Research and Development at Shionogi

SHIONOGI & CO., LTD.

S-O-N-G for you!

March 18, 2008
At Tokyo Branch Office

Speakers

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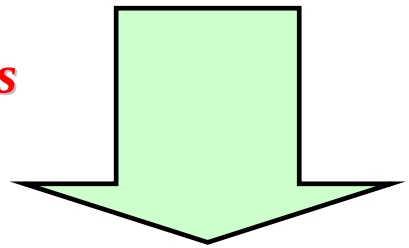
Toward Achieving the Targets of the Second Medium-Term Business Plan and Ensuring Long-Term Growth

Achieve medium to long-term growth by continuously launching new products

Shionogi R&D is committed to



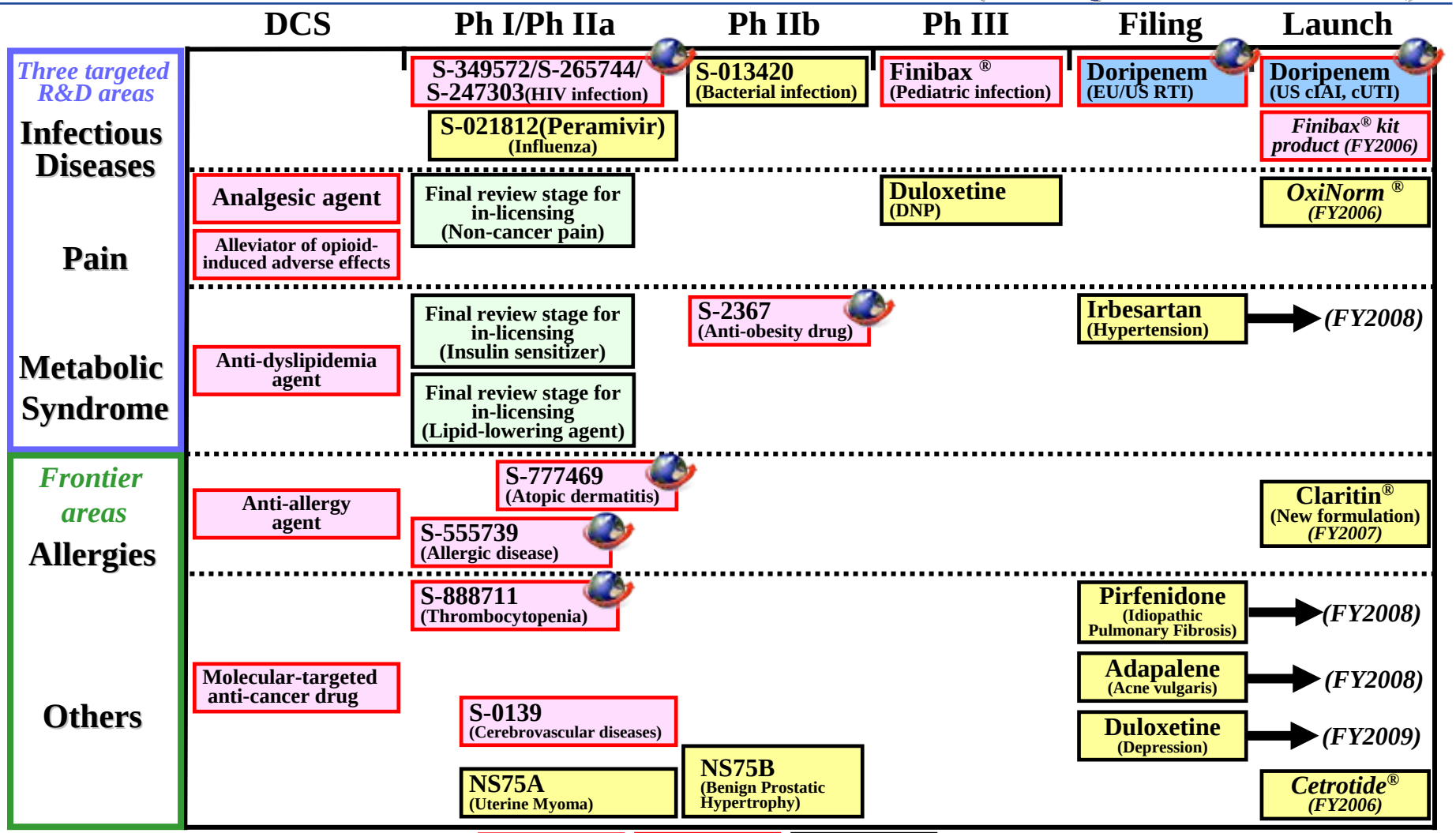
Discovering drug seeds continuously

Enhancing R&D productivity in all stages from DCS to POC

Accelerating clinical development of new products in Japan, the USA and the EU

DCS: Drug candidate selection, POC: Proof of concept

Drug Pipeline Enriched by In-house Compounds (As of March 2008)



DCS: Drug candidate selection,
DNP: Diabetic Neuropathic Pain,
RTI: Respiratory Tract Infection, cIAI: complicated Intra-Abdominal Infections
cUTI: complicated Urinary Tract Infections including pyelonephritis

Taking on Challenges to Achieve Significant Growth

Transform the Company's culture
From
Dependence on in-licensed drugs and the Japanese market
To
Undertaking global development by ourselves

- Continue discovering compounds in-house that can compete in markets worldwide
- Develop several compounds in Japan, the USA and the EU simultaneously
- Steadily advance the development of compounds expected to become the Company's new growth drivers

"Towards Real Growth"

Pharmaceutical Research Division

Targets for the Research Division under the Second Medium-Term Business Plan

- **Enrich product pipeline for infectious diseases and add pain and metabolic syndrome to target disease areas**
- **Move at least 5 new compounds to at least Phase II by the end of FY2009**
- **Increase the R&D efficiency and probability of commercialization by actively forming alliances using external resources**

Target for FY2009

Continuously discover globally competitive drugs

Ensure FTIH for 2 or more new in-house drug candidates each year

Achieve the highest R&D productivity in the pharmaceutical industry by . . .

- ➔ **Acting quickly**
- ➔ **Developing outstanding drug discovery technologies**

FTIH: First trial in human

Targets for FY2007 and Achievements (1)

- **Ensure FTIH for more than 2 compounds and DCS for more than 4 compounds**
  - **Advanced 3 compounds from DCS to FTIH**
    - Thrombopoietin receptor agonist: S-888711
    - HIV integrase inhibitor: S-349572 / S-265744 / S-247303
    - Prostaglandin D2 inhibitor: S-555739
  - **Selected 4 new compounds for DCS**
    - Alleviator of opioid-induced adverse effects
    - Analgesic agent
    - Anti-allergy agent
    - Anti-dyslipidemia agent

DCS: Drug candidate selection, FTIH: First trial in human

Targets for FY2007 and Achievements (2)

● Enhance research for discovery of drug seeds

● Held “FINDS”, a drug seeds competition

– Invited innovative ideas for original drug seeds and key technologies from a wide range of researchers in Japan

– The new initiative aims to commercialize latent ideas and technologies by collaborating with academia

– Selected 11 winners from 242 applications received and started collaborative research based on these ideas

2007
FINDS
シオノギ創薬イノベーションコンペ
PHarma-INnovation Discovery competition Shionogi

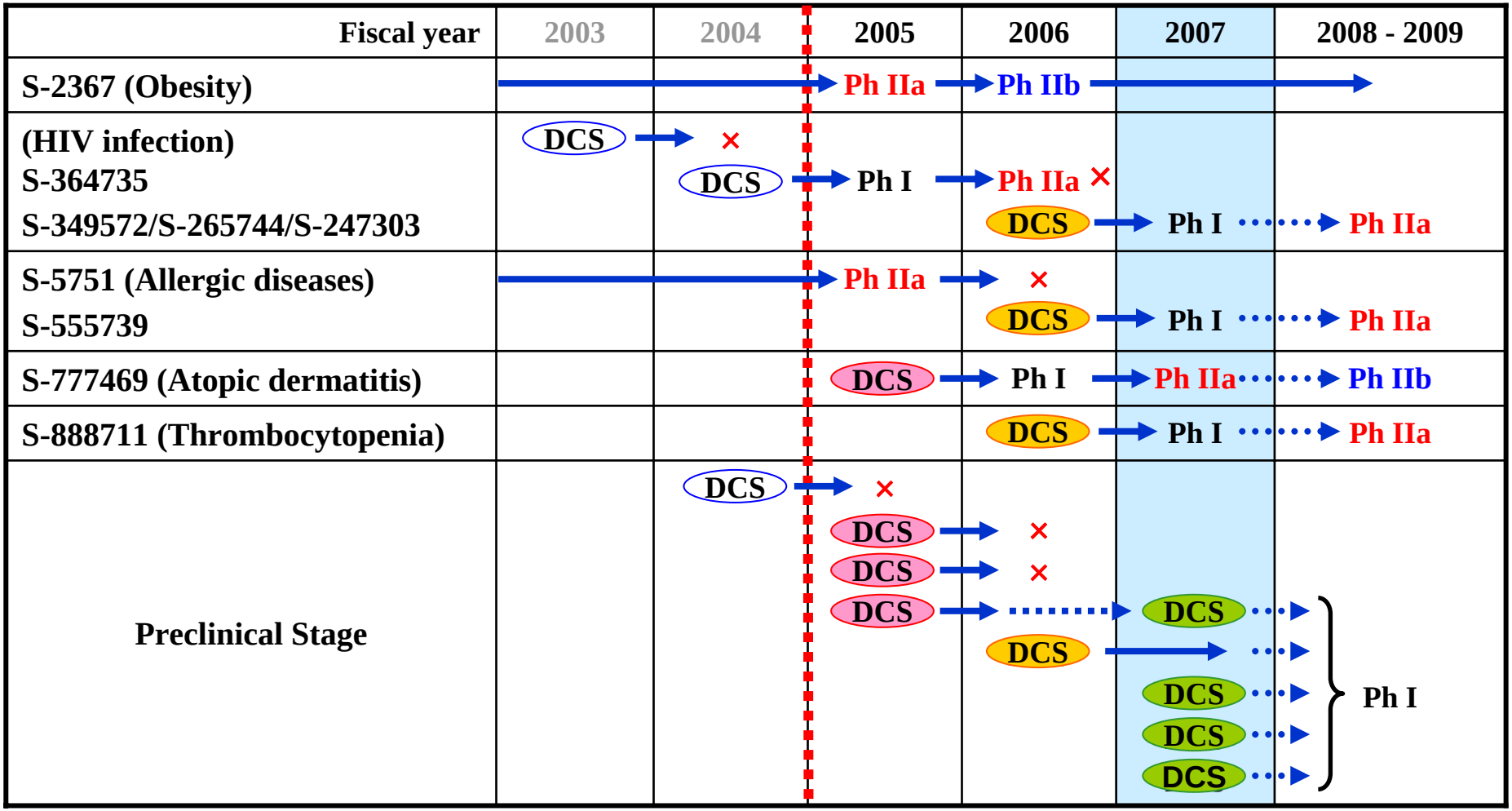
● Started collaborative studies with several laboratories of Hokkaido University before establishing Shionogi Innovation Center for Drug Discovery

Targets for FY2007 and Achievements (3)

- **Strengthen collaborative researches in the three targeted research disease areas on a global scale**
  - **Collaborative research project with GSK for Anti-HIV**
    - Developed integrase inhibitors with superior pharmacokinetic and resistance profiles
  - **Undertake collaborative research in pain area with Purdue Pharma L.P. in the USA**
    - Created a new analgesic candidate compound with a novel mechanism
  - **Undertake collaborative research with a U.S. biotechnology-based pharmaceutical company with a track record in metabolic syndrome**
    - Began a research program aiming to discover biotechnology-based medicines
    - Began basic research aiming to identify discovery targets leading to innovative drug creation
    - Evaluating in-licensing probability of biopharmaceuticals in addition to conducting collaborative research

A Review of the Three Year-Period from FY2005 to FY2007

R&D Trends for Candidates Developed In-house



Continuous creation of compounds for DCS; increase in the probability of proceeding to FTIH; and the seamless product pipeline have driven progress with the management plan. Now, the final goals are in sight.

