

Development and application of new technology for further growth

We are exploring and fostering new technology for the future. We have strengthened our human resources, know-how, network and business incubation to discover and develop globally competent technology. We also focus on developing business models which maximize the value of high-quality technology by making use of our “integrated corporate strength.”

Biotechnology

We were one of the pioneers in the biotechnology industry in 1981, and since then have increased employee numbers, improved their skills and developed our expertise in this area. We have taken a comprehensive approach to this business in terms of services, products and investment, capitalizing on our strength.

Drug Discovery Business (Chemical Business Unit)

Summit Pharmaceuticals International Corporation (SPI), our former “New Drug & Biotech Department” which was spun off in 1995, provides drug discovery support services to domestic pharmaceutical companies, offering support for discovery, alliances and production in this area. As the agent of over 50 research institutes and venture companies overseas, including ATCC in the U.S., the world largest bioresource bank, SPI is providing materials and services, and responding to various needs for drug discovery activities of its customers such as domestic pharmaceutical companies.

Equipment and Contract Research Business (Machinery & Electric Business Unit)

SC BioSciences Corporation, established in 2000, is engaged in biotechnology-related equipment and contract research business, aiming to become a One Stop Shop for products and services to support drug discovery research. Through strategic alliances with the overseas leading bio-ventures and utilizing its own laboratory in Kamakura, SC BioSciences is working on business development by analyzing the worldwide trend of cutting-edge biotechnology with focus on genomics, proteomics and bioinformatics. It will soon launch bioinformatic services in the expectation of the most growing business in future. Furthermore, SC BioSciences will also be actively involved in developing in-silico business as well as the systems biology.



Chemical compound in vials and chemical library data base (CD).



SC BioSciences' laboratory in Kamakura.

■ The framework of drug discovery support services

Summit Pharmaceuticals International SC BioSciences Both

	Discovery of Target Molecule	Target Validation	Screening of Chemical Library	Optimization of Lead Compounds	Preclinical Trial	Clinical Trial
Research Activities	<ul style="list-style-type: none"> • Disease Specimen • Disease Model Animal • Expression Profiling Analysis 	<ul style="list-style-type: none"> • Proteomics • Knock-Out Animal • Over-expression Animal 	<ul style="list-style-type: none"> • Combinatorial Chemistry • Expression Cell System • In Silico Screening 	<ul style="list-style-type: none"> • Drug Design • Pharmacology • Pharmacokinetics 	<ul style="list-style-type: none"> • Pharmacology • Pharmacokinetics • Toxicology 	<ul style="list-style-type: none"> • Genetic Testing • Pharmacological Evaluation • Expression Profiling Analysis
Tools & Equipment	<ul style="list-style-type: none"> • Sequence Analysis • Full Length c-DNA • Culture Collection 	<ul style="list-style-type: none"> • Analysis of Disease Model Animal • Expression Profiling Analysis • Protein Chip / Protein Analysis 	<ul style="list-style-type: none"> • Chemical Library • Natural Products Library • Screening Robot • Combinatorial Chemistry Synthesizer 	<ul style="list-style-type: none"> • Structural Analysis of Protein • Docking Simulation 	<ul style="list-style-type: none"> • DNA Chip • Protein Chip • DNA Microarray 	<ul style="list-style-type: none"> • Protein Chip

■ The major business partners

Summit Pharmaceuticals International	SC BioSciences
<ul style="list-style-type: none"> • ATCC / U.S. / world largest culture collection • Tularik Inc. / U.S. / pioneer in the HTS drug discovery • Renovis Inc. / U.S. / neuron related drug discovery • Neurocrine Biosciences Inc. / U.S. / CNS related new drugs • Zyomyx, Inc. / U.S. / protein chip • ChemBridge Corporation / U.S., Russia / chemistry services • MRC / UK / national organization for medical research • CAT (Cambridge Antibody Technology) / UK / phage antibody • Lonza Biologics / UK / contract manufacturing of antibodies • Evotec-OAI / Germany / contract screening • Yamasa Corporation / Japan / gene related pharmaceuticals 	<ul style="list-style-type: none"> • CIPHERGEN Biosystems Inc. / U.S. / protein chip systems • Pyrosequencing AB / Sweden / SNP typing system • Igen / U.S. / high-throughput screening equipment • Curagen / U.S. / contract research of gene function analysis • Argonaut / U.S. / automatic chemical synthesizer • GeneEd / U.S. / web education of biotechnology • Viaken / U.S. / bioinformatics • Carr / U.S. / blood plasma separation system • Wave Biotech / U.S. / bioreactor • Aber / UK / bacteria monitor • Proteom Limited / UK / protein function analysis

