



# Mitsubishi Tanabe Pharma Corporation

## Progress and Future of Development Pipeline

Deutsche Securities Inc.  
Japan Pharmaceutical Conference 2010  
September 29, 2010  
Hotel Seiyō Ginza/Tokyo

Masayuki Mitsuka, Ph.D.  
Board Director,  
Executive Officer  
Head of Global Product Strategy

Clearly product distinction in Japan/the U.S. and Europe  
Specialty and primary in Japan  
Specialty in the U.S. and Europe

Good balance between self-development products and  
licensing-in/out products  
Create the robust pipeline using alliances

Review of our priority fields  
Current priority fields: metabolism and circulation  
(especially diabetes and cerebral infarction)  
Reviewing of the priority fields in looking back on the  
Medium-Term Management Plan 08-10

# Reviewing the 08-10 Medium-Term Period (Domestic)



		Phase			NDA filed	Approved	
		Ph1	Ph2	Ph3			
Self-Development Products (Domestic)							
Remicade	RA: dose escalation						
	Psoriasis						
	Ankylosing spondylitis						
	Ulcerative colitis						
	Crohn's disease: dose escalation						
MP-424	Chronic hepatitis C						
FTY720	Multiple sclerosis						
MP-513	Type 2 diabetes mellitus						
TA-7284	Diabetes mellitus						

## Co-Marketing Product (Domestic)

Filed by Mochida

Escitalopram	Depression						
--------------	------------	--	--	--	--	--	--

Co-marketing with  
Mochida

# Reviewing the 08-10 Medium-Term Period (Overseas)



		Phase			NDA filed	Approved
		Ph1	Ph2	Ph3		
Self-Development Products (US,EU)						
MCI-196	Hyperphosphatemia	<div></div>				
MP-146	Chronic kidney disease	<div></div>				

<b>Licensing-Out Products (US, EU)</b>						
FTY720	Multiple sclerosis	████████████████████			██████████	Licensed to Novartis Pharma  Licensed to Johnson & Johnson
TA-7284	Diabetes mellitus	████████████████████				

# Immunology & Inflammation

Remicade

MP-424 (Chronic hepatitis C)

FTY720 (Multiple sclerosis)

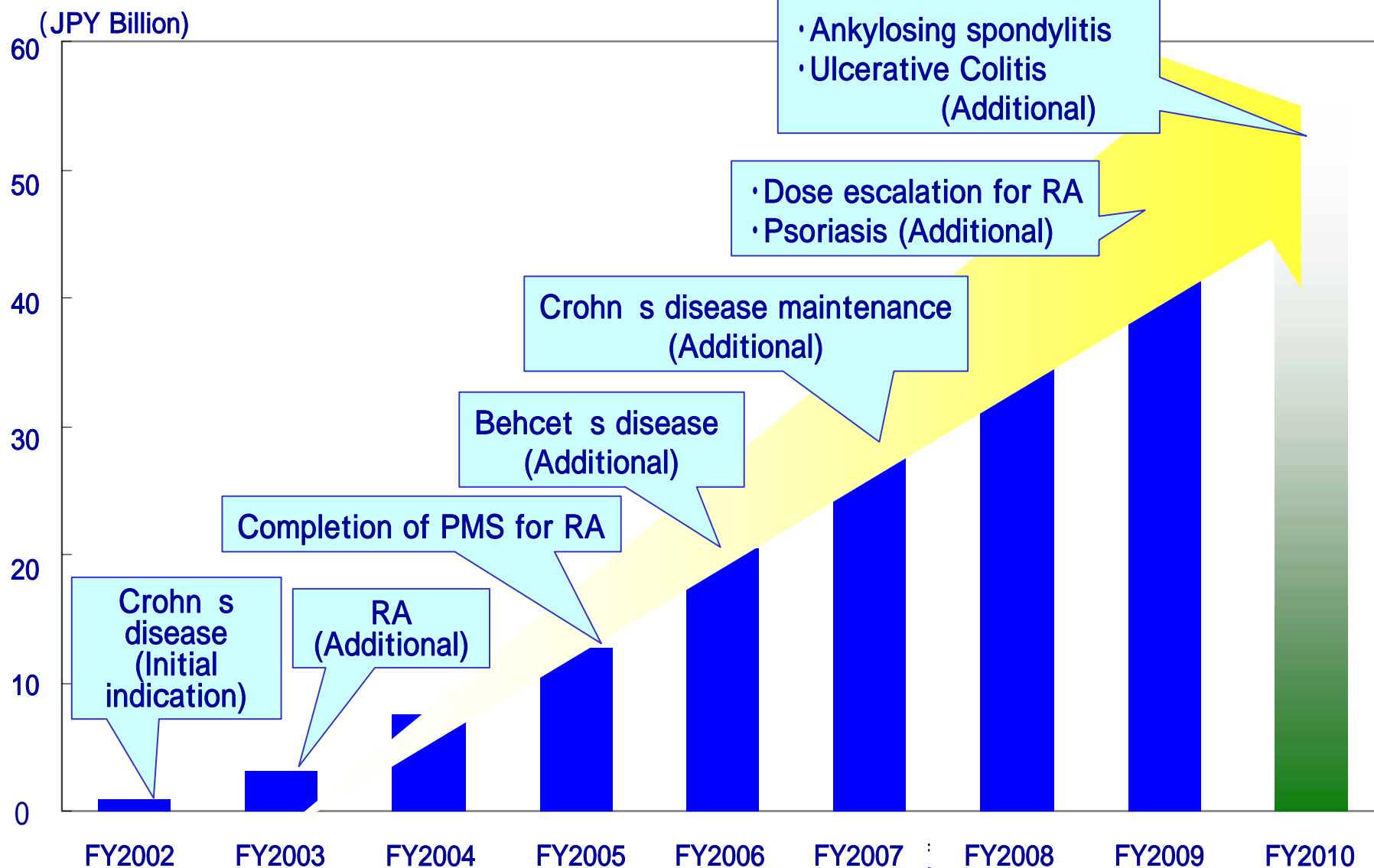
# Remicade

## Infliximab (Anti-TNF monoclonal antibody)



Project	Contents			
Remicade (Infliximab)	Mechanism	Anti-TNF monoclonal antibody		
	Stage	Domestic	RA: dose escalation	Approved in July 2009
			Psoriasis	Approved in Jan. 2010
			Ankylosing spondylitis	Approved in Apr. 2010
			Ulcerative colitis	Approved in June 2010
			Crohn's disease: dose escalation	Ph3
	Profile	<ul style="list-style-type: none"> <li>• Fast-acting and strong effect</li> <li>• Effective for 2 months by a single dose</li> </ul>		

# Remicade: Sales Growth & LCM



# Remicade: Market Potential (Domestic)



Indications	Number of Patients	Other Major Biologics
RA	700,000 (MTX 200,000)	Launch: Enbrel Humira Actemura Orencia Under development: Golimumab Cimzia
Ankylosing spondylitis	2,000	Under development: Humira
Psoriasis	82,000	Launch: Humira Under development: Ustekinumab
Crohn's disease	27,000	Under development: Humira Cimzia
Ulcerative colitis	97,000	Under development: Golimumab Humira



# Remicade: Comparison with Other Biologics



	Anti-TNF antibody					Anti-IL-6 receptor antibody	CTLA4-Ig
Product name	Remicade	Enbrel	Humira	Golimumab	Cimzia	Actemra	Orencia
RA approval	2003	2005	2008	Under development	Under development	2008	2010
Company	MTPC	Takeda /Pfizer	Abbott /Eisai	Janssen /MTPC	UCB /Otsuka	Chugai	BMS
Indications	RA, CD BD, Ps AS, UC	RA JIA	RA, Ps (CD, AS UC, JIA)	(RA, UC)	(RA, CD)	Castleman, RA, JIA	RA
Administration method	IV	SC	SC	SC	SC	IV	IV
Administration interval	Every 8 weeks	Once or twice-weekly	Every 2 weeks	Every 4 weeks	Every 4 weeks	Every 4 weeks	Every 4 weeks

RA Rheumatoid Arthritis  
CD Crohn's disease  
BD Behcet's disease  
Ps Psoriasis