DCS: Drug candidate selection, FTIH: First trial in human

Achievements and Measures Taken in the Last 3 Years

- **Organizational reforms to allow quick decision-making**
  - Rebuilt the research organization with a focus on the three targeted disease areas
  - Constructed an integrated decision-making system between Discovery Labs and Development Labs
  - Established a cross-divisional therapeutic area conference encompassing MPDR (Marketing, Production, Development and Research)
- **Improvement of research process for identifying drug candidates**
  - Strengthened management for target-validation criteria
  - Moved up compound evaluation process to an earlier stage and accumulated information about selection criteria and put it to effective use
  - Introduced the open-frame monitoring system and optimized resources by a timely reallocation
- **Portfolio management of research programs**
  - Introduced back-up/contingency management plan

- **Achieving continuous creation of compounds for DCS and improving probability of proceeding to FTIH**
- **Building seamless drug pipeline**
- **Approaching the stage where final goals of the second medium-term business plan are in sight**

DCS: Drug candidate selection, FTIH: First trial in human

Pharmaceutical Research Division Topics from FY2007

- **Profile of drug candidates**
- **Construction plan for Shionogi Pharmaceutical Research Center**

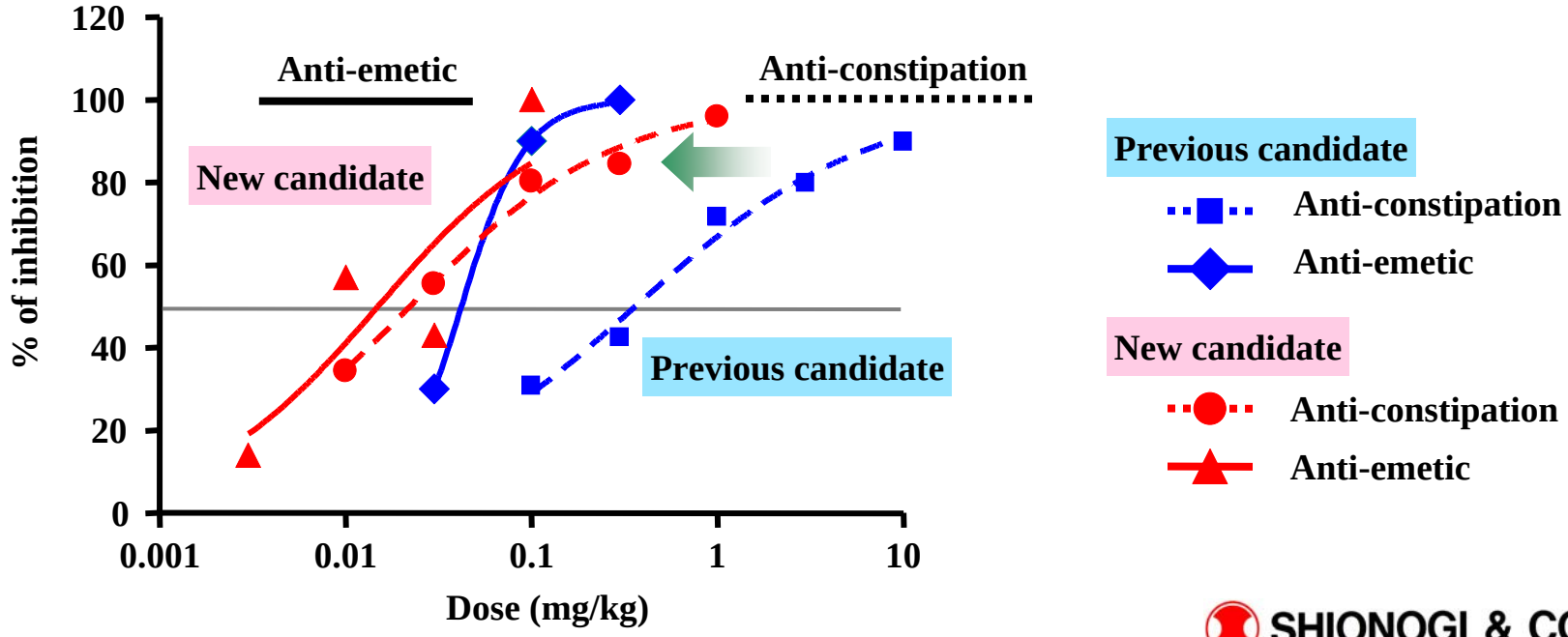
Anti-HIV/Anti-allergy Agent (PGD2 antagonist)

Research for next generation follow-up compounds is carried out for strategic products based on the back-up/contingency management plan

- **Replaced S-364735 with 3 novel compounds**
  - **Selected compounds having the excellent resistance and pharmacokinetic profiles based on a thorough investigation of the weak points of S-364735**
  - **Scheduled to conduct Phase I for 3 compounds (S-349573 / S-265744 / S-247303) in sequence to increase the probability of success**
- **Quickly switched from S-5751 to S-555739**
  - **Accelerated research for the follow-up compound with a novel chemical structure, aiming at creating a compound for the next generation**
  - **Selected S-555739, which has a much better product profile in activity and pharmacokinetics than S-5751 after examining the reasons why S-5751 did not demonstrate efficacy**

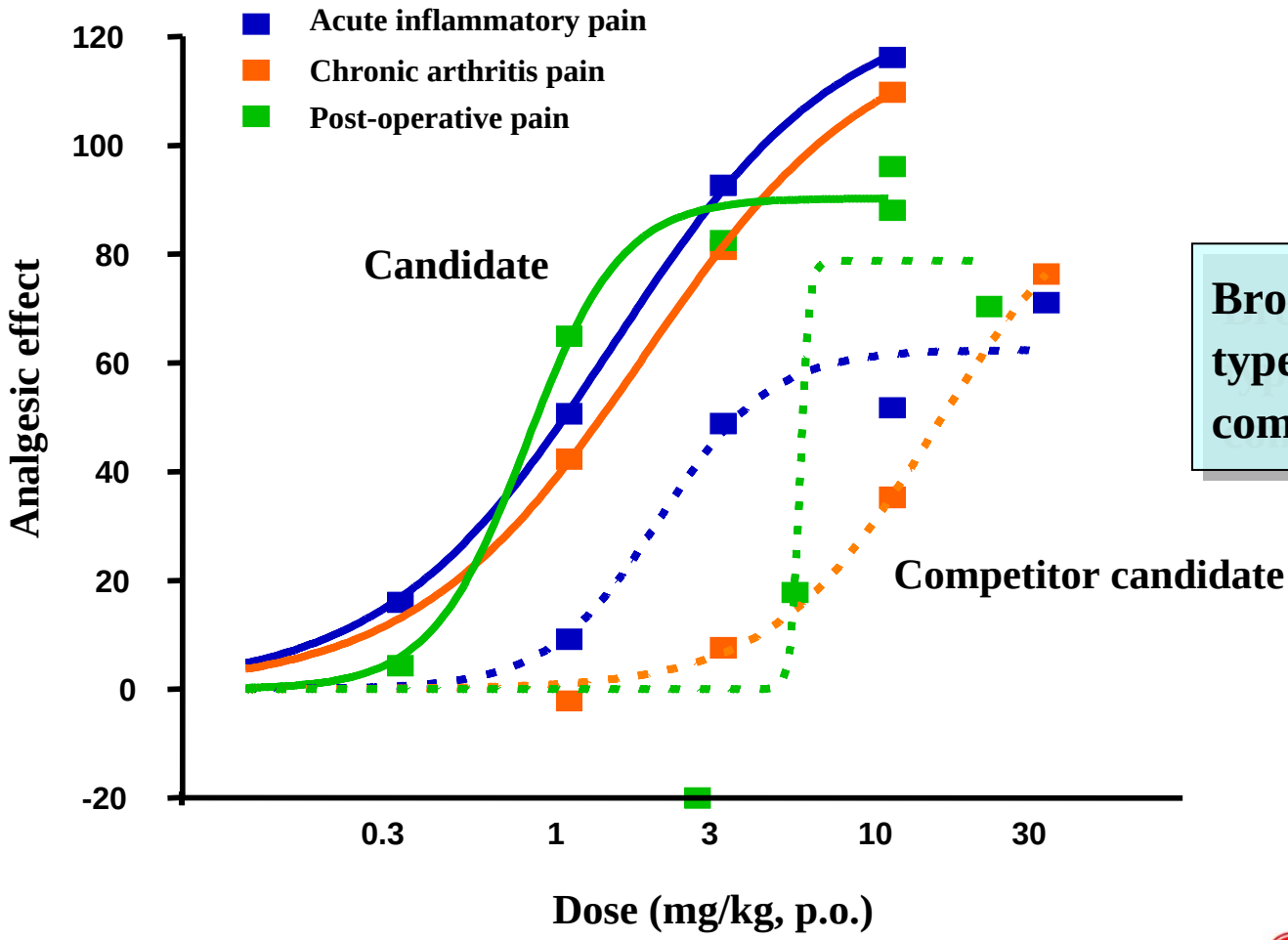
Alleviator of Opioid-induced Adverse Effects

- **New candidate replacing the previous one is targeted as a monotherapy for the alleviation of opioid-induced adverse effects, such as constipation and emesis, and could enhance QOL of patients taking opioid medication**
  - **Substantially improves morphine-induced constipation compared with the previous candidate, and alleviation of both constipation and emesis possible using the same dose of the new candidate**
  - **10- to 100-fold increase in activity compared with candidates from other companies**



