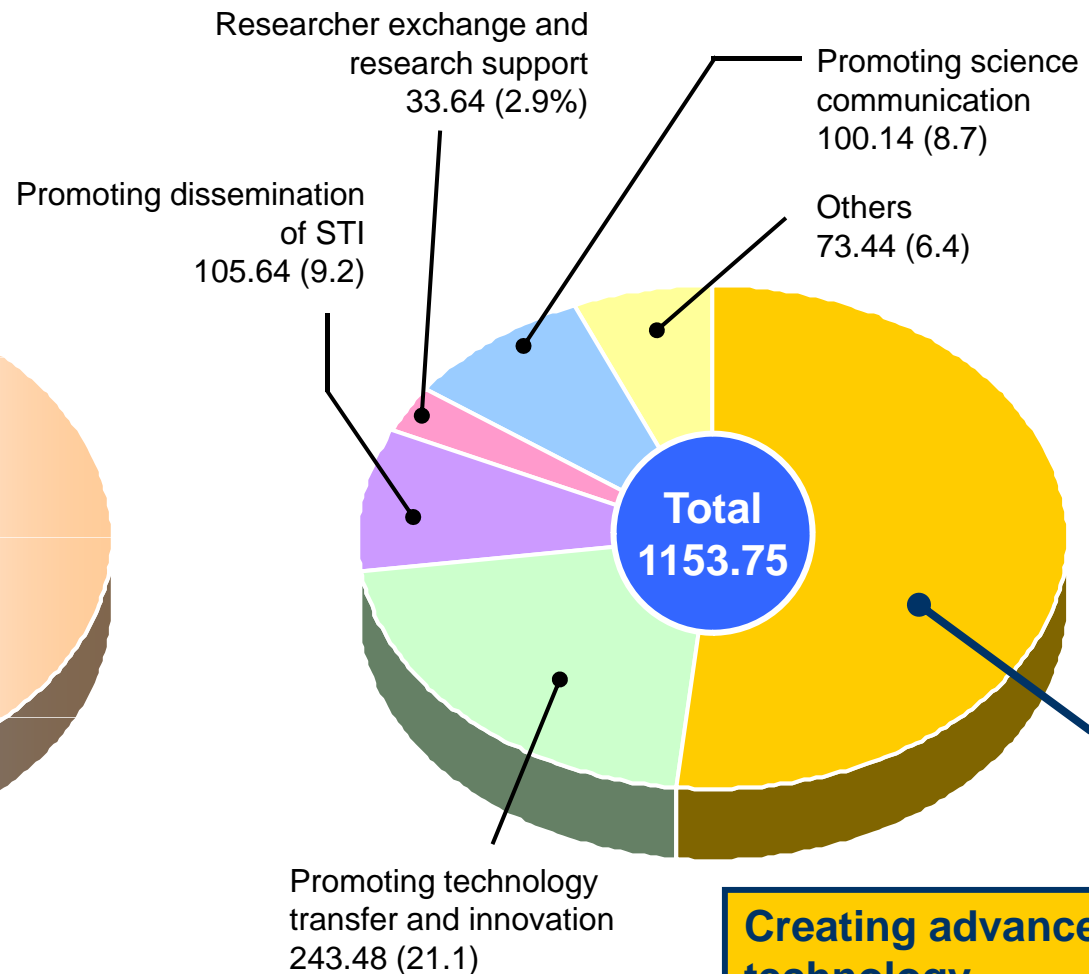
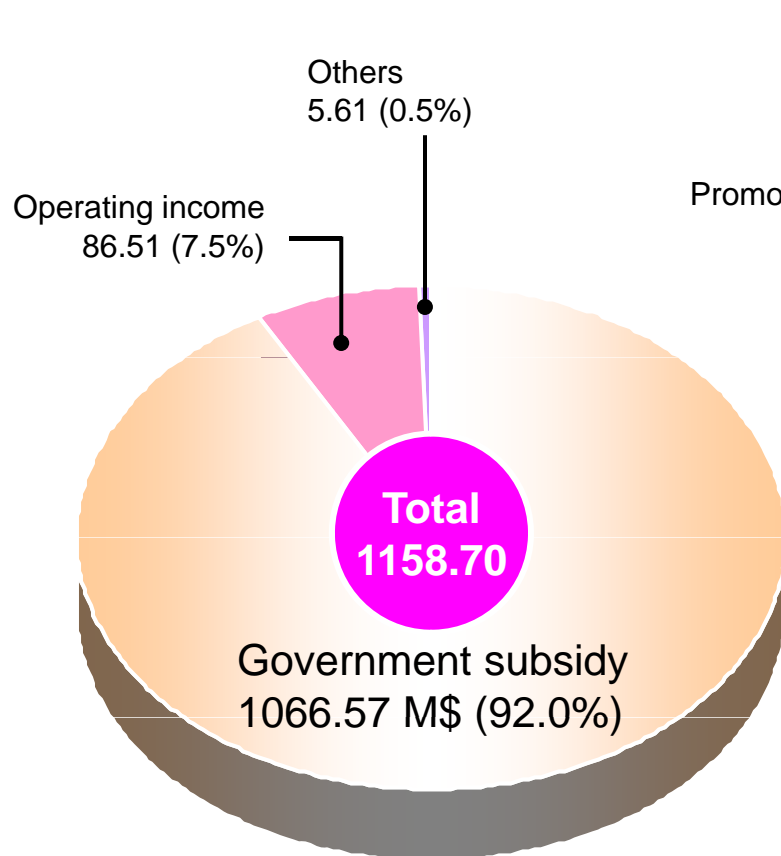


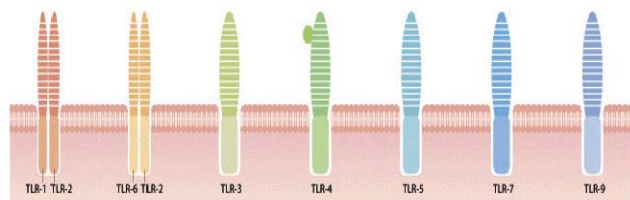
- | | |
|-------------|--|
| 13:30-14:05 | Outlines of JST Basic Research Programs |
| 14:05-14:40 | CREST
<i>Core Research for Evolutional Science & Technology</i> |
| 14:40-15:15 | PRESTO
<i>Precursory Research for Embryonic Science & Technology</i> |
| 15:15-15:30 | Break |
| 15:30-16:05 | ERATO
<i>Exploratory Research for Advanced Technology</i> |
| 16:05-16:40 | Evaluation Activities in JST Basic Research Programs |