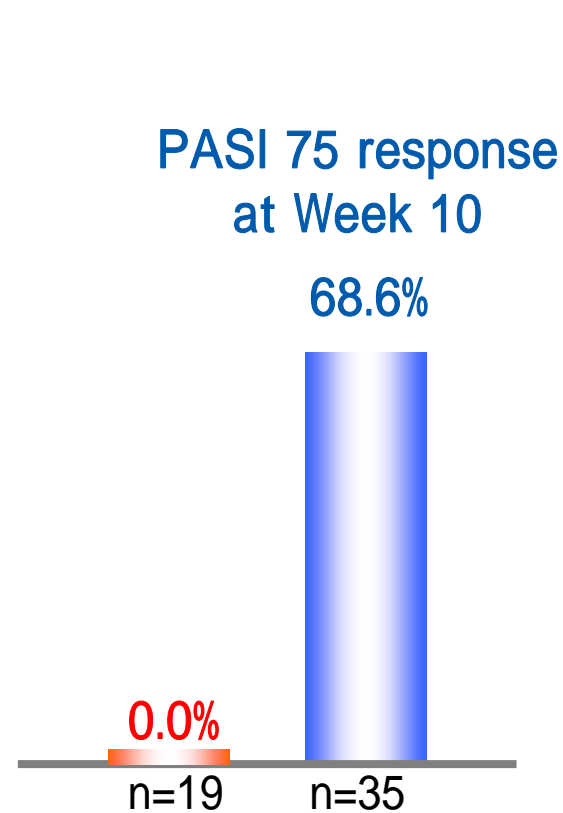
AS Ankylosing Spondylitis  
UC Ulcerative Colitis  
JIA Juvenile Idiopathic Arthritis

( ) Under development  
IV : Intravenous Injection  
SC : Subcutaneous Injection

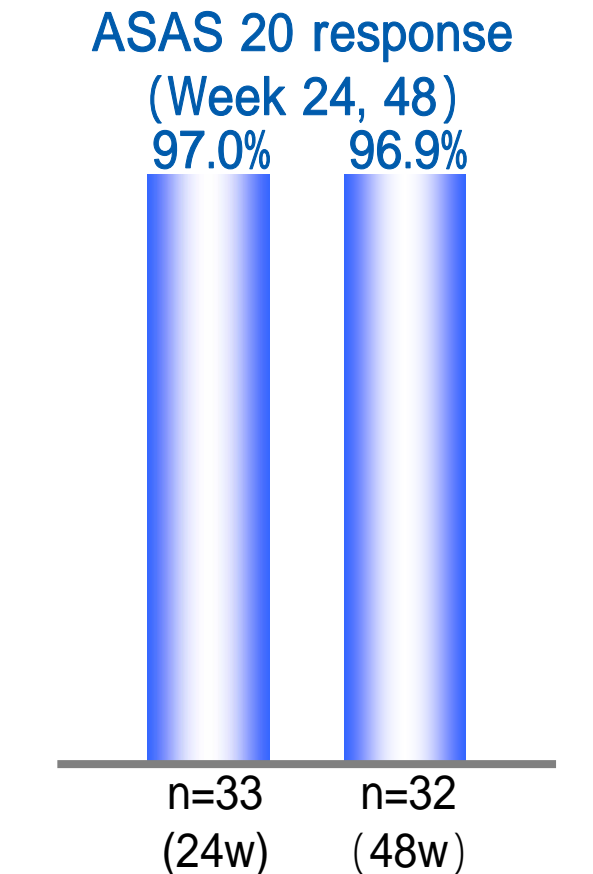
# Remicade: New indications



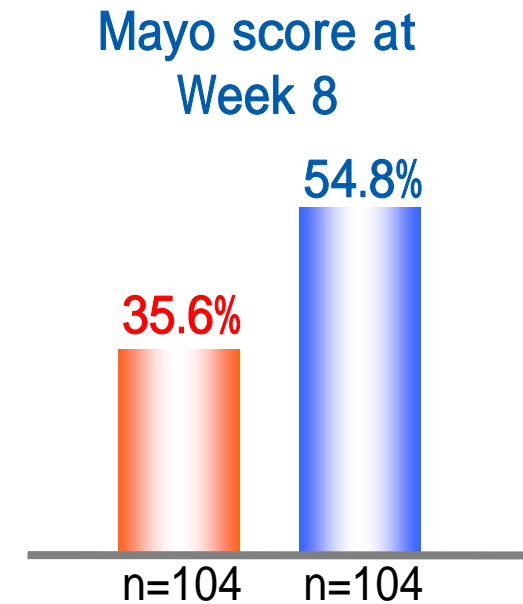
## Results of clinical trials in Japan



**Psoriasis**  
Approved in Jan. 2010



**Ankylosing spondylitis**  
Approved in Apr. 2010



**Ulcerative colitis**  
Approved in June 2010

# MP-424 (Telaprevir) /VX-950



Project	Contents			
MP-424 (Telaprevir)	Licensed from Vertex Pharmaceuticals			
	Mechanism	Inhibition of HCV NS3-4A serine protease		
	Stage	Chronic Hepatitis C	Domestic	Ph3
			Overseas (Vertex) (Tibotec)	US, EU: Ph3
	MTPC territory	15 Asian countries including Japan and China		
	Features	<ul style="list-style-type: none"> <li>• High efficacy compared with existing therapy</li> <li>• Oral drug</li> </ul>		

# Current Treatment for HCV in Japan

---



## Estimated number of patients

Asymptomatic HCV carriers: 1.5 - 2 million

Patients who visit doctors: 400,000 - 500,000 patients/year

Patients on IFN: 30,000 - 50,000 patients/year

## Treatment Options

Current standard of therapy (antiviral therapy)

Peginterferon + Ribavirin (48 weeks)

Price for one course of therapy: approx. JPY 2.1 million

New treatment with MP-424

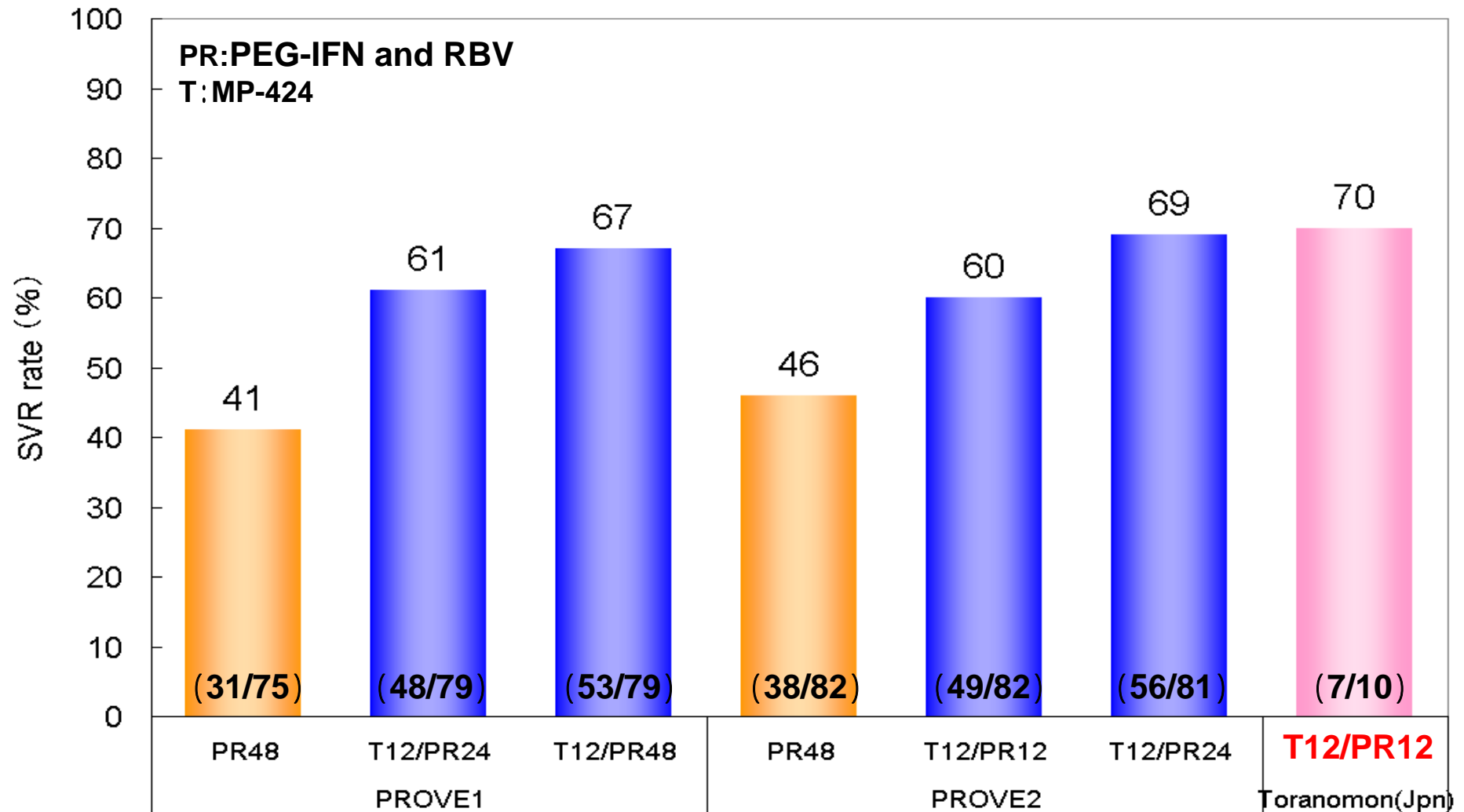
MP-424 + Peginterferon + Ribavirin (24 weeks)