Exploring and fostering ventures (Financial & Logistics Business Unit, Chemical Business Unit, Machinery & Electric Business Unit)

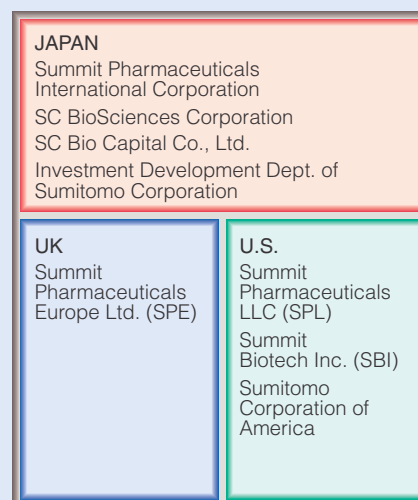
In July 2001, we established an approximately ¥10 billion Summit Biotechnology Fund (10-year term), which is the largest biotechnology fund in Japan. In addition to being backed by the “integrated corporate strength” of our Group, the fund has a unique advantage over a number of similar funds in Japan, with the participation of Dr. Yasunori Kaneko (Doctor of Medical Science, MBA) and Dr. Yoshihiro Ohtaki (Doctor of Agriculture), both leading Japanese bio-venture capitalists. The fund aims at capital gains from an initial public offering or trade sales of the ventures mainly in Japan and the U.S.

We also started Summit Biotech (SBI) in Silicon Valley in the U.S. in March 2002, to strengthen the Summit Biotechnology Fund in the U.S. by searching for promising bio-ventures and dealing with biotechnology-related business.

Strengthening our global presence (Chemical Business Unit)

In September 2001, we established Summit Pharmaceuticals Europe (SPE), a 100% owned subsidiary in London, integrating the sales activities of medicines and medical intermediates (raw materials) which was conducted by four local subsidiaries and two companies into SPE. SPE will also be involved in outsourcing business of drug manufacturing, while expanding the transactions with local pharmaceutical companies. Also in North America, we will develop the pharmaceutical businesses primarily through Summit Pharmaceuticals (SPL). In the pharmaceutical industry, where global consolidation mergers among major pharmaceutical companies are progressing, we will make use of the “integrated corporate strength” of our Group through the triangle network of Japan, the U.S. and Europe.

■ The triangle network



Nanotechnology

Nano-technology, the technology to manufacture and process materials in nanometer units (one billionth of a meter) has tremendous potential for applications in various areas including electronic materials, medical treatment and the environment. We are actively involved in this future area through alliances with the best partners.

Single Wall Carbon Nano Tube (Media, Electronics & Network Business Unit)

We have allied with Carbon Nanotechnologies Inc. (CNI), a leading venture company in the U.S., developing and manufacturing Single Wall Carbon Nano Tubes (SWNT). We will market SWNT, for which CNI has a manufacturing patent, to customers in Japan and Asian countries, and support joint research and development for new applications for Carbon Nano Tubes (CNT). CNI is a venture company, specializing in developing and manufacturing SWNT. CNI was founded by a group led by Professor Richard E. Smalley at Rice University in the U.S. Smalley is a Nobel prize winner in chemistry for his renowned discovery of nanotech material, fullerenes.

SWNT are expected to be superior to multi-wall type carbon nano tubes in terms of strength, electric properties, etc. They are manufactured in a scalable process developed by CNI.



