural World*, published in March 2005, and some part of

the series is also due to be published in Korean.

The Center also puts one of its central objectives the education and training of young researchers, for which four strategies have been developed. To strengthen **international competitiveness**, support has been given to doctoral students wishing to present papers at international conferences or in English-language journals in the form of "academic writing" and "academic presentation" seminars. At the same time, we host seminars and workshops given by visiting professors or researchers from abroad to encourage active exchange of ideas and knowledge. For **practical training**, we have launched 26 graduate courses through which students can participate in actual research projects led by their teachers. In terms of **competitive selection of researchers**, the Center adopts an open recruitment policy for the posts of COE research fellows and assistant researchers. Finally, **research grants** are allocated to graduate students and young researchers through an open competition, while visiting fellowships are made available to overseas students. The result of the above strategies can be seen in the number of doctorates awarded to those associated with the activities of the Center, with the total of 30 students obtaining their doctoral degrees between 2002 and 2004.

Policy Innovation Initiative: Human Security Research in Japan and Asia

Program Leader: Professor Moriyuki Oe, Graduate School of Media and Governance
<http://coe21-policy.sfc.keio.ac.jp/en/index.html>

What runs through the eight individual research groups of this program is the following understanding. In order to devise a framework for policy innovations, 1) we need to illuminate the alternative methods, by which the problems in need of solution can be properly addressed, which may displace and/or complement the conventional method of solutions through market mechanism and public funding; 2) such alternative methods place the diverse actors, including the beneficiaries of the policy solutions, within a dynamic and interactive process; 3) we explore—and refine—the alternative methods either on a sustained experimental basis or into the pioneering cases in various policy contexts and finally 4) *Sougouseisakugaku* is thus a practical as well intellectual enterprise. The interim evaluation of the activities through the eight research groups for the FY2004 is summarized below.

1) Integration of Micro-Macro Divisions for Observations and Analyses:

The need for integrating the micro observations in light of macro trends, and macro policies in light of micro observations of their effects, is commonly recognized as critical by all eight research groups, dealing with various policy issues such as environmental degradation, pandemics, ageing populations, changing foundations for privacy, among others, which threatens the basis of human security in developing and developed societies alike.

2) Rightful Place for Researcher: Social Commitment:

Given our overall understanding, first, we sustain our research deeply rooted in the actual context of life where the detached observations are

replaced by the practical engagement in the very process of devising and revising policy alternatives. Second, our observations, thus sustained, aim at generating not only appropriate policy solutions but also a framework for promoting close collaborations among the relevant individuals and organizations of private and public stature. We have maintained this form of social commitment in various research sites, ranging from a rural Vietnam to an urban Yokohama, from a cyber-space to a semi-urban China.

3) Development of New Methods:

Our positioning toward *Sougouseisakugaku* inevitably necessitates a new innovative way of understanding human being. In addition to understanding human being within the framework of human (in)security within the various contexts of life, we recognize the need to probe the inner workings of human minds, as expressed through textual and other methods of articulation. Taking the advantage of the ever-improving tools of collecting and processing data, we are gradually establishing the ways by which to capture the nature of human interactions as they manifest in a complex and subtle realm of "semantics." Though experimental, such method would eventually allow us to reduce the margins of error in understanding what is "expressed" and what is "intended" in human communication, thereby providing a firmer basis for promoting policy coordination among the immensely diverse actors in the policy making process.

Understanding and Control of Life's Functions *via* Systems Biology

Program Leader: Professor Hiroshi Yanagawa, Graduate School of Science and Technology
<http://www.coebio.keio.ac.jp/index.cgi?je=1>

Our program provides an internationally integrated center for advancing education and research in the field of systems biology by promoting interdisciplinary research and training among graduates in engineering, biology, and medicine, with the ultimate goal of understanding and regulating biological functions through the application of informatics science (genomics, proteomics, and metabolomics).

The center aims to utilize biological informatics to guide the development and application of novel biologically active molecular probes to regulate cell and organ functions, as well as to reconstitute biological system functions *in vitro* and to modulate them *in vivo*. To facilitate interdisciplinary research training of post-graduate students, the "Keio Bioscience Interactive Research Program (KBIRP)" supports those who are interested in themes in integrative biology, from the molecular level to the organism level, as well as those aiming at integrating the engineering and biomedical sciences.

The center has focused on three major research areas or domains where cutting-edge interdisciplinary biosciences have great potential to advance systems biology. Broadly, the goal of KBIRP is to form a multidisciplinary bridge between informatics and the biomedical sciences. (Domain 1) Collection and integration of large-scale information on the genome, proteome, and metabolome. (Domain 2) Development and Application of Biological Molecular Probes. (Domain 3) Reconstitution and Artificial Control of Biological Functions.

Research activities at the center are coupled with educational programs on several campuses of Keio University. The KBIRP supports postgraduate students (Research Assistants: RAs) on these campuses so that they can share the same curricula for understanding systems biology. RAs also have the opportunity to apply for competitive research fellowships supported by the COE program and to visit foreign research laboratories in collaboration with COE. The KBIRP has introduced a Diploma of the COE Research Cooperation Program for RAs who complete more than one program.

The center has already improved the environment for the study of systems biology. In particular, there have been improvements in interactive and real-time networking infrastructure; this is important because the campuses of the three schools are scattered over a large area of Japan. Remote lectures for COE-Systems Biology and progress workshops have been held *via* this high-performance

telecommunications system. The introduction of this system has also improved sharing of information and scientific knowledge among members and aided intensive training for the study of systems biology by fusing dry biology and wet biology at separate campuses. During the past two years, a short-stay and goal-oriented program matching the research themes of RAs has been established, in which RAs are recommended to study for 2-3 months at two or more subcenters in a cooperative framework. Introduction of this program has led to tangible results in "the exploration and application of novel functions of erythrocytes by biosimulation." Three RAs of the Graduate School of Science and Technology, five RAs of the Graduate School of Medicine, and five RAs of the Graduate School of Media and Governance went through this short-stay program and two RAs published an original paper in a very short time. In 2004, three workshops for the education of young RAs were held at Tsuruoka, Yokohama, and Tokyo. This year an intensive workshop was held at Shonan International Village at the end of September.

The center has been strongly promoting research cooperation with domestic and foreign institutions and universities, including RIKEN, University of Tokyo, Gunma University, Nagasaki University, Kyoto University, Osaka University, University of California, Johns Hopkins University, University of Freiburg, University College London, University of Montpellier, University of Orleans, Shen Yang Pharmaceutical University, and others. Research cooperation with RIKEN is focused on plant metabolome and genome network analysis. In cooperation with RIKEN, one of our RAs obtained remarkable results on prediction of the number of non-coding RNAs from the mouse cDNA database. Some RAs are staying in American and European universities for short periods of time and the center has taken in many RAs from foreign countries, including China, South Korea, Taiwan, Thailand, and Bangladesh.

Our program is being recognized as an internationally integrated education and research center for systems biology, and the Institute for Advanced Biosciences at Tsuruoka was awarded a prize for "IBM Shared University Research," which was reported in *Nature*. In 2005, the First International Conference on Metabolome was held in Tsuruoka in June, and an International Symposium on Biosimulation was held in Tokyo in July.

Optical and Electronic Device Technology for Access Network

Program Leader: Professor Toshiaki Makabe, Graduate School of Science and Technology
<http://www.coe.keio.ac.jp/index.cgi?je=1>

In this global era, international collaborative networks engaged in academic fusion are essential for the achievement of scientific breakthroughs. Our COE has filled this need through international workshops and symposia, collaborations with international research institutions, hosting scholars from overseas and elsewhere in Japan at Keio and through research assistantships and international internships.

For the past two years, under the auspices of our COE, speakers have been invited from across the globe to 5 international workshops located overseas at Leuven (Belgium), Hammamet (Tunisia), San Jose (USA), Aalborg (Denmark), Christchurch (New Zealand), and to 3 international symposia in Japan.

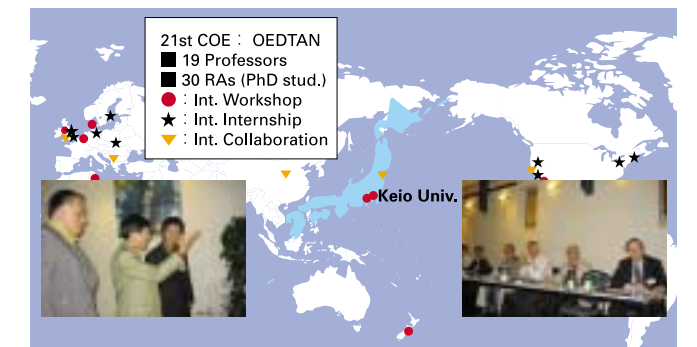
Mediated by these interactions, our research links are growing to include universities and industries in USA, EU, and Asian countries, as well as in Japan. An example of collaboration targeting technology transfer from Keio to industry is our interaction with Intel Microprocessor Research Lab. An example of cooperation fostering technology innovation is the newly formed Network of International Excellence, the goal of which is the design of new negative ion plasma processes. It will be organized joint with the EIPAM program comprising of universities in 15 EU countries supported by ESF funds.

Having visiting faculty members resident at Keio University is a core of COE activity. Profs. N. Mason (Open Univ., UK), J. Horacek (Charles Univ., Czech Republic), E. Pincik (Academy of Science, SR), Z. Petrovic (Inst. Phys. Belgrade, SM), and S. Samukawa (Tohoku Univ.) were all short term Visiting Professors engaged in collaborative research at our COE. In addition, Dr. P. Venzek (Freescale Semicon., USA) visited as an Assoc. Professor participating in our program. His activity included teaching a new course on "Plasma Micro Processing" to graduate students.

One of the most important tasks of our COE program is to foster the industry

awareness of Ph.D students through COE-RAs providing them with the opportunity to absorb a rich variety of expertise related to both "device technology" and "networking." With the cooperation of industry (e.g., JEITA), more than 60 lectures were given in 2004/5 to 30 COE-RAs exposing them to state-of-the-art technology development to issues pertinent to industry in general. We are continuing our International Internship Program. 8 RAs applied to study in 2004/5; in Harvard Univ.; Carnegie Mellon Univ.; UC Davis; USC; Univ. of Cambridge; Univ. of London; Royal Inst. of Tech. Stockholm. This has significantly broadened their scientific network and promoted long term international research activity.

Through our activities in 2004, 92 journal papers were published, 30 invited talks and 156 papers were presented in the International Conferences, in addition to 7 Progress-reports/Proceedings of our COE. As a result, our program has been evaluated highly by institutions and universities worldwide for its uniqueness and quality.



[Interdisciplinary, Combined Fields, New Disciplines] FY2002

Next Generation Media and Intelligent Social Infrastructure

Program Leader: Professor Hideyuki Tokuda, Graduate School of Media and Governance
<http://www.coe21.sfc.keio.ac.jp/index.html.en>

Program Summary

The objective of the program is to develop a new architecture of the intelligent social infrastructure which supports our life, environment, culture, education, and medical care in the 21st century. The research will be conducted by the collaboration among three groups, namely the next generation information infrastructure group, the next generation application group, and the empirical social experiment group.

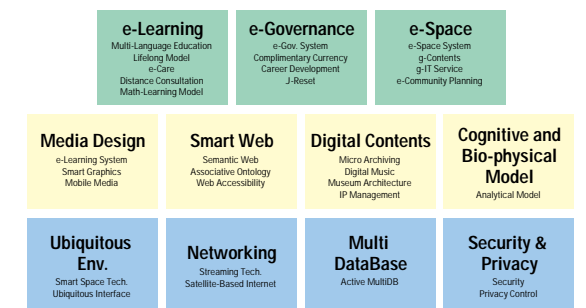
External Research Collaboration

The research center is organized by three research groups namely the next generation information infrastructure group, the next generation application group, and the empirical social experiment group. It is our unique feature that three groups collaborate with local governments, educational institutes, research institutes and other organizations for empirical social experiments based on so called the skewed three layers model. e-Governance group designed and implemented evaluation methods and information sharing systems for educational services of local governments. It was used at 12 high schools in Miyagi prefecture and elementary schools in Adachi ward, Tokyo. It demonstrated that the effectiveness of the system for school evaluation. e-Space group also provided the web services for digital earth data in cooperation with NHK Special, called data map for 6.3 billion people, using our COE servers. e-Learning group also collaborated with three junior high schools in Fujisawa, a junior high school in Taipei and Pusan, a university in Beijing, and four French universities, using our distance learning systems. The next generation information infrastructure group evaluated the satellite-based internet technique with Asian universities and 43Gbps optical links with the NTT Network Innovation Laboratory. An e-learning system developed by the next generation application group was commercialized as Power-Rec system by Photoron Corp.

Human Resource Development

Our goal is to produce very active and high quality young researchers who can be a leader of the society in the near future. As for training young researchers, we hired 26 RAs in 2003 and 25 RAs in 2005 at the center.