Analgesic Agent

- **Selected Developmental Candidate in Collaboration with Purdue**

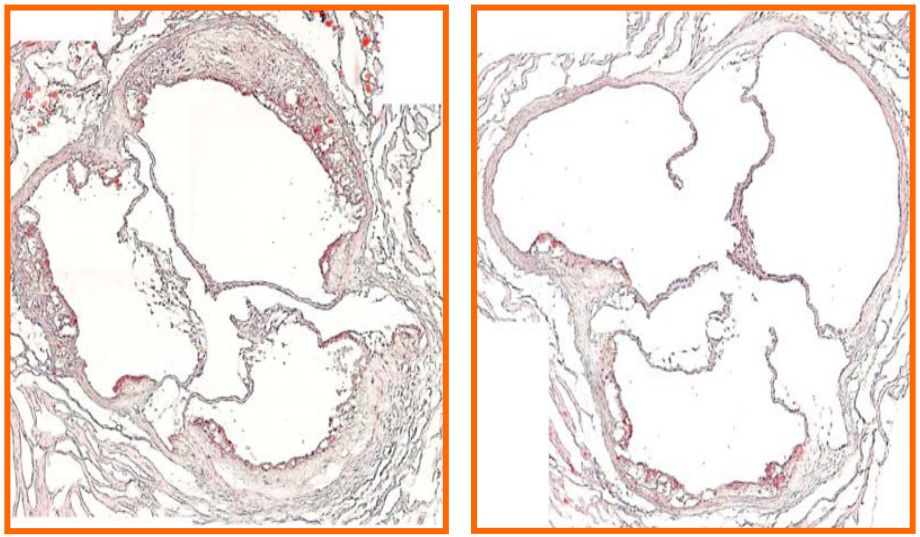


Broad spectrum of pain types More Potent than competitor's candidate

Anti-dyslipidemia Agent

- **Potent inhibition of atherogenesis by improvement of dyslipidemia and suppression of inflammation**

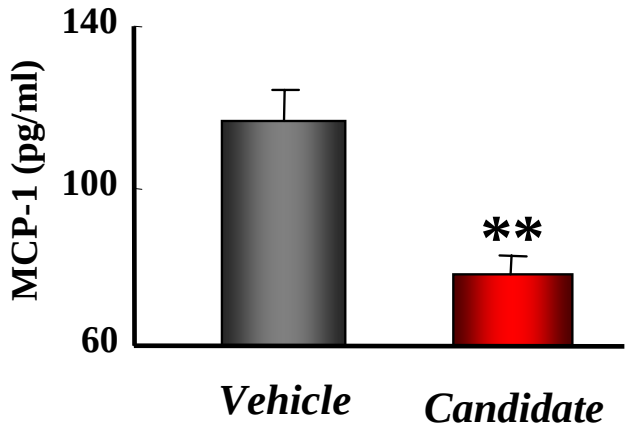
Inhibition of atheromatous plaque development



Vehicle ***Candidate***

Oral administration for 18 weeks in mouse model

Anti-inflammatory effect (Reduction of serum MCP-1)



MCP: monocyte chemotactic protein

Achieving the Highest Level of Productivity in the Pharmaceutical Industry:
Construction of New Research Laboratories

Overview of research facilities to be built

Location: Toyonaka City, Osaka
(on the same site as Shionogi's Developmental Research Laboratories)
Building: Earthquake-resistant 6-story building (area: 9,800m^2; total floor area: 43,000m^2)
Start of Construction: Fall 2008 (scheduled)
Completion: Spring 2010 (scheduled)
Start of Operations: Summer 2010 (scheduled)
Cost of Construction: Approximately ¥14 billion

Image

Achieving the Highest Level of Productivity in the Pharmaceutical Industry:
Concentration of Research Facilities in One Location

- **Further enhance ability to act swiftly and improve technology for drug discovery by concentrating research facilities in one location and incorporating new state of the art equipment**
  - **Concentrate functions for research from discovery search to pre-clinical stage: bring about synergies by raising efficiency and sharing knowledge**
  - **Create highly flexible environment that allows a wide range of research to be performed in fields from small molecular to biotechnology-based medicines**
  - **Build cutting edge facilities with the state of the art research equipment and infrastructure**

SPRC
(Shionogi Pharmaceutical Research Center)

Research base for diseases and programs

Site for collaborative research with overseas firms

(Image)

Shionogi Innovation Center for Drug Discovery

Satellite site

Create new research headquarters centered on the new facility

Targets and Measures to be Implemented in FY2008

- **Advance 2 or more compounds from DCS to FTIH and select 4 or more compounds for DCS**
  - **Promote selection and concentration of drug discovery programs in the targeted disease areas**
  - **Implement a compound risk management program to increase probability of success in POC studies**
- **Promote discovery research for drug seeds and thereby steadily create drug creation research programs**
  - **Start-up an expert department for generating lead compounds from drug seeds**
  - **Start research activities at Shionogi Innovation Center for Drug Discovery (in Hokkaido University)**
  - **Implement "FINDS" 2008**
  - **Strengthen alliance network and promote its activities**
- **Develop researchers who can take on responsibility for innovative drug discovery on a global scale**
  - **Start a new program to develop researchers who can lead business alliances with companies in the USA and the EU**

FTIH: First trial in human, POC: Proof of concept

Pharmaceutical Development Division

Realization of the 2nd Medium-Term Business Plan

- ***Targeted Goals of Development Division for the 2nd Medium-Term Business Plan***
- ***Desired Image for the end of FY2009***
- ***Achievements of FY2007***
- ***Future Initiatives Indicated by FY2007 Activities***
- ***Planned Measures for FY2008***
- ***Targeted Milestones for FY2008***
- ***Development Pipeline Goals for the end of FY2008, FY2009***

Targeted Goals of Development Division for the 2nd Medium-Term Business Plan

Three Targeted Areas

1. Enrich product line for infectious diseases and add pain and metabolic syndrome to new target areas
2. Move at least 5 new chemical entities to Phase II or more advanced stages by the end of FY2009
3. Establish an unbroken pipeline stream through strategic development of licensing activity
4. Increase the R&D efficiency and success rate by forming active alliances with outside resources
5. Maximize product potential through life cycle management from an early development stage

Desired Image for the end of FY2009

Simultaneously develop multiple in-house products in Japan, the USA and the EU

Secure either one or two Phase IIb and one Phase III products or three Phase IIb products

- **In a position to establish the development base and start operation in the EU in addition to the USA**
- **In a position to enable to file NDAs both in the USA and the EU by ourselves or through alliances with business partners**

Achievements of FY2007 (1): Post-NDA Filing Products

- **Approval / Launch**

  Claritin®
  - Tablet: Additional indication for pediatric use
  - Addition of dry syrup formulation

- **NDA Filing completed**

  Duloxetine (depression)

- **Life Cycle Management**

  Finibax®
  - Completed Phase IV and started clinical study for additional indication for pediatric infection

Achieved FY2007 goals

Achievements of FY2007 (2): Phase I – III

Go/No-Go Decisions

- S-2367: Completed patient enrollment for Phase IIb and scheduled interim analysis for the near future
- S-364735*: Discontinued development and initiated Phase I with follow-up compounds
- S-777469: Advanced to Phase II in Japan, and developed both in Japan and the USA
- S-013420: Currently building strategies to maximize the value of this compound before entering Phase III

FTIH Achievements

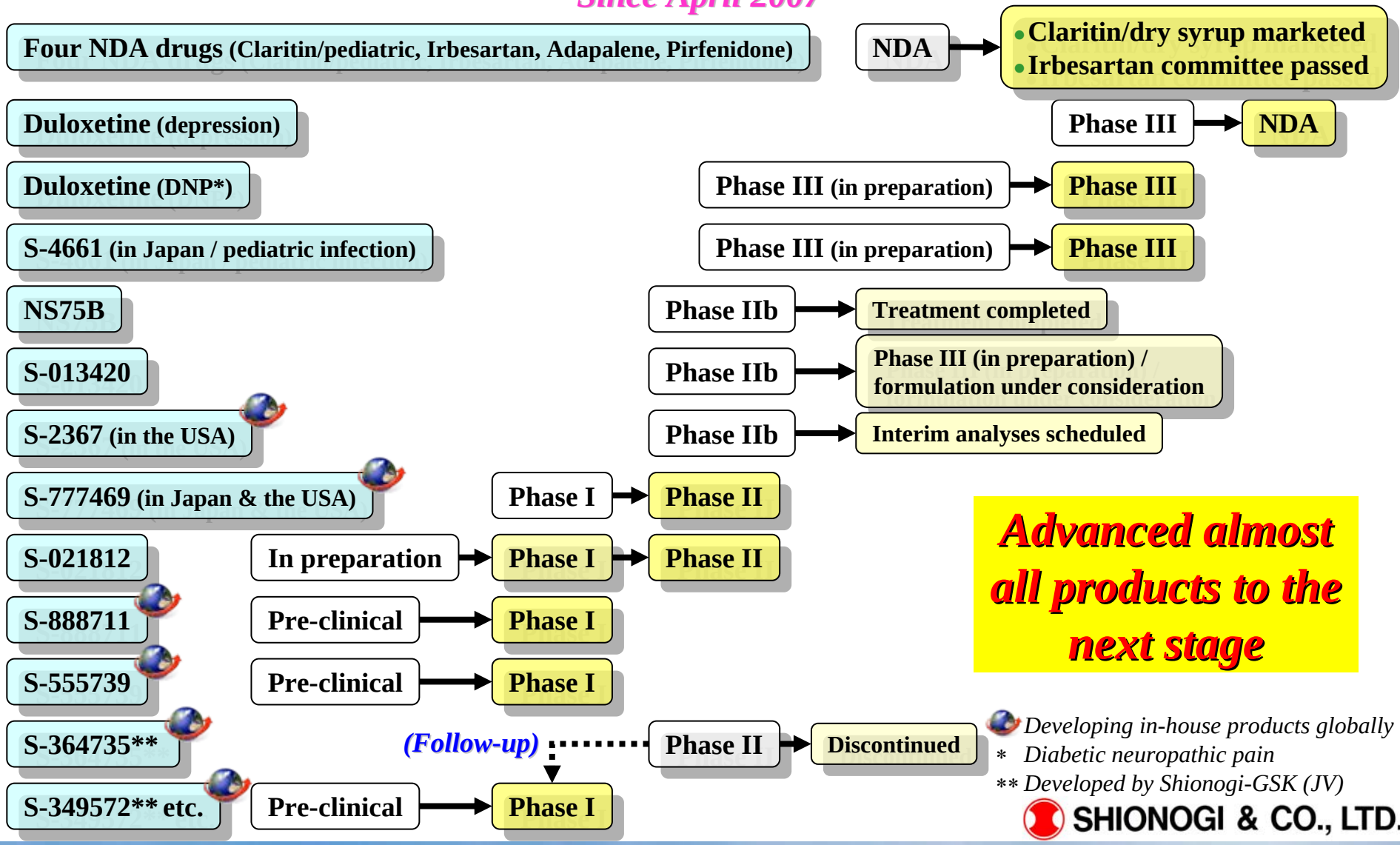
- S-888711
- S-555739 (follow-up compound to S-5751)
- S-021812 (Peramivir)
- S-349572*