Treatment period of MP-424: 12 weeks

# MP-424: Clinical Results -1 <Naive Patients>



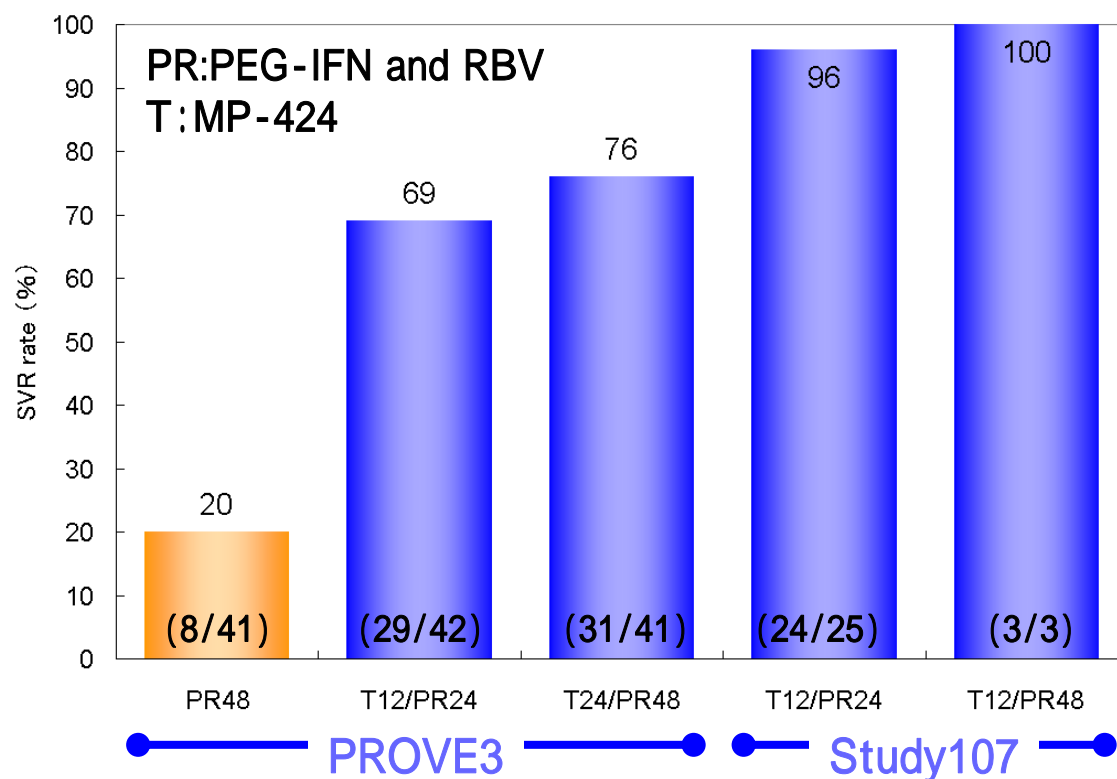
## SVR Rate for Telaprevir in Treatment-Naive Patients



# Clinical Results -2 <Experienced Patients>

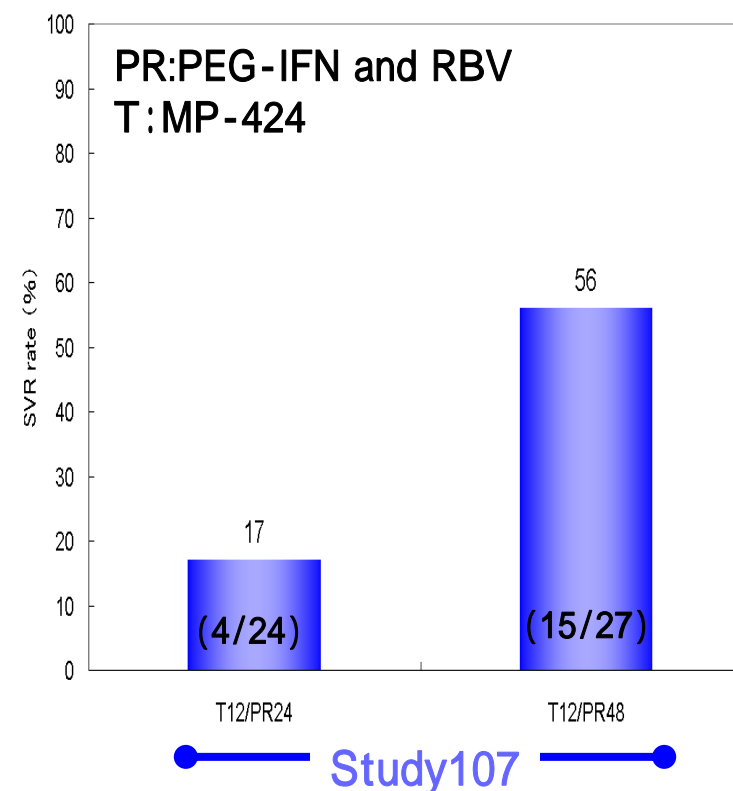


SVR Rate in Treatment  
-Experienced Patients ;  
Prior Relapsers



N Engl J Med 362:1292, April 8, 2010 (PROVE3), Berg T, **EASL2010** (Study 107)

SVR Rate in Treatment  
-Experienced Patients;  
Prior Null Responders



Berg T, **EASL2010** (Study 107)

# Development Products for HCV



## Protease inhibitor

Telaprevir (Vertex/Tibotec/Mitsubishi Tanabe)

The most advanced protease inhibitor

Ph3 in US and EU, three times daily

Expected NDA for FDA in 2010

Boceprevir (Merck)

The second most advanced protease inhibitor

Ph3 in US and EU, three times daily

Expected NDA for FDA in 2010

TMC435 (Medivir/Tibotec/Janssen)

Strong protease inhibitor, once-daily, Ph2 in US, EU, Japan

## Polymerase inhibitor, others

RG7128 (Pharmasset/Roche)

One of the most advanced polymerase inhibitor, twice-daily

Ph2 in US and EU

BMS-790052(BMS)

Strong NS5A inhibitor, Ph2 in US and EU

# FTY720 (Fingolimod hydrochloride)



Project	Contents			
FTY720 (Fingolimod hydrochloride)	Mechanism	Modulation of sphingosine 1-phosphate (S1P) receptor		
	Stage	Multiple sclerosis (MS)	Domestic (Co-development with Novartis Pharma K.K.)	Ph2
			Overseas (Licensed to Novartis Pharma)	US: Approved in Sep. 2010
				EU: Filed in Dec. 2009
	Profile	• More effective than interferon • World's first oral MS drug		



# World Distribution of the MS Patients



## ◆ Multiple Sclerosis (MS)

Multiple sclerosis (MS) is caused by demyelination in central nervous system. MS presents acute attacks of diverse neurological dysfunction followed by remission of functions.

