



Bio-Entrepreneur2004

Japan's Biotechnology Strategies

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Why the BT strategies now in Japan?

? Biotechnology(BT) brings huge changes to our life

(1) *Living* . . . **BT brings innovation to human health and longlife..**

- BT will contribute significantly to disease prevention, health maintenance and disease treatment. 5 year extension for cancer patients,victory for diabets,? high blood pressure etc.

(2) *Eating* . . . **BT brings innovation to food supplies**

- BT will contribute significantly to quality food production, food self sufficiency, food and safety assessment technologies. Lifting up 40% self sufficiency to45% more.

(3) *Inhabiting* . . . **BT brings innovation to the environment and energy**

- BT will contribute significantly to the reduction of environmental strains and departure from energy

? Intensified international competition in BT US,EU,China
dependence on fossil resources.

? Major impact of BT on national economy

(1) Transforming economic activities

(enhanced industrial competitiveness and sustainable economic growth)

(2) Creating new industries and jobs

? Need for addressing safety / ethical issues

The Council on BT Strategic Policy

- Established by Prime Minister Koizumi's initiative in July 2002
- Members were elected from industry, academic and other related Ministries
- Made up "the Strategies for Development of Bio industry in Japan" in December 2002

? Member of the Cabinet?

Prime Minister,
Chief Cabinet Secretary
Minister of State (Science and Technology Policy)
Minister of Education, Culture, Science and Technology
Minister of Health, Labour and Welfare
Minister of Agriculture, Forestry and Fisheries
Minister of Economy, Trade and Industry
Minister of the Environment

? Member

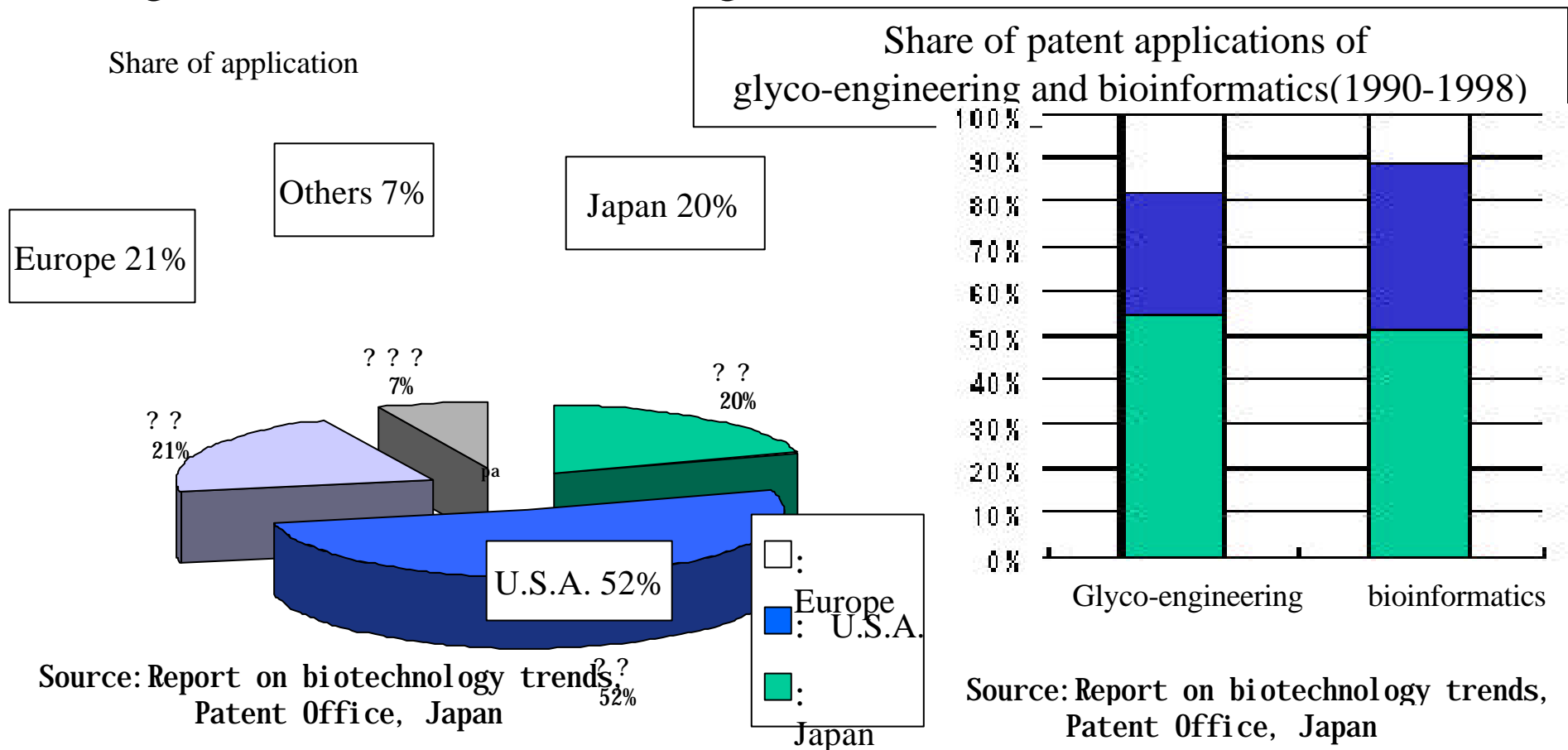
Tadamitsu Kishimoto (Osaka Univ.) : Chairman
Hiroyuki Itami (Hitotsubashi Univ.) : Head of drafting committee
Kenichi Arai (Univ. of Tokyo)
Hiroo Imura (Council for Science and Technology Policy)
Katsuhiro Utada (Japan Association of Bio-industries Executives)
Michio Oishi (KAZUSA DNA Research institute)
Etsuhiko Syoyama (Nippon Keidanren)
Tatsuo Sugiyama (The Institute of physical and Chemical Research)
Masaaki Terada (National Cancer Center)
Tadashi Hirata (Kyowa Hakko Kogyo co., LTD)
Akira Fujiyama (The Federation of Pharmaceutical Manufacturers' Associations of JAPAN)
Tomoko Mihoya (Kagawa Nutrition Univ.)

