

Development of rare disease
treatment drugs requires
collaboration among patients,
industry, academia and
government

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Nobelpharma Co. Ltd., Japan

- Shareholder
- [yes/no] Yes
- [If yes, please describe] Major shareholder of Hisanaga & Company, who is a major shareholder of Nobelpharma. Very minor shareholder of several pharmaceutical companies.

- Grant / Research support
- [yes/no] Yes
- [If yes, please describe] The Japanese Government

- Consultant
- [yes/no] No
- [If yes, please describe]

- Employee
- [yes/no] No
- [If yes, please describe]

- Paid Instructor
- [yes/no] Yes.
- [If yes, please describe] A visiting lecturer of Nihon University, School of Pharmacy.

- Speakers Bureau
- [yes/no] No
- [If yes, please describe]
- () None declared

Nobelpharma - Pipeline & Collaboration -

Compound	Indication	Status	Patients	Big pharma	Academia	Government
Lunabell®	Dysmenorrhea associated endometriosis	launched	○	Janssen	△	×
Nobelzin®	Wilson's Disease	launched	○	Teva	○	○
Nobelbar®	Neonatal seizures Status epilepticus	launched	×	In house	○	○
Talc	Prevention of malignant pleural effusion recurrence	Pre-regist	×	Novatech	○	○
Fosphenytoin	Status epilepticus Prevention of convulsive seizure after surgery	launched	△	Pfizer	△	×
5-ALA	Diagnosis of malignant glioma	Pre-regist	△	SBI & Cosmo	○	○
Carmustine wafer	Glioma	NDA	△	MGI(Eisai)	△	○
N-acetylneuraminic acid	Distal myopathy	P1/2	○	In house	○	○
Streptozocin	Gastroenteropancreatic neuroendocrine tumor	P1/2(final)	△	Pfizer /Keocyte	○	○
Caffeine citrate	Apnesia of prematurity	P3	×	Boehringer Ingelheim	△	○

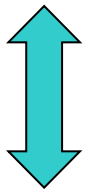
○ : with strong support △ : with some support ○ : without support

Excellent Example of Collaboration - MILES trial

- Lymphangioleiomyomatosis (LAM)
Rare, metastatic neoplasm among women in which the lung becomes infiltrated with smooth muscle cells
- 89 Patients; 12M (DBT)+12M(followed observation)
- Sirolimus stabilized lung function

LAM Foundation

- 1) Organizing and educating patients
- 2) Funding the basic and clinical research
- 3) Support patient recruitment and trial logistics



Effective partnership between scientific researchers and the patient community
⇒ Progress in better understanding of rare diseases and possible treatments.