## ◆ Number of Patients

2,500,000

U.S.A. 400,000

Russia 250,000

Canada 50,000

U.K. 85,000

France 80,000

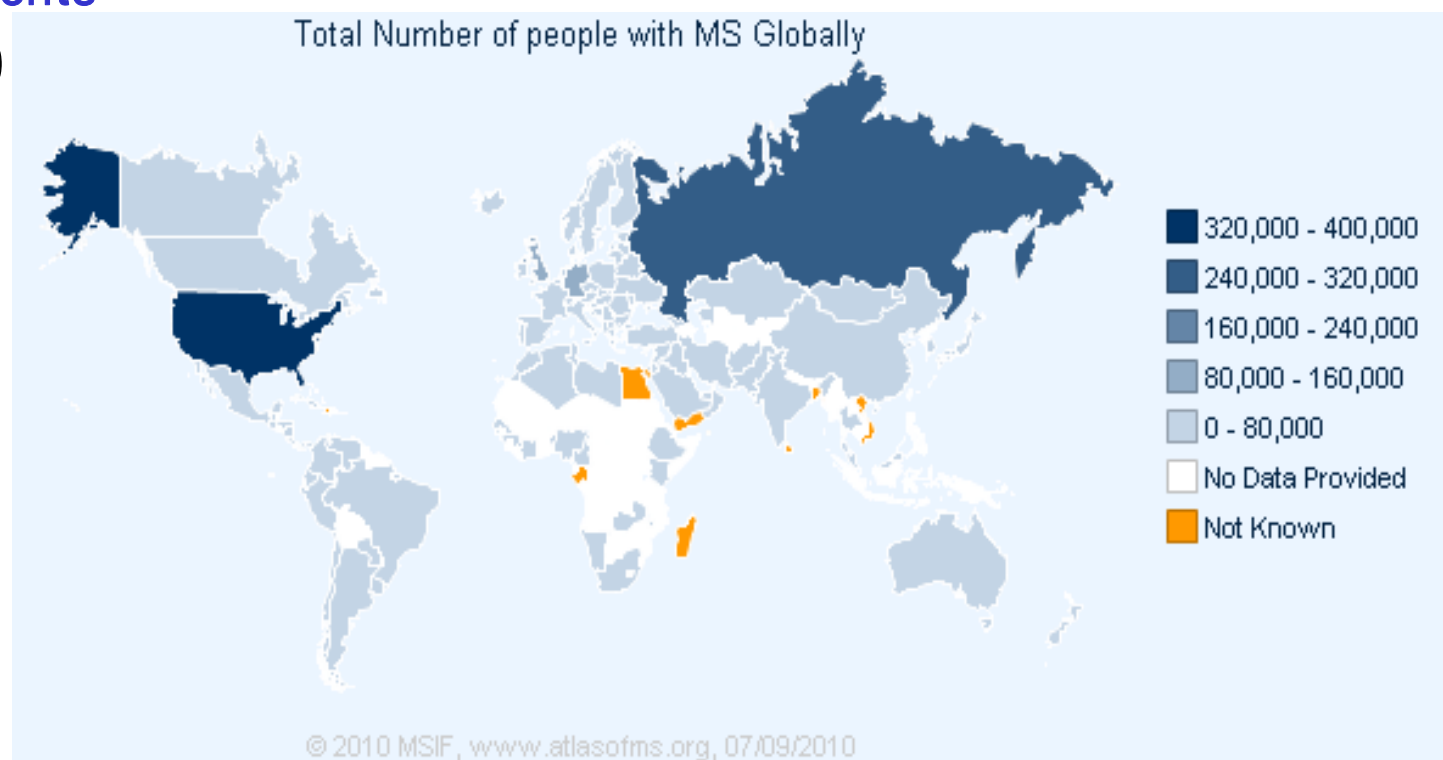
Germany 122,000

Italy 54,000

Spain 40,000

Japan 10,000

(MSIF2010 All right reserved)



---

## • Status

Overseas : Licensed to Novartis Pharma

Approved in US and Russia in September 2010

Filed in US and EU in December 2009  
by Novartis Pharma

Domestic : Co-development with Novartis Pharma K.K.

Expected to be filed in 2010

Mechanism : Facilitation of lymphocyte homing

---

## • Competitive product

Cladribine

Approved in Russia in July 2010

in Australia in September 2010

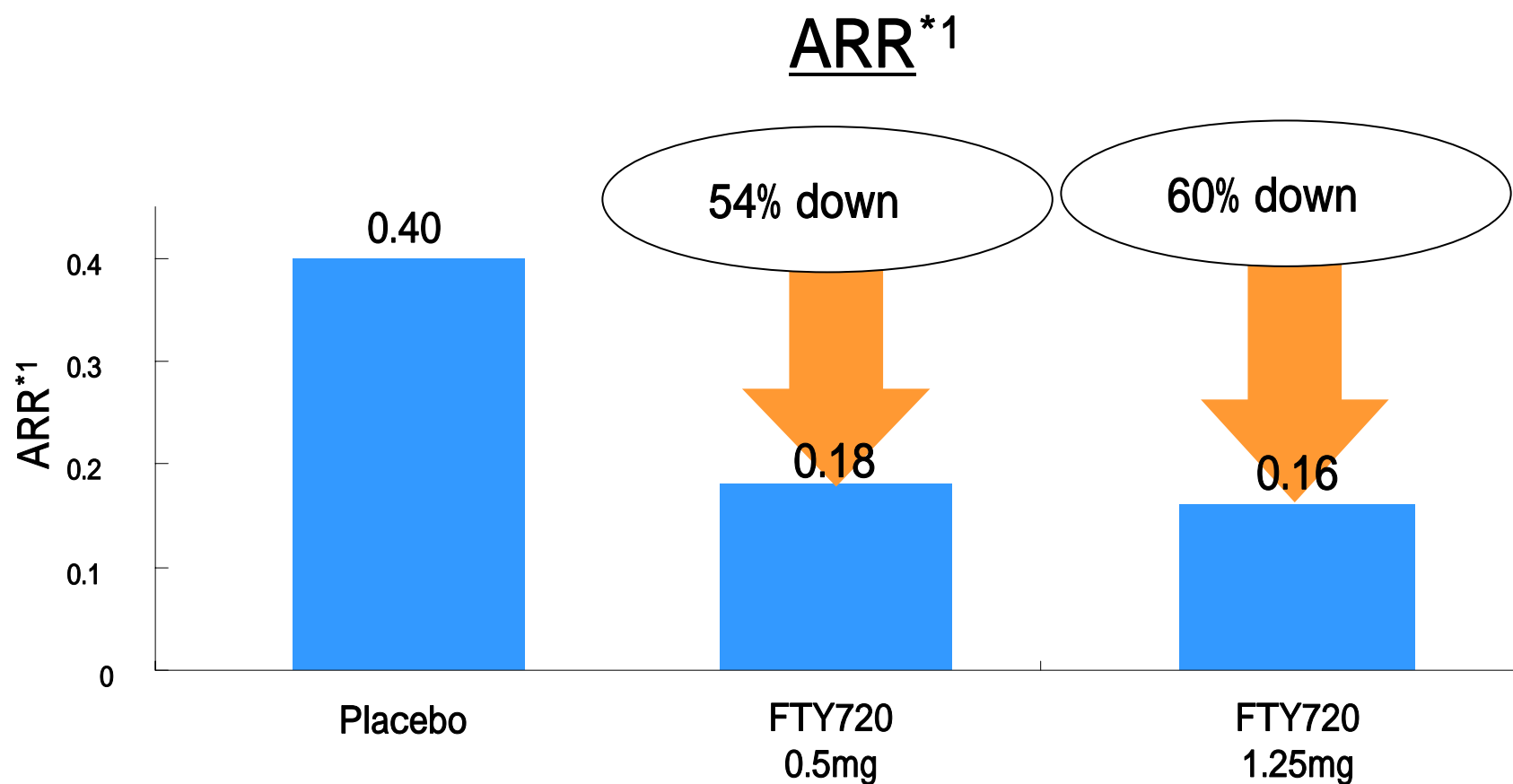
Filed in US in July 2010 (Result is expected in 4Q.)

Mechanism : Cytotoxic effect against lymphocyte

# FTY720 (Placebo-controlled study)



Dose: 0.5 or 1.25 mg, once a day



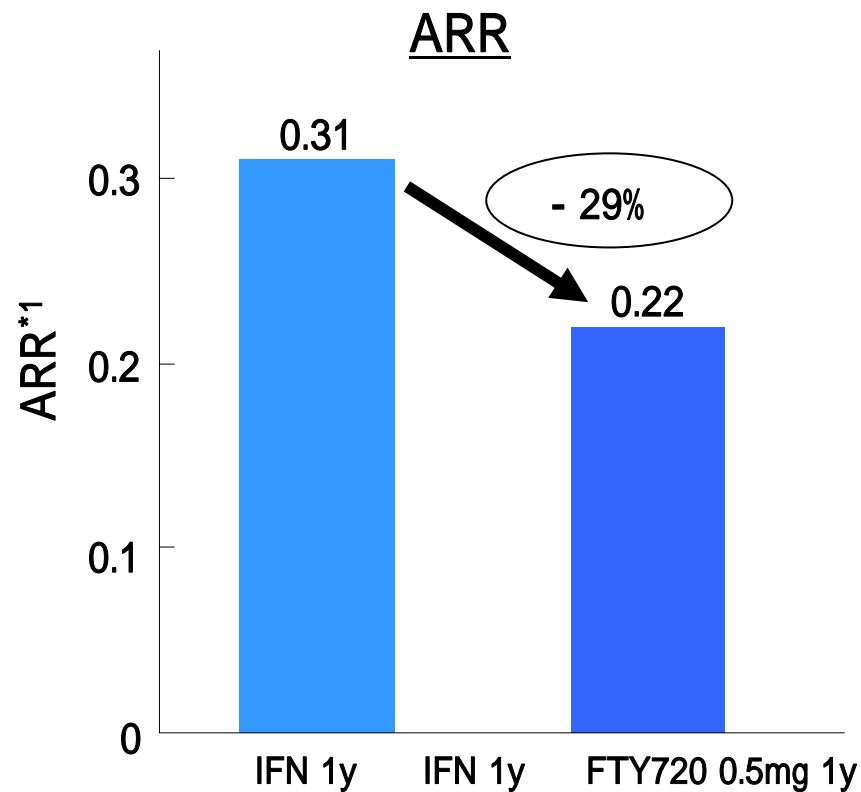
\*1 : Annualized relapse rate

N Engl J Med 2010;362:387-401.