Revenue and expenditure in FY2009

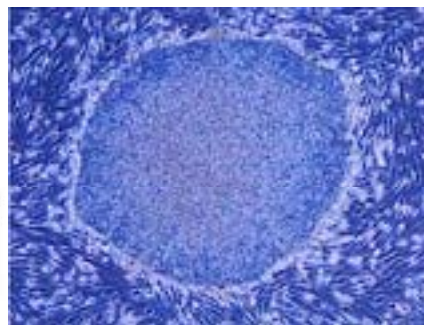


inc. Basic Research Programs

1M\$ ~100JPY



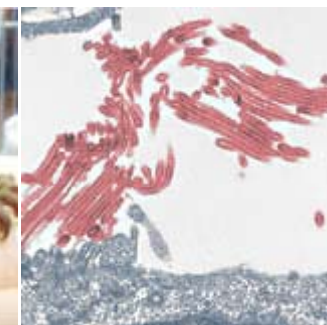
Akira/ CREST & ERATO



Yamanaka/ CREST



Okano/ CREST & SORST

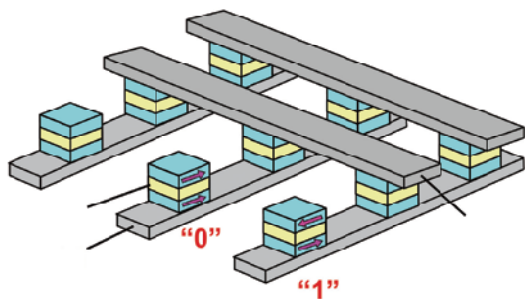


Kawaoka/ CREST & ERATO

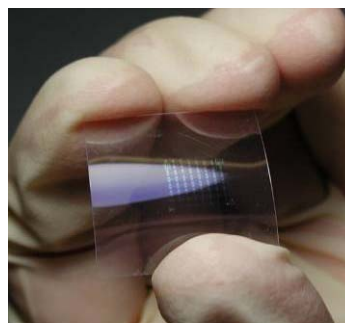
Outlines of JST Basic Research Programs

Masashi Furukawa, Ph.D.
E-mail: furukawa@jst.go.jp

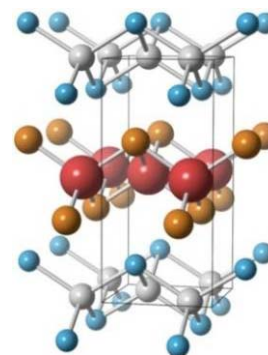
Dept. Research Project, Innovation Headquarters, JST