(Left) A pilot plant.
 (Upper right / Left side) The surface of SWNT.
 (Upper right / Right side) The ropes of SWNTs.
 (Lower right) A structural comparison of carbon materials.

Information Technology

Development of Information Technology

We regard the network-related business, which is growing along with broadband-based telecommunications and the fusion of broadcasting and communication, as one of the strategic areas. We are focusing on exploring and fostering promising overseas IT ventures in this area and introducing leading-edge technology to the Japanese market.

Exploring the most-advanced technology in the U.S. (Media, Electronics & Network Business Unit)

In 1998, we established a venture capital company, Presidio Venture Partners (PVP) in Silicon Valley to explore and foster IT ventures in its investment portfolio. The number of companies in the portfolio has increased to more than 60. We support the companies in which PVP is investing with our “integrated corporate strength” not only for their technological development but also for their business network development in Japan and worldwide, which is necessary to market their products.

Also, we are actively using cutting-edge technology and equipment developed by the companies in which PVP is investing to provide solutions to our clients. In this way, we are maximizing our service value to clients and the investment value of PVP’s portfolio companies.

Business development in Japan and enhancement of the value of portfolio companies (Media, Electronics & Network Business Unit)

Responding to the spread of broadband-based networks, we set up SC ComTex, Inc. in April 2001, into which we integrated our network-related businesses. SC ComTex handles a wide variety of products for end users as well as carriers and data centers. It provides total solutions by gathering promising cutting-edge technology from around the world, customizing them for the Japanese market, offering them along with distribution, system integration and field support.

SC ComTex also handles products developed by venture companies in PVP’s portfolio, including equipment for VoIP (Voice over IP, Internet telephony) developed by Sonus, Inc. and Syndeo Corporation, as well as encryption security devices developed by NetScreen Technologies, Inc.

New business model utilizing Information Technology

We not only introduce overseas Information Technology into the Japanese market but also strive to maximize its synergy by developing and operating unique business models utilizing IT, proactively capturing the needs of Japanese consumers and various industries.

Broadband (Media, Electronics & Network Business Unit, Machinery & Electric Business Unit)

Broadband infrastructure in Japan is rapidly being deployed. According to the Ministry of Public Management, Home Affairs, Posts and Telecommunications, ground-based broadband infrastructure (Cable TV broadband Internet, ADSL, FTTH optical services, etc.) is expected to penetrate into nine million households during fiscal year 2002.

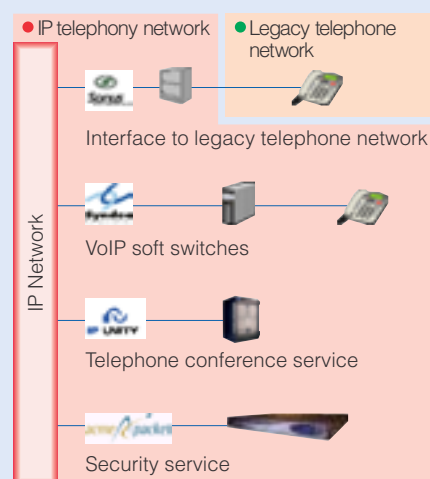
We are developing a wide range of services, including cable TV, cable telephony and high-speed broadband Internet access services, through our subsidiary, Jupiter Telecommunications Co., Ltd. (J-COM Broadband), which is the largest cable TV multiple system operator (MSO) in Japan. In April 2002, J-COM Broadband was awarded “Operator of the Year” from “Multi-channel News International,” an international broadcasting industry magazine, for its contribution as a leader of the cable TV industry in Japan. This was the first time that a Japanese company won this prize. In addition, Jupiter Programming Co., Ltd., a multi-channel operator (MCO) of satellite broadcasting, is currently participating in the business operations of 11 broadcasting companies (total 14 channels). Jupiter Programming is enjoying high market share and business efficiency by taking advantage of offering multiple channels. In this broadband era, these businesses are bringing substantial competitiveness to Sumitomo Corporation, both in infrastructure and content.