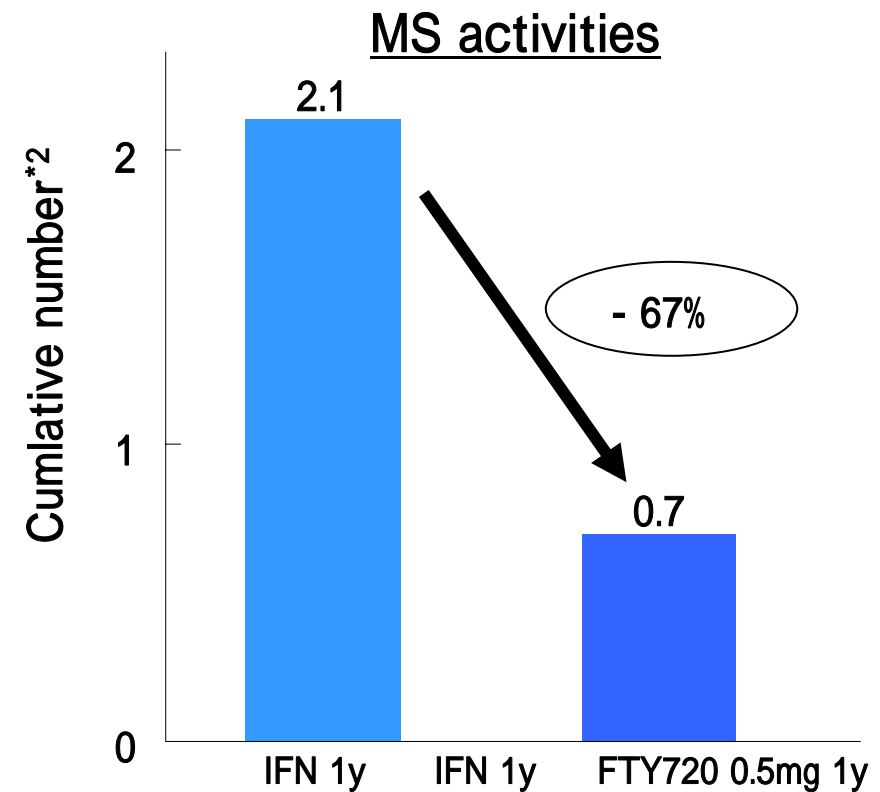
# FTY720 (Comparative trial with IFN)



【Poster presentaion at AAN in Apr. 2010】  
TRANSFORMS extension study



\*1 : Annualized relapse rate



\*2 : Cumulative number of new/newly enlarged T2 lesions

# Diabetes

TA-7284

MP-513

# Major Development Project (Diabetes)



Project	Contents		
TA-7284 (Canagliflozin)	Mechanism	Inhibition of SGLT2	
	Stage	Domestic	Ph2
		Overseas (Johnson & Johnson*)	Ph3
	Profile	Low risk of hypoglycemia, body weight reduction	
MP-513 (Teneligliptin)	Mechanism	Inhibition of DPP4	
	Stage	Domestic	Ph3
		Overseas	Ph2
	Profile	Superior inhibitory activity, long-acting effect and renal excretion & hepatic metabolism	

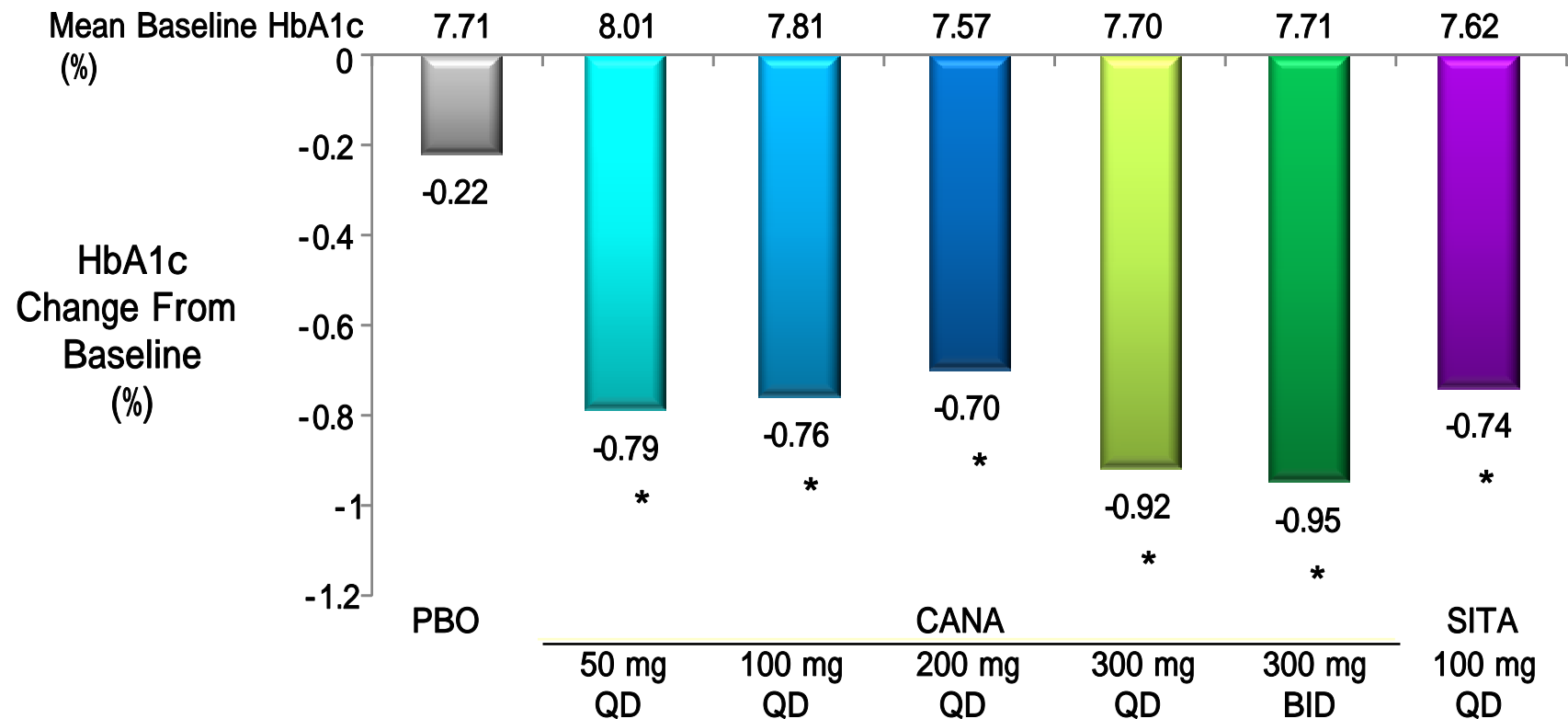
\*Ortho-McNeil-Janssen Pharmaceutical

# Canagliflozin (JNJ-28431754/TA-7284)

## Overseas Ph2b Study: HbA1c



### SGLT2 Inhibition for Type 2 DM: MET + Canagliflozin Dose-Ranging Study



\*  $P < 0.001$  vs placebo calculated using LS means.

"Canagliflozin is being developed by Johnson & Johnson Pharmaceutical Research and Development, LLC in collaboration with Mitsubishi Tanabe Pharma Corporation."