Comparison of the Number of Bio-Patent in Europe, USA and Japan

Japanese patent applications are 20% of the world total.

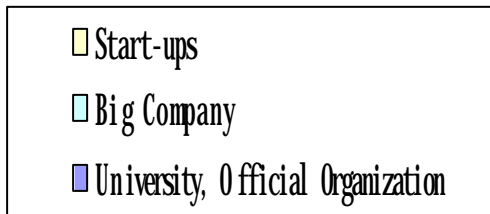
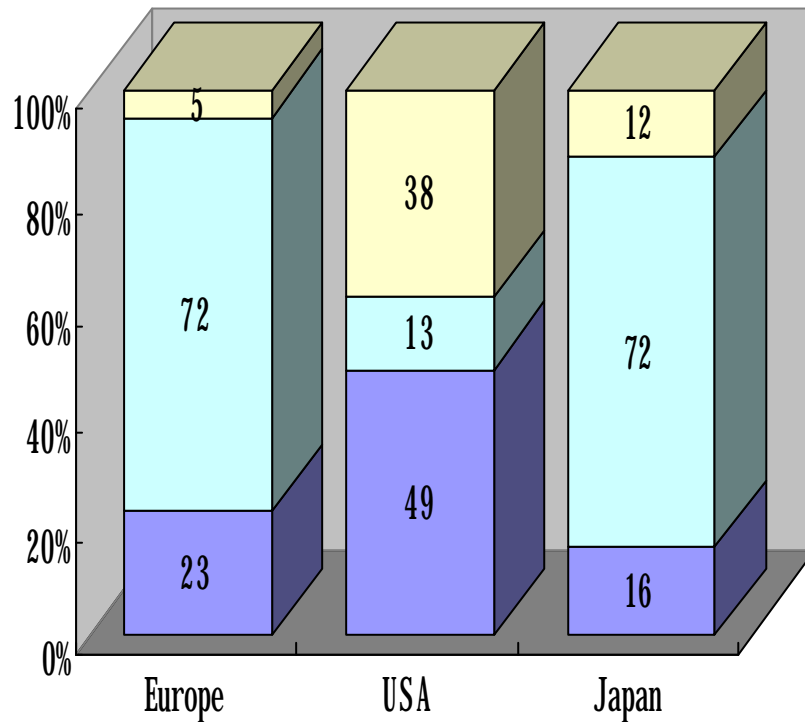
In particular Japan's strengths are shown in glyco-engineering, bioinformatics.

Post genetic analyze is less than genetic analyze.