Following "International Symposium on Interactive Society with Information Commons" held in January 2004, we held "International Workshop on Collaborate! In search for Intelligent Social Infrastructure" in January 2005. During the workshop, many RAs presented their collaborative research work and deepened their understanding of the intelligent social infrastructure. We encourage every RA to participate in research activities as well as open discussions during the research meeting. We also try to spread research results by not only traditional journal papers and conference proceedings, but also streaming data *via* the COE server (<http://www.coe21.sfc.keio.ac.jp/>) for open public.



Research Topics in 3 Layers

Function Creation Oriented Life-Conjugated Chemistry

Program Leader: Professor Haruma Kawaguchi, Graduate School of Science and Technology
<http://www.lcc.keio.ac.jp/index.cgi?je=1>



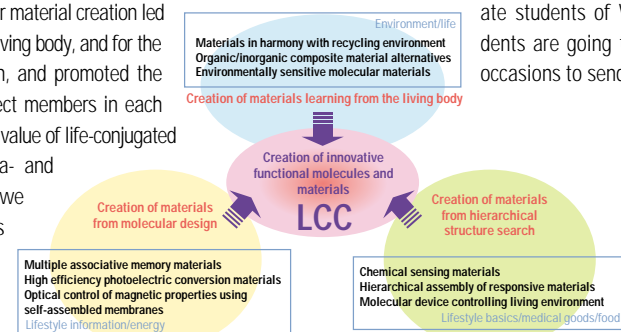
Research Activity and Collaboration

The midterm assessment reported that "life-conjugated chemistry is a unique and appropriate subject toward the future chemistry and materials science." It also reported that several highly-qualified achievements have been resulted from this project. But the assessment gave some other comments which included that the target should be made more distinct and the project prove the value of proposed approach.

In order to make the target more distinct, we re-constructed our project into three groups, that is, the groups for material creation led by function designing, for the one inspired by living body, and for the one developed from hierarchical fabrication, and promoted the object-aimed collaboration among the project members in each group. Therefore, we set our goal to prove the value of life-conjugated chemistry. We will realize it through intra- and international collaboration, for example, we signed treaty with the bioactive materials research group in Yonsei University. We will have three international symposium organized by each group in 2005.

Talent Education

We have adopted a large number of graduate students as research associates (RAs). In addition, we invited some other Ph.D. students as special RAs. RAs are assigned duties such as presentation at international conferences in abroad, brush-up of the English study, participation to "Life-Conjugated Chemistry" class and other special lectures. RAs and other graduate students of Keio University and Tokyo Institute of Technology will organize a joint symposium autumn in 2005. A similar joint meeting had been held by graduate students of Waseda and Keio Universities. The RA students are going to contribute to Keio Techno-Mall and other occasions to send out their own results.



Research Structure in Third Year of "Function Creation Oriented Life-Conjugated Chemistry"

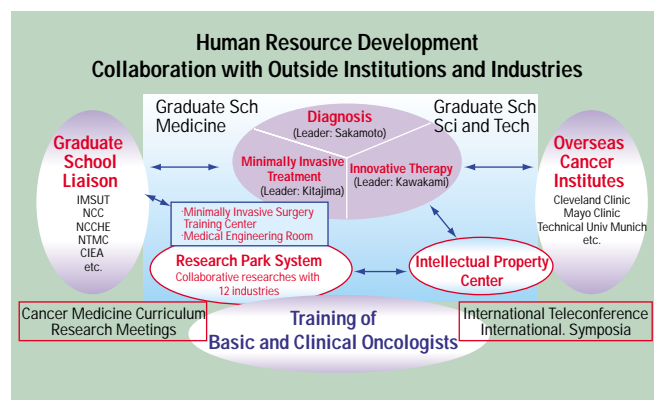
Establishment of Individualized Cancer Therapy Based on Comprehensive Development of Minimally Invasive and Innovative Therapeutic Methods

Program Leader: Masaki Kitajima, Graduate School of Medicine
<http://www.coe-cancer.keio.ac.jp/>

Our goal is the formation of one of the world leading state-of-the-art cancer therapy development centers capable of strategically developing translational research studies that make full use of multidisciplinary treatment systems and of the rapid implementation of basic research results in clinical practice. To achieve this goal, the research is performed in close collaboration with members of other university faculties, researchers in other academic institutions through graduate school liaison (the Institute of Medical Science, the University of Tokyo, National Cancer Center, National Center for Child Health and Development, National Hospital Organization Tokyo Medical Center, Central Institute for Experimental Animals, etc.), and researchers in related industries through the Research Park system in the Center for Integrated Medical Research, Keio University. Collaborative cancer researches by the COE members and researchers from 12 companies are currently in progress. The COE associated venture company, Institute of Gene and Brain Science, was supported by Ministry of Education, Culture, Sports, Science and Technology. These academia-industry-government collaboration efforts in this COE program are well recognized.

For efficient training of young researchers, a research assistant (RA) and postdoctoral fellow (PD) system was established (34 RAs, 9 PDs, and 7 technicians were employed in 2004).

A cancer medicine curriculum that includes broad fields of cancer research ranging from the basics to clinical practice is offered in order to train both investigators who are capable of understanding clinical problems, and clinicians who can grasp the foundations of new concepts for innovative cancer therapies. Sixteen seminars in the fields of bioethics, basic cancer research, diagnosis, and therapeutics were held in 2004. For promoting advanced research, the COE holds monthly research meetings to discuss research progress for further promotion of translational research and collaboration. The COE set up Medical Engineering room where engineers from graduate school of science and technology and clinicians from graduate school of medicine work together in the medical campus, and Minimally Invasive Surgery Training Education Center, which offer unique programs for training surgeons for endoscopic and robotics surgery and where developed equipments are evaluated in the appropriate simulation system. To train young researchers with global view, International Teleconference was regularly held with internationally renowned institutions, including Cleveland Clinic, Mayo Clinic, Technical University of Munich, etc. and young scientists are encouraged to attend Keio University organized international meetings, including International Symposium for Life Science and Medicine and the Keio Medical Science symposia.



Integrative Mathematical Sciences: Progress in Mathematics Motivated by Natural and Social Phenomena

Program Leader: Professor Yoshiaki Maeda, Graduate School of Science and Technology
<http://coe.math.keio.ac.jp/>

The Center for Integrative Mathematical Sciences has been established as an international research and education center by promoting the following projects.

1. Transverse Research Projects and International Collaborations

We started the Integrative Mathematical Sciences program with the following two research and educational themes: "Non-commutative manifold and discrete geometric constructs in the framework of non-commutative geometry" and "Analysis of nonlinear phenomena in the framework of data science." In accordance with these themes, we organized nine ongoing seminars in which many related researchers from outside of Keio University have taken part. Further, we held in total seven international conferences and workshops in 2004: Workshop on the Navier-Stokes Equations (May 6th to 8th in Keio University), UK-Japan Winter School 2005 (January 9th to 12th in England), Cherry Bud Workshop 2005 (February 23rd to 26th in Keio University), Non-commutative Geometry and Physics 2005 (March 4th to 7th in Shonan Village), etc. Not only from within academia, but also many researchers from outside the university took part in these conferences and workshops. As a result, we were able to collaborate in international research with many universities in the UK, and we also received support from the London Mathematical Society. In 2005, we have concluded the Poisson Geometry Research Education Project with the Ecole Polytechnique Federale de Lausanne in Switzerland. Plans to hold some international conferences and workshops in cooperation with the European Mathematical Society, the American Mathematical Society and the Mathematical Society of Japan are currently in progress. We also cooperated with Peking University, one of our affiliate institutions, and are planning to hold an international conference together. In addition, the research collaboration regarding quantitative risk management with Zurich ETHZ and the international research collaboration within Keio University have both progressed greatly.

2. The Nurturing of Talented People

In our role as a research support program for Ph.D. students and young researchers, we have competitively selected and employed five postdoctoral fellows (two from overseas) and 10 research assistants, and we supported their research. Moreover, we carried out the following projects for the sake of the training of the students and young researchers.

- (1) We invited productive world class researchers and held various lecture series to help the students and young researchers further their studies. The "Non-commutative Transverse Research" group invited a guest professor every month and organized the "Pathways Lecture Series" which continued for three to five day periods. In this lecture series, we invited not only Prof. R. Devaney of Boston University and the president of IMU, Prof. J. Ball, but also 12 overseas and two domestic scholars to give lectures. Further, a Nobel Prize winner in physics, Prof. G. 't Hooft, also gave a talk in this lecture series in February. For its part, the "Data Science Transversal Research" group invited three scholars from overseas and organized the "COE Lecture Series."
- (2) We invited Dr. P. Thomson, Prof. Shoshichi Kobayashi of UC Berkeley, and Prof. K. D. Elworthy of the University of Warwick for one month as research advisers, providing the Ph.D. candidates and young researchers the good opportunity of communicating with such internationally great researchers.
- (3) In our annual UK-Japan Winter School, we cooperated with University of Warwick this year, and gathered both domestic and overseas students and young researchers. In addition to attending the lectures, they presented papers and held discussions with each other there, and gained a great international experience.
- (4) To support young researchers, we held the "Tateshina Young Seminar" concerning topology and geometry in one of the Keio's facilities, Tateshina Sanso. In addition, the "Combinatorics Young Seminar" was held at the instigation of the combinatorics researchers.

Through these various activities, Ph.D. students graduated in large numbers and were able to enter society. This year we had more than 11 applicants for the Ph.D. program in the field of mathematics: the number of applicants accounted for 50% of all applicants in the areas of Fundamental Science and Technology. Now we have more than 30 Ph.D. candidates in mathematics; this fact demonstrates that our COE program has already won wide recognition.

Basic Study and Clinical Application of the Human Stem Cell Biology and Immunology: Approaches Based on the Development of Experimental Animal Models

Program Leader: Professor Hideyuki Okano, Graduate School of Medicine
<http://www.coe-stemcell.keio.ac.jp/>

Role of CIEA in the Program

In Japan where there are high hurdles to be overcome in applying the results of basic research to clinical research, it is indispensable to foster preclinical research using animal models of human disease. The Central Institute for Experimental Animals (CIEA) is deeply involved in the establishment of animal experimentation systems for animal models of human disease to be useful in medicine based on the strong belief that laboratory animals should support medicine, and also in the establishment of *in vivo* experimental medicine to connect basic and clinical research. Visiting Professors Tatsuji Nomura, director of CIEA, and Norikazu Tamaaki, deputy director of CIEA, play important roles as members of the COE program.

Education Program

- Monthly unpublished data presentations in English "COEX MEETING" will be held for the purpose of information exchange among young investigators and promotion of joint research, and advanced graduate student and postdoctoral (PD) education will be supported.
- As a COE advanced lecture course for graduate students, Course of Molecular Developmental Biology is being offered.
- Improvement of the teaching assistant (TA) system and research assistant (RA) system.
- "Bioethics Course" is being offered.

- Development of interdisciplinary research environment by inviting prominent scientists from all over the world to COE-associated seminars and symposium.
- COE advanced special laboratory courses, i) Patch-clamp Recording course and ii) Flow Cytometry course were offered.
- A flow cytometry core facility, a COE Stem Cell Biology/Immunology Research and Education Center was established.

Establishment of COE Stem Cell Biology/Immunology Research and Education Center



Flow cytometry core facility



Cell processing center

This Center supports the strengthening of stem cell biology and immunology education and research.

System Design: Paradigm Shift from Intelligence to Life

Program Leader: Professor Kazuo Yoshida, Graduate School of Science and Technology
http://www.coesys.keio.ac.jp/english_index.html

The aim of COE "System Design: Paradigm Shift from Intelligence to Life" is to establish a global collaborative and educational research center of excellence based on system design engineering initiated by Keio University. This COE program will play an important role in mechanical and architectural engineering by leading in the 21st century the paradigm shift for engineering toward life and away from high-performance and intelligence technology in the 20th century.

To achieve this objective, system design engineering will be developed further as the backbone of the COE and several product innovations with respect to architecture, robotics, energy/bio systems symbiotic production system will be explored. This COE program will promote human resources development centered on graduate students in the doctoral program through educational programs such as the Advanced Design School and the International Internship program.

The Advanced Design School is unique educational program which has been started in 2004. The concept of this design school is that the product innovation is essentially not simply technological setting but should be considered in a larger context such as studies in society, economics, and cultures. Therefore the design education should also aim for a comprehensive synthesis encompassing design theory, design methodology, design technology, manufacturing technology, IT technology, environmental engineering, marketing

management, psychology, and other fields. The Advanced Design School originated with the concept of design related to "life" or "system life technology", and provides three courses such as Architectural System Design, Space System Design, and Product and System Design.

This COE is providing an international internship program for graduate students in the Ph.D. course whose research are very unique and promising to make successful progress. Students applying for this program will be sent to the related university or research institute abroad for six months at the longest, and will be given opportunities to make high-level joint research there. By carrying this program in both directions, i.e., accepting excellent graduate students and post-doctoral fellows from abroad, the COE project itself will be stimulated and environment for international research will be improved. The purpose of this program is to make successful progress of the research and to educate talented students for world's leading researchers of this field.



