

Models for R&D Relationships in Asia

CRO

Outsourcing on a FFS basis
e.g., Custom Chemical Synthesis

External

Exclusive CRO

Strategic Sole-Source FTE-based Relationship;
dedicated personnel at the CRO; e.g., WuXi
PharmaTech

Risk-Sharing

Joint R&D on a program, compound or Target;
success-based milestones/royalty; e.g., Merck-
Advinus; or Merck-NPIL Alliances

Build/Operate/Transfer

CRO builds and operates a separate partner specific
facility and operates it-Partner has the option to
acquire the facility over time. e.g., Wyeth and GVK
Bio alliance; BMS-Biocon Alliance

Build R&D Center

Build and operate R&D facilities
e.g., Roche in China; Lilly in Singapore;

Internal

Early Stage Risk Sharing Collaborations

- **Advinus/Merck:** Metabolic disorders
- **Piramal Life Sciences/Merck:** Oncology
- **Ranbaxy/Merck:** Bacterial and fungal infections
- **Orchid/Merck:** Bacterial and fungal infections
- **Kyorin/Merck:** Antibiotics
- **Core strategy:**
 - Partner and Merck EBR work collaboratively on targets of mutual interest, using the Partner's physical labs
 - Merck provides scientific input, access to Merck reagents and expertise
 - Merck retains late development and commercialization rights
 - Partner receives milestones and royalties



Advinus: Research-based collaboration in India for metabolic disorders



- Advinus and Merck will work together to develop clinically validated drug candidates for metabolic disorders
- Merck will retain the right to advance the most promising of these candidates into late-stage clinical trials
- *“This collaboration provides an avenue for Advinus to gain access to cutting-edge technologies from Merck while leveraging its India-based discovery and development capabilities.”*
 - *Dr. Rashmi Barbhैया, CEO and Managing Director of Advinus*