Yuasa/ PRESTO



Hosono/ ERATO & SORST

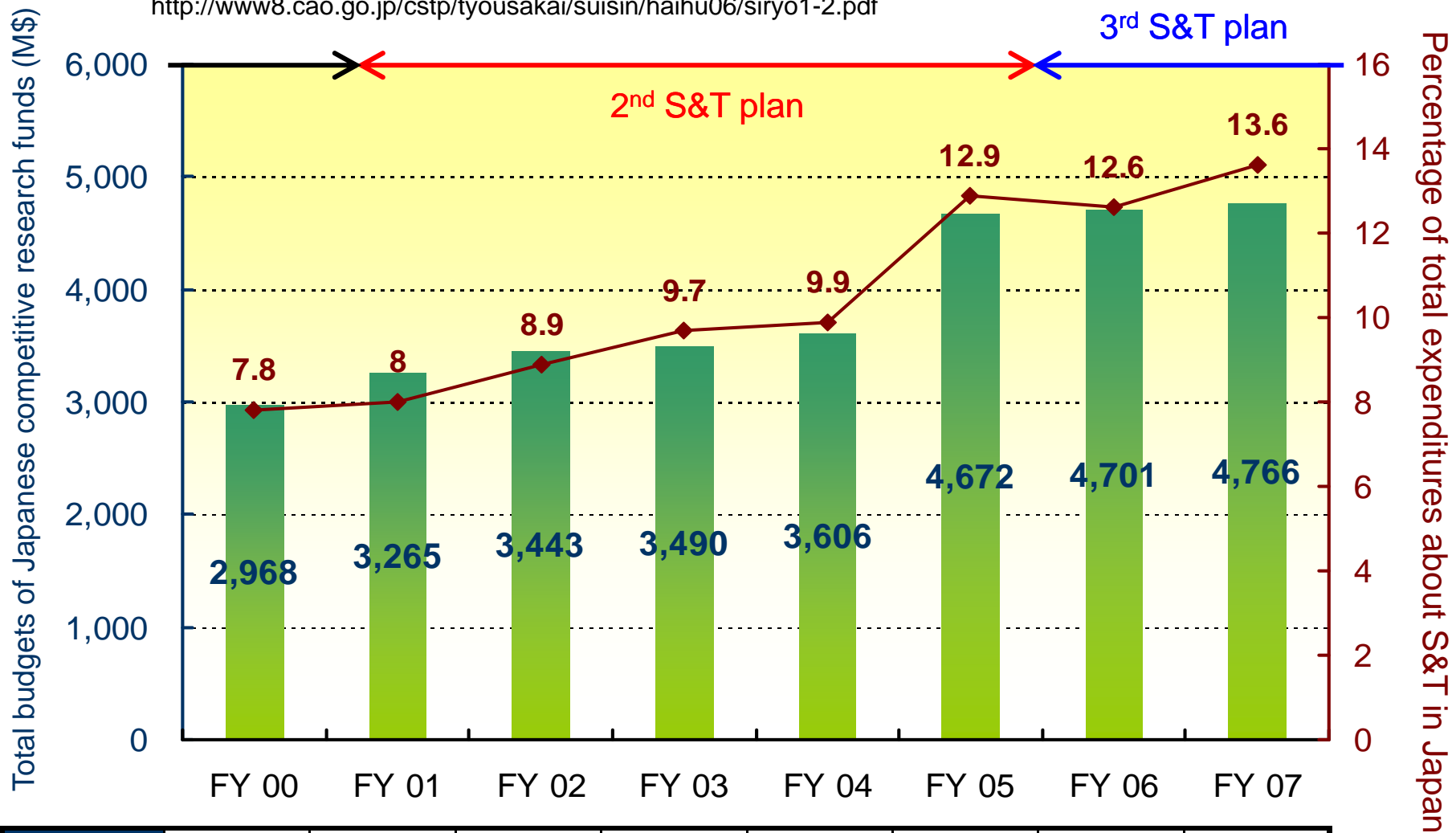


Koike/ ERATO & SORST

Transition of Japanese competitive research funds

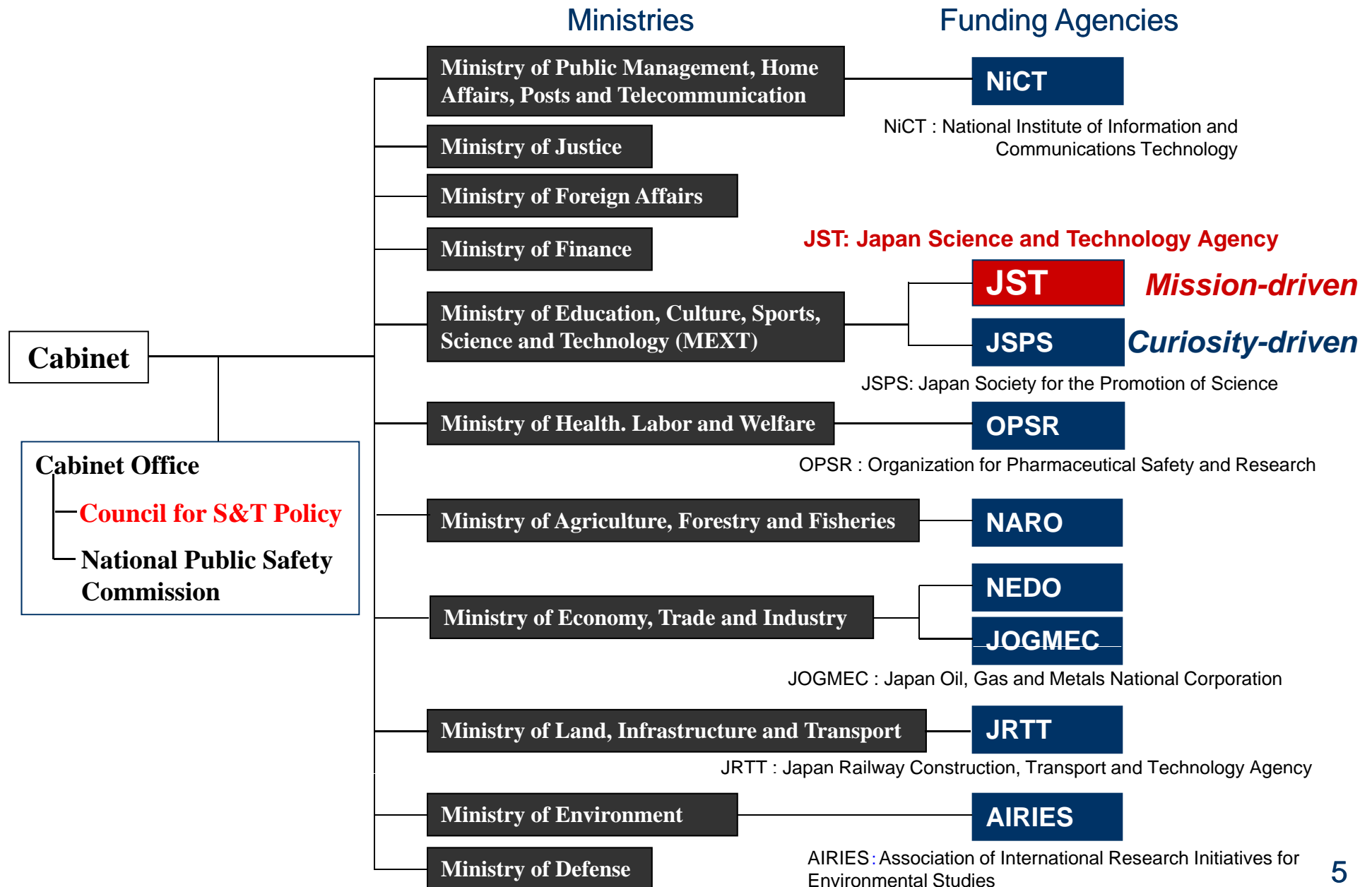


<http://www8.cao.go.jp/cstp/tyousakai/suisin/haihu06/siry01-2.pdf>



Ministries	7	7	7	7	7	8	8	8
Programs	22	25	23	26	28	37	36	37

Ministries & funding agencies for S&T

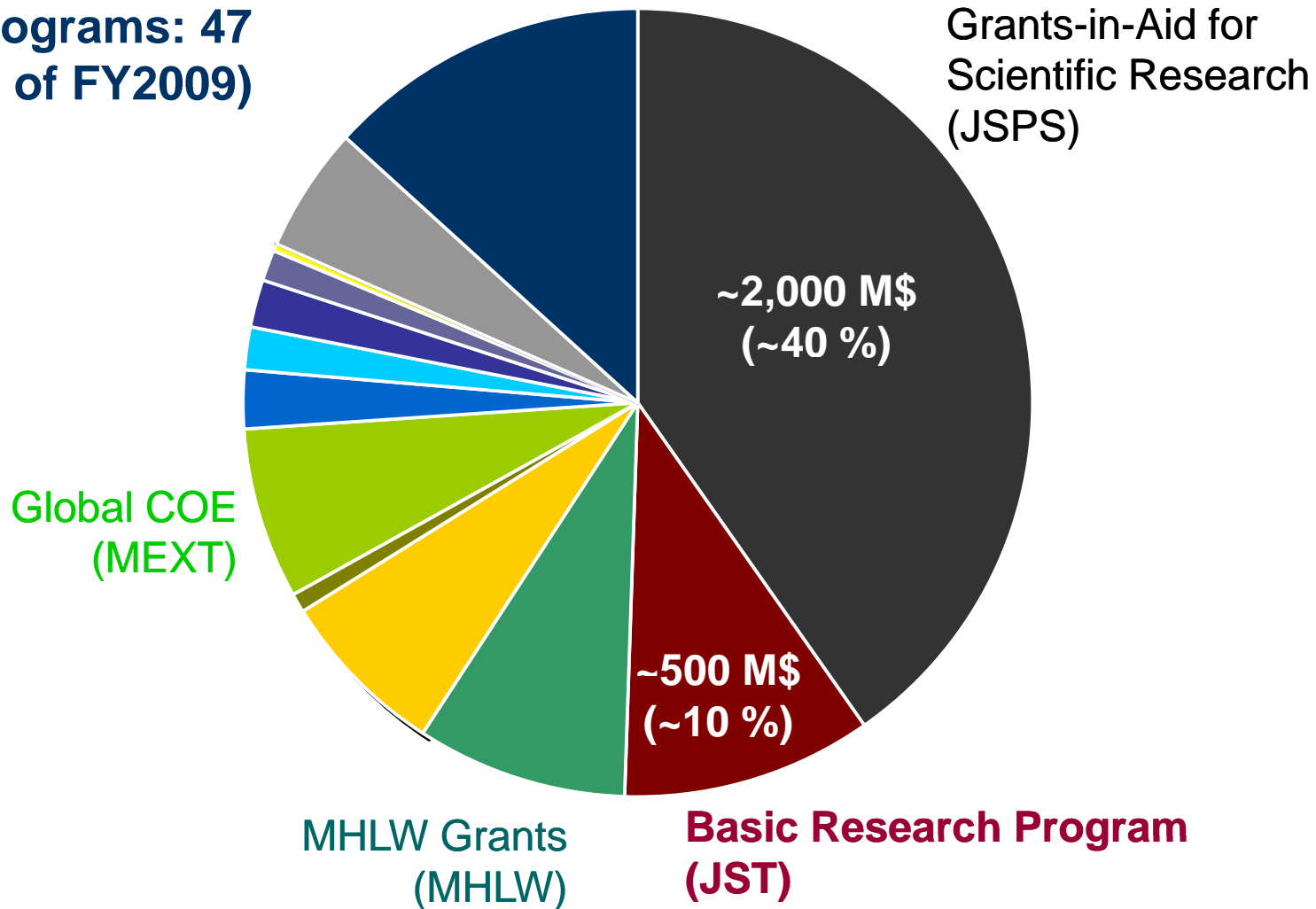