FY2004 Financial Position

Ended on March 31, 2005

1 Balance Sheet

		Million yen	
Assets			
Fixed assets	278,238		
Tangible fixed assets	182,126		
Land	27,187		
Buildings	91,488		
Structures	5,282		
Equipment and supplies for education and research	23,301		
Other equipment and supplies	254		
Books	34,557		
Vehicles	20		
Construction in progress	37		
Other fixed assets	96,112		
Land lease rights	4		
Telephone subscription rights	72		
Facility use rights	931		
Deposits	2		
Profit-making business capital	3,750		
Long-term loans	2,812		
Specified assets ^{*1}	49,589		
School bond assets producing interest	6,522		
Reserve assets for the third fund	32,431		
Current assets	65,061		
Cash deposits	25,125		
Accounts receivable	12,854		
Inventories	614		
Negotiable securities	25,494		
Assets for school trip deposits	113		
Others	860		
Assets total	343,298		
Liabilities			
Fixed liabilities	58,221		
Long-term borrowings	8,160		
School bonds	4,510		
Retirement allowance reserve	29,485		
Pension reserve	16,066		
Current liabilities	31,207		
Short-term borrowings ^{*2}	1,916		
School bonds ^{*2}	2,012		
Accounts payable	12,651		
Advances received	13,047		
Deposits	1,468		
School trip deposits	113		
Liabilities total	89,427		
Funds			
Funds			
First fund ^{*3}	268,484		
Second fund ^{*4}	4,038		
Third fund ^{*5}	32,431		
Fourth fund ^{*6}	7,959		
Funds total	312,912		
Balance of income and expenditure			
Carried forward to next year	Δ59,041		
Total of liabilities, funds, and balance of income and expenditure	343,298		

^{*1} Specified assets
Assets reserved for specific purposes such as the "retirement allowance reserve," the "pension reserve," and the "Second Fund."

^{*2} Short-term borrowings and school bonds
Current portion of "borrowings" and "school bonds (*Jukusai*)."

^{*3} First fund
Acquisition cost of fixed assets by self-financed imputed income such as school land, school buildings, equipment and supplies, books, etc.

^{*4} Second fund
Amount of assets such as deposits reserved for the purpose of acquiring fixed assets.

^{*5} Third fund
Amount of assets such as scholarships, research funds, and the like.

^{*6} Fourth fund
Amount of funds that must be constantly maintained.

Source: *Activities and Financial Position of Keio Gijuku: FY2004 Business Report*

2 Income and Expenditure Statement

			Million yen	
	All of Keio (Keio Gijuku)	University only	All of Keio (Keio Gijuku)	University only
Income				
Imputed income				
Tuition and other student fees	43,156	35,532		
Other fees	2,163	1,839		
Donations ^{*1}	4,192	2,833		
Subsidies ^{*2}	13,272	9,523		
Income from asset management ^{*3}	4,617	253		
Income from business	7,082	6,634		
Income from medical services	40,245	0		
Miscellaneous income	2,286	1,786		
Imputed income total	117,013	58,400		
Transfer to capital fund	Δ8,945	Δ5,927		
Income total	108,069	52,473		
Expenditure				
Personnel	60,619	32,098		
Expenses for education and research ^{*4}	50,546	25,848		
Expenses for general administration	3,285	773		
Interest on borrowings	232	109		
Loss on disposition ^{*3}	1,525	209		
Provision for allowance for doubtful accounts	33	0		
Discretionary reserve	—	—		
Total expenditure	116,241	59,037		
Current excess over expenditure	8,172	—		
Brought forward from last year	50,869	—		
Carried forward to next year	59,041	—		
Imputed income total – Total expenditure	772	Δ637		

Source: *Activities and Financial Position of Keio Gijuku: FY2004 Business Report*
The settlement of accounts of the school juridical organization Keio Gijuku is a consolidated account of the following four sectors: the corporation, the university (including research institutes and libraries), affiliated schools for integrated education (elementary, junior and senior high schools and a foreign language school), and hospitals (Keio University Hospital and Tsukigase Rehabilitation Center).

Research-related Facilities and Libraries

Research Space for Rent

Keio University provides research space and incubation facilities for rent as indicated below. Please inquire in advance for vacancies, rental qualifications, application procedures, application deadlines, etc.



Institute of Integrated Medical Research Building



Laboratory, Shin-Kawasaki Town Campus



Research Space at KLL

As of August 2005	
Facility	Outline
Research Space at the KLL (See pages 9-10)	Total of 32 rooms in <i>Sousoukan</i> Building on Yagami Campus Size: 66.12m ² - 102.49m ² ; Total floor area: 2,519m ² Type A (for chemistry and biology experiments) Type B (for applied physics experiments) Type C (for experiments for heavy materials) Type D (for experiments for light-weight equipments) Type E (for various types of experiments)
Shin-Kawasaki Town Campus (See pages 15-16)	K-Building: 1,388.25m ² E-Building: 1,388.25m ² I-Building: 1,171.36m ² O-Building: 1,388.25m ²
Shinanomachi Research Park (See pages 11-12)	56 units in the Institute of Integrated Medical Research Building Outline: Steel frame with a reinforced concrete structure; 2 under ground floors, 9 above ground floors, and one penthouse floor Size: 96m ² - 124m ² ; Total floor area: 24,400m ²
Keio Fujisawa Innovation Village (See page 14)	To be completed by the end of March 2006
Facilities for Incubation and Industry-Academia Joint Research (tentative name) Developed by Tsuruoka City (See page 18)	29 units, Size: 7m × 10m × 2.8m Steel frame structure, 2 floors Total floor area: approximately 3,700m ² Open for tenants in May 2006

Library Collections

Keio University has five campuses: Mita, Hiyoshi, Shinanomachi, Yagami, and Shonan Fujisawa, each one of them developing leading-edge research and education in various disciplines, and also high-level medical practice. The Media Centers, centering the library service, branch on each campus to provide intensive support for all these specific activities.

As of 31 March 2005											
	Book Stocks	Collections by Material Type					Journal Titles Currently Received	Electronic Journal Titles	Number of Databases	Number of Electronic Book Titles	Number of Seats
		Domestic Books	Foreign Books	Domestic Journals	Foreign Journals						
Mita Media Center	2,338,267	38%	41%	10%	11%	10,414	19,066	187	1,627	1,104	
Hiyoshi Media Center	717,137	56%	28%	7%	9%	1,755	18,874	98	1,627	1,314	
Shinanomachi Media Center	369,140	16%	13%	23%	48%	2,944	20,848	76	1,637	168	
Information and Media Center for Science and Technology (Yagami)	331,728	25%	12%	16%	47%	2,287	20,033	82	1,627	373	
Shonan Fujisawa Media Center	318,074	55%	26%	12%	7%	2,173	21,030	113	1,957	917	
Total	4,074,346					19,573	99,851	556	8,475	3,876	



Mita Media Center



Shonan Fujisawa Media Center

Research Funds at Keio University in FY2004

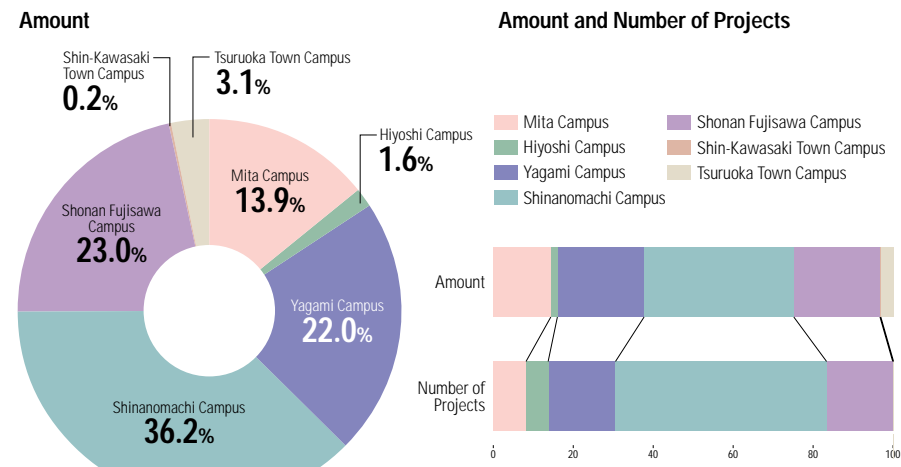
Research funds at Keio University from national and local public institutions, private businesses, and university funding, etc., totaled approximately ¥13.9 billion in FY2004. These funds include the Special Coordination Fund for the Promotion of Science and Technology "Program to Encourage the Development of Strategic Research Centers," of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). This research grant project provides intensive support to organizational reform efforts for the purpose of developing an excellent research infrastructure. Others include funds for the 21st Century COE Program for which Keio University won 12 projects, the largest number for a private university.

In the following, data on research funds is categorized by campus, affiliation of researcher, type of funds, and field of research.

1. Research Funds by Campus

The data in this section presents research funds by campus. The Shinanomachi Campus came in first in both the amount and the number of projects, while the Shonan Fujisawa Campus and the Yagami Campus are second in the amount collected and the number of projects, respectively.

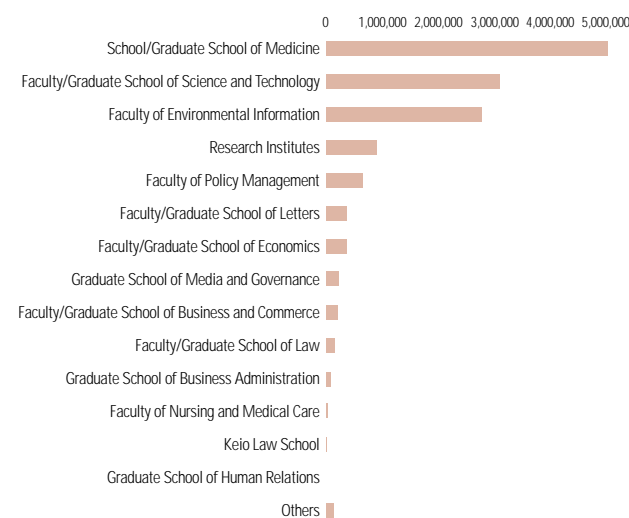
Note that the figures for the two campuses in the table do not necessarily reflect the amount used and many of the projects are conducted at the Shin-Kawasaki Town and the Tsuruoka Town campuses (called the Frontier Research and Education Collaborative Square (K-FRECS)). The K-FRECS act as hubs for cutting-edge research for cross-campus projects, and the research funds are allocated to other campuses where the project leader is affiliated as a member of the faculty. For further details, see the campus pages (Shin-Kawasaki Town Campus, pages 15-16 and Tsuruoka Town Campus, pages 17-18).



Campus	Number of Projects	Amount (Thousand yen)
Mita Campus	248	1,915,801
Hiyoshi Campus	152	220,735
Yagami Campus	509	3,061,612
Shinanomachi Campus	1,580	5,029,019
Shonan Fujisawa Campus	499	3,198,878
Shin-Kawasaki Town Campus	2	32,500
Tsuruoka Town Campus	9	426,902
Total	2,999	13,885,447

2. Research Funds by Affiliation of Researchers

The table on the right shows the number of projects and the amount allocated according to the affiliation of the researcher. In both the number of projects and the amount, the School/Graduate School of Medicine comes out on top of the list, followed by the Faculty/Graduate School of Science and Technology, and then by the Faculty of Environmental Information.



Affiliation of Researcher	Number of Projects	Amount (Thousand yen)
Faculty/Graduate School of Letters	108	355,517
Faculty/Graduate School of Economics	74	351,028
Faculty/Graduate School of Law	62	153,530
Faculty/Graduate School of Business and Commerce	57	189,685
School/Graduate School of Medicine	1,568	5,018,059
Faculty/Graduate School of Science and Technology	513	3,080,712
Faculty of Policy Management	77	649,107
Faculty of Environmental Information	335	2,763,564
Faculty of Nursing and Medical Care	42	30,165
Graduate School of Human Relations	0	0
Graduate School of Business Administration	20	60,515
Graduate School of Media and Governance	57	197,765
Keio Law School	15	7,500
Research Institutes	61	903,635
Others	10	124,665
Total	2,999	13,885,447

3. Research Funds by Type

The number of projects funded by specified contributions results in the largest of all when compared to the other types of funding. Funds from subsidies come first in terms of amount. Funds from subsidies, commissioned research, and specified contributions account for approximately 90% of the total research funds.

Definition

Subsidies: Research funds provided mainly by government and other public offices.

Grants: Research expenses provided mainly by foundations for the purpose of improvement or accomplishment of research.