MILES Investigators

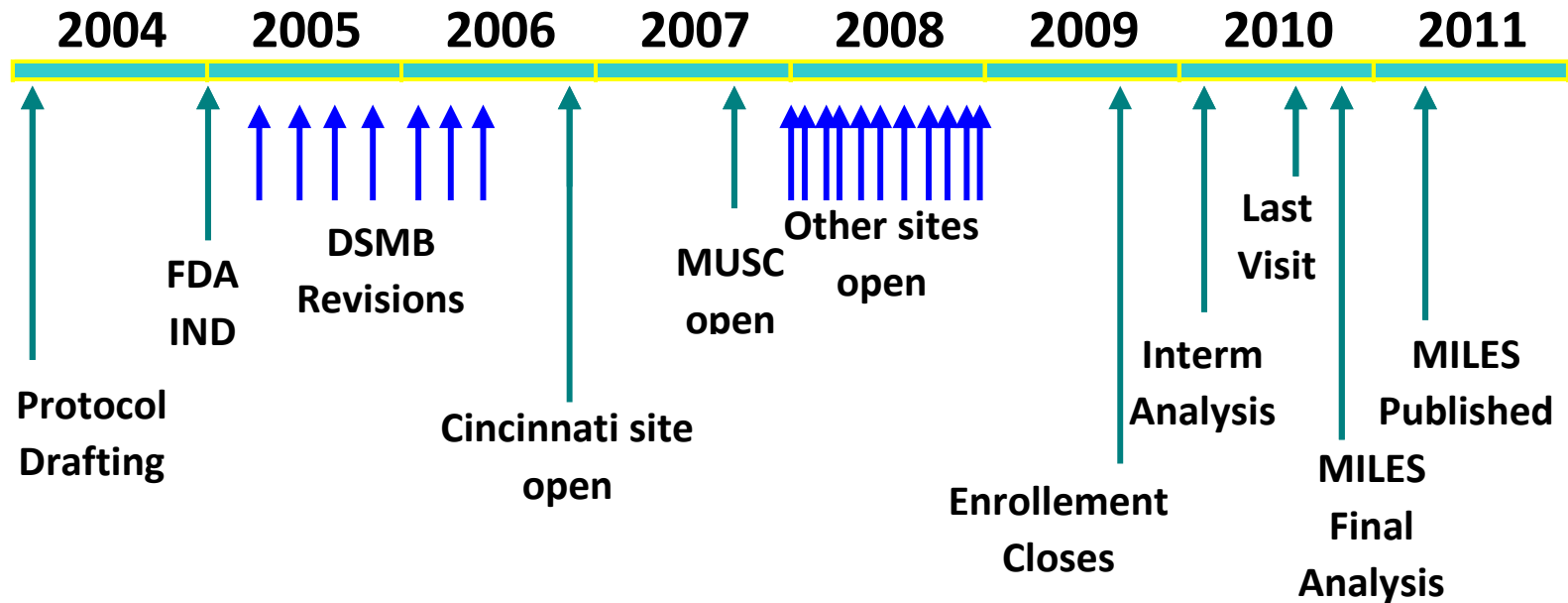
a network of 10 US sites and 3 international sites in Canada and Japan

NIH Rare Diseases Clinical Research Network • • • Infrastructure (network and data center)

The Cincinnati Children's Translational Research Trials Office

- The contract research organization
- Navigate the complex waters of international trial regulations
- Drug import and export, blinded dose adjustments and over 2000 adverse events

Timeline of the MILES Trial



DSMB:Data and safety monitoring board

10 US sites & 3 International sites (Japan & Canada)
Of 111 patients consented, 28 were in 2 sites of Japan

Source:Newsletter of the NIH Rare Diseases Clinical Research Network

Funding sources for the MILES Trial

US\$

NCCR/NIH RLDC	3,000,000	CIHR(Canada)	200,000
Japanese Ministry of Health	2,000,000	Tuberous Sclerosis Assoc.	200,000
FDA	1,200,000	Cincinnati Children's	100,000
Wyeth/Pfizer(inc. drug)	1,200,000	Adler Foundation	50,000
The LAM Foundation	500,000		