Competitive research funding program in Japan



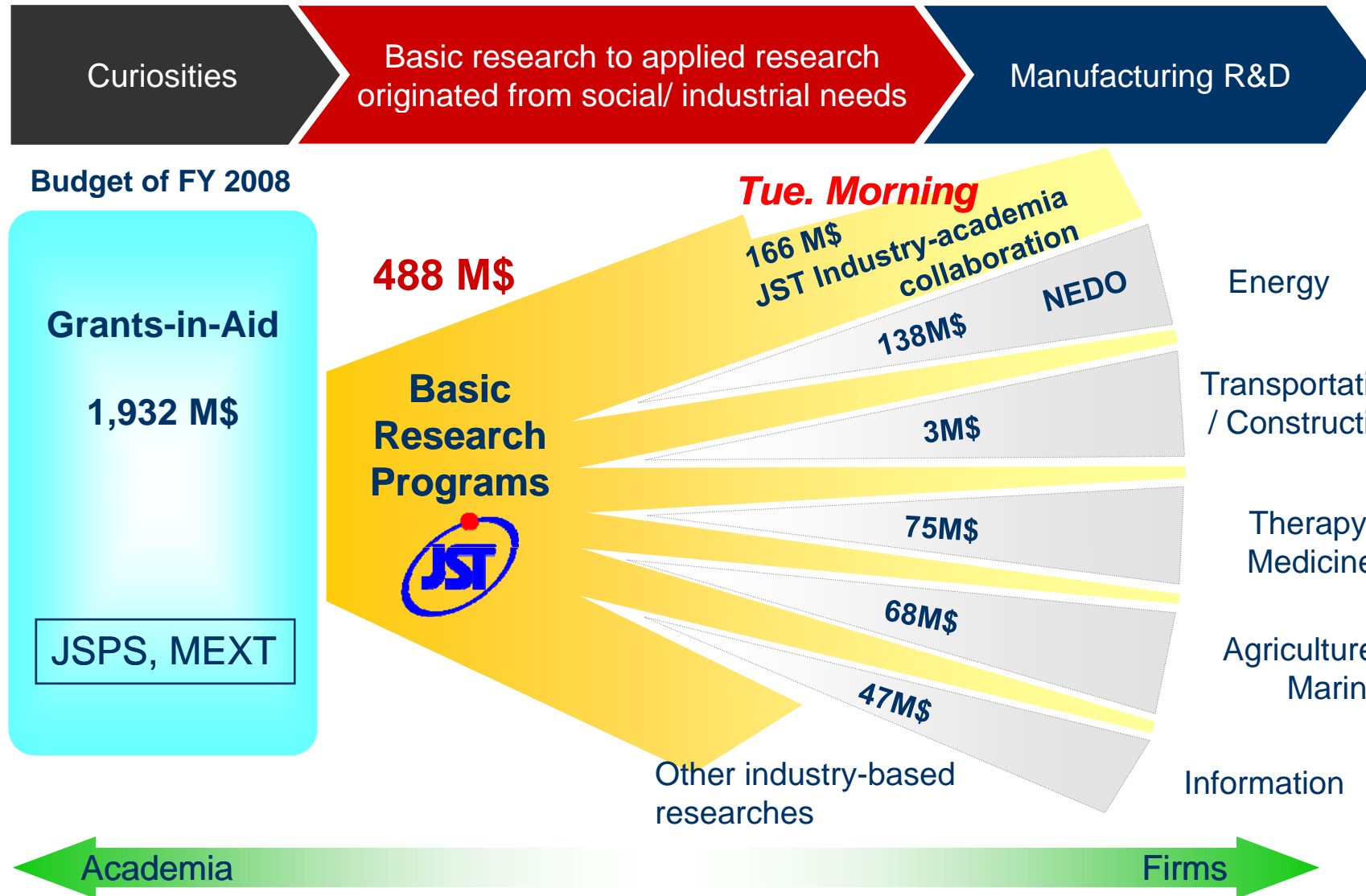
~4,900 M\$ in total

of programs: 47
(as of FY2009)

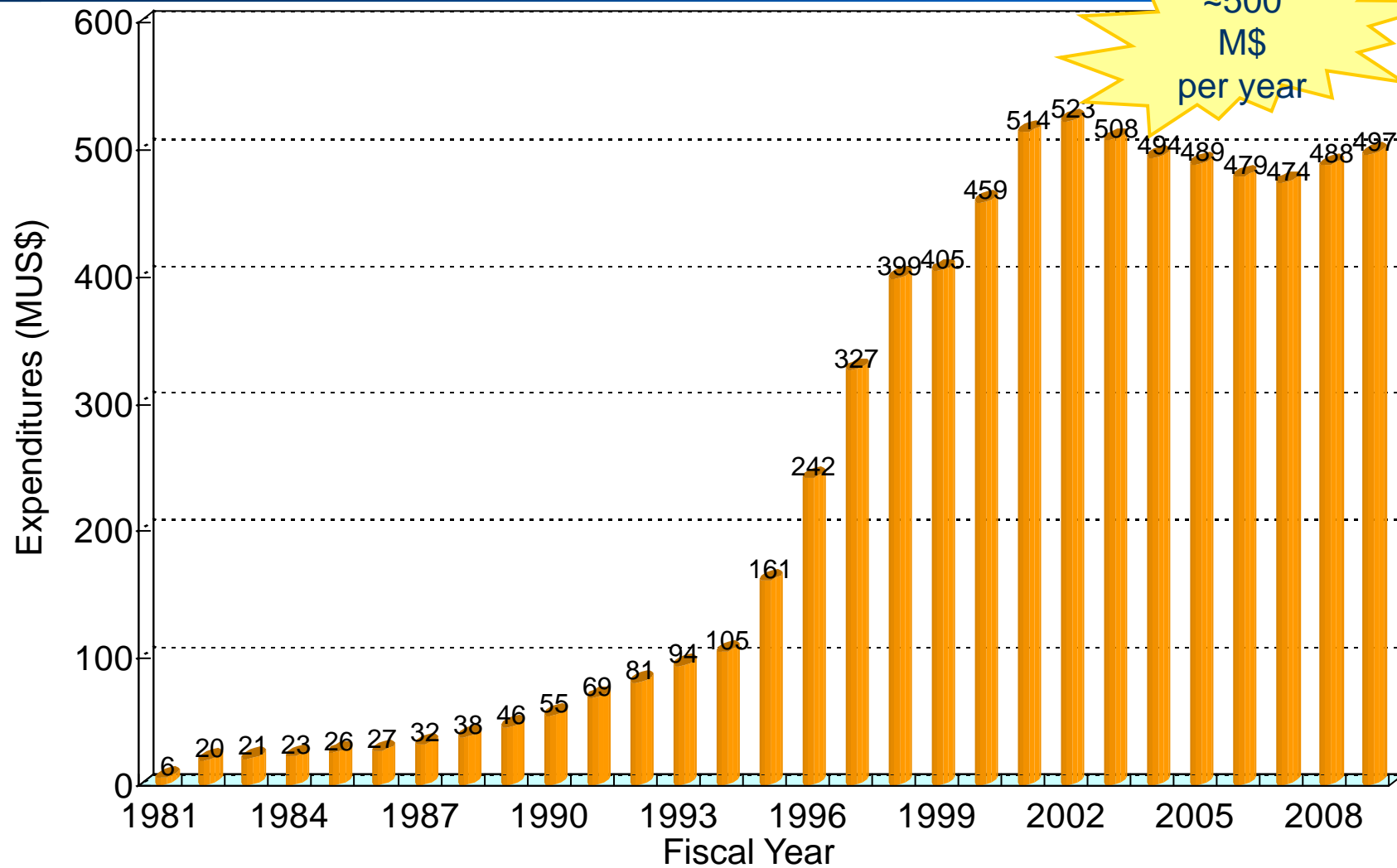


1\$ ~100JPY

Mission of Basic Research Programs



Annual budgets



~500 M\$ per year

ERATO
(FY 1981~)

PRESTO
(FY 1991~)

CREST
(FY 1995~)

Framework of Basic Research Programs



Provides draft strategic sectors and other reference info.