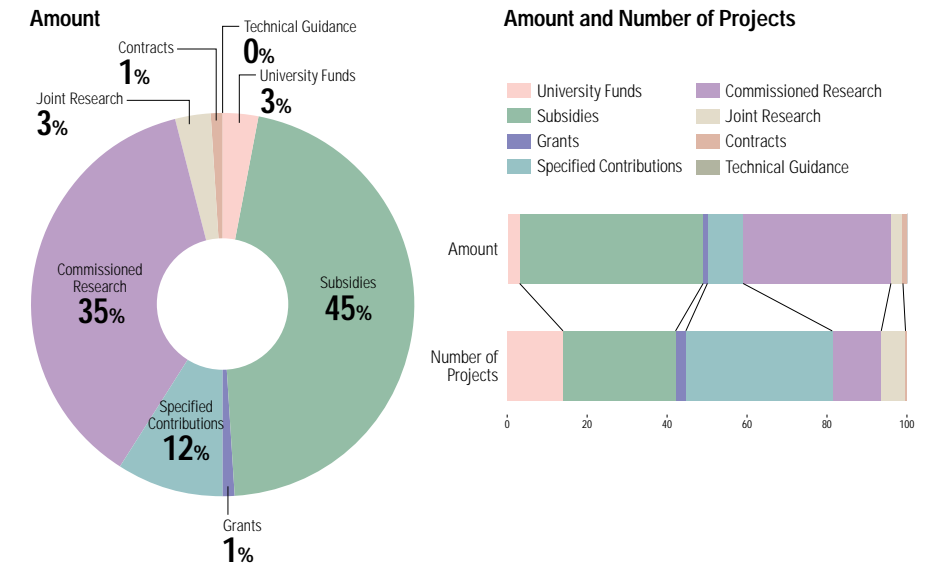
Specified Contributions: Contributions earmarked for research activities.

Commissioned Research: Research commissioned by government and other public offices, as well as private enterprises.

Joint Research: Collaborative research through personnel exchanges and/or sharing technology/facilities under the joint research agreement, with or without payment of research funds.

Contracts: Research under a contract agreement.

Technical Guidance: Research involving technical guidance such as development of equipment or apparatus.



Type of Funds	Number of Projects	Amount (Thousand yen)
University Funds	419	416,014
Subsidies	844	6,186,984
Grants	75	131,297
Specified Contributions	1,093	1,704,757
Commissioned Research	376	4,926,284
Joint Research	178	355,713
Contracts	12	164,248
Technical Guidance	2	150
Total	2,999	13,885,447

4. Subsidies not included in Imputed Income

Some of the subsidies to the university appear as imputed income of school accounts in the financial statement (¥13,272 million in FY2004. See Income and Expenditure Statement, page 33), but others do not. The subsidies as research fund in the table above (¥6,186 million), for example, do not appear in the statement. Accordingly, corresponding expenditures are not included in the account under expenses for education and research. The table below describes such subsidies not included in imputed income in the financial statement.

The ¥6,186 million as the external research funds consist of the Grants-in-Aid for Scientific Research and the 21st Century COE Program (subsidies for research center development) of the MEXT, and the Health and Labour Sciences Research Grant of the Ministry of Health, Labour and Welfare (MHLW).

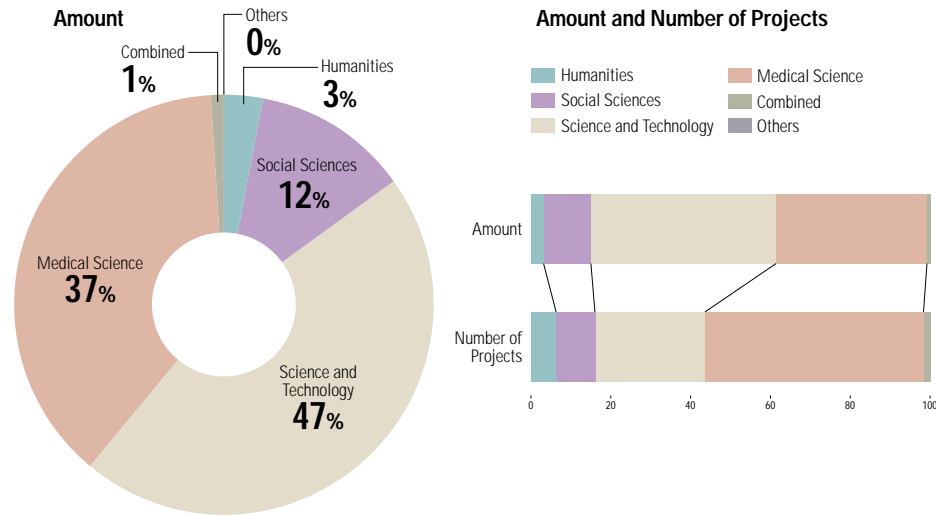
In addition, direct research expenses are classified as "deposits" while indirect expenses as "miscellaneous income" in school accounts.

Types of Subsidies	Direct Research Expenses							Indirect Expenses		
	Income				Expenditure			Income		
	Amount Granted	Refund for Removal, Transfer, etc.	Carried Forward from Preceding Fiscal Year	Other Income	Commissioned to External Institutions	Amount Allocated	Indirect Expense Ratio			
MEXT										
Grants-in-Aid for Scientific Research	2,110,986	2,112,500	(9,376)	989	6,865	8	2,110,986	31,600	191,550	9%
Subsidies for Joint Industry-Academia-Government Innovation Development Projects (Research Program on Development of Innovative Technology)	36,000	36,000	0	0	0	0	36,000	0	10,800	30%
21st Century COE Program (Research Center Development Subsidy)	1,675,804	1,675,800	0	0	0	4	1,675,804	0	—	—
Subsidy for Promoting University Reform (Expense for Promoting the Reform of Universities)	103,873	102,673	0	0	1,200	0	103,873	0	—	—
Support Program for Distinctive University Education		31,000								
Support Program for Contemporary Educational Needs		15,000								
Advanced Overseas Educational Research Practice Program		6,673								
Program for Support of Development of Law and Other Professional Schools		50,000								
Contribution of the MEXT Subtotal	3,926,663	3,926,973	(9,376)	989	8,065	12	3,926,663	31,600	202,350	
MHLW										
Health and Labour Sciences Research Grant	1,005,461	946,038			59,421	1	1,005,461	281,400	35,541	4%
Total	4,932,125	4,873,011	(9,376)	989	67,486	14	4,932,125	313,000	237,891	

Source: Activities and Financial Position of Keio Gijuku: FY2004 Business Report

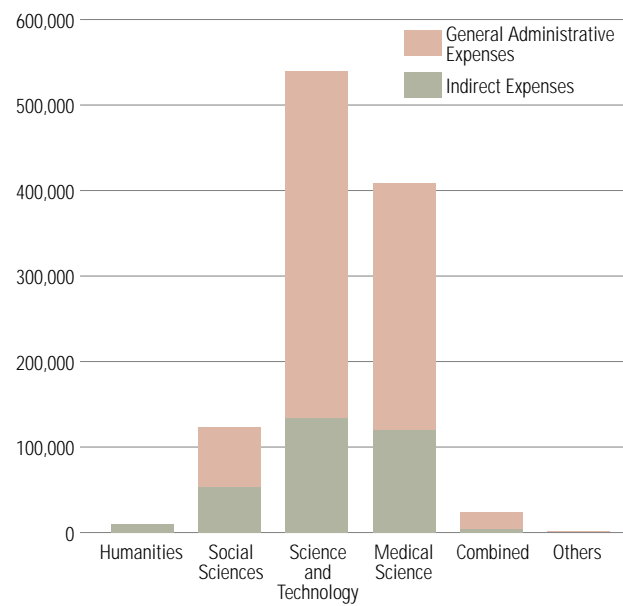
5. Research Funds by Field

The data in this section are compiled with reference to classification of the field of research in other official reports such as the *Survey of Research and Development* by the Ministry of Internal Affairs and Communications, and various surveys on research expenses by the Japan Association of Private Colleges and Universities. The field of medical science comes first in the number of projects, but science and technology on top in terms of amount. Research in the field of science and technology includes research by both Faculties of Science and Technology and Environmental Information.



Field	Number of Projects	Amount
Humanities	181	434,446
Social Sciences	301	1,677,600
Science and Technology	825	6,484,236
Medical Science	1,638	5,093,026
Combined	53	193,839
Others	1	2,300
Total	2,999	13,885,447

Indirect Expenses and General Administrative Expenses



Field	Indirect Expenses	General Administrative Expenses
Humanities	9,774	483
Social Sciences	53,175	67,663
Science and Technology	134,460	434,603
Medical Science	119,730	288,352
Combined	4,089	18,533
Others	0	345
Total	321,228	809,979

Definition

Humanities: History, Philosophy, Literature, Languages, and other humanities.

Social Sciences: Economics, Sociology, Business and Commerce, Political Science, Law, and other social sciences.

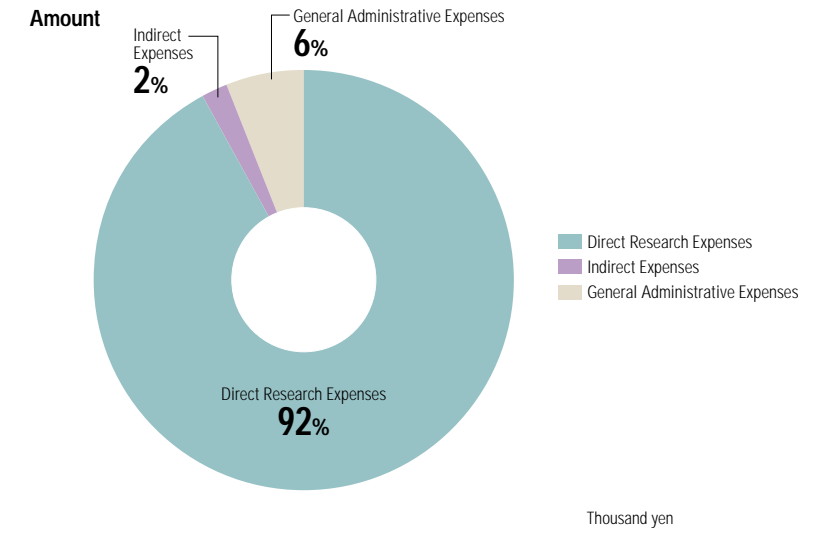
Science and Technology: Applied Chemistry, Chemistry, Mechanics and Shipbuilding, Engineering, Mathematics, Electrics, Communications, Physics, and other science and technology.

Medical Science: Medicine, Nursing, Pharmaceutical Science, and other health and medical sciences.

Combined: Interdisciplinary fields.

6. Ratio of Direct Research Expense to Research Funds

Dividing total research expenses into direct and indirect expenses/general administrative expenses, the former accounts for over 90% of the total while the latter account for the rest at Keio. The universities in Japan are typically allowed to allocate up to 30% of the direct research expenses from the governmental competitive research funds they receive as indirect expenses, but in overall terms, the actual percentage is extremely low, for example, compared with that of North American and European counterparts.



Total Research Expenses		
13,885,447		
Direct Research Expenses	Indirect Research Expenses	General Administrative Expenses
12,754,240	321,228	809,979

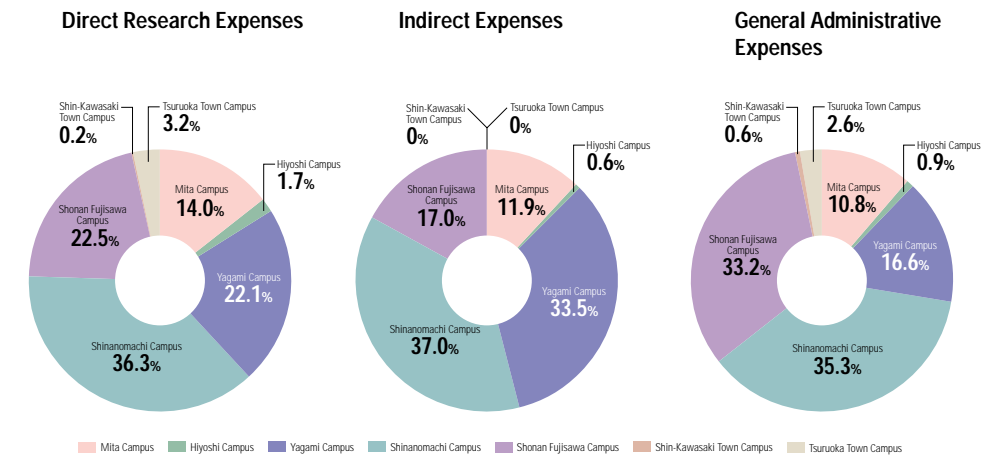
Definition

Indirect Expenses: Expenses provided equivalent to a certain percentage of the competitive research funds in addition to the direct expenses for the research to supplement administrative and operational costs of the institution to which a researcher is affiliated.

General Administrative Expenses: Expenses provided to supplement administrative costs for research other than direct expenses for the research.

7. Direct Research, Indirect, and General Administrative Expenses by Campus

Shown in the graphs and a table on the right is a breakdown by campus of direct research expenses, indirect expenses, and general administrative expenses. The Shinanomachi Campus and the Shonan Fujisawa Campus are first and second respectively, in the amount of direct research expenses and general administrative expenses, while the Shinanomachi Campus and Yagami Campus are first and second in indirect expenses.