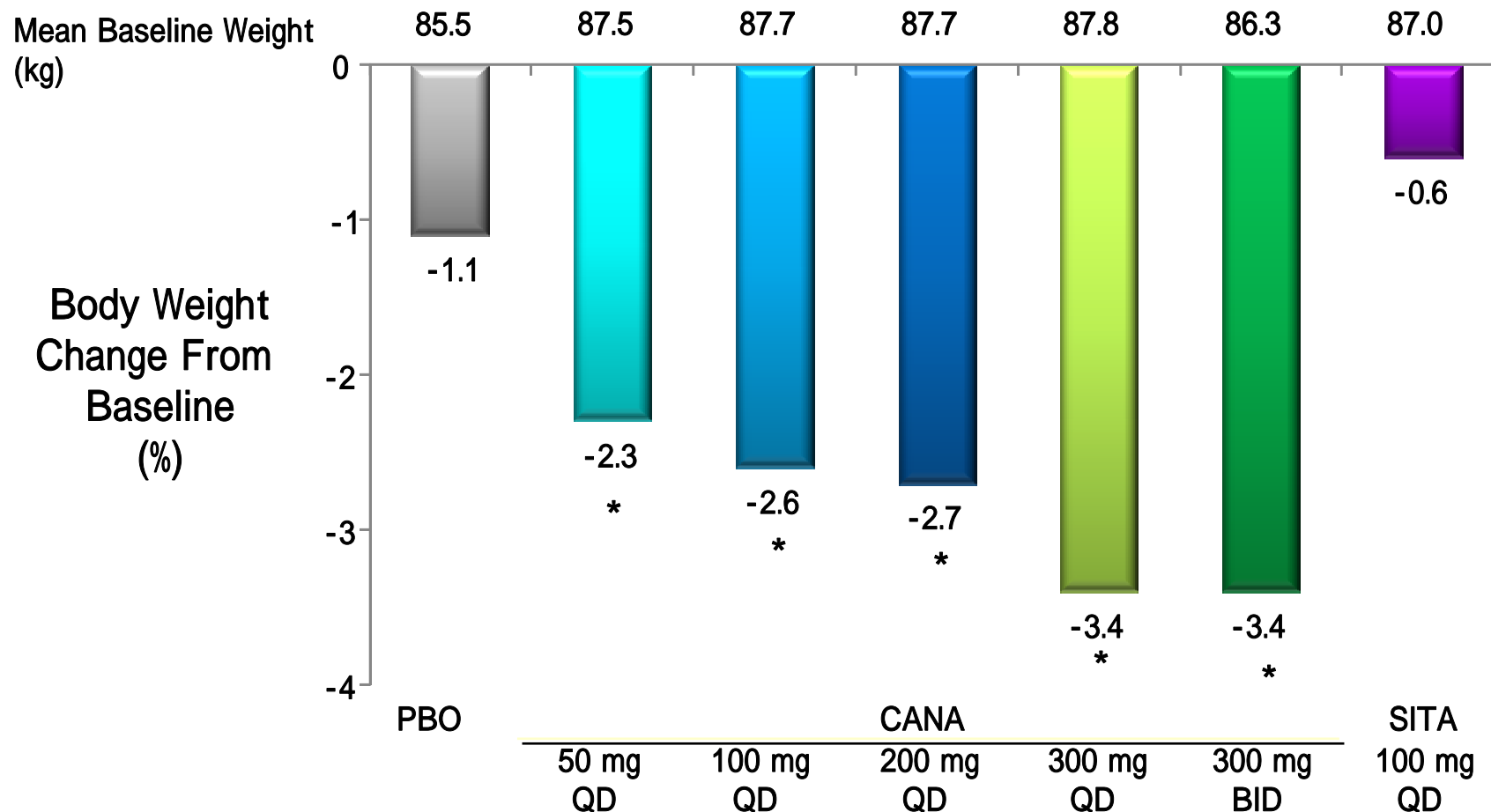
Source: Presentation slides at ADA on June 26, 2010 by Dr. Julio Rosenstock (partially modified)

# Canagliflozin (JNJ-28431754/TA-7284)

## Overseas Ph2b Study: Body Weight



### SGLT2 Inhibition for Type 2 DM: MET + Canagliflozin Dose-Ranging Study



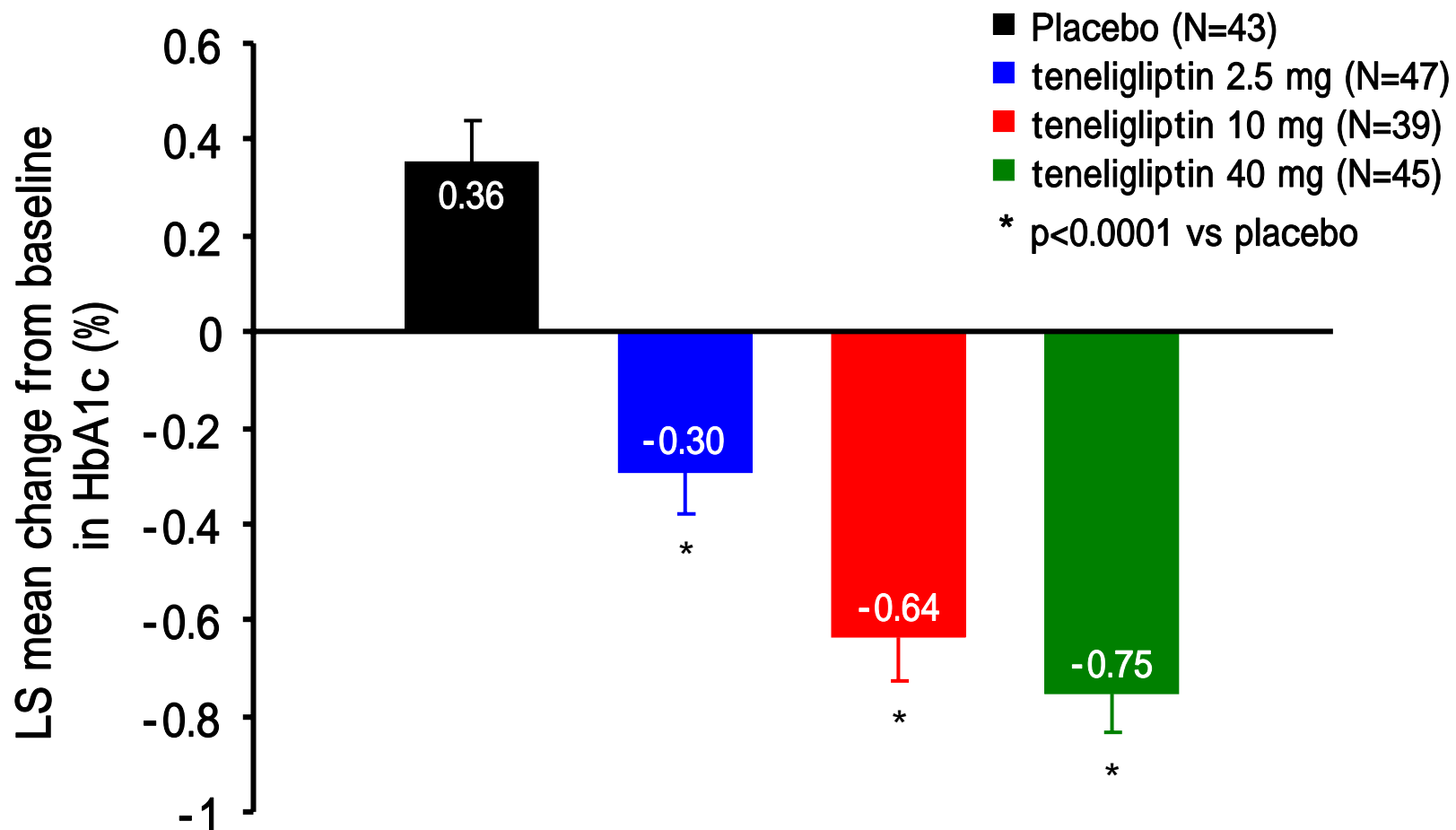
\*  $P < 0.01$  vs placebo calculated using LS means.

"Canagliflozin is being developed by Johnson & Johnson Pharmaceutical Research and Development, LLC in collaboration with Mitsubishi Tanabe Pharma Corporation."

Source: Presentation slides at ADA on June 26, 2010 by Dr. Julio Rosenstock (partially modified)



# MP-513 (teneligliptin) Japanese Ph2a Study: HbA1c



Change from baseline in HbA1c at Week 12

\* The data are expressed as LS  
mean values  $\pm$  S.E.