Ministry of Education, Culture, Sports, Science & Technology (MEXT)

Strategic Sectors



Japan Science & Technology Agency

Basic Research Programs

Director: Kenkichi Hirose

Tue. Afternoon



Center for Research and Development Strategy

Director-General

Principal Fellow



H. Yoshikawa

R. Noyori

H. Imura



Program Directors



A. Koma
(CREST)

K. Toyoshima
(PRESTO)

K. Tatsuta
(SORST)

K. Mori
(ERATO)

Program
Coordination

Research
Support

Planning and
Coordination

Inclusive Research
Administration

Research
Promotion

Research
Project

Strategic sectors (last 5 years)



Year	Strategic sector	
FY 2009	Harmonization of Information Environment with Human	IT
	Creation of natural light energy conversion materials	NT
	Clarification of the control mechanisms of neural circuit	BT
	Innovative technologies for realizing sustainable water management	ET
FY 2008	Advanced medicine through generation and regulation of stem cells, based on cellular reprogramming	BT
	New light sources, including state-of-the-art laser technology	NT
	Next-generation nanosystems through process integration	NT
	Reducing global warming in an effort to realize a sustainable society	ET
	Immunoregulation to overcome allergic and autoimmune diseases including pollinosis	BT
FY 2007	Psychiatric and neurological disorders based on elucidation of complex and higher brain functions	BT
	Large-scale IC system that can guarantee high reliability and high security	IT
	Materials and nanoprocesses for the realization of novel electronic devices with novel concepts, novel functions and novel structures	NT
	Mathematical researches toward the resolution of issues with high social needs	IT

Strategic sectors (last 5 years; continued)



Year	Strategic sector	
FY 2006	Elucidation of dynamic mechanism in biological system	BT
	Next-generation basic technology achieving high-security, high-reliability and high-performance for embedded systems	IT
	Nano-interfaces technology that achieves high-performance from materials and substances in different states	NT
	High-efficient manufacturing of nanodevices and nanomaterials	NT
FY 2005	Advanced integrated sensing technologies for realizing safeties and secures	IT
	Ultra-low power technologies in electric devices	IT
	Next-generation high accuracy and high resolution simulation	IT
	Control of cell functions based on matabolic regulation mechanism	BT
	Ultimate and local control of photons	NT

BT: Biotechnology/ Life sciences
 NT: Nanotechnology/ Materials sciences
 ET: Environmental technology
 IT: Information technology

Three basic research programs



Ministry of Education, Culture, Sports, Science & Technology (MEXT)

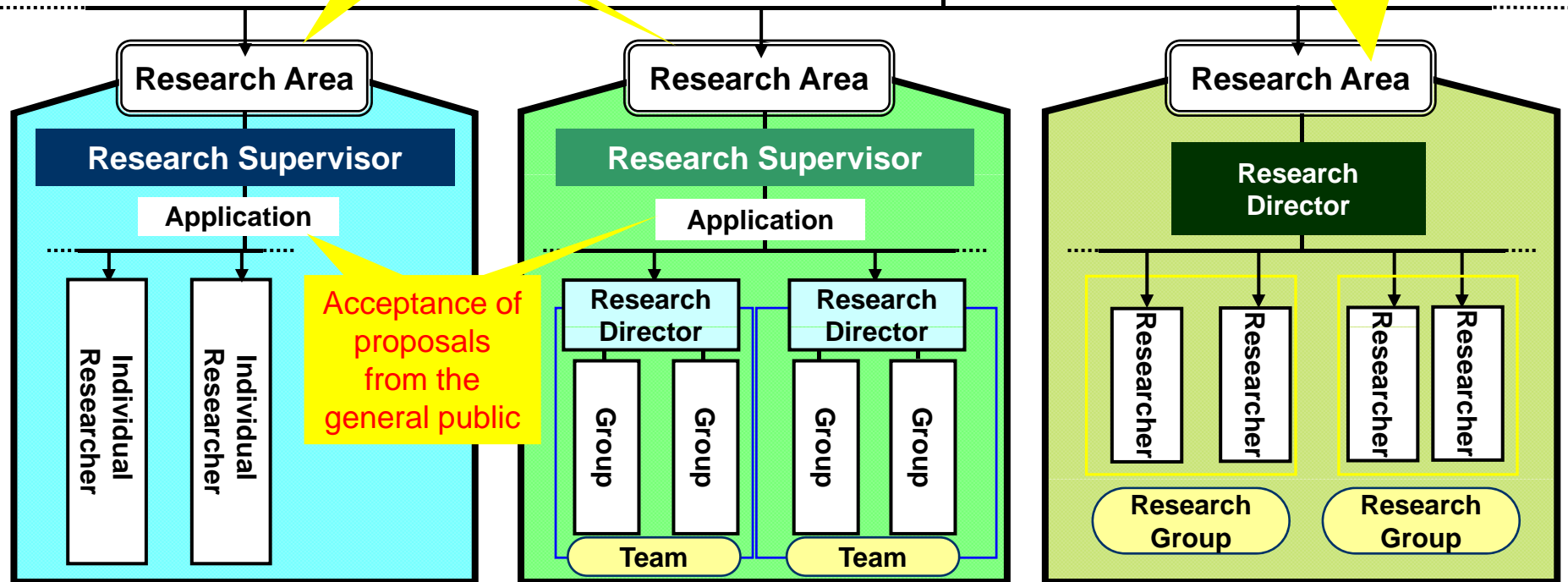
Strategic Sectors (4~5/ year)



JST

Designated by JST

Proposed by Research Director



PRESTO Mon. 14:40-15:15

CREST Mon. 14:05-14:40

ERATO Mon. 15:30-16:05

“Individual”
(especially for young researchers)

“Team”

“Research Director”