In addition, AlphaBridge Corporation, jointly created by the Company, NEC Corporation, Microsoft Corporation and others, has launched Japan’s first in-operation digital content delivery

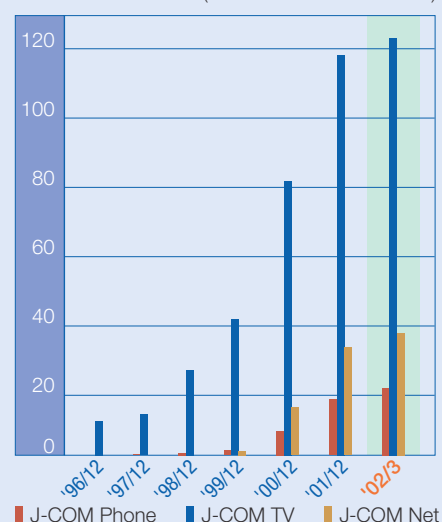


PVP's major portfolio companies

VoIP Solution



Enrollment of households for J-COM services (Ten thousands of households)



and storage service. This service combines the company-developed automatic delivery and storage management technology for moving images with ground-based broadband network services. Its service is scheduled to be launched in October 2002, and planned to expand step by step in accordance with the extent of spread and enhancement of service functions of ground-based broadband infrastructure in the future.

Further, in 2001, we began full-fledged activities as the primary Japan distributor for Virage Inc. (U.S.), the leading provider of video-search software and services. Virage technology is adopted by over 300 corporations worldwide, including key broadcasters such as CNN, in the U.S. and Telecinco, in Spain. We are currently marketing Virage solutions through strategic alliances with domestic system integrators, service providers and content holders. In the future, we plan to expand Virage-related businesses by offering the first domestic broadband Internet video-search ASP (application service provider), and by developing our media contents and e-learning businesses, as well.

BtoB business (Metal Products Business Unit, Media, Electronics & Network Business Unit, Kansai Regional Business Unit)

A typical example of a BtoB business site we are operating is MonotaRO.com, developed by SC Grainger Co., Ltd. On its site, approximately 500,000 items of indirect materials for plant use MRO (maintenance, repair and operations), including various tools, chemical products and safety products, can be searched. We are planning to increase the number of items to 1 million during 2002. The site has started full-fledged operation in November 2001 following the one-year test period, and the number of transactions through the site has been steadily increasing. As of the end of March 2002, the number of registered companies and business offices totaled 5,600 and 7,000 respectively. Registered companies are expected to increase to 30,000 during 2002. e-commerce is best suited for the search and transaction of MRO items, which have no uniform standard and are distributed under a complicated distribution system. This one-stop service has large business potential since it is expected to substantially reduce additional procedures and client costs.

Medical and Healthcare-related Business (Chemical Business Unit)

As announced by the Ministry of Health, Labour and Welfare in its "Health Information Strategy 21" at the end of 2001, the needs for computerization in medical field has been growing. Taking this trend in advance, we entered into the electronic medical record (EMR) business through APIUS in November 2000. This business has made steady progress, as evidenced by the fact that the number of medical institutions which introduced the system reached 30 in April 2002. In the future, in parallel to the penetration of broadband communication networks, we will further progress application service provider (ASP) business and develop a medical information network system among hospitals, clinics, drugstores, testing laboratories and pharmaceutical companies.

Fulfillment Services (Consumer Goods & Service Business Unit, Financial & Logistics Business Unit, Media, Electronics & Network Business Unit)

In November 2001, we established a joint venture company, Sumisho Hermes General Service Inc. (Sumisho HGS), with Otto Versand GmbH & Co. of Germany, the world's largest mail-order house, launching the "Fulfillment Service Provider" (FSP) business. The new company will promote the multi-channeling of consumer market, which will accelerate by the progress of information technology and the spread of Internet, by providing the comprehensive, cross-functional services to the direct marketing companies in Japan and abroad. This will be the first internationally networked FSP platform in Japan. The first client successfully integrated onto the new company's FSP platform was the official online shop of FIFA World Cup 2002™, the hottest global sports organization, which evidences the competence of our new venture. Since 1986 Otto has been successfully operating Otto-Sumisho Inc., one of the leading mail-order houses in Japan, jointly with Sumitomo Corporation. The new venture will provide integrated and efficient services, best utilizing the abundant management resources and global networks of our Group as well as Otto's.