# Competition: SGLT2 Inhibitors



Company Name	Product Name/Generic Name	Development Stage (Overseas)
Bristol-Myers Squibb/AstraZeneca	Dapagliflozin (BMS512148)	US/EU: Ph3
Johnson & Johnson	Canagliflozin (JNJ-28431754/TA-7284)	US/EU: Ph3
Boehringer Ingelheim	BI-10773	US/EU: Ph3
Roche	RG7201 (CSG452)	US/EU: Ph2b
Astellas	ASP-1941	US/EU: Ph2b
Lexicon	LX4211	US/EU: Ph2a
Pfizer	PF-04971729	US/EU: Ph2a
ISIS	ISIS 388626	EU: Ph1
Company Name	Product Name/Generic Name	Development Stage (Japan)
Astellas	ASP-1941	Ph3
Chugai	CSG452 (RG7201)	Ph2/3
Mitsubishi Tanabe	Canagliflozin (TA-7284/JNJ-28431754)	Ph2b
Bristol-Myers Squibb/AstraZeneca	Dapagliflozin (BMS512148)	Ph2b
Taisho	TS-071	P2
Boehringer Ingelheim	BI-10773	Ph2

# Competition : DPP4 Inhibitors



Company Name	Product Name/Generic Name	Development Stage (Overseas)
Merck	Januvia® (sitagliptin)	US/EU: Launched
Novartis	Galvus® (vildagliptin)	EU: Launched, US: Not Approved
Bristol-Myers Squibb/AstraZeneca	Onglyza® (saxagliptin)	US/EU: Launched
Takeda	Alogliptin (SYR-322)	US/EU: Ph3
Boehringer Ingelheim	Linagliptin (BI-1356/Ondero®)	US/EU: Ph3
Mitsubishi Tanabe	Teneligliptin (MP-513)	EU: Ph2, US: Ph1
Dainippon Sumitomo	DSP-7238	EU: Ph1
Company Name	Product Name/Generic Name	Development Stage (Japan)
Banyu	Januvia® (sitagliptin)	Launched (December, 2009)
Ono	Glactiv® (sitagliptin)	
Novartis	Equa® (vildagliptin)	Launched (April, 2010)
Takeda	Nesina® (alogliptin)	Launched (June, 2010)
Mitsubishi Tanabe	Teneligliptin (MP-513)	Ph3
Boehringer Ingelheim	Linagliptin (BI 1356)	Ph3
Sanwa Kagaku	Anagliptin (SK-0403)	Ph3
Otsuka	Saxagliptin (OPC262)	Ph2/3

# Others

## Escitalopram (Depression)

### TA-1790 (ED)

# Escitalopram

(Selective Serotonin Reuptake Inhibitors SSRI)



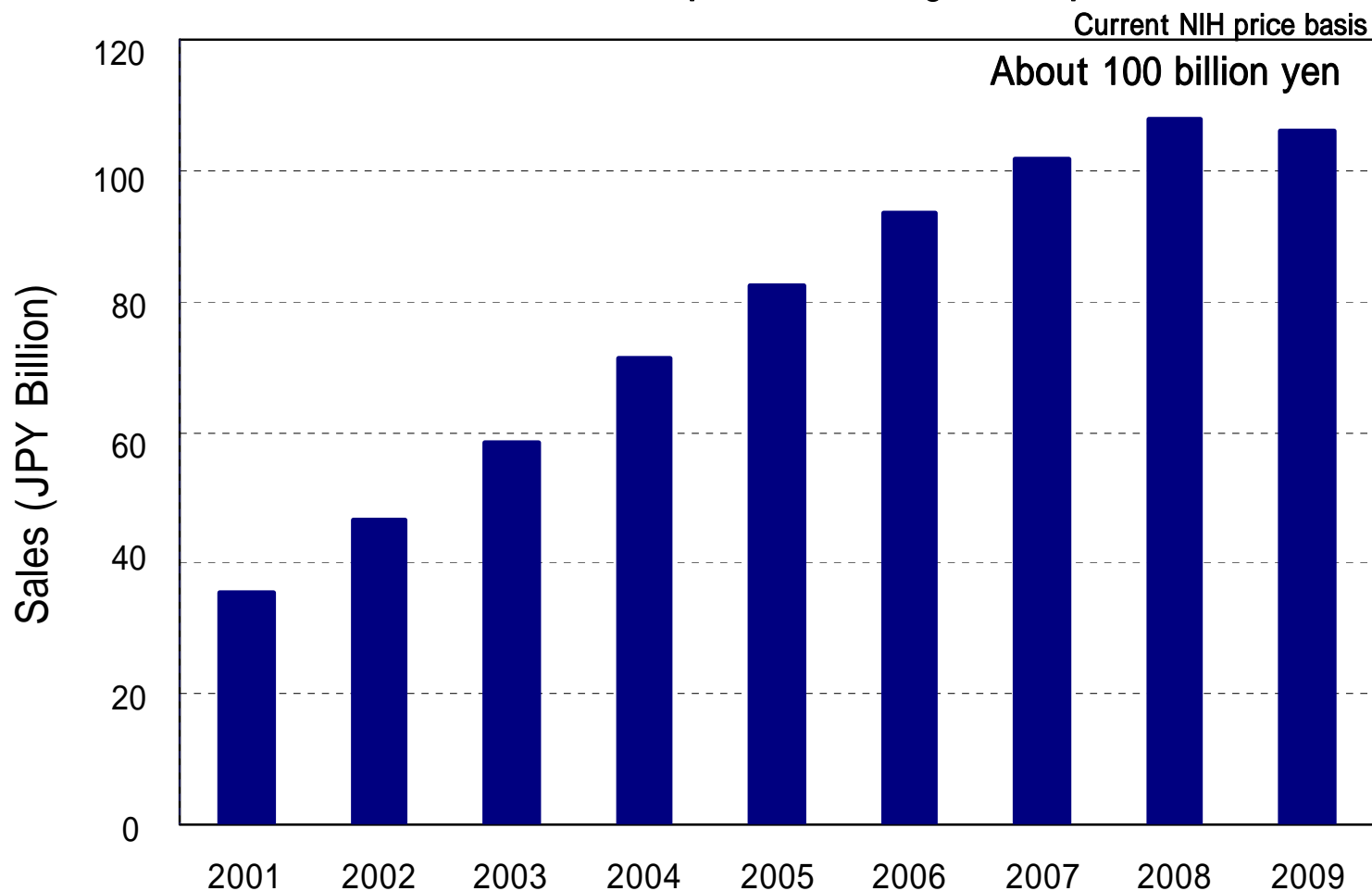
Project	Contents			
Escitalopram	Mechanism	Selective Serotonin Reuptake Inhibitors (SSRI)		
	Stage	Depressants	Japan (Mochida)	Filed by Mochida Co-marketing with Mochida* * Co-promotion with Yoshitomiyakuhin at psychiatric institution
	Features	<ul style="list-style-type: none"> <li>• Highest selective SSRI</li> <li>• High efficacy and tolerability</li> <li>• Low drug interaction</li> <li>• W/W Sales 3,845M \$**</li> </ul>		