Three basic research programs



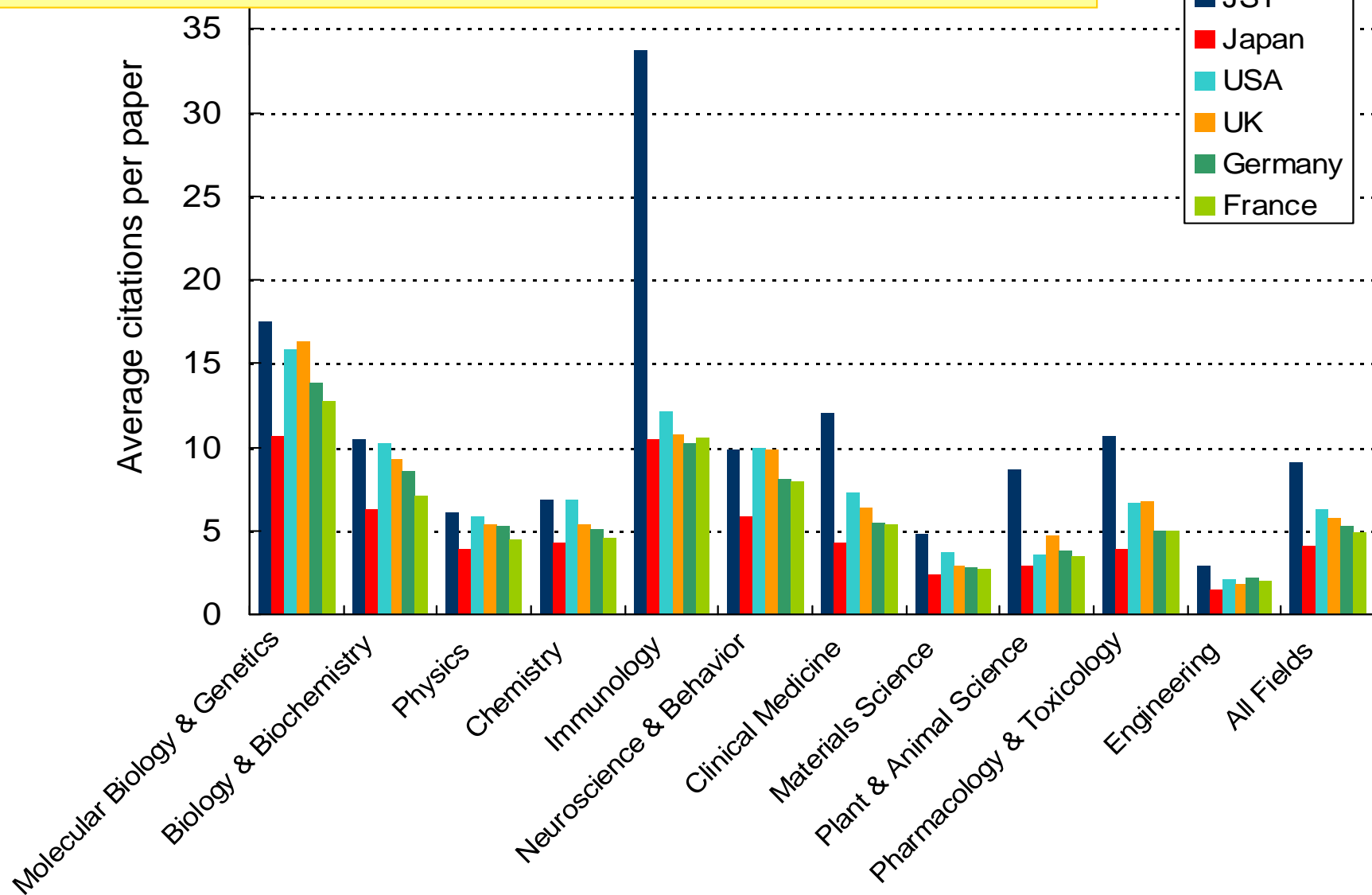
Program	Type of Promotion	# of Teams/ Researchers In a Research Area	Annual Research Expenses for a Team / a Researcher	Research Period	Annual Budgets (In total)
CREST (1995-)	Research Supervisor & Research Teams	10~15	0.3~0.5 M\$ or 0.6~1 M\$ (w/o indirect costs)	5 yrs	about 270 M\$
PRESTO (1991-)	Research Supervisor & Individual Researchers	15~25	0.1~0.2 M\$ (w/o indirect costs)	3 or 5 yrs	about 90 M\$
ERATO (1981-)	Research Director & His/Her Organizing Research Groups	Director: 1 Gr. Leader: 3~4 Post-docs: 10~15	< 3 M\$ (w/ indirect costs)	5 yrs	about 60 M\$

Activities of JST basic research programs



Source: JST Analysis based on Thomson Scientific, "Essential Science Indicators (Jan. 1995 - Dec. 2005)"

*JST: Indicates all the publications in "JST Basic Research Programs"

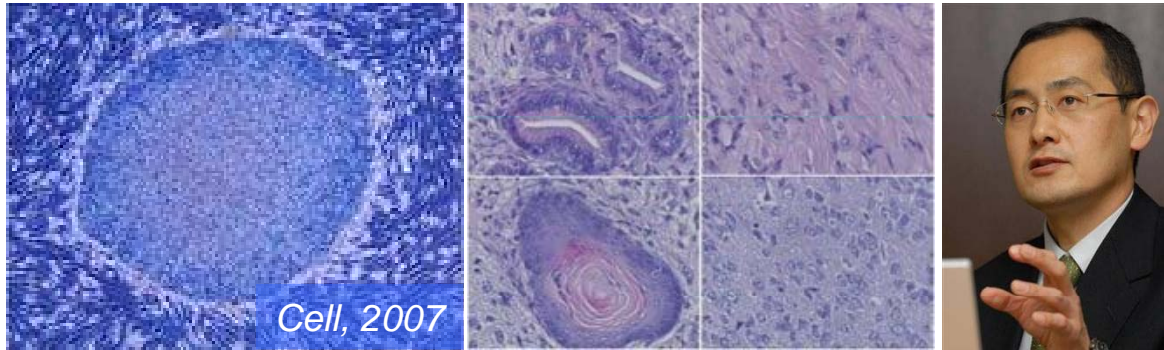


Remarkable outputs: CREST



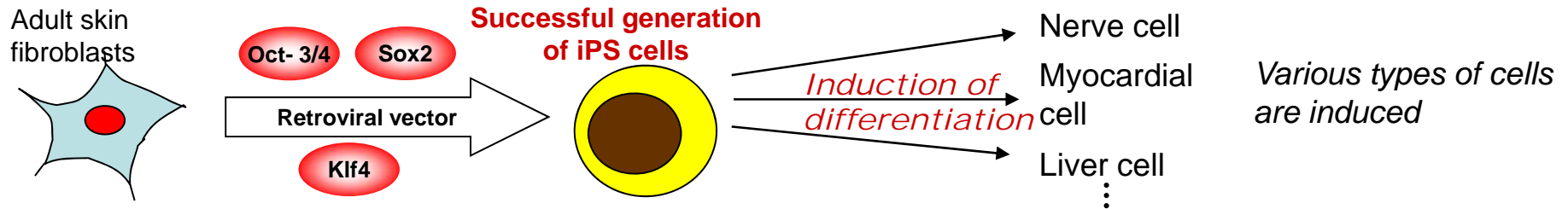
Generation of inducible-pluripotent stem (iPS) cells

Site Visit on Friday



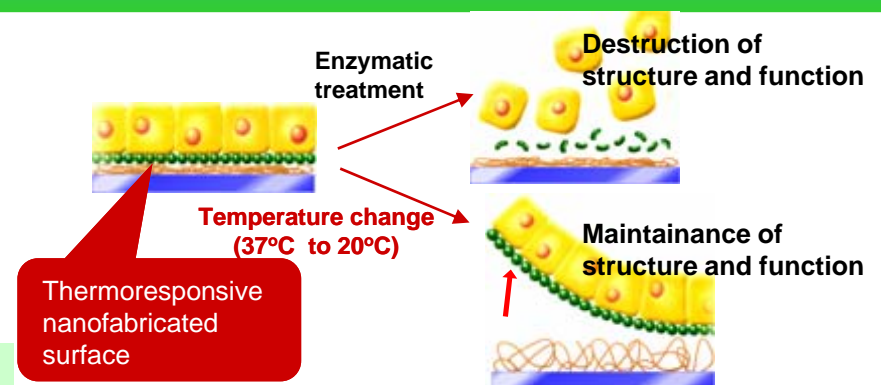
Prof. Shinya Yamanaka
Kyoto Univ.