NCCR:National Center for Research Resources RLDC:Rare Lung Diseases Consortium

Source:Newsletter of the NIH Rare Diseases Clinical Research Network



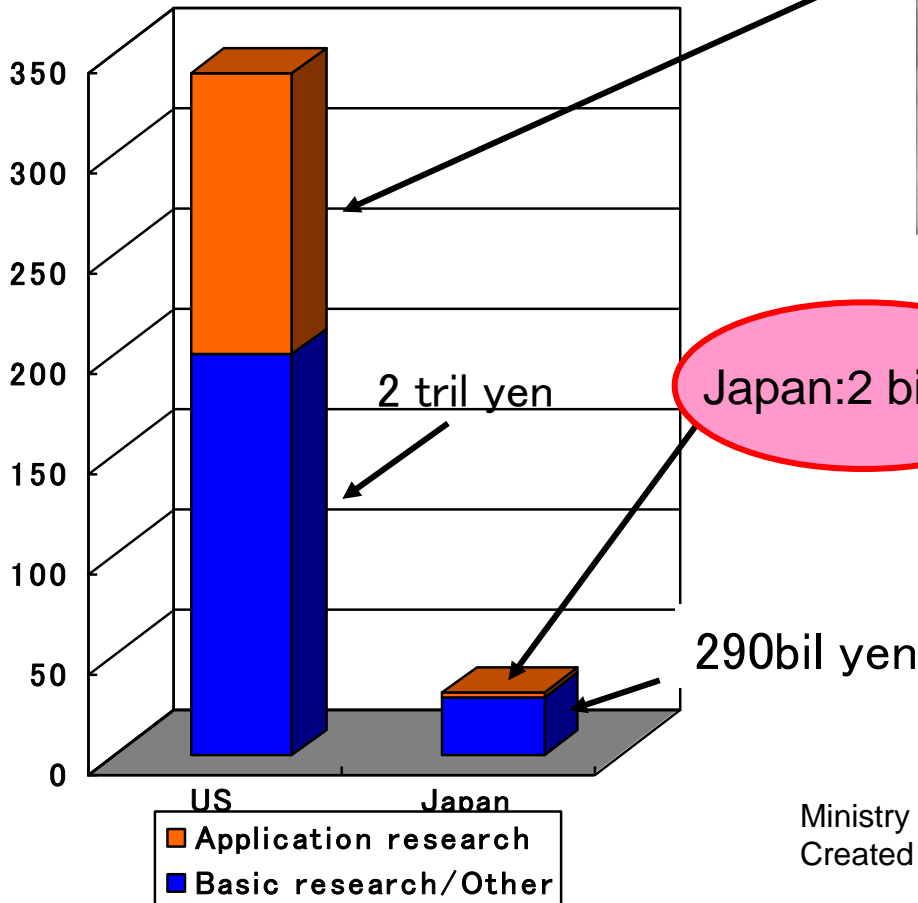
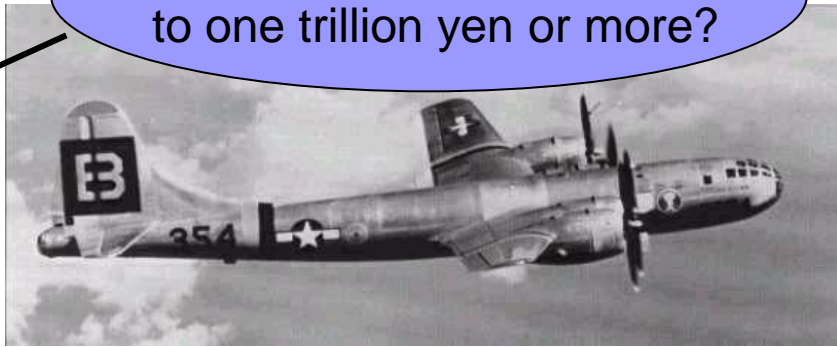
Efficacy and Safety of Sirolimus in Lymphangiomyomatosis

Francis X. McCormack, M.D., Yoshikazu Inoue, M.D., Ph.D., Joel Moss, M.D., Ph.D., Lianne G. Singer, M.D., Charlie Strange, M.D., Koh Nakata, M.D., Ph.D., Alan F. Barker, M.D., Jeffrey T. Chapman, M.D., Mark L. Brantly, M.D., James M. Stocks, M.D., Kevin K. Brown, M.D., Joseph P. Lynch, III, M.D., Hilary J. Goldberg, M.D., Lisa R. Young, M.D., Brent W. Kinder, M.D., Gregory P. Downey, M.D., Eugene J. Sullivan, M.D., Thomas V. Colby, M.D., Roy T. McKay, Ph.D., Marsha M. Cohen, M.D., Leslie Korbee, B.S., Angelo M. Taveira-DaSilva, M.D., Ph.D., Hye-Seung Lee, Ph.D., Jeffrey P. Krischer, Ph.D., and Bruce C. Trapnell, M.D., for the National Institutes of Health Rare Lung Diseases Consortium and the MILES Trial Group*

Japanese clinical research budget is about 2 billion yen / year

Japan and the U.S. budget for life sciences
10 Bil yen

US: Several hundred billion to one trillion yen or more?



Japan: 2 bil yen



Ministry of Economy, Trade and Industry July 08, 2007
Created from first public-private dialogue venture working group

Conclusion: Intractable drug development, in cooperation with stakeholders