Campus	Direct Research Expenses	Indirect Expenses	General Administrative Expenses
Mita Campus	1,789,794	38,334	87,673
Hiyoshi Campus	211,447	2,058	7,230
Yagami Campus	2,818,981	107,892	134,739
Shinanomachi Campus	4,624,819	118,620	285,580
Shonan Fujisawa Campus	2,875,840	54,324	268,714
Shin-Kawasaki Town Campus	27,675	0	4,825
Tsuruoka Town Campus	405,684	0	21,218
Total	12,754,240	321,228	809,979

Competitive Research Funds

The competitive research fund has been defined as a "fund for research and development to be distributed to researchers and institutions making proposals on a subject publicly announced and passing the examination based primarily on scientific and technological perspectives, by a committee composed of more than two members including experts in the subject field," (*Reform of the Competitive Research Funding System*, Council for Science and Technology Policy, April 2003). In its "Science and Technology Basic Plan FY2001-FY2005," the Japanese government set a target for doubling the budget appropriation for competitive research funds after the model of the United States, which holds an established position in world-leading research supported by such funds.

Amount of competitive funds and adopted rate can be indicators for the research potential of universities. National universities have long been ahead of private universities in part due to different research environments. The national universities have been better funded with government subsidies for administration and maintenance of facilities, so in comparison they have better research facilities than their private counterparts. Well-equipped research facilities are a great advantage in generating high-quality research and then attaining competitive funds.

However, this situation is expected to change as the national universities have been converted into independent corporations since FY2004. Competition for funding between universities will certainly grow more intense, though there are no perceptible changes yet.

The government budgeted ¥360.6 billion for competitive research funds in FY2004, approximately one-tenth of total allocations for science and technology. Grants-in-Aid for Scientific Research (*Kakenhi*) funded by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Japan Society for the Promotion of Science (JSPS) accounted for the largest amount of all at ¥183 billion, up by ¥6.5 billion or 3.7% year-on-year. This was followed by ¥46.3 billion for the Basic Research Programs through MEXT and the Japan Science and Technology Agency (JST), ¥37.9 billion for the Health and Labour Sciences Research Grant through the Ministry of Health, Labour and Welfare (MHLW), and ¥38.6 billion for the Special Coordination Fund for Promotion of Science and Technology through MEXT and JST, respectively.

The following is an overview of representative competitive research funds of MEXT: 1) *Kakenhi*, 2) Basic Research Programs, and 3) Special Coordination Funds for Promoting Science and Technology. A portion of the achievements by Keio University will also be introduced here.

1 Grants-in-Aid for Scientific Research (*Kakenhi*)

Kakenhi is designed to remarkably develop any academic research, from basic to applied, in fields ranging from humanities and social sciences to the natural sciences, based on the free thinking of individual researchers. The grants are meant to be provided, after peer review, to innovative and pioneering research projects. In FY2004, the *Kakenhi* were granted for approximately 49,000 research subjects out of total 113,000 applications.

The table shows the number of *Kakenhi* projects adopted (new and those continuing from

the previous year) and the amounts distributed (at the time of selection, different from the data on page 36) of the top 20 institutions from FY2002 to FY2004. The aggregate of the top 10 accounts for about 50% of the total, and that of the top 20 for about 60%. Keio University was ranked 11th overall and first among private universities, with the amount distributed equivalent to 1-2% of the total.

Kakenhi Distributed by Institution

Rank	FY2002			FY2003			FY2004		
	Institution	Number of Projects	Amount (Million yen)	Institution	Number of Projects	Amount (Million yen)	Institution	Number of Projects	Amount (Million yen)
1	University of Tokyo	2,610	18,568	University of Tokyo	2,501	18,751	University of Tokyo	2,676	22,101
2	Kyoto University	1,881	9,448	Kyoto University	1,820	9,370	Kyoto University	2,031	12,244
3	Osaka University	1,531	7,169	Osaka University	1,484	7,487	Osaka University	1,592	9,243
4	Tohoku University	1,571	6,905	Tohoku University	1,542	6,889	Tohoku University	1,599	8,475
5	Nagoya University	1,045	5,248	Nagoya University	1,008	5,474	Nagoya University	1,079	6,722
6	Hokkaido University	1,138	4,738	Hokkaido University	1,103	4,920	Kyushu University	1,287	5,415
7	Kyushu University	1,271	4,511	Kyushu University	1,202	4,535	Hokkaido University	1,183	5,347
8	Tokyo Institute of Technology	722	3,654	Tokyo Institute of Technology	705	4,008	Tokyo Institute of Technology	757	4,160
9	University of Tsukuba	684	2,445	University of Tsukuba	709	2,530	University of Tsukuba	741	2,611
10	Hiroshima University	789	2,058	Hiroshima University	753	2,130	Hiroshima University	842	2,403
11	Keio University	543	2,003	Keio University	539	1,961	Keio University	578	2,227
12	Kobe University	562	1,825	Kobe University	558	1,735	Kobe University	669	2,216
13	Chiba University	453	1,698	RIKEN	381	1,609	RIKEN	437	2,149
14	Okazaki National Research Institutes	194	1,648	Okazaki National Research Institutes	175	1,566	Chiba University	538	1,858
15	Tokyo Medical and Dental University	383	1,583	Okayama University	563	1,501	Okayama University	608	1,695
16	National Institute of Genetics	64	1,443	Chiba University	467	1,378	Tokyo Medical and Dental University	364	1,494
17	Okayama University	553	1,423	Tokyo Medical and Dental University	360	1,354	Waseda University	460	1,422
18	Kumamoto University	354	1,288	National Institute of Genetics	60	1,311	National Institute of Genetics	71	1,422
19	RIKEN	323	1,217	Kumamoto University	340	1,168	Kumamoto University	348	1,241
20	Niigata University	418	1,089	Kanazawa University	419	1,137	Tokyo Metropolitan University	266	1,151
A			124,634			126,341			155,051
B			64,744			66,094			78,721
B/A			52%			52%			51%
C			79,961			80,814			95,596
C/A			64%			64%			62%

A: Total amount distributed (research expenses) B: Total of top 10 institutions C: Total of top 20 institutions

Source: JSPS, <http://www.jspss.go.jp/j-grantsinaid/>
Data here is classified by the research institution with which the research representative is affiliated.

2 Basic Research Programs

The Basic Research Programs of JST promote purpose-oriented basic research for the strategic objectives of the national government, with the mission of meeting not only social and economic demands but also national policies for science and technology. The specific areas of research are presented by the JST in strategic sectors formulated by MEXT. The JST calls for proposals from each of the research areas within the sectors and designates research supervisors.

The Basic Research Programs consist of two types: Proposal-Oriented and Supervisor-Oriented. In the Proposal-Oriented type, a supervisor widely seeks application proposals from public and private universities and research institutes, reviews and selects the applications.

	Number of people					Total
	National Universities	Public Universities	Independent Administrative Corporations	Private Universities	Others*1	
Proposal-Oriented Type Research						
CREST (team-type)	11	1	4	1	6	23
PRESTO (individual-type)	5	2	5	6	2	20
Supervisor-Oriented Type Research						
ERATO	10	0	1	1	1	13
ICORP	4	0	0	0	0	4
Continuing Research*2	53	1	4	4	7	69
Total	83	4	14	12	16	129

Source: JST, <http://www.jst.go.jp/kisoken/en/index.html>
The research areas and subjects selected in the table include those in progress from FY2002 to FY2004. The affiliations of research supervisors as of 1 July 2005.

*1 Others include institutions such as national research institutes, companies, foundations, overseas research institutes, etc.

*2 Continuing Research refers to the Solution Oriented Research for Science and Technology (SORST) program to continue the research (ex. extending the research period) for basic research program for its excellence and potential.

Research Representatives and Subjects of Keio University in CREST

Professor Masahiko Inakage	Faculty of Environmental Information/Graduate School of Media and Governance	The Research of Ubiquitous Content Production Authoring System
Professor Masaru Tomita	Director, Institute for Advanced Biosciences (IAB)/Faculty of Environmental Information	Establishment of Modeling Simulation Environment for Systems Biology
Professor Atsushi Nakajima	Faculty of Science and Technology	Nano-scale Design Oriented Towards Optomagneto Materials
Professor Koji Suzuki	Faculty of Science and Technology	Creation of "Nanochemical Probes" and their Biomedical Sensing Application
Professor Kimihisa Yamamoto	Faculty of Science and Technology	Creation of Macromolecules with Precise Metal Assembly for Nano-catalysts
Professor Hideyuki Okano	School of Medicine	Studies on the Development and Regeneration of Central Nervous System Based on the Stem Cell System
Professor Shigeo Koyasu	School of Medicine	Infectious Disease Control by Understanding the Strategy of Pathogenic Microbes Affecting Host Immune System
Associate Professor Kohei Ito	Faculty of Science and Technology	Development of All-silicon Quantum Computers

3 Special Coordination Fund for Promoting Science and Technology

The Special Coordination Fund for Promoting Science and Technology is a budget for coordination for implementing important matters that are essential for science and technology promotion in accordance with the Council for Science and Technology Policy. The funds are utilized for measures that have a high capacity as policy catalysts, such as those that set precedents for other ministries, those that are intended for borderline or integrated projects that any one ministry or agency cannot handle alone, those that are expected to generate a synergistic effect through multi-institutional collaboration, or those that should be tackled promptly and actively. The areas of these measures are as follows:

- 1) Reform of science and technology systems in order to create excellent results and utilize them effectively
- 2) Strategic measures focusing on fields and domains which are expected to be promising
- 3) Promotion of internationalization of scientific and technological activities

Specifically, the programs under the fund include: Support for establishing organizations for competitive research funding, Promotion of research activities tackling the key issues, etc., Effective promotion of joint research with industries, academia, and government, Encouraging development of strategic research centers, Fostering talent in emergent research fields, Urgent researches, Leadership for international scientific cooperation, Promotion of pioneering researches, etc., Basic survey on science and technology promotions, Supporting young researchers with fixed-term appointments, and Proposal for science and tech in science and technology policy.

Source: *Japan Science and Technology Agency 2004, Second Edition*

Research in Progress

Research Representative	Affiliation	Program	Research Subject
Professor Keiichi Fukuda	School of Medicine	Effective promotion of joint research with industries, academia, and government	Regeneration of Cardiomyocytes Using Stem Cell Biology and Tissue Engineering
Professor Jun Murai	Faculty of Environmental Information	Effective promotion of joint research with industries, academia, and government	Research on IPv6 Protocol Stack with Low Power Consume for Mobile Terminals
Professor Hideyuki Tokuda	Faculty of Environment Information	Promotion of pioneering researches, etc	Research on Ubiquitous Information Society Based on Trans-disciplinary Science
Associate Professor Kotaro Oka	Faculty of Science and Technology	Fostering talent in emergent research fields	Training Program for System Biologists in Keio University
Professor Shinji Ozawa	Faculty of Science and Technology	Fostering talent in emergent research fields	Highly Dependable Software for Capturing Environmental Information
Professor Kazuo Umezawa	Faculty of Science and Technology	Comprehensive Researches	Development of the Artificial Control Method of Blood Vessel Wall Functions
Professor Yuichiro Anzai	Faculty of Science and Technology	Comprehensive Researches	A Study on Fundamental Technology of Distributed Real-time Network for Human Activity

Research Commissioned in FY2004

Research Representative	Affiliation	Program	Research Subject
Professor Fumio Teraoka	Faculty of Science and Technology	Promotion of research activities tackling the key issues	Development of Analyzing and Sharing System of Information Security
Professor Hiroshi Yanagawa	Faculty of Science and Technology	Effective promotion of joint research with industries, academia, and government	Development of Automation System for Selection of Antibody
Director Yuichiro Anzai	Research Institute for Digital Media and Content (DMC)	Encouraging development of strategic research centers	Research Institute for Digital Media and Content (DMC)
Professor Sadakazu Aiso	School of Medicine	Fostering talent in emergent research fields	Training Course for Technical Assistants on <i>In vivo</i> Medical Science

The selected researchers perform the research at their own facilities. This type includes both group research (team-research, called CREST-type) and individual research (called PRESTO-type).

In the Supervisor-Oriented type, in contrast with the Proposal-Oriented type, the supervisor directly organizes and intimately supervises his/her own research team. It consists of two programs: ERATO, discovering and breeding seeds for technological innovation, and ICORP, creating seeds of innovative science and technology by coordinating outstanding research capabilities and potential between Japan and a foreign country.