Achieved FY2007 goals

*FTIH: First trial in human, * Developed by Shionogi–GSK (JV)*

Achievements of FY2007 (3): Steadily Advanced to Higher Phases

Since April 2007



Advanced almost all products to the next stage

Developing in-house products globally

* *Diabetic neuropathic pain*

** *Developed by Shionogi-GSK (JV)*

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Achievements of FY2007 (4): Progression of Life Cycle Management

Post-marketing clinical studies

- **Crestor® – Efficacy on plaque regression in coronary arteries (IVUS study)**

  Achievements: Completed patient enrollment

- **Imunace® – Pharmacogenomics study with renal cell carcinoma patients**

  Achievements: Scheduled to reach targeted number of patients for gene analysis within FY2007

Future Initiatives Indicated by FY2007 Activities

Planned Measures for FY2008 (1): Continuously Create Compounds for Global Development

Aggressive overseas push for S-2367, S-349572* / S-265744* / S-247303*, S-777469

- **S-888711**
- **S-555739**

Continuously create globally competitive development compounds

* *Developed by Shionogi–GSK (JV)*

Planned Measures for FY2008 (2):
Develop Human Resources and Build a Cutting-Edge Organization

Build an organization that truly reflects the optimal form of the Development Division

- **Rewrite and implement human resources development plans**
  - **Further develop training programs for enhancing the caliber of human resources**
  - **Implement development program for human resources and training program to develop core personnel for global activities**
  - **Promote younger members to global development projects**

- **Construct frameworks responding to globalization**
- **Integrate the Product Development Regulatory Affairs Department and the Medical Writing Department with a view to future global development**

Build an effective organization that can respond flexibly and quickly to a changing business environment

Planned Measures for FY2008 (3): Continuously Promote Strategic Alliances

Out-licensing

- **S-3013 (atherosclerosis)**
- S-0373 (spinocerebellar ataxia, Parkinson's disease)
- S-0139 (cerebrovascular diseases)
- S-3304 (cancer)

In-licensing

- LDL-C lowering agent
- Insulin sensitizer
- Non-cancer pain treatment

Utilize strategic alliances to:
Strengthen domestic sales; and
Accelerate global development

Partnering

- **S-2367**
- **Integrase inhibitor etc.**

Targeted Milestones for FY2008 (1): Post-NDA Filing Products

NDA filing and launch of domestic strategic products

- **Approval / Launch**
  - Launches of Irbesartan, Pirfenidone, and Adapalene
- **Post-NDA Filing**
  - Duloxetine (depression): Proper response to NDA review
- **Life Cycle Management**
  - Claritin®: Post-marketing clinical studies

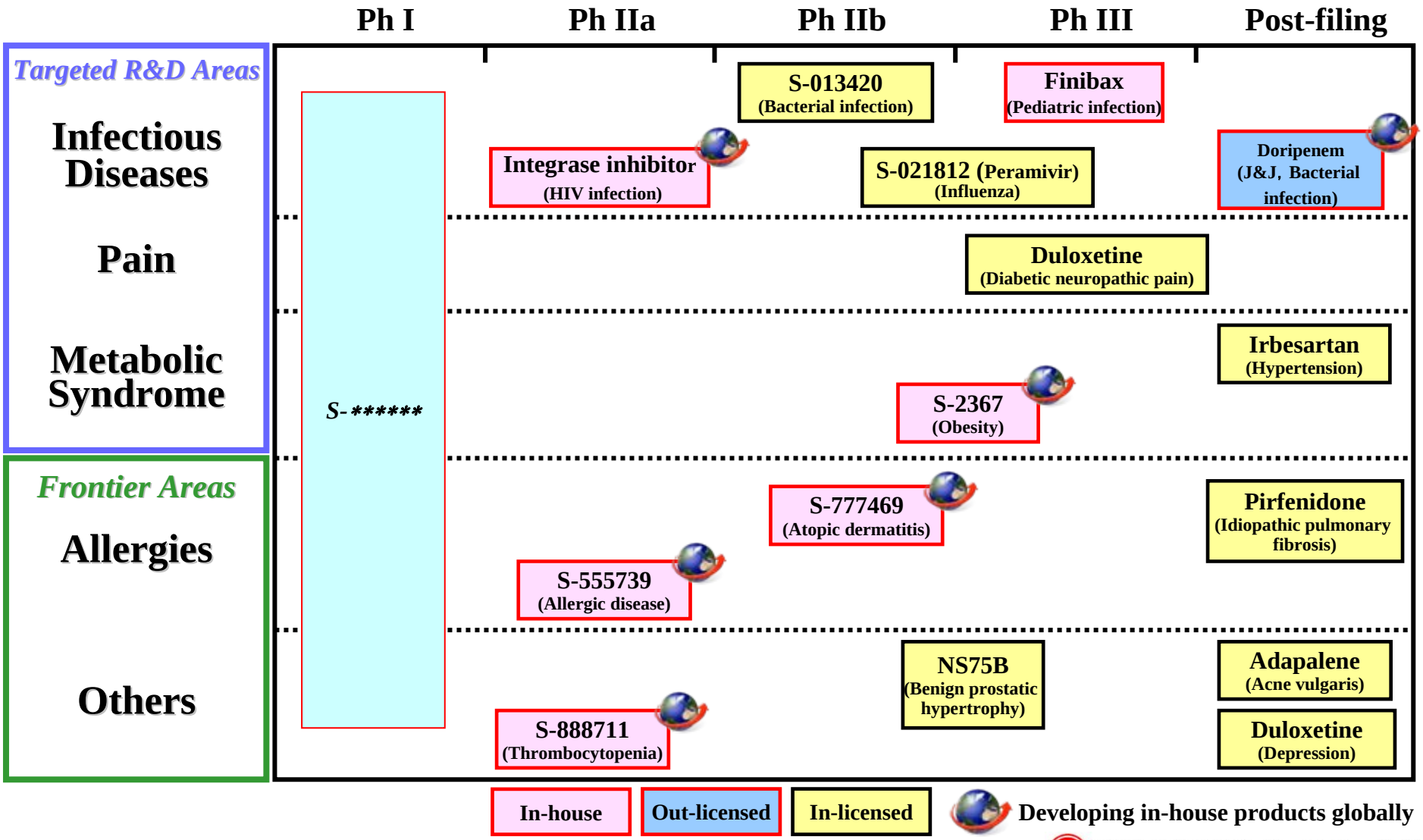
Targeted Milestones for FY2008 (2): Phase I – III

Completion of POM and POC Studies and Proper Go/No-Go Decision

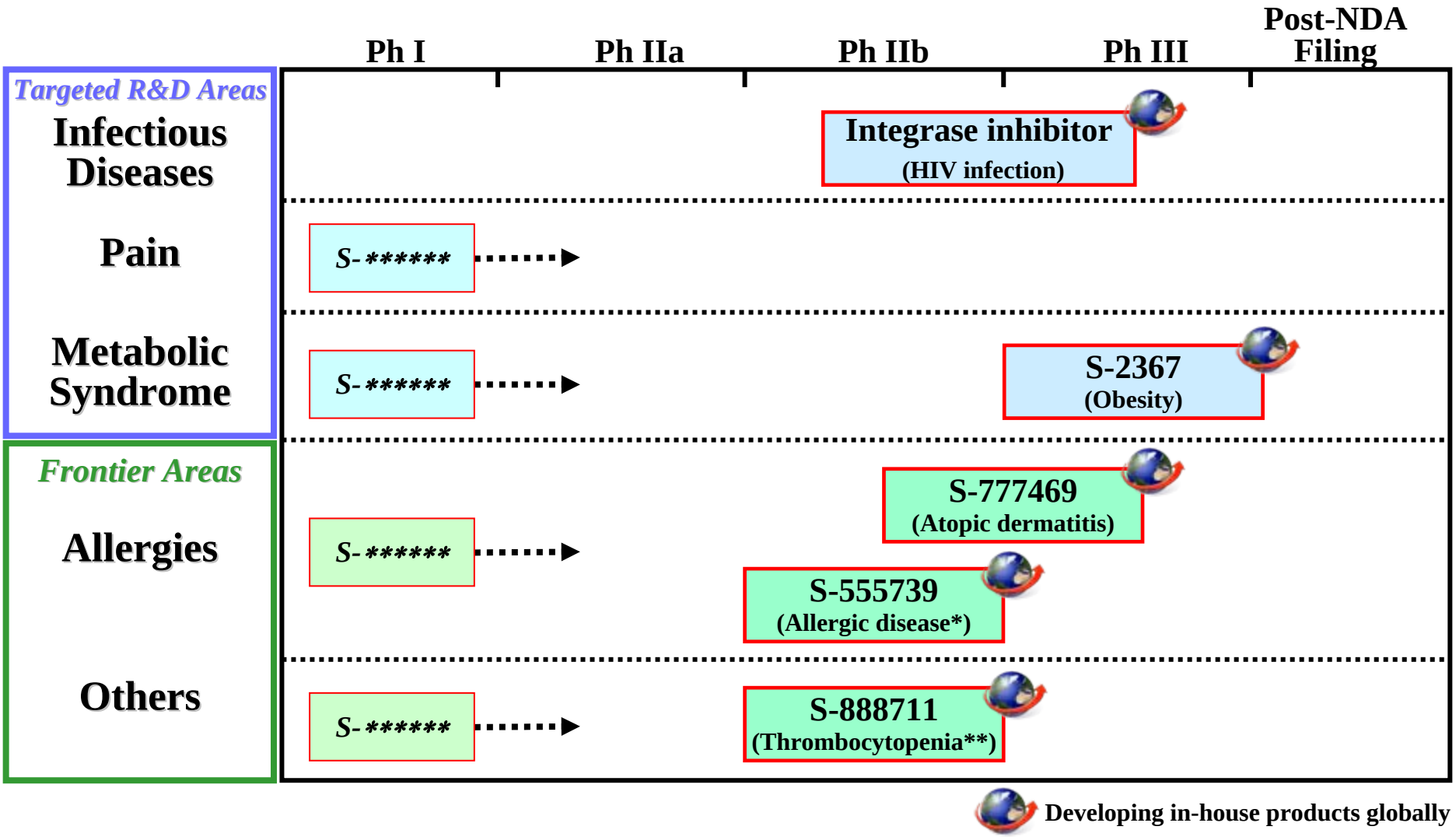
- **Go/No-Go Decisions**
  - S-2367 (USA): Interim analysis and final analysis of the results of Phase IIb studies; Go/No-go decision for Phase III; Partnering
  - S-021812 (Japan), S-777469 (Japan & USA), S-349572* (USA): Completion of POC studies; Go/No-go decisions
  - S-555739 (EU), S-888711 (Japan): Completion of POM studies; Go/No-go decisions
  - NS75B (Japan): Go/No-go decision
- **Progress to FTIH**
  - 2 products

POM: Proof of Mechanism, POC: Proof of concept, FTIH: First trial in human,
** Developed by Shionogi–GSK (JV)*