Videologger, Virage's product, produces videos searching database with multi media analysis technologies.



MonotaRO.com, a site that supports manufacturers.

■ Fulfillment Services



New Energy

We are actively involved in new types of power supply businesses with the prospect that deregulation, such as liberalization of domestic electricity retailing, may produce business opportunities. Also, we are actively working on various clean energy projects against the backdrop of growing demand for clean energy.

Power supply (Mineral Resources & Energy Business Unit, Machinery & Electric Business Unit)

In February 2001, we established Summit Energy Corporation, a licensed Power Producer and Supplier (PPS), together with Sumitomo Joint Electric Power Co., Ltd. Summit Energy has its current capacity of 68,400 kW and provides electricity for large business customers in western Japan. During fiscal year 2002, our own gas engine power station will be added to the capacity, to increase stability and competitiveness of our electricity supply capability. Also in eastern Japan, we have been preparing for electricity retailing business, through establishment of “Summit Onahama S Power Corporation,” a joint venture with Shinnihon Salt Co., Ltd.

While there are a variety of on-site power generation systems, including wind power and photovoltaic systems, micro gas turbine (MGT) has attracted the greatest interest due to superiority in its practical application. We are developing a wide range of businesses, not only promoting the sales of MGT systems but also individually developing a combination with air-conditioning systems. Through the promotion for small-size demand such as convenience stores and supermarkets, MGT systems are expected to save energy and costs for society.

Clean energy (Mineral Resources & Energy Business Unit, Machinery & Electric Business Unit)

We jointly established Japan Natural Energy Co., Ltd. with major electricity companies, engaged in “Green Power Certification System” business, which is the first model in Japan and currently has 28 clients as of June 2002. In August 2001, it started issuing a Certificate of Green Power based on wind power generation.

We also invested ¥700 million in “FondElec Latin America Clean Energy Services Fund” (total fund amount is approximately ¥3.1 billion) which seeks capital appreciation through investments in clean, renewable energy and/or energy efficient emission reduction projects in Latin American countries. The Company also serves as a technical advisor to the fund proactively originating and developing promising investment opportunities.

In addition to the activities on developing hydrogen energies and fuel cells, the Company started to provide consulting services to corporate clients for reduction of green house gas through an alliance with Trexler & Associates, Inc., a global warming and enhanced green-house effect mitigation consultant in the U.S.

Commodity Risk Management business

A wide variety of risk management products have been created thanks to progress in financial technology. We are actively creating and marketing new derivatives products through our participation in a broad range of commodity markets such as precious and base metals, energy and agricultural products.

Weather Derivatives (Financial & Logistics Business Unit)

We have started to integrate intra-company weather risks through the use of weather derivatives. Our business is often exposed to various weather risks due to the wide range of industries and regions that we are involved in through trading. Even when we are not directly exposed to such risks, our suppliers and clients may have substantial weather-related risks. The Commodity Business Department will try to analyze those risks, and efficiently manage those exposures which affect the profitability of the Company. Furthermore, we will provide value-added services to clients through business proposals in which weather derivatives are embedded. The weather risk management business has substantial growth potential in areas such as energy (oil, power and gas), consumer electronics, foods and textiles.



Summit Energy started supplying electric power in July 2001.



The micro gas turbine co-generation system installed at a hospital in Kyushu.

■ Businesses and industries exposed to weather risks

Temperature	— Cool summer : Beer and other beverages, Air conditioner Heat wave : Golf course
Precipitation	— Above normal rainfall : Amusement parks, Tourism Little rain : Hydro power generation, Agriculture
Snow cover	— Heavy snow : Snow removal Little snow : Ski resorts
Wind	— Strong wind : Ports and Harbors, Aviation Weak wind : Wind power generation
etc.	