FY2004 Special Coordination Fund for Promotion of Science and Technology Top Ten Universities by Amount of Funds Commissioned

Rank	University	100 million yen		
		Accumulated Amount for Research in Progress up to FY2003	Newly Commissioned Research in FY2004	Total
1	University of Tokyo	36.3	11.5	47.8
2	Kyoto University	20.2	2.9	23.1
3	Osaka University	18.1	3.2	21.3
4	Tohoku University	16.1	3.1	19.2
5	Keio University	5.1	9.8	14.9
6	Kyushu University	7.5	7.2	14.7
7	Waseda University	3.7	10.8	14.5
8	Hokkaido University	10.3	1.2	11.5
9	Tokyo Institute of Technology	2.7	1.1	3.8
10	University of Tsukuba	2.4	0.6	3.0
Total of Top 10 Institutions		122.4	51.4	173.8

Source: Office of the Special Coordination Fund for Promotion of Science and Technology, MEXT

Researchers at Keio University in FY2004

This section presents data on researchers involved in research or education at Keio University (Professors, Associate Professors, Assistant Professors and Instructors), doctoral students and awardees of doctor's degrees, and researchers participating in research projects at Keio but not affiliated under the any of above conditions.

Number of Researchers

"Tenured researchers" are those employed under full-time contracts without fixed terms. "Researchers with fixed period contract" are either full-time or part-time. Of those with fixed period contracts, "special research professors" are paid by research funds allocated from outside Keio University as a condition of appointment.

"Researchers" in the following data only include University researchers (Professors, Associate Professors, Assistant Professors and Instructors) and excludes teachers at affiliated elementary and secondary schools of Keio University.

In contrast to Mita and Hiyoshi campuses, there are more researchers funded by external research sources at the Yagami, Shinanomachi, and Shonan Fujisawa campuses. The number of the non-tenured researchers (that is, the total number of researchers with fixed period contracts and special research professors) accounts for 17% overall, but is a striking 49% at Shonan Fujisawa Campus.

Campus	Tenured Researchers	Researchers with Fixed Period Contract	Special Research Professors	Total
Mita Campus	355	36	12	403
Hiyoshi Campus	292	18	1	311
Yagami Campus	239	18	34	291
Shinanomachi Campus	488	5	75	568
Shonan Fujisawa Campus	123	43	78	244
Total	1,497	120	200	1,817

As of 1 May 2004

Support for Future Researchers

There are two types of doctor's degrees: course and dissertation doctorates. Course doctorates are conferred upon completion of course work with all other requirements. Dissertation doctorates are conferred on those who have submitted a dissertation with consent of a committee of a graduate school, and passed the examination by a board of review.

The standard period for completion of a doctoral course is three years, except for the Graduate School of Medicine, which maintains a four year standard.

Number of Doctorates Awarded

Course Doctorate	
Graduate School of Letters	3
Graduate School of Economics	2
Graduate School of Law	5
Graduate School of Human Relations	10
Graduate School of Business and Commerce	4
Graduate School of Medicine	26
Graduate School of Science and Technology	91
Graduate School of Business Administration	0
Graduate School of Media and Governance	19
Subtotal	160

Dissertation Doctorate

Graduate School of Letters	8
Graduate School of Economics	2
Graduate School of Law	3
Graduate School of Human Relations	4
Graduate School of Business and Commerce	5
Graduate School of Medicine	112
Graduate School of Science and Technology	11
Graduate School of Business Administration	0
Graduate School of Media and Governance	4
Subtotal	149

Total **309**

As of 31 March 2005

Number of Students Registered in Doctoral Courses

Graduate School of Letters	< 45 >	121
Graduate School of Economics	< 15 >	73
Graduate School of Law	< 30 >	110
Graduate School of Human Relations	< 11 >	45
Graduate School of Business and Commerce	< 20 >	51
Graduate School of Medicine *1	< 68 >	168
Graduate School of Science and Technology	< 150 >	373
Graduate School of Business Administration	< 8 >	13
Graduate School of Media and Governance	< 30 >	173

As of 1 May 2004

Figures in parentheses indicate the maximum number of entrants for the graduate school.

*1 The figure for the Graduate School of Medicine refers to the number of students registered in doctoral courses.

Researchers from outside Keio

Keio University has long emphasized the creation of a good environment for intellectual exchange and synergistic cooperation with researchers both within and outside the institution, with the goal of sharing common or related research subject.

Not only undergraduate faculty/graduate school but research institutes of Keio University accept researchers from other research institutions and universities outside Keio.

Number of Researchers Accepted—Breakdown by Job Title and Status

Job Title/Status of Researchers	Number of Researchers	Qualifications
Research Associates of Faculty of Science and Technology (Yagami)	39	Researchers participating in research without a contract of commissioned research.
Researchers of Keio Leading-edge Laboratory of Science and Technology (KLL) (Yagami)	81	Researchers participating in research under a commissioned research contract.
School of Medicine Researcher (Shinanomachi)	71	Researchers employed by research, educational, or medical institutions other than the School of Medicine of Keio University.
Senior Visiting Researchers, Keio Research Institute at SFC (Shonan Fujisawa)	209	Researchers accepted by Keio Research Institute at SFC upon application from an institution not affiliated with Keio University, or that from the applicant him/herself. Applicants must have a master's degree or qualified as equivalent having experience and achievements as an independent researcher.
Visiting Researchers, Keio Research Institute at SFC (Shonan Fujisawa)	125	Researchers accepted by Keio Research Institute at SFC upon application from an institution not affiliated with Keio University or from the applicant him/herself. Applicants must have a bachelor's degree or qualified as equivalent having experience and achievements as an independent researcher.
Visiting Professors and Researchers *1 (See Table A)	255	
Others (See Table B)	1,123	
Total	1,903	

Place names in parentheses indicate affiliated campus.

Table A: Visiting Professors and Researchers

Job Title, Status/Campus	Mita/Hiyoshi	Yagami	Shinanomachi	Shonan Fujisawa	Total
Visiting Professor	19	24	12	1	56
Visiting Associate Professor	13	10	9	0	32
Visiting Lecturer	4	10	15	0	29
Visiting Research Fellow	33	42	53	0	128
Visiting Research Associate	2	7	1	0	10
Total	71	93	90	1	255

Table B: Others

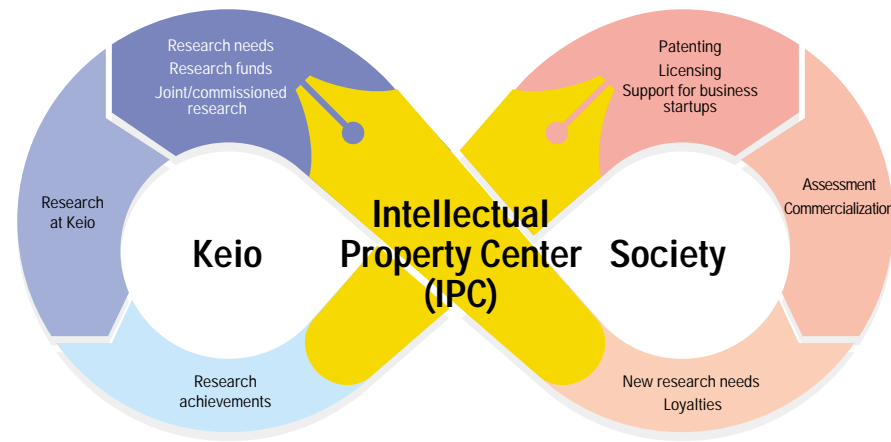
Research Institute	No. of Researchers at Keio University*2	No. of Researchers not Employed by Keio	Total
Institute of Cultural and Linguistic Studies (Mita)	41	55	96
Institute for Media and Communications Research (Mita)	8	62	70
Keio Economic Observatory (Mita)	37	30	67
<i>Shido Bunko</i> , Institute of Oriental Classics (Mita)	9	2	11
International Center (Mita)	46	25	71
Teacher Training Center (Mita)	45	41	86
Fukuzawa Memorial Center for Modern Japanese Studies (Mita)	25	36	61
Institute of East Asian Studies (Mita)	22	31	53
Center for Japanese Studies (Mita)	11	31	42
Research Center for the Arts and Arts Administration (Mita)	21	15	36
Global Security Research Institute (G-SEC) (Mita)	22	5	27
Research Institute for Digital Media and Content (DMC) (Mita)	77	36	113
Institute of Physical Education (Hiyoshi)	20	41	61
Health Center (Hiyoshi)	22	2	24
Keio Research Center for Foreign Language Education (Hiyoshi)	50	19	69
Sports Medicine Research Center (Hiyoshi)	11	6	17
Keio Research Center for the Liberal Arts (Hiyoshi)	172	47	219
Total	639	484	1,123

Figures show the totals for FY2004. Place names in parentheses indicate location of the institution.

*1 Generic designation used for visiting professor, visiting associate professor, visiting lecturer, visiting research fellow and visiting research associate. (Excludes researchers at Keio listed in Table B)

*2 Researchers at Keio University: the figure indicates total number of researchers including teachers in the affiliated elementary and secondary schools of Keio, in addition to tenured and non-tenured researchers of undergraduate faculties/graduate schools or research institutes. A researcher affiliated to more than two institutions is counted as one researcher of each.

Technology Transfer



The Intellectual Property Center (IPC) was established in November 1998. As depicted in the diagram on the left, the role of the IPC is to act as a linking hub between Keio and society at large. This role involves protecting research achievements at Keio as intellectual properties, transferring the patents to society, giving feedback of the market evaluations to the researchers, and ultimately stimulating research activities at the university. The IPC believes that, through such activities, it has been contributing to the realization of "creating intellectual values," "exploring entrepreneurial potential," and "inspiring education."

1 Rules and Regulations for Intellectual Property and Technology Transfer

In FY2004, the Guidelines for Intellectual Property was enacted. It formed the basis for activities dealing with intellectual property and technology transfer at Keio and clarified the organizational support of the university as a whole for these activities, with new or revision of the existing rules concerning inventions as follows.

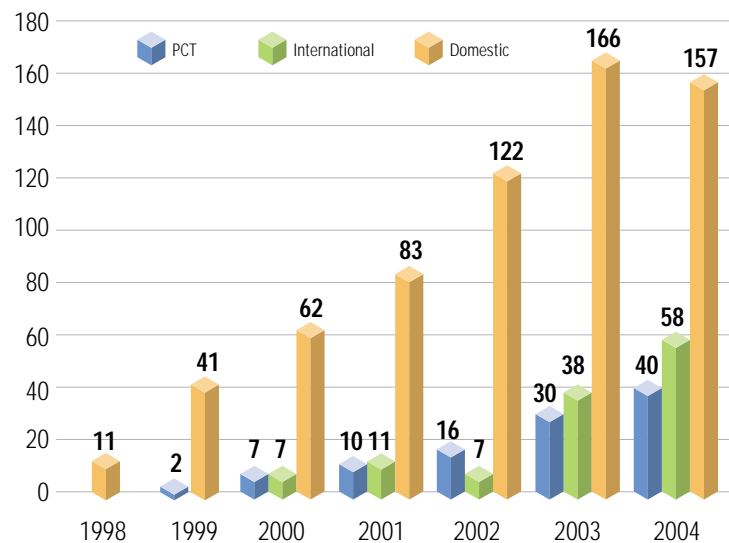
- "Rules and Regulations for Inventions" (revised)
- "Rules and Regulations for Tangible Achievements of Research" (new)
- "Rules and Regulations for Intellectual Property Mediation Committee" (new)

2 Intellectual Property

Filing activities of the IPC remained active throughout FY2004 as in the previous year. The IPC filed 157 domestic patent applications, 40 PCT applications, and 58 international patent applications. Noteworthy is the fact that the number of international patents increased.

The following charts and a graph show patent applications by field of technology, campus, and inventor.

(1) Patent Applications



(2) Proportion of Applications by Field of Technology

Bio/Medical	44%
Information/Communications	25%
Control/Measurement	25%
Materials/Chemicals	6%

(3) Number of Applications by Campus

Yagami (Faculty of Science and Technology)	355
Shinanomachi (School of Medicine)	189
SFC	94
Hiyoshi	5
Mita	4

(4) Number of Inventors by Category

Professor	102	Associate Professor	47
Lecturer	51	Instructor/Assistant	84
Student	285	Staff Member, Other	33

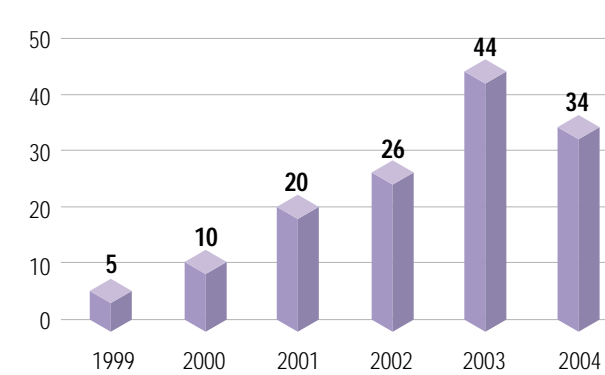
3 Technology Transfer

Technology transfer of the intellectual properties representing technologies of the university is engaged through:

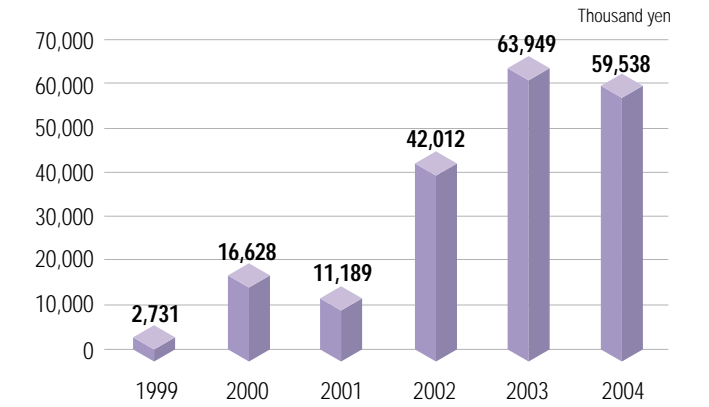
- (1) Licensing to a company;
- (2) Starting a company based on intellectual property (IP) rights; and
- (3) Joint research with a company towards commercialization.