Main Development Products in the Pipeline: Development Pipeline Goals for the end of FY2008



Core In-house Products in the Pipeline for Global Development: Development Pipeline Goals for the end of FY2009



* *Allergic rhinitis, asthma, etc.*

** *Idiopathic thrombocytopenic purpura, hepatitis C virus, cancer chemotherapy, etc.*

Core Development Products

- **Product characteristics**
- **Indications**
- **Pre-clinical and clinical study data, etc.**

S-021812 (Peramivir): Profile

- **Licensed from BioCryst Pharmaceuticals, Inc. (USA)**
- **Anti-influenza virus drug (neuraminidase inhibitor) (injection)**
- **Characteristics**
  - Highly active against influenza A and B viruses
    - – More potent against influenza B virus than Tamiflu®
  - Strong activity against highly pathogenic avian influenza virus (H5N1)
  - Strong affinity to influenza neuraminidase and slow off-rate
    → Possibly effective with a single-dose administration
  - Potency of "Delay Dosage" (administration later than 48 hrs after onset of infection)
  - Broad indications from ordinary seasonal influenza to severe or life-threatening influenza
  - Award of US$102.6 million from DHHS* to BioCryst for advanced development of peramivir. Phase II study is ongoing in the USA.
  - Designated as a Drug Product for Priority Consultation in Japan

Phase II study in progress

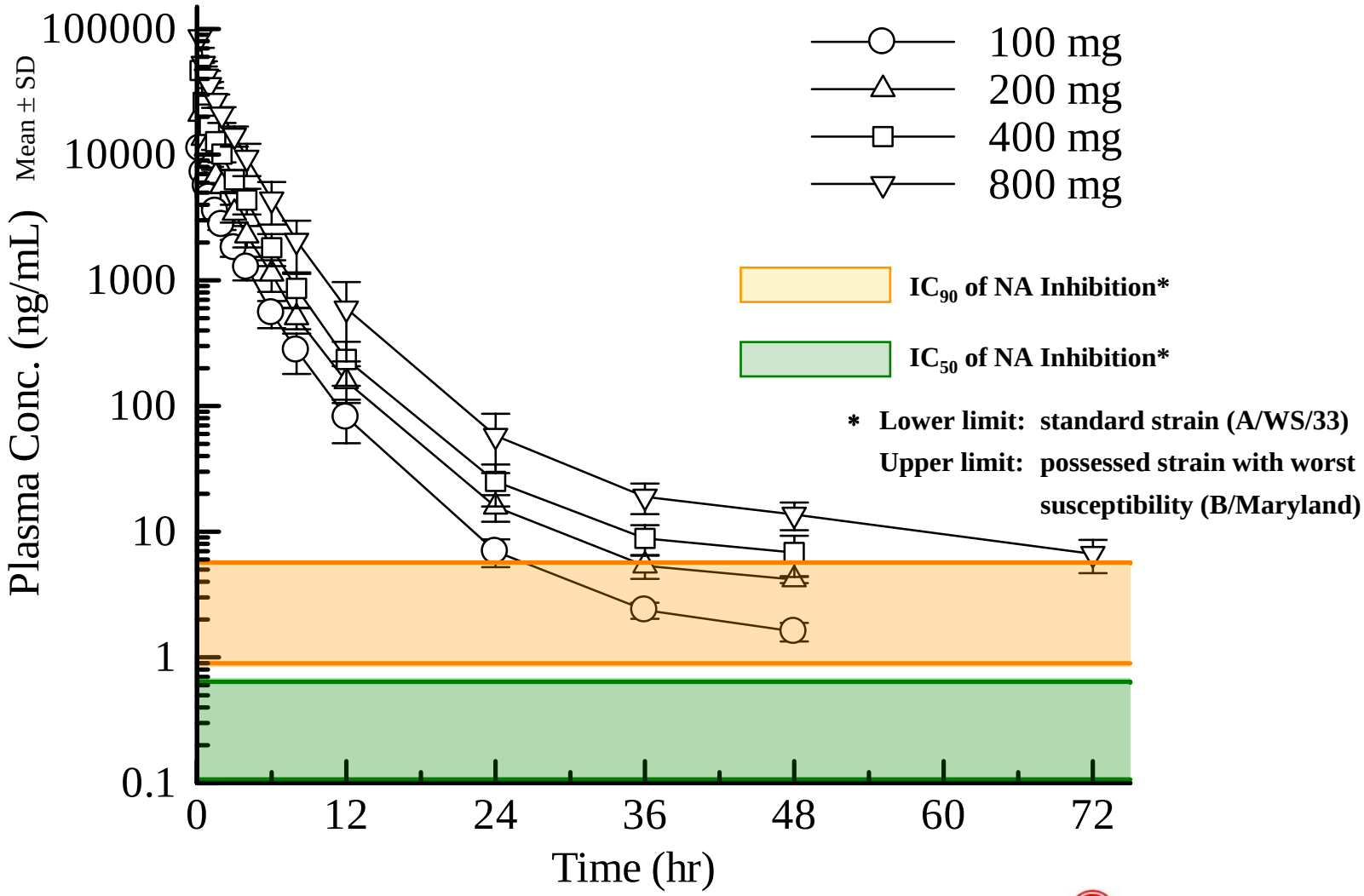
* *The U.S. Department of Health and Human Services*

S-021812:
Results of Phase I Study and Outline of Phase II Study

- **Results of Phase I Study (Intravenous Injection)**
  - **Pharmacokinetics**
    - Good pharmacokinetic profile at doses ranging from 100 - 800 mg
    - No accumulation after multiple dosing
    - Confirmed similar pharmacokinetic profiles between Japanese and other nationalities
  - **Safety**
    - No serious adverse events were reported
    - Demonstrated good safety and tolerability
- **Outline of Phase II Study (Intravenous Injection)**
  - **Indication**
    - Influenza virus infection
  - **Study design**
    - Multicenter, double-blind, placebo controlled study
  - **Plan to complete the study within this influenza season (2007–2008)**

Developing a subcutaneous formulation for potential market

S-021812: Plasma Concentration Profiles (Single Intravenous Dosing in Phase I)



S-349572 / S-265744 / S-247303: Profile

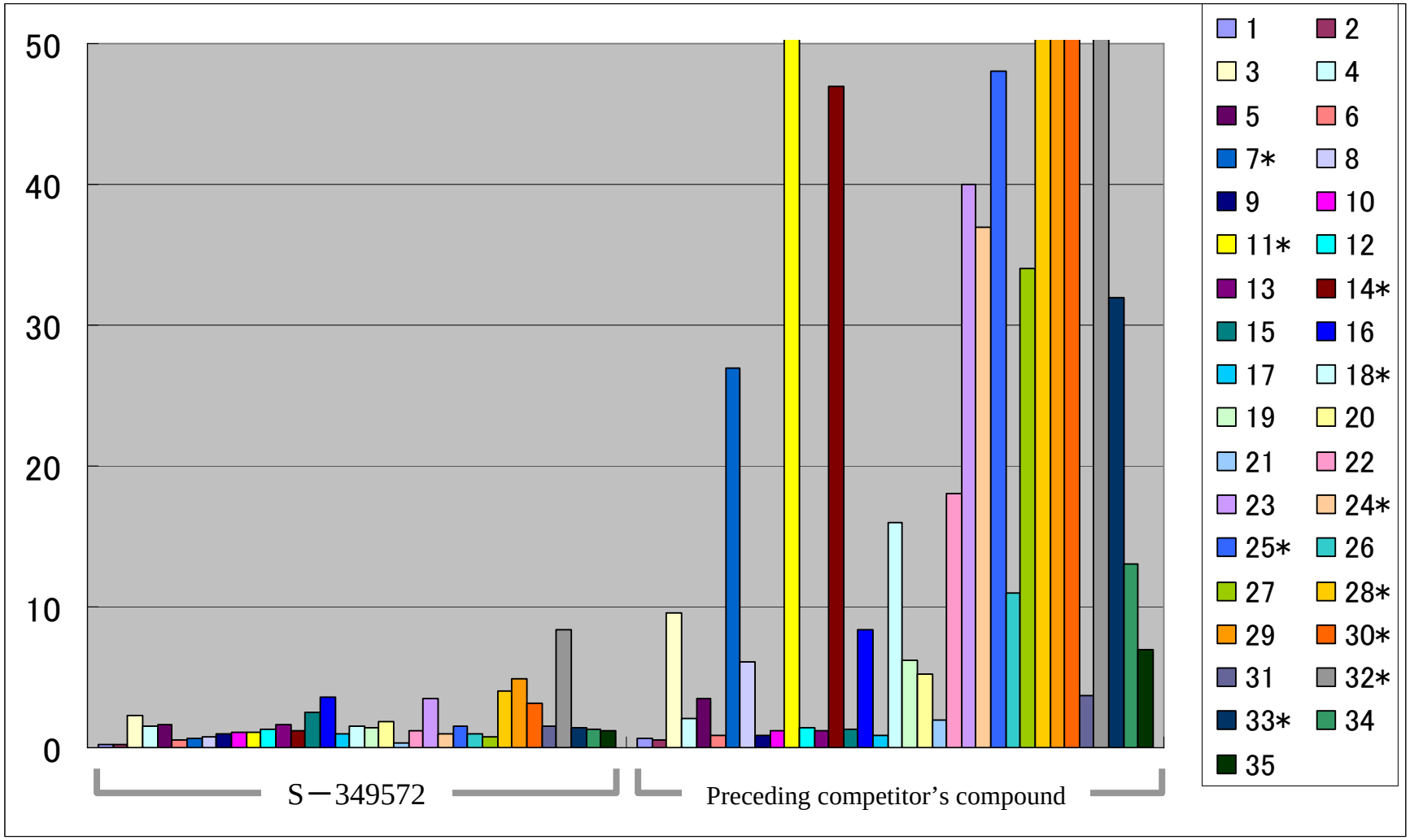
- **Developed by Shionogi-GlaxoSmithKline Pharmaceuticals, LLC**
- **HIV Integrase Inhibitor (oral)**
- **Characteristics**
  - Strong anti-HIV activity in inhibiting virus replication *in vitro*
  - Good resistant virus profile *in vitro*
  - Good pharmacokinetic profile
  - Low risk of drug-drug interactions
- **Marketability**
  - Estimated 33 million HIV patients worldwide

S-349572: Phase I clinical study in progress in the USA

S-265744 / S-247303: Phase I in preparation in the USA

One compound to be selected out of the three

S-349572: In vitro Activity against Highly Resistant Viruses for Preceding Competitor's Compound



* *Resistance mutations reported in clinical trials of preceding competitor's compound*