CREST: FY2003-2008
Special Project: FY2008-



New technology for regenerating tissues from cultured cells

Prof. Teruo Okano
Tokyo Women's Med. Univ.
CREST: FY2001-2006



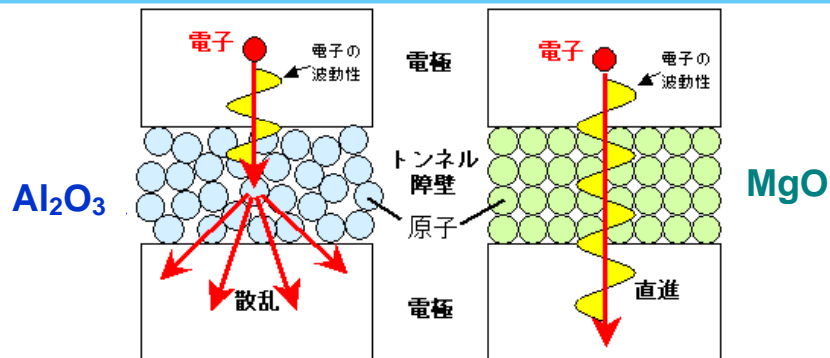
Clinical trial (cornea) in France: 2007-
Market authorization in Europe: 2011- (perspective)

Cell sheet that can be attached and detached by changing the temperature

Remarkable outputs: PRESTO



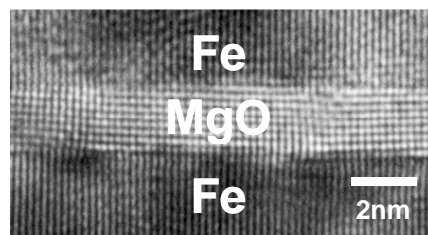
Development of single-crystal TMR device for trans Gbit-MRAM



Dr. Shinji Yuasa

AIST-Tsukuba

PRESTO: FY2002-2005



- ▶ MgO as a tunneling barrier: High-performance TMR effect
- ▶ Toward the ultra-high-density HDD and next generation MRAM

Nature Materials, 2004, etc.

Selective molecular imaging of viable cancer cells with fluorescence probes

Prof. Yasuteru Urano

Univ. Tokyo

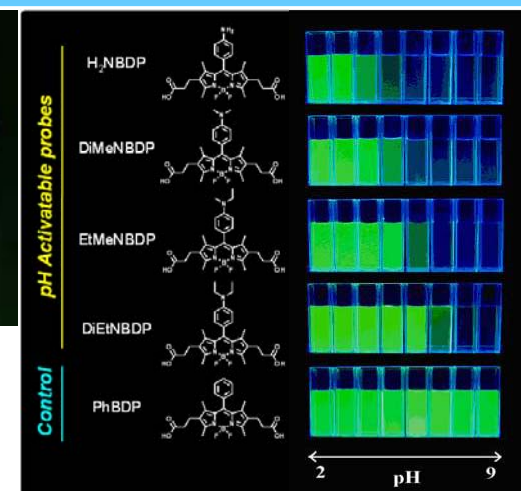
PRESTO: FY2004-2007



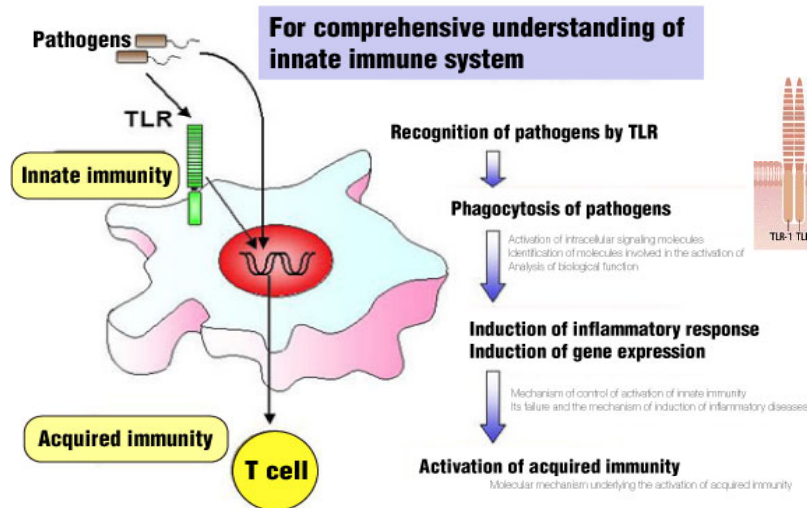
Lung of mouse



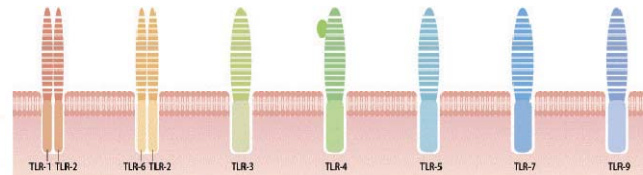
Nature Medicine, 2009



Elucidation of functions of Toll-like receptors (TLRs) for innate immunity



TLR family

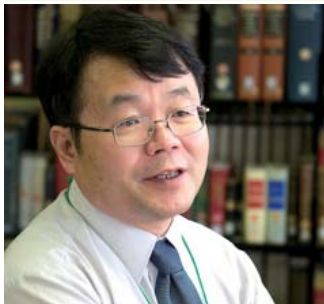


Prof. Shizuo Akira
Osaka Univ.

CREST: FY1996-2001
ERATO: FY2002-2007

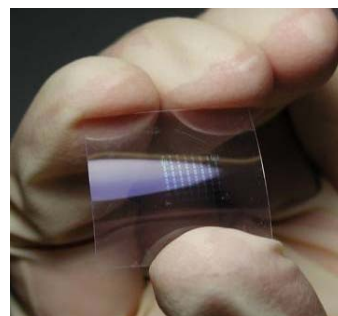
▶ “The Hottest Researcher”
(by Thomson)

Exploration of new materials (transparent semiconductor, superconductor, etc.)



Prof. Hideo Hosono
Tokyo Institute of Tech.

ERATO: FY1999-2004
SORST: FY2004-2009

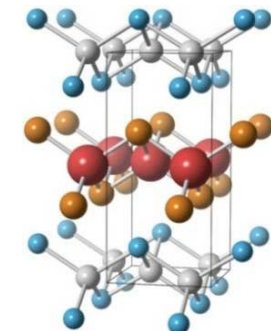


High-mobility TFT on PET films

- ▶ Transparent amorphous oxide semiconductor (TAOS)
- ▶ JPN: Canon, Toppan, Sharp ▶ KOR: Samsung, LG

Nature 2004

JACS 2008



New family of high-temperature superconductor

- ▶ Iron-based layered compounds
- ▶ Most cited papers in 2008 (by Thomson-Reuters)

Special program led by Cabinet Office



Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST)