The following graphs indicate technology transfer by the above categories.

(1) Number of New Licensing Agreements



(2) Licensing Revenues

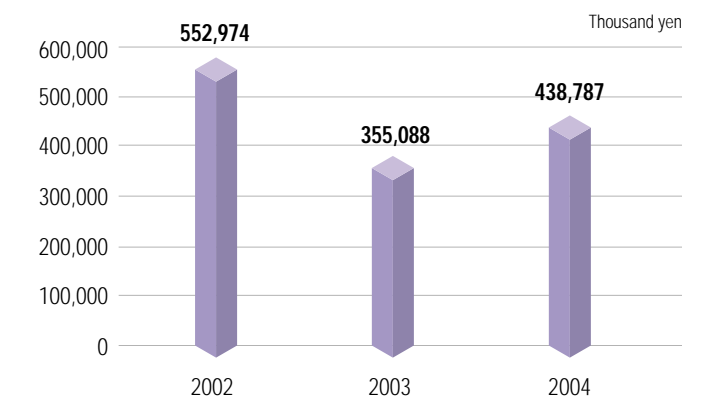


(3) Startups and Products Created Using IP Rights Owned by Keio

The number of startups based on IP rights owned by Keio has steadily increased, with two companies in FY2001, one in FY2002, four in FY2003, and three in FY2004.

The number of products newly developed from Keio's IP rights has reached to approximately 30 to date.

(4) External Research Funds Acquired Based on IP Rights Owned by Keio



The above external research funds are included in research funds of each campus indicated in page 35.

4 Platform for Information Exchange between Industry and Academia

The IPC strongly believes, from six years of experience in implementing IP and technology transfer activities, the importance to further activate industry-academia collaboration through information exchange and integration of knowledge between the two. Thus, the IPC has started Keio Innovation Network. It is a monthly meeting on specific topics to convey technological information at Keio. The first meeting was held in February 2005, with an overview as shown below.

The 1st Keio Innovation Network (East Building, Mita Campus)

- "Visible Light Communications"
Prof. Masao Nakagawa, Faculty of Science and Technology
- "Synthesis and Application of Transparent Nano-phosphors"
Assc. Prof. Tetsuhiko Isobe, Faculty of Science and Technology
- "Optical Waveguide for Photonic Networks"
Assc. Prof. Hiroyuki Tsuda, Faculty of Science and Technology
- "Magnetic Memories Based on Domain-wall Motion"
Instructor Eiji Saitoh, Faculty of Science and Technology

5 Others

(1) 5th Intellectual Property Center Award

Every year, the IPC awards Keio researchers who generated intellectual property, transferred it to society, and made a significant contribution to the activities of the IPC. The winner for FY2004 was Dr. Masataka Kuwana of the School of Medicine, for his patent for "Diagnosis for Scleroderma."

(2) The Award of the Minister Bestowed to the IPC Twice in Succession for Distinguished Service for Industry-Academia-Government Collaboration

The Keio researchers and the director of the IPC who were bestowed the Award of the Minister of State for Science and Technology Policy on "Development and Practical Application of Techniques for the Analysis of Metabolome" in June 2004, at the Council of Industry-Academia-Government Collaboration Promotion in Kyoto are as follows:

- Tomoyoshi Soga, Associate Professor, Faculty of Environmental Information
- Masaru Tomita, Director, Institute for Advanced Biosciences
- Keisuke Shimizu, Director, Intellectual Property Center

This was the second consecutive win for the IPC which received the Award of the Minister of Education, Culture, Sport, Science and Technology in June 2003.



Presentation Ceremony of the 5th Intellectual Property Center Award



Awards for Research Activities, FY2004

Source: *Jukuho* (Keio Biweekly Newsletter) No.2055–2080 (April 2004–March 2005)

Date Awarded (DD/MM/YY)	Winner	Award	Reason for Award	Awarding Institution
15/04/04	Nobuyoshi Shimizu (Prof., Sch. of Medicine)	Award of the Minister of Education, Culture, Sports, Science and Technology (for Achievement in Research)	For discovering disease-causing genes through decoding of human genomes, and for research into DNA diagnostic methods.	Minister of Education, Culture, Sports, Science and Technology (MEXT)
15/04/04	Hideyuki Okano (Prof., Sch. of Medicine)	Tokyo Techno-Forum 21 Gold Medal Award	For a series of research endeavors into neural stem cells: "Identification of neural stem cells in the adult brain and research on regeneration of the central nervous system using these cells." This research promises to yield revolutionary brain disease treatment techniques which could restore brain functioning through the regeneration of lost neural cells.	Tokyo Techno-Forum 21
19/05/04	Hiroto Izumi (Sp. Rsch. Prof., Fac. of Science and Technology)	Japan Association for Real Estate Sciences (JARES) Authorship Award	For authorship of <i>Urban Planning through Relaxation of Floor Area Ratio (FAR) Regulations</i> , Shinzansha Publisher Co., Ltd. (Mar. 2002), which presents the history of the system of urban planning through relaxation of FAR regulations and an analysis of the basis for relaxation.	JARES
21/05/04	Yoshiyuki Matsuoka (Prof., Fac. of Science and Technology), Masato Inoue (Instr., Fac. of Science and Technology)	FY2003 Japan Society for Design Engineering (JSDE) Best Paper Award	For the thesis "System for Obtaining Diverse Design Solutions Based on Emergence." <i>Journal of Japan Society for Design Engineering</i> (in Japanese), Vol. 38, No. 8, 411-420, (2003).	JSDE
25/05/04	Hiroto Izumi (Sp. Rsch. Prof., Fac. of Science and Technology)	2004 Association of Urban Housing Sciences (Authorship Award)	For authorship of <i>Urban Planning through Relaxation of FAR Regulations</i> , Shinzansha Publisher Co., Ltd. (Mar. 2002), which presents a quantitative analysis of the effect on land prices of relaxing FAR regulations.	Association of Urban Housing Sciences
31/05/04	Shuzo Murakami (Prof., Fac. of Science and Technology)	FY2003 Japan Association for Wind Engineering (JAWE) Association Award (for Achievement)	For establishing the field of computational wind engineering, systematization of wind environment engineering and contributions to the activities of the JAWE.	JAWE
09/06/04	Hirokazu Kono (Prof., Grad. Sch. of Business Administration) et al.	33rd Japan Institute of Industrial Engineering (JIIE) Literature Award (Contribution Award)	For research notes presented in the <i>IE Review</i> , Vol. 44, No. 4, Dec. 2003 "A Study for Vitalizing Domestic Manufacturing in Japan—From the Perspective of Shop Floor Improvement Activities—."	JIIE
20/06/04	Tomoyoshi Soga (Assoc. Prof., Fac. of Environmental Information), Masaru Tomita (Dir., Institute for Advanced Biosciences/Prof., Fac. of Environmental Information), Keisuke Shimizu (Dir., Intellectual Property Center)	Industry-Academia-Government Collaborative Distinguished Service Commendation (Award of the Minister of State for Science and Technology Policy)	For development and practical application of techniques for the analysis of metabolome.	Minister of State for Science and Technology Policy
28/08/04	Shoji Kasai (Prof. Emer.)	1st Japan Boki Association Award	For the publication, <i>Kaikai Kozo no Ronri (Logic of Accounting Structure)</i> . Zeimukeiri Kyokai Co., Ltd., (Jun. 1994).	The Japan Boki Association
03/09/04	Kouhei Ohnishi (Prof., Fac. of Science and Technology)	EPE-PEMC Council Award	For his outstanding achievements in motion control including invention of the disturbance observer and the first realization of haptic sensation for robotic forceps.	EPE
09/09/04	Masafumi Hagiwara (Prof., Fac. of Science and Technology) et al.	Japan Society of Kansei Engineering (JSKE) (Best Paper Award)	For the paper "Creativity Support System for Visual Imagination Based on Analogy and Arrangement of Concepts," <i>Kansei Kogaku Kenkyu</i> , Vol.3-1, No. 5, (Mar. 2004).	JSKE
09/09/04	Naoki Aikawa (Prof., Sch. of Medicine, Dir. of Keio University Hospital)	FY2004 Distinguished Emergency Services Contributor Commendation	For best effort in guidance and education as a paramedic instructing physician and contributions as a committee member to improving the emergency medical system, as well as to raising the level of emergency services.	Fire and Disaster Management Agency, Ministry of Internal Affairs and Communications
16/09/04	Yoshio Ohno (Prof., Fac. of Science and Technology)	Japan Society for Software Science and Technology (JSSST) Distinguished Achievements Award	For best effort as an editorial committee member in the production and publication of the JSSST's journal <i>Computer Software</i> for over 20 years since establishment of the JSSST.	JSSST

Date Awarded (DD/MM/YY)	Winner	Award	Reason for Award	Awarding Institution
22/09/04	Yasuo Suga (Prof., Fac. of Science and Technology) et al.	The International Conference SCIS & ISIS 2004 Best Paper Award	For the best paper from among the more than 300 submitted to the International Conference SCIS and ISIS 2004.	SCIS & ISIS 2004 Organizing Committee
22/09/04	Kazunobu Sawamoto (Asst. Prof., Sch. of Medicine)	FY2004 Japan Neuroscience Society Encouragement Award	For development of technology for visualization, separation, and transplantation of central nervous system precursor cells and analysis of biological properties.	Japan Neuroscience Society
29/09/04	Shigeru Tanaka (Prof., Fac. of Science and Technology)	UBS Innovation Award, Special Award	For "High-Performance Indoor Air Pollutant Cleaning Technology for Creating Comfortable Environments," work highly-regarded for increasing the potential of this technology for application in new businesses.	UBS Securities Japan Ltd.
01/10/04	Hideyuki Tokuda (Chairman, Grad. Sch. of Media and Governance/Prof., Fac. of Environmental Information)	FY2004 Individual Commendation for Contribution to the Promotion of Information Technology (Commendation of the Minister of Economy, Trade and Industry)	For best effort toward realization of a ubiquitous network society through dissemination of achievements of ubiquitous computing research; for contributions relating to the recruitment and development of highly-competent software personnel; and for other contributions toward expanded use of information technology in Japan.	Ministry of Economy, Trade and Industry
01/10/04	Yoshiyasu Takefuji (Prof., Fac. of Environmental Information)	1st JICA President's Commendation	For best effort in JICA international cooperation projects concerning human resource and community development in developing countries through long-term contributions and cooperation in technical guidance in the IT field, particularly in security.	Japan International Cooperation Association (JICA)
03/10/04	Hideyuki Okano (Prof., Sch. of Medicine)	Distinguished Scientists Award, Faculty of Pharmaceutical Science, Catania University, Italy	For his pioneering studies on the self-replicating mechanisms of neural stem cells and the regeneration of central nervous systems.	Faculty of Pharmaceutical Science, Catania University, Italy
10/10/04	Takanori Hattori (Instr., Fac. of Science and Technology)	The Japan Society of High Pressure Science and Technology Encouragement Award	For development of equipment technology in high-pressure experiments using synchrotron radiation; for efforts to increase the precision of measurement results; and for quantitative arguments based on highly-quality data.	The Japan Society of High Pressure Science and Technology
23/10/04	Naoyuki Yoshino (Prof., Fac. of Economics)	Conferral of Honorary Doctorate of Göteborg University, Sweden	For distinguished achievements in the theory and analysis of fiscal and monetary policy and for major contributions to improving the exchange program between Keio University and Göteborg University.	Göteborg University, Sweden
01/11/04	Hideyuki Okano (Prof., Sch. of Medicine)	Japan Medical Association (JMA) Award for Medicine	For research achievements regarding "the identification of neural stem cells in the adult brain and central nervous system regeneration medical science," which linked the achievements of basic research concerning neural regeneration based on neural stem cells to central nervous system regeneration medical science.	JMA
02/11/04	Yasuaki Einaga (Assoc. Prof., Fac. of Science and Technology)	The Japanese Photochemistry Association (JPA) Young Scientist Award	For achievement on "design and characterization of photo-controllable composite magnetic materials."	JPA
05/11/04	Kouhei Ohnishi (Prof., Fac. of Science and Technology)	The IEEE Industrial Electronics Society Dr.-Ing. Eugene Mittelmann Achievement Award	For outstanding contributions to the development of motion control and first realization of haptic sensation for robotic forceps.	IEEE
09/11/04	Yoshikazu Kenjyou (Prof., Fac. of Business and Commerce)	The 27th Annual Award for Research Monographs on Labour, 2004	For the publication, <i>Nenkin Kaikaku to Sekkyokuteki Shakai Hoshou Seisaku—Saihaibun Seisaku no Seiji-keizai gaku (Pension Reform and Positive Social Security Measures: Politics and Economics of Reallocation Policies)</i> , Keio University Press, (Mar. 2004).	The Japan Institute for Labour Policy and Training/Yomiuri Shimbun
20/11/04	Goro Suzuki (Prof., Fac. of Economics)	Rotary Foundation District Service Award	For important contributions to the development of scholarship students as chairman of the Rotary Foundation Alumni Association.	Rotary Foundation
22/11/04	Masao Nakagawa (Prof., Fac. of Science and Technology)	Ericsson Telecommunications Award 2004	For the contribution of "High-level Mobile Communications Technology" to increasing the sophistication of CDMA, ITS, wireless Homelink, and visible light communications technology from the latter half of the 1970s to the present.	Nippon Ericsson K.K.