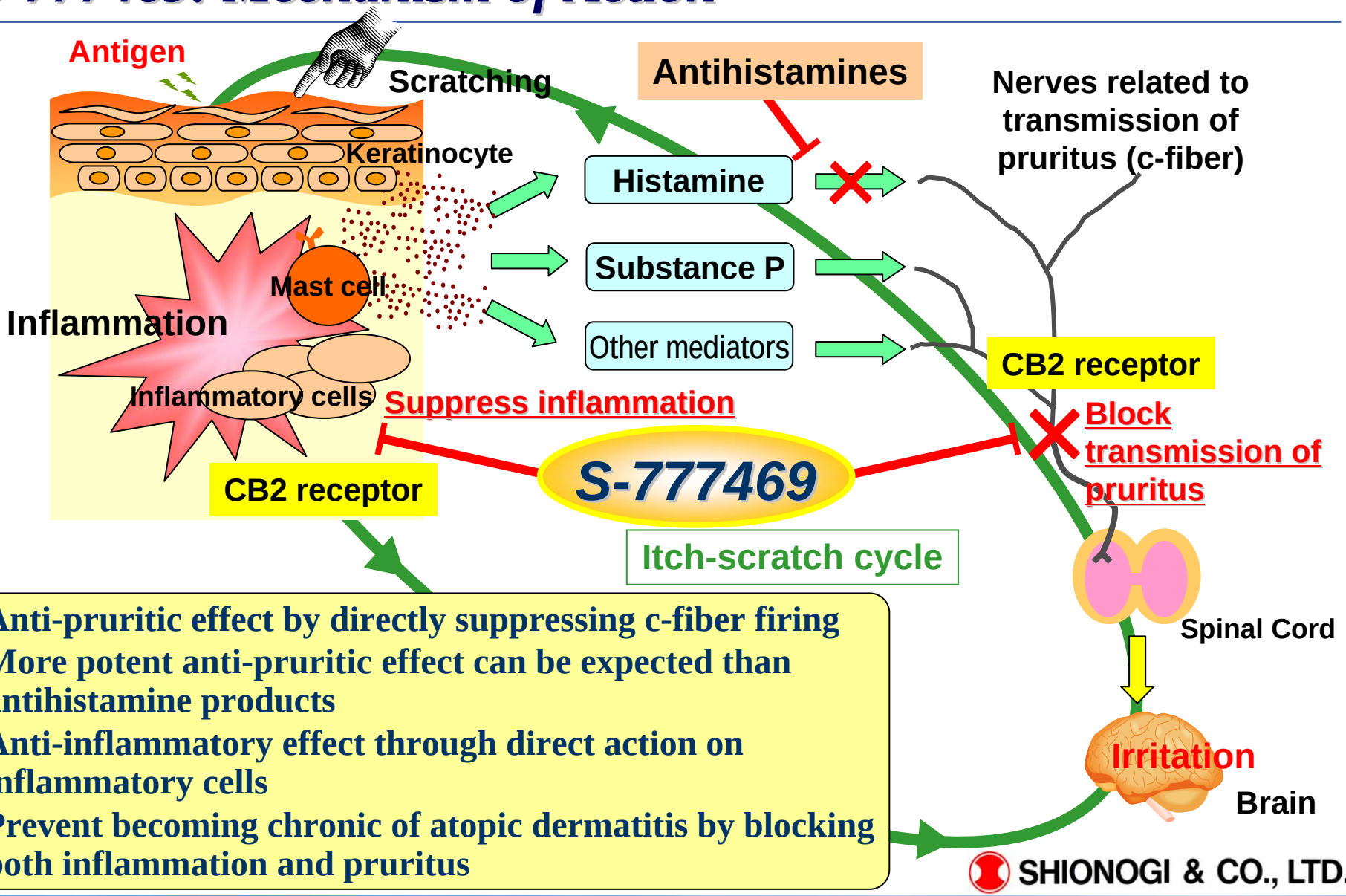
S-777469: Profile

- **Indication: Atopic dermatitis (AD)**
- **Selective cannabinoid 2 receptor agonist (oral)**
- **Characteristics (non-clinical)**
  - Reduces scratching behavior induced by various pruritic agents in mouse model
  - Improves dermatitis scores in animal AD model
  - Good safety profile
- **Positioning**

  ⇒ First-in-Class therapeutic agent for AD
- **Marketability**
  - Predicted number of patients with eczema/dermatitis including AD is 30 million (Japan, the USA, the EU)

Phase IIa study in progress in Japan

S-777469: Mechanism of Action



S-777469: Outline of Clinical Studies

- **Update of Phase I studies**
  - **Japan**
    - **Completed a 14-day, multiple-dose study in healthy volunteers**
      - Good tolerability
      - Dose-dependent increase in plasma concentration from 50 to 800 mg
  - **USA**
    - **Conducting a 14-day, multiple-dose study in patients with atopic dermatitis (Phase Ib/IIa)**
      - Treatment completed, analysis in progress
      - Top-line results: Mar. 2008 (scheduled)
- **Schedule for upcoming studies**
  - **Japan**
    - **Phase IIa study**
      - Patients enrolment commenced in Jan. 2008
      - Pruritus and skin manifestations to be evaluated as primary endpoints
      - Top-line results: 3Q 2008 (scheduled)
  - **USA**
    - **Phase IIa study**
      - IND determination in Mar. 2008 (scheduled)
      - Top-line results: 2Q 2009 (scheduled)

S-555739: Profile

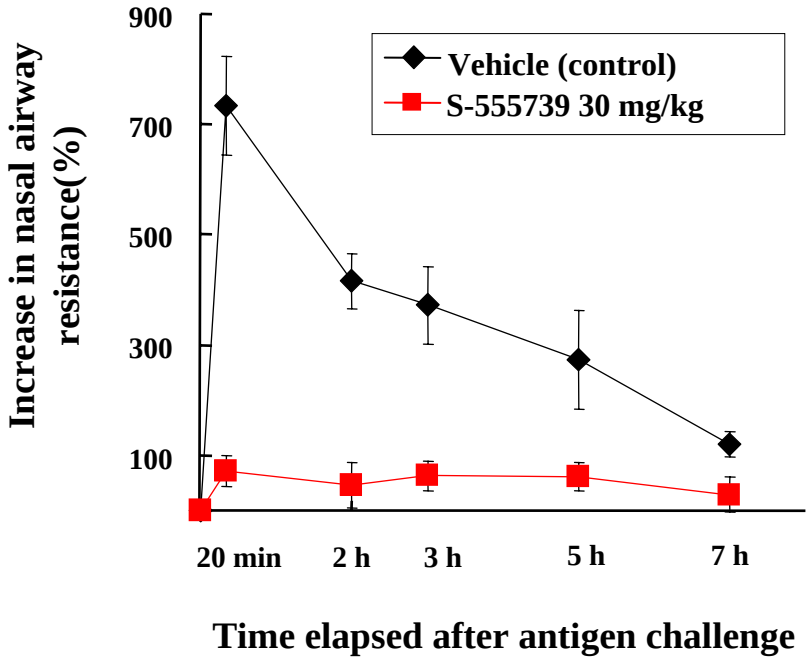
- **Indication: Allergic rhinitis (as the first indication target)**
- **Prostaglandin D2 receptor antagonist (oral)**
  - Backup compound of S-5751: More potent receptor antagonist activity and good pharmacokinetic profile
- **Characteristics (non-clinical)**
  - More suppressive effect against nasal congestion than existing anti-allergy drugs
  - Effective with once-daily dosing
  - Good safety profile
- **Positioning**
  - New therapeutic drug against nasal congestion that is not relieved by existing anti-allergy drugs
- **Marketability**
  - Predicted total number of allergic rhinitis patients in Japan, the USA, and the EU is 64 million, 60% of which are estimated to have nasal congestion

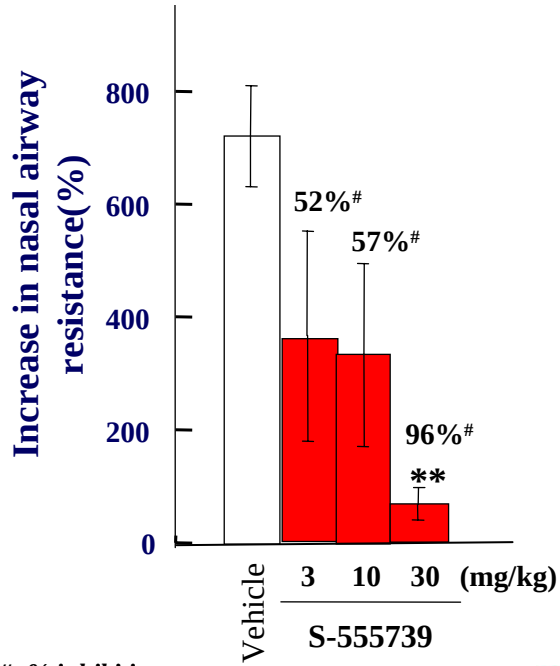
Phase I single dose study in progress

S-555739: Efficacy in Allergic Rhinitis Model

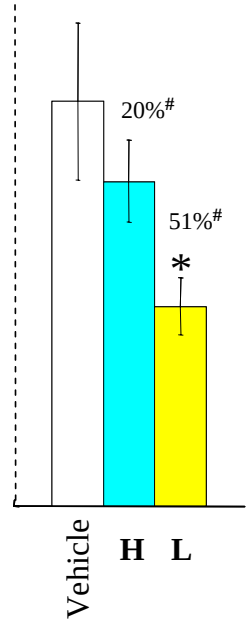
S-555739 strongly suppressed antigen-induced nasal congestion, and the efficacy of S-555739 was much stronger than that of existing anti-allergy drugs

Guinea pig rhinitis model





H: Anti-histamine
L: Leukotriene antagonist



#: % inhibition
**, **: P < 0.05, P < 0.01 vs. vehicle*

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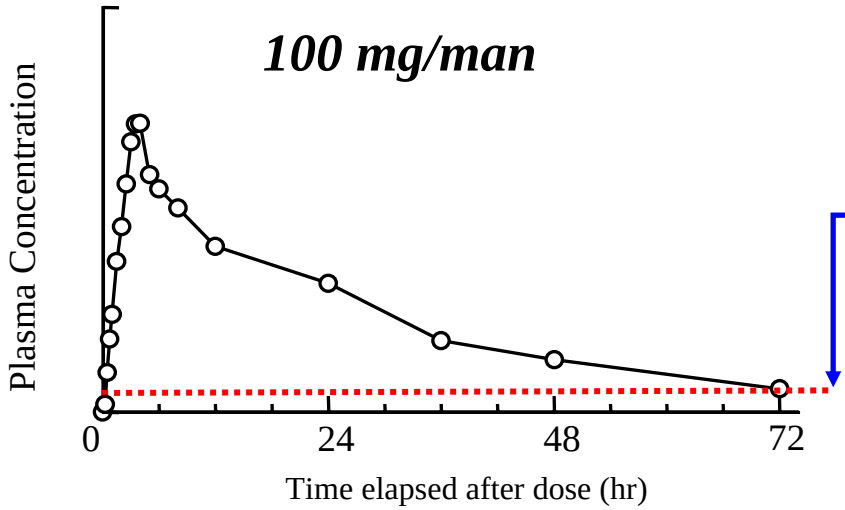
S-555739: Outlines of Clinical Studies