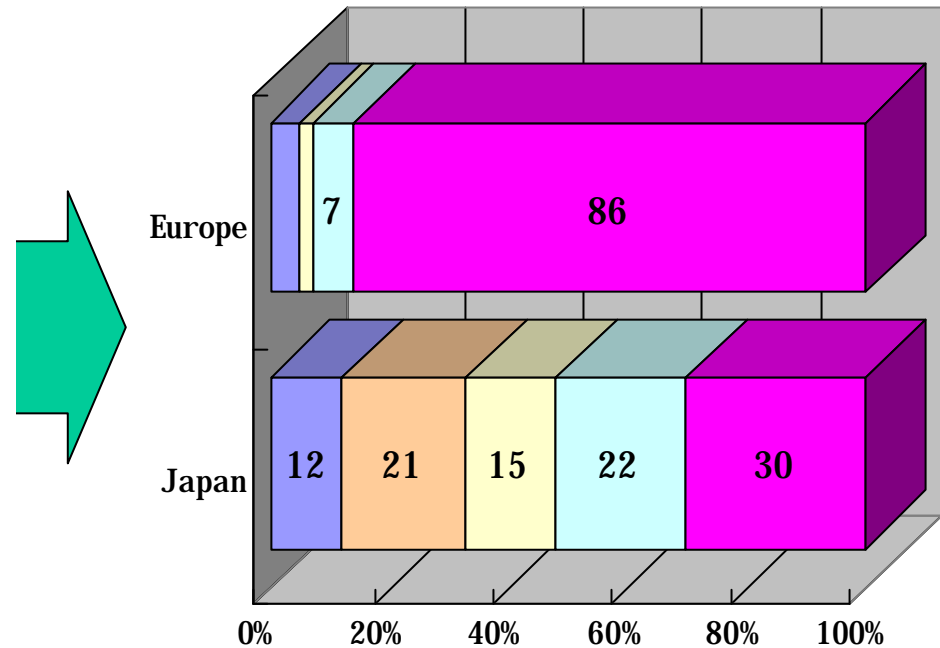


Comparison of Patent Applicants in Europe, USA and Japan

Ratio of patent applicants



Percentage of patent applicants by industry sector



	Japan	Europe
Medical	30	86
Chemical	22	7
Agriculture/food	15	2
Machinery	21	0
Others	12	5

Source: Report on technological patent applications - post genome related technology, protein level analysis and application of IT, Patent Office, Japan

Overview of the Outline of Biotechnology Strategies

? December 2002 : First Biotechnology Strategies for Japan decided.

Present Situation

- ? Biotechnology(BT) brings huge changes to our life
- ? Intensified international competition in BT
- ? Impact of BT on national economy
- ? Addressing safety/ethical issues

3 Strategies for major leap forward

Strategy 1:
Overwhelming measures to enhance R&D

Strategy 2:
Fundamentally enhancing the process towards industrial applications

Strategy 3:
Ensure thorough public understanding

Society to be achieved through BT

- **Improved quality of lives**
- **Contribution to the world**
- **Improved international competitiveness**
- **Creation of new industries**

Main Points of the Outline of Biotechnology Strategies (Part 1)

Strong promotion of BT strategies through 200 detailed action programs

Strategy 1: Overwhelming measures to enhance R&D

- (1) Enhancing and strengthening BT-related R&D budget
 - *More than 2-fold increase of budget*
- (2) Implementing strategic budget formulation
 - *Centralized budget planning, preparation and coordination*
- (3) Enhancing the supply of human resources for BT
 - *BT human resources are to be increased more than three times the present situation*
- (4) Promote cross-sectoral coordination between B T , I T and nano-technology(N T), etc.
 - *Key to the development of BT industry is fusion with other fields*
- (5) Focused investments in biotools and bioinformatics

Biotools and bioinformatics are so called "mother industry" in BT

Main Points of the Outline of Biotechnology Strategies (Part 2)

Strategy 2: Fundamentally improve the process towards industrial applications

- (1) Delivering incentives in industrial application, and developing necessary systems/rules
 - *Mbdification of price system for medicine and medical machines, special zones for structural reform of agro BT and alcohol, etc.*
- (2) Revitalization of bio-ventures and coordination among the business, academia and government sectors, formation of industrial clusters
 - *Tax system measure to support industry realignment and foundation, etc.*
- (3) Developing R&D infrastructures/bridging systems, intellectual property rights(IPR) strategy and industrial bases
 - *Maintenance to promote translational research, etc.*

Main Points of the Outline of Biotechnology Strategies (Part 3)

Strategy 3: Ensure thorough public understanding

- (1) Enhancing information disclosure (two-way communication with the public)
 - *An action plan to ensure public understanding of genetically modified organism*
- (2) Improving public system of safety assessment
 - *Strengthening and streamline the screen of medicine*
- (3) Improving school education and community education

Targeted Image of Future Society and New Bioindustry in Biotech Strategy

Improvement of “Living”, “Eating”, “Inhabiting”