Date Awarded (DD/MM/YY)	Winner	Award	Reason for Award	Awarding Institution
24/11/04	Toshio Suda (Prof., Dept. of Cell Differentiation, Sakaguchi Laboratory of Developmental Biology, Sch. of Medicine), Atsushi Hirao (Asst. Prof., Dept. of Cell Differentiation, Sakaguchi Laboratory of Developmental Biology, Sch. of Medicine), Fumio Arai (Instr., Dept. of Cell Differentiation, Sakaguchi Laboratory of Developmental Biology, Sch. of Medicine)	41st Erwin von Balz Prize (Second Prize)	For research results representing the first dynamic demonstration of molecular mechanism control from the niche of imago bone marrow hematogenic stem cells.	Boehringer Ingelheim GmbH
20/01/05	Yasuhiro Koike (Prof., Fac. of Science and Technology)	Takayanagi Memorial Award	For achievement in the development and practical use of ultra high speed plastic optical fiber.	Takayanagi Foundation for Electronics Science and Technology
03/03/05	Fumiko Yonezawa (Prof. Emer.)	L'Oréal UNESCO for Women in Science Award	For achievements in elucidating amorphous semiconductors and liquid metals through advanced theory and computer simulations.	UNESCO
22/03/05	Yasushi Watanabe (Asst. Prof., Fac. of Environmental Information)	1st Japan Society for Promotion of Science (JSPS) Award	For ethnographic research on the political science of culture and community in present-day America.	JSPS
22/03/05	Yasushi Watanabe (Asst. Prof., Fac. of Environmental Information)	1st Japan Academy Learning Encouragement Award	For ethnographic research on the political science of culture and community in present-day America.	Japan Academy
27/03/05	Yasuaki Einaga (Asst. Prof., Fac. of Science and Technology)	The Chemical Society of Japan (CSJ) Award for Young Chemists	For achievement relating to "design and characterization of novel photo-controllable magnetic materials."	CSJ

Awards Conferred by Keio University

Date Awarded (DD/MM/YY)	Winner	Award	Reason for Award	Awarding Institution
15/02/04	Masataka Kuwana (Asst. Prof., Sch. of Medicine)	5th Keio University Intellectual Property Center Award	For invention of diagnostic for scleroderma.	Keio University Intellectual Property Center
12/06/04	Masahiro Toda (Instr., Sch. of Medicine)	Sanshikai Award	For the results of research in immunotherapy for central nervous system diseases.	Sanshikai, School of Medicine, Keio University
12/11/04	Kazunori Shibuya (Instr., Sch. of Medicine)	Sanshikai Encouragement Award	For discovery of keratin-annexed protein (KAP) gene clusters existing in gene introns on chromosome No. 21.	Sanshikai, School of Medicine, Keio University
12/11/04	Yasushi Nakao (Asst. Prof., Sch. of Medicine)	Sanshikai Encouragement Award	For pioneering work in the new medical field of "treatment for the hands of musical performers." This work includes activities for enlightening specialists as well as educational activities for preventing disorders directed toward professional performers and children who play instruments.	Sanshikai, School of Medicine, Keio University
12/11/04	Takao Saruta (VP/Prof., Sch. of Medicine)	Fukuzawa Award	For achievement in research concerning the role of kidneys and endocrine factors in the onset and development of hypertension.	Keio University
12/11/04	Ikuyo Kaneko (Prof., Grad. Sch. of Media and Governance/Fac. of Policy Management)	Fukuzawa Award	For research into network communities and related practice activities.	Keio University

Date Awarded (DD/MM/YY)	Winner	Award	Reason for Award	Awarding Institution
12/11/04	Akira Haseyama (Prof., Fac. of Letters)	Keio Award	For the publication, <i>Nihon Kodai no Ho to Saiban (Law and Trials in Ancient Japan)</i> , Sobunsha Publishing Co., (Mar. 2004).	Keio University
12/11/04	Sahoko Kaji (Prof., Fac. of Economics)	Keio Award	For the publication, <i>Kokusai Tsuka Taisei no Keizaigaku (The Economics of the International Currency System)</i> , Nihon Keizai Shimbun, Inc. (Feb. 17, 2004).	Keio University
12/11/04	Ryosei Kokubun (Prof., Fac. of Law)	Keio Award	For research regarding the politics and bureaucracy of contemporary China.	Keio University
12/11/04	Atsushi Yashiro (Prof., Fac. of Business and Commerce)	Keio Award	For the publication, <i>Human Resource Management of Managerial and Professional Workers</i> , Yuhikaku Publishing Co., Ltd. (Sep. 2002).	Keio University
12/11/04	Takeji Nishikawa (Prof., Sch. of Medicine)	Keio Award	For contributions in internationalization of dermatology.	Keio University
12/11/04	Toshiaki Makabe (Prof., Fac. of Science and Technology)	Keio Award	For achievements in research related to hyperfine plasma processing theory for semiconductor and design technology.	Keio University
12/11/04	Masahiro Fukaya (Prof., Fac. of Policy Management)	Keio Award	For groundbreaking research dealing with sociosemantics and textual semantic space analysis systems.	Keio University
12/11/04	Yasushi Watanabe (Asst. Prof., Fac. of Environmental Information)	Keio Award	For publication of <i>Afuta Amerika—Bosutonian no Kiseki to "Bunka no Seijigaku" (After America—Trajectory of the Bostonians and "The Political Science of Culture")</i> , Keio University Press (May 2004).	Keio University

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Access Information

Mita Campus

2-15-45 Mita, Minato-ku, Tokyo 108-8345
Tel +81-3-3453-4511

- 8-minute walk from Tamachi St. (JR Yamanote Line or JR Keihin Tohoku Line); Approximately 10 minutes by train from Tokyo to Tamachi. Approximately 20 minutes by train from Ueno to Tamachi. Approximately 15 minutes by train from Shibuya to Tamachi.
- 7-minute walk from Mita St. (Asakusa or Mita Line); Approximately 15 minutes by train from Suidobashi to Mita.
- 8-minute walk from Akabanebashi St. (Oedo Line)



Hiyoshi Campus

4-1-1 Hiyoshi, Kohoku-ku, Yokohama-shi, Kanagawa 223-8521
Tel +81-45-563-1111

- 1-minute walk from Hiyoshi St. (Tokyu Toyoko Line); Approximately 25 minutes by train from Shibuya to Hiyoshi (20 minutes by express). Approximately 20 minutes by train from Yokohama to Hiyoshi (15 minutes by express). Approximately 20 minutes by train from Shin-Yokohama to Hiyoshi via Kikuna.



Yagami Campus

3-14-1 Hiyoshi, Kohoku-ku, Yokohama-shi, Kanagawa 223-8522
Tel +81-45-563-1141

- 15-minute walk from Hiyoshi St. (Tokyu Toyoko Line); Approximately 25 minutes by train from Shibuya to Hiyoshi (20 minutes by express). Approximately 20 minutes by train from Yokohama to Hiyoshi (15 minutes by express). Approximately 20 minutes by train from Shin-Yokohama to Hiyoshi via Kikuna.
- Approximately 10 minutes by car from Shin-Kawasaki St. (JR Yokosuka Line); Approximately 12 minutes by train from Shinagawa to Shin-Kawasaki. Approximately 9 minutes by train from Yokohama to Shin-Kawasaki.



Shinanomachi Campus

35 Shinanomachi, Shinjuku-ku, Tokyo 160-8582
Tel +81-3-3353-1211

- 1-minute walk from Shinanomachi St. (JR Sobu Line); Approximately 6 minutes by train from Shinjuku to Shinanomachi. Approximately 25 minutes by train from Tokyo to Shinanomachi.
- 5-minute walk from Kokuritsu-kyogijyo St. (Oedo Line)



Shonan Fujisawa Campus

5322 Endo, Fujisawa-shi, Kanagawa 252-8520
Tel +81-466-47-5111

- Approximately 15 minutes by bus from Shonandai St. (Odakyu Enoshima Line, Sagami Tetsudo Izumino Line, or Yokohama Subway Line); Approximately 30 minutes by train from Yokohama to Shonandai.
- Approximately 25 minutes by bus from Tsujido St. (JR Tokaido Line); Approximately 30 minutes by train from Yokohama to Tsujido.



Shin-Kawasaki Town Campus

144-8 Ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0054
TEL +81-44-580-1580

- 10-minute walk from Shin-Kawasaki St. (JR Yokosuka Line); Approximately 20 minutes by train from Tokyo to Shin-Kawasaki. Approximately 12 minutes by train from Shinagawa to Shin-Kawasaki. Approximately 9 minutes by train from Yokohama to Shin-Kawasaki.
- 15-minute walk from Kashimada St. (JR Nanbu Line); Approximately 7 minutes by train from Kawasaki to Kashimada.



Tsuruoka Town Campus

Center Building
14-1 Baba-cho, Tsuruoka-shi, Yamagata 997-0035
TEL +81-235-29-0800

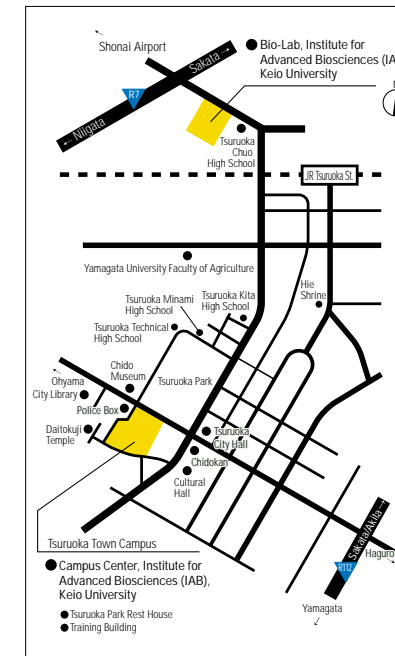


Bio-lab

403-1 Nipponkoku, Daihouji, Tsuruoka-shi, Yamagata 997-0017
TEL +81-235-29-0534



- By air: approximately 60 minutes from Tokyo Haneda Airport to Shonai Airport, approximately 25 and 18 minutes by car from Shonai Airport to Center Building and Bio-lab, respectively.
- By train: approximately 120 minutes by Joetsu Shinkansen (bullet train) from Tokyo St. to Niigata St., then approximately 120 minutes by Uetsu Honsen (main line) from Niigata St. to Tsuruoka St., then 5 minutes by car.



Contact Information

Mita Campus

- CRP: Center for Research Promotion
crp@keio.ac.jp
- IPC: Intellectual Property Center
toiavasesaki-ipc@adst.keio.ac.jp
- Head Office of Research Administration
ora-honbu@adst.keio.ac.jp
- Office of Research Administration, Mita Campus
mshien-ft@adst.keio.ac.jp
- ORAA: Office for Research Advancement and Administration
oraa-jimukyoku@adst.keio.ac.jp

Hiyoshi Campus

- Office of Research Administration, Hiyoshi Campus
ras-hiyoshi@adst.keio.ac.jp

Yagami Campus

- Office of Research Administration, Yagami Campus
yg-shien@adst.keio.ac.jp

Shinanomachi Campus

- Office of Research Administration, Shinanomachi Campus
ras-shinanomachi@adst.keio.ac.jp

Shonan Fujisawa Campus

- Office of Research Administration, Shonan Fujisawa Campus
kri-sfc@sfc.keio.ac.jp

Shin-Kawasaki Town Campus

- Office of Research Administration, Shin-Kawasaki Town Campus
k2-tc@adst.keio.ac.jp

Tsuruoka Town Campus

- Office of Research Administration, Tsuruoka Town Campus
office@ttck.keio.ac.jp