- **Phase I single dose study is in progress (Japan)**



Target plasma concentration for efficacy predicted from guinea pig rhinitis model

- **Upcoming clinical studies**
  - Phase I multiple dose study, relative BA (bioavailability) study (to begin in 1st half of FY2008)
  - Nasal challenge study for exploring efficacy (to begin in FY2008)
  - POC study (to begin in FY2009)

POC: Proof of Concept

LY248686 (Duloxetine): Major Depressive Disorder

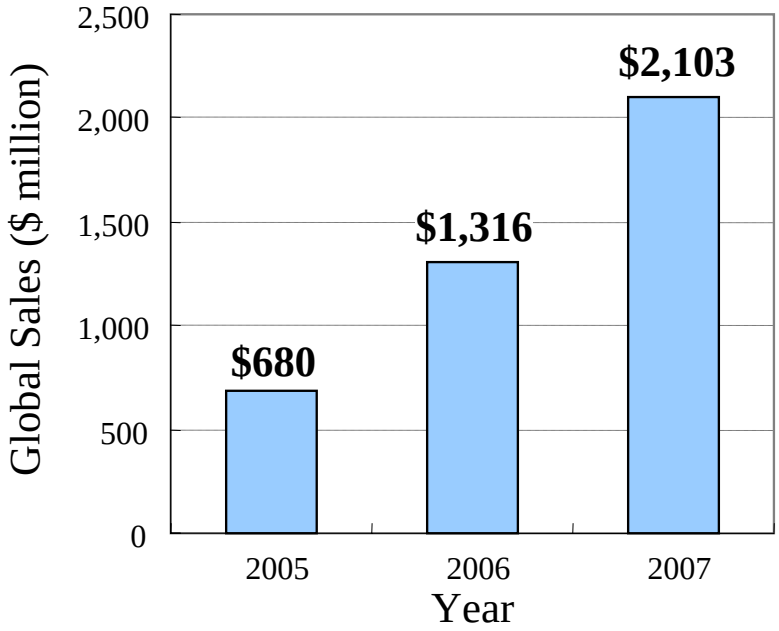
- **Licensed from Eli Lilly and Company (USA)**
  - Shionogi and Eli Lilly Japan K.K. will co-market Duloxetine
- **SNRI: Serotonin & Norepinephrine Reuptake Inhibitor**
- **Once-daily (oral)**
- **Effective against emotional and painful symptoms**

Conducting additional clinical trials with higher dosages to maximize the efficacy of Duloxetine, taking into account the dosage levels used abroad

NDA Submission: Jan. 2008

LY248686: Global Blockbuster

- **Approved for depression in more than 90 countries, and for diabetic peripheral neuropathic pain in more than 70 countries**
- **Treated more than 8 million patients**
- **$2.1 Billion global sales in 2007**
- **Additional indications (USA)**
  - Fibromyalgia syndrome: NDA submission
  - Chronic pain: NDA filing in preparation



94% and 60% increases over the previous year in 2006 and 2007 respectively

LY248686: PLCM – Diabetic Neuropathic Pain

- **Co-development and co-marketing with Eli Lilly Japan K.K.**
- **The first drug approved for treatment of diabetic neuropathic pain (DNP) in the USA**
- **Unmet medical needs for the treatment of DNP**
  - Potential first-line drug therapy for DNP
- **Expand and reinforce pipelines in the therapeutic areas of *pain* and *metabolic syndrome***
- **Enhance lifecycle management programs for Duloxetine**

Phase III study in progress

PLCM: product lifecycle management

LY248686: Outlines of Phase III for DNP

- **Phase III (DBT): Superiority Study of LY248686 vs. Placebo**
  - Duration of Treatment: 13 weeks
  - Target subject size: 300 patients
- **Extension Study of Phase III (DBT)**
  - Duration of Treatment: 52 weeks

NDA filing (plan): Oct. 2009

DBT: double-blind test

S-7701 (Pirfenidone): Profile

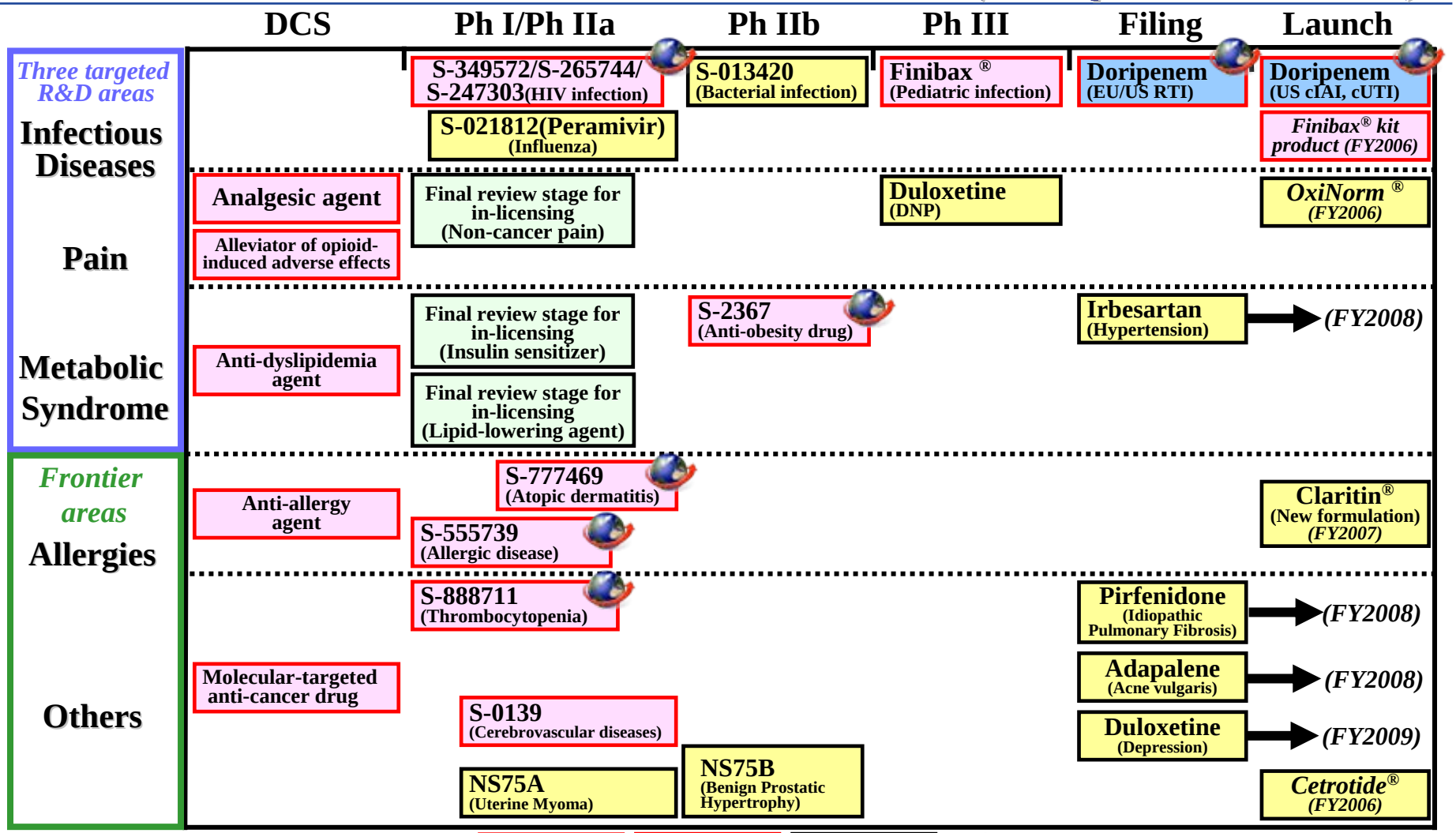
- **Licensed from Marnac, Inc., (USA) and KDL, Inc. (Japan)**
- **Indication: Idiopathic pulmonary fibrosis**
- **Anti-fibrosis (oral)**
  - Significantly prevented worsening of vital capacity vs. placebo
- **Designated as an orphan drug**
- **NDA filed in Mar. 2007**
  - Completed the first meeting with Pharmaceutical and Medical Devices Agency (PMDA)
    - Submitted answers for inquiries after the first meeting with PMDA
  - Completed onsite GCP compliance inspection at Medical Institutions and Shionogi
  - May 2008: American Thoracic Society (ATS), Toronto
    - Announcement of results of Phase III

Under review

S-888711: Profile

- **Indications: Various diseases with thrombocytopenia**
- **Thrombopoietin receptor agonist (oral)**
- **Potential pharmacological properties from non-clinical studies**
  - Excellent efficacy and safety with once-daily dosing
  - No food effects
  - More moderate dose-response curve than preceding compounds
- **Development stage**
  - Phase I single dose study (Japan): in progress
    - Good pharmacokinetic profiles; increases Cmax and AUC dose-dependently
    - Good tolerability up to the maximum dose
- **Upcoming clinical studies**
  - Phase I multiple dose study (Japan)

Drug Pipeline Enriched by In-house Compounds (As of March 2008)



DCS: Drug candidate selection,
DNP: Diabetic Neuropathic Pain,
RTI: Respiratory Tract Infection, cIAI: complicated Intra-Abdominal Infections
cUTI: complicated Urinary Tract Infections including pyelonephritis

Challenges to Significant Growth

"Towards Real Growth"

- **Transform the Company's culture**

  From dependence on in-licensed drugs and the Japanese market to undertaking global development by ourselves

- **Creation of the global products following Crestor®**
  - Steadily develop in-house oriented drugs globally
  - Develop several compounds in Japan, the USA, the EU simultaneously
  - Steadily advance the development of compounds expected to become the Company’s new growth drivers

For Further Inquiries

- These presentation materials contain forward-looking statements regarding the Company's plans, outlook, strategies and results for the future. All forward-looking statements are based on judgments derived from the information available to the Company at the time of publication.
- Certain risks and uncertainties could cause the Company's actual results to differ materially from any projections presented in these presentation materials.