Multiple-year funds (FY 09-13); 30 ~ 150 M\$ / subject

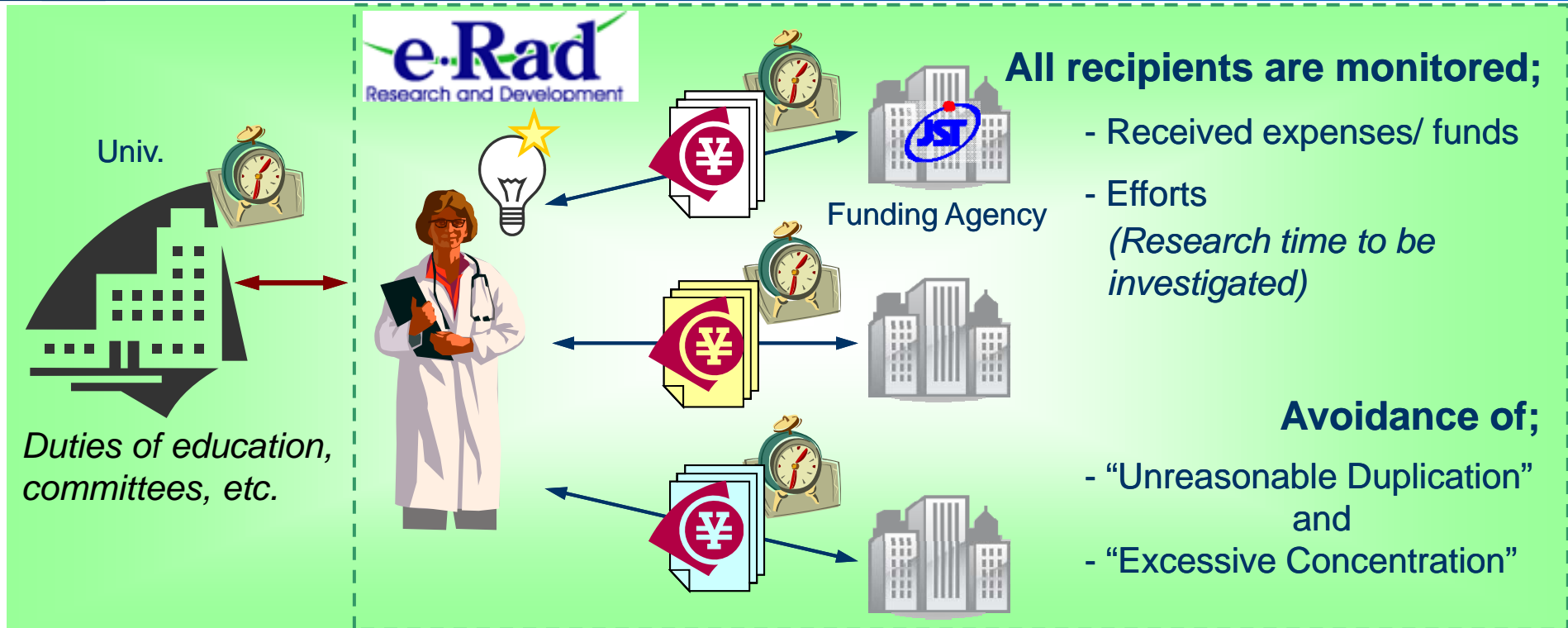
Principal Investigator	Affiliation	Research interests	JST funds
Kazuyuki Aihara	Tokyo	Mathematics	CREST 97-02, ERATO 03-08
Shizuo Akira	Osaka	Immunology	CREST 95-00, ERATO 02-07
Chihaya Adachi	Kyushu	Organic Semicon.	CREST 02-07
Yasuhiko Arakawa	Tokyo	Quantum-dot	
Masayoshi Esashi	Tohoku	MEMS	
Hideo Ohno	Tohoku	Spintronics	PRESTO 93-96, ERATO 02-07
Hideyuki Okano	Keio	Neurogy	CREST 95-00, 00-05, SORST
Teruo Okano	Tokyo Women Med.	Regenerative Medicine	CREST 01-06
Kazunori Kataoka	Tokyo	Nano-biotech.	CREST 01-06, 06-
Tomoji Kawai	Osaka	DNA sequencing	CREST 02-07
Masaru Kitsuregawa	Tokyo	Information Tech.	
Tsunenobu Kimoto	Kyoto	Power electronics	
Masaru Kurihara	Toray	Water procesing	
Yasuhiro Koike	Keio	Plastic optical fiber	ERATO 00-05, SORST 05-
Tatsuhiko Kodama	Tokyo	Systems biology	

Special program led by Cabinet Office (cont'd)



Principal Investigator	Affiliation	Research interests	JST funds
Yoshiyuki Sankai	Tsukuba	Robotics	
Hiroki Shirato	Hokkaido	Radiation therapy	
Hiroshi Segawa	Tokyo	Organic solar-cell	PRESTO 94-97
Koichi Tanaka	Shimadzu	Mass spectroscopy	
Yoshinori Tokura	Tokyo	Solid-state physics	ERATO 01-06; 06-
Akira Tonomura	Hltachi	Electron microscopy	ERATO 89-94
Ryozo Nagai	Tokyo	Cancer, Cardiac disease	
Shin-ichi Nakasuka	Tokyo	Satellite	
Hideo Hosono	Titech	New materials; Superconductor	ERATO 99-04, SORST 04-
Noritaka Mizuno	Tokyo	Energy strage; Battery	CREST 08-
Hitoshi Murayama	Tokyo	Dark matter physics	
Masashi Yanagisawa	Texas; HHMI	GPCR	ERATO 00-05
Shinya Yamanaka	Kyoto	iPS cell	CREST 03-08
Yoshihisa Yamamoto	Stanford; NII	Quantum information	ERATO 93-98, ICORP 98-03, SORST 03-08
Naoki Yokoyama	Fujitsu	Nano-electronics; LSI	

Monitoring system of competitive research funds



Program coordination in JST Basic Research Programs

Part-time member (as of FY2009)



A. Koma
(Head)



R. Rang
(Physics)



Y. Shiroki
(Electronics)



M. Obinata
(Brain Sci.)



T. Yamamoto
(Chemistry)

- Review of document made by applicants/ recipients
- Site visits, if necessary
- Recommendations to Director, if necessary

□ Objectives

- To accelerate the research progress in cooperation w/ foreign research institutions and researchers
- To present JST's research achievements to the world

□ Eligibility

- Research Supervisors/ Research Directors/ Individual Researchers
- Submission of proposal/ Approval by Program Directors

International collaboration



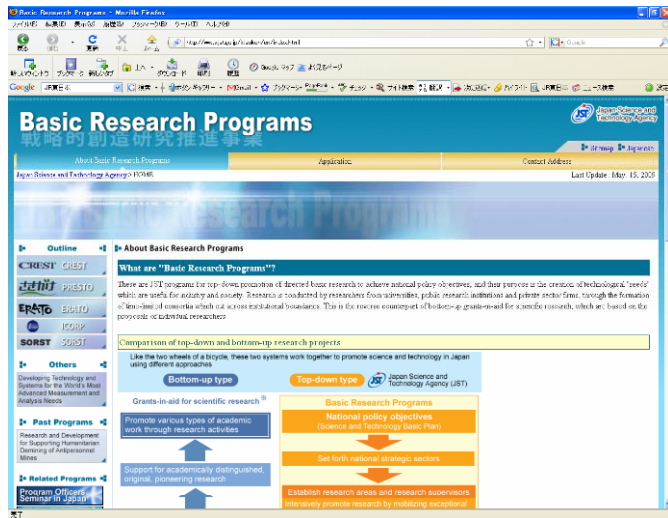
Financial support of holding the int. symposium



For more details,



Official WEB site



<http://www.jst.go.jp/kisoken/en/index.html>

Brochures (PDF)



<http://www.jst.go.jp/kisoken/en/pamph.html>



E-mails should be sent to;

- ❑ Masashi Furukawa: furukawa@jst.go.jp
- ❑ CREST: crest@jst.go.jp (Inclusive Research Administration)
- ❑ PRESTO: presto@jst.go.jp (Research Promotion)
- ❑ ERATO: eratowww@jst.go.jp (Research Project)
- ❑ International Cooperation: kokusai@jst.go.jp (Research Project)

Appendix

□ Outlines

- Research projects in SORST program were selected among projects with high expectations of outstanding results and extraordinary developments in CREST, PRESTO, ERATO, etc.
- No call for new proposals from FY 2006.

□ Remarkable output/ recent progress

Generation of transgenic non-human primates with germline transmission



Nature (issue of 28 May 2009)



Common marmoset
(*Callithrix jacchus*)



Prof. Hideyuki Okano
Keio Univ.

CREST: FY1995-2000

CREST: FY2000-2005

SORST: FY2005-