\*\*Uto Brain 2009/07

# Sales of Anti-Depressant Drugs

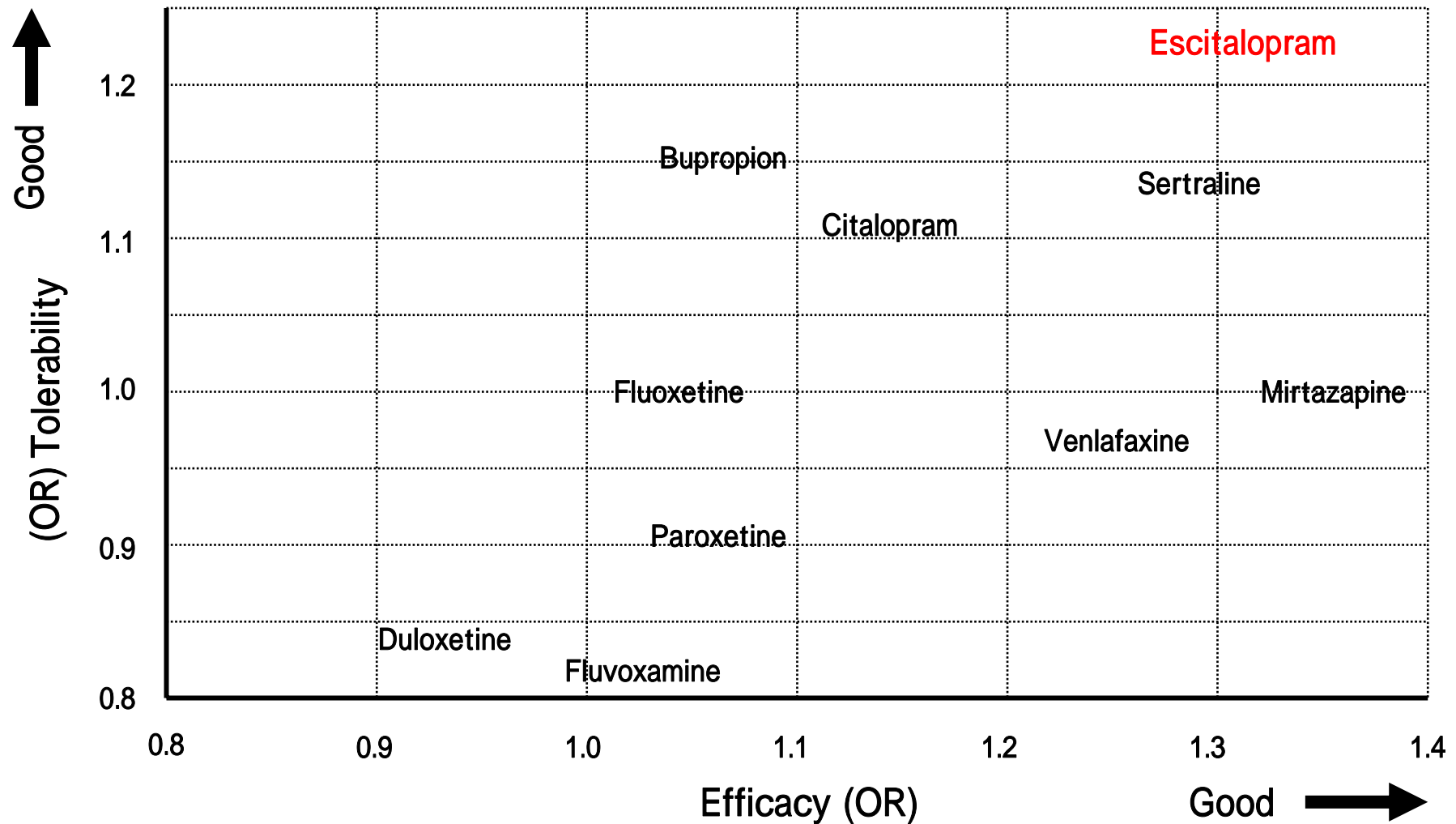


## Market of anti-depressant drugs in Japan



Source: © 2009 IMS Japan Jan. 2001-Dec. 2009 JPM All rights reserved

# Efficacy and Tolerability of Escitalopram



Meta-analysis demonstrated that escitalopram possesses high efficacy and tolerability.

Source: Lancet(2009)

# TA-1790 (Avanafil)



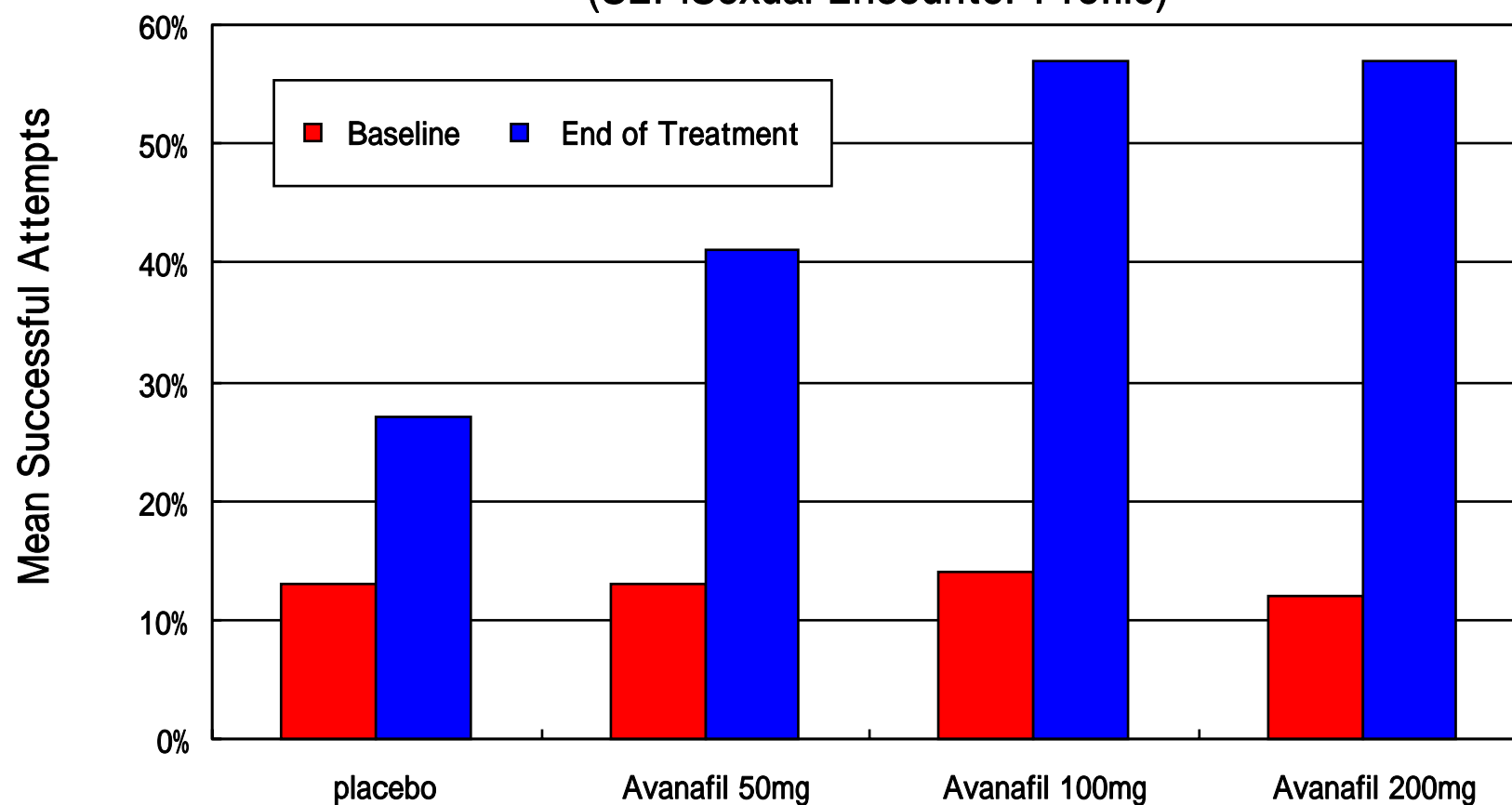
Project	Contents			
TA-1790 (Avanafil)	Mechanism	Inhibition of PDE5		
	Stage	Erectile Dysfunction	US (VIVUS)	Ph 3
			Korea (Choongwae)	Ph 3
	Features	High potency, good safety, rapid onset		



# TA-1790 (Avanafil) Clinical Data



Co-primary SEP 3: Percent of successful sexual attempts  
(SEP:Sexual Encounter Profile)






\*p<0.001 active vs. placebo change from baseline

Resource: Press release by VIVUS on Nov. 18, 2009

# Others (Filed and Approved)



## New Molecular Entities

Development code (Generic name)	Category	Indications	Phase				
			Ph1	Ph2	Ph3	NDA Filed	Approved
CNT0148 (Golimumab)	Anti-TNF monoclonal antibody	RA					
			Filed in June 2010 (filed by Janssen Pharma, co-development Janssen Pharma)				
TA-8317/Acref (Fentanyl citrate)	Narcotic analgesic	Breakthrough cancer pain: oral transmucosal					
			Filed in Aug. 2008				
BK-4SP	Vaccine	Prophylaxis of pertussis diphtheria, tetanus, an poliomyelitis					
			Co-development (BIKEN*)				







\* The research Foundation for Microbial of Osaka University

# Others (Filed and Approved)



## Additional Indications

### Phase

Development code (Generic name)	Category	Indications	Ph1	Ph2	Ph3	NDA Filed	Approved
Venoglobulin IH (Polyethylene glycol- treated human normal immunoglobulin)	Human immunoglobulin G	Polymyositis, Dermatomyositis				Filed in May 2003	
		Hypo and gammagloblinemia: additional dose				Approved in May 2010	
		Systemic sclerosis					
		Myasthenia gravis					
Modiodal (Modafinil)	Psychoneurotic agent	Obstructive sleep apnea				Filed in May 2010	
Pazucross (Pazufloxacin mesilate)	New quinolone antibacterial agent	Severe or intractable case: additional dose,septis, pneumococcus				Approved in July 2010	

### **Cautionary Statement**

**The statements contained in this presentation is based on a number of assumptions and belief in light of the information currently available to management of the company and is subject to significant risks and uncertainties. Actual financial results may differ materially from these forecasts depending on a number of important factors.**