Appendix

S-4661 (Doripenem): Profile

- **Carbapenem antibiotics (intravenous injection)**
  - Generic name: doripenem hydrate
- **Characteristics**
  - Broad antibacterial spectrum (gram (+), (-), *Pseudomonas aeruginosa*)
  - Less convulsant than other carbapenems
  - Equivalent efficacy with a half the dose of other carbapenems
- **Development status**
  - Japan: Approved in Jul. 2005
  - USA: Approved in Oct. 2007 (Johnson & Johnson)
  - EU: Filed MAA in Jul. 2007 (Johnson & Johnson)

In-house Product

S-4661: Post-marketing Study

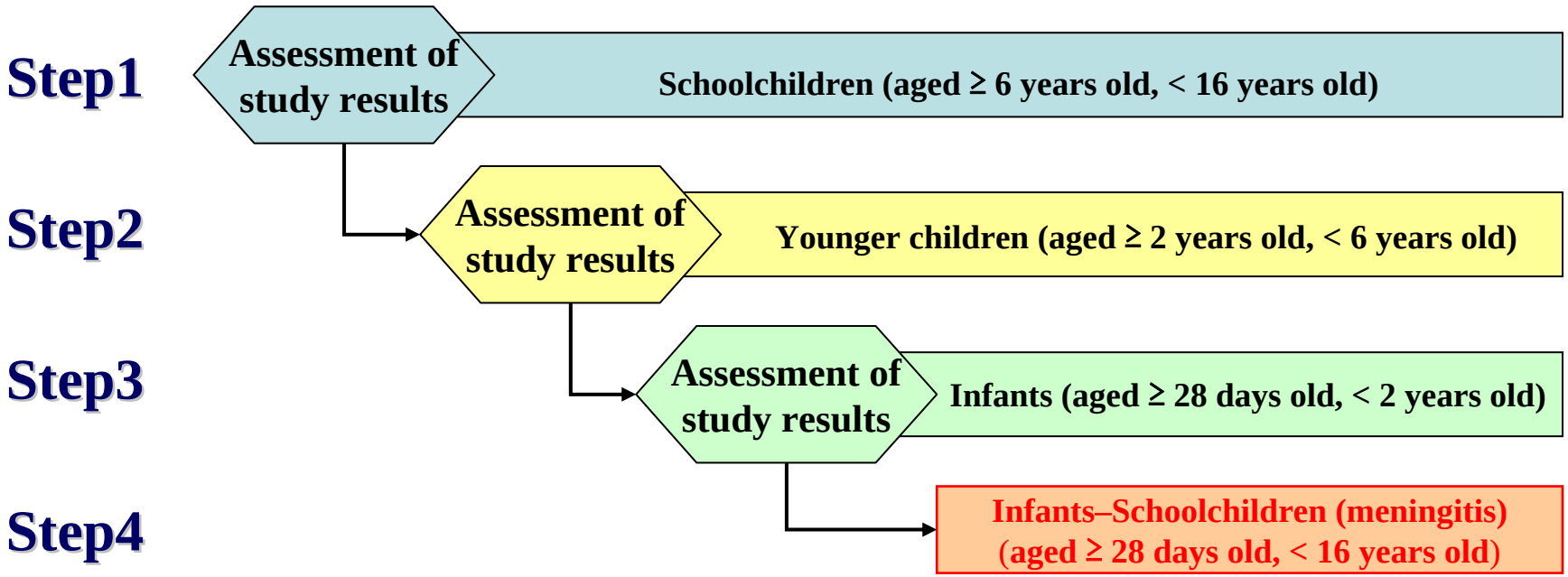
- **Efficacy**
  - Good therapeutic effect (0.25g *t.i.d.*)
    - Clinical efficacy: 90.0% (135/150)
    - Microbiological efficacy: 96.6% (57/59)
- **Safety**
  - Observed adverse events similar to findings during clinical trials, including elevation of hepatic function test values and gastrointestinal disorders
  - Non-observation of unexpected serious adverse reactions and seizures
- **PK/PD**
  - %T>MIC (time above MIC) is over 40% (minimum percentage for efficacy)

0.25g *t.i.d.* regimen was useful for treating high-risk elderly pneumonia patients with underlying diseases

t.i.d.: three times a day

S-4661: Additional Indications for Pediatric Infections

- **Targeted to moderate or severe pediatric infectious patients**
  - **Step-by-step assessment**
  - **Target diseases**
    - Respiratory tract infection, urinary tract infection , sepsis, other indications
    - Meningitis



S-4661: Global Developmental Status (Johnson & Johnson)

- **Development status**
  - **FDA approved doripenem for the treatment of complicated urinary tract infection (cUTI) and complicated intra-abdominal infections (cIAI) in the USA in Oct. 2007**
  - **Submitted an application of an additional indication of nosocomial pneumoniae (NP) in the USA in Jun. 2007 and the approval is scheduled in 2008**

    > Ventilator associated pneumoniae (VAP)
    - Clinical efficacy: Doripenem 68.3% (86/126), Imipenem 64.8% (79/122)
    - Microbiological efficacy of *Pseudomonas aeruginosa* infection: Doripenem 65.0% (13/20), Imipenem 35.7% (5/14)
  - **Submitted MAA to EMEA for the tratment of cUTI, cIAI, NP in the EU in Jul. 2007 and the approval is scheduled in 2008**
- **Post-marketing study**
  - **Started collecting efficacy and safety data with high dose administration, i.e. 1g *t.i.d.***

t.i.d.: three times a day

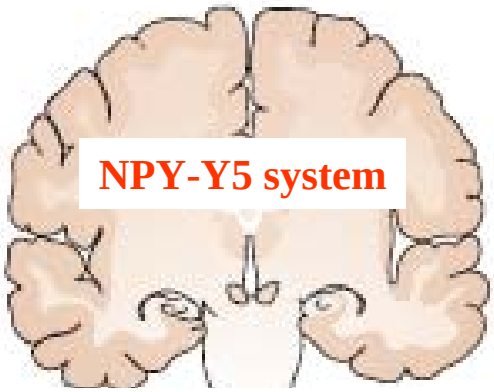
S-2367: Profile

- **Anti-obesity (oral)**
- **Neuropeptide Y Y5 receptor antagonist**
- **Key findings from pre-clinical studies**
  - Increased energy consumption
  - Suppressed visceral fat accumulation and improved blood glucose and serum lipid levels
  - Expected product profile: sustainable weight suppression without rebound
  - Confirmed excellent safety
- **Key findings from clinical studies to date**
  - Once-daily administration (T½: about 20 hours)
  - Achieved positive Phase IIa proof of concept in the USA study
  - Favorable safety profiles without adverse effects on central nervous system
    - No effect on depression or anxiety scores

Phase IIb studies in progress in the USA

S-2367: Energy Balance and Neuropeptide Y

Neuropeptide Y (NPY) in the brain plays a significant role in energy homeostasis



Feedback

Control of energy homeostasis

Food Intake

Energy Expenditure

Energy Balance

NPY-Y5 system has been implicated as a key regulator of energy homeostasis

Function of NPY through Y5 receptor

1. Appetite (energy intake) ↑
2. Energy expenditure ↓

Modern life style, high-calorie food, etc.

➡ **Overactivation of NPY-Y5 system**

➡ **Disorder of energy homeostasis**

➡ **Obesity**

S-2367

NPY Y5 receptor antagonist

⬇

Normalize NPY-Y5 system

S-2367: Outline of Phase IIb Study

- **Study 1**
  - RCD (reduced calorie diet) lead-in followed by RCD with S-2367 or placebo treatment
  - Number of patients: 750
  - Maximum dose: 1600 mg
- **Study 2**
  - LCD (low calorie diet) lead-in followed by RCD with S-2367 or placebo treatment
  - Number of patients: 750
  - Maximum dose: 1600 mg
- **To assess efficacy and safety of treatment over a one-year period**
  - Reduce Phase III development risk
  - Interim analysis at 6 month time point: Scheduled in Apr. 2008
  - Completion of drug treatments: within 2008

S-2367: Other Studies and Partnering

- **MTD (maximum tolerance dose) study**
  - **Completed**
  - **Good tolerability and safety profile at all the tested doses (max: 9600 mg once-daily)**
- **Partnering**
  - **Currently under discussion with several candidate companies**
  - **Optimal partner to be decided by completion of Phase IIb study**

NDA in the USA scheduled for 2011

SR47436 (Irbesartan): Profile

- **Licensed from sanofi-aventis (France)**
  - Co-developed with Dainippon Sumitomo Pharma Co., Ltd.
- **Anti-hypertensive agent (oral)**
- **Angiotensin II Receptor Blocker (ARB)**
  - Active form (non pro-drug)
- **Approved in 109 countries and launched in 86 countries worldwide as of today**
- **Development status in the EU and the USA**
  - Approval of diabetic nephropathy
  - Phase III study for CHF is under way

Demonstrated non-inferiority to other ARBs through double-blind trial in Japan

NDA filing: Dec. 2006

Approval (plan): Apr. 2008

Claritin (SCH29851): Profile

- **Anti-allergic drug (oral)**
  - Histamine H_1 receptor antagonist
- **Additional indication for pediatric use**

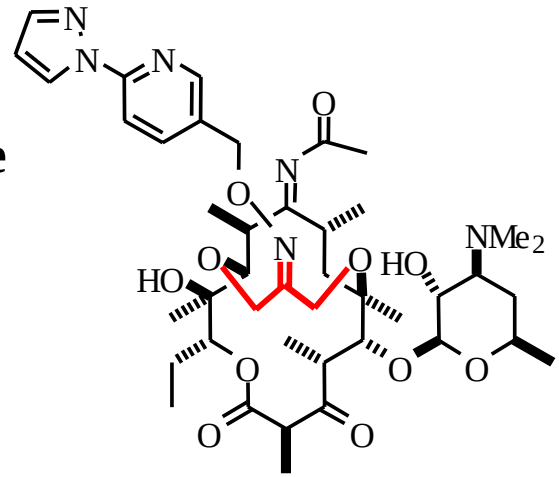
  ⇒ Approved in Oct. 2007
- **Claritin® Dry Syrup 1%**

  ⇒ Launched in Jan. 2008
  - Suitable for pediatric use with three-year-olds and over

Three formulations (tablet, reditab, and dry syrup) form the first line-up in the second generation of histamine H_1 receptor antagonists

S-013420: Profile

- **Licensed from Enanta Pharmaceuticals (USA)**
- **Novel macrolide antibiotics (oral)**
  - **Novel bridged structure**
- **Characteristics**
  - **Sufficiently broad spectrum to cover major bacteria causing respiratory infections**
  - **Strong antibacterial activities to *S. pneumoniae* (including penicillin or macrolide resistant strains)**
  - **Good pharmacokinetic profile**
  - **Suitable for pediatric usage due to non-bitter taste**



Phase IIb study completed

S-013420: Outlines and Results of Phase IIb Study in Japan

- **Outlines**
  - **Targeted diseases**
    - Pneumonia caused by bacteria or atypical pathogens
  - **Study design**
    - Dose finding study (randomized double-blind, parallel-group)
- **Results**
  - **Efficacy**
    - High efficacy rate (clinical, bacteriological) demonstrated in 3 dosage groups
  - **Safety**
    - Major adverse reactions: transaminase elevation, digestive symptoms

Change of formulation to maximize drug potential currently under consideration

NS75B: Profile

- **Licensed from Æterna Zentaris GmbH**
- **Sustained-release formulation of Cetrotide®**
- **Generic name: Cetrorelix pamoate**
- **Indication: Benign prostatic hyperplasia (IM)**
- **GnRH (gonadotropin releasing hormone) antagonist**
- **Characteristics**
  - Good characteristics both as an α1 blocker and antiandrogenic agent
  - Minor and temporary suppression of sexual function and of markers for prostatic cancer
  - Surgical treatment may be avoided

Phase IIb study: Code breaking to be carried out at the end of Mar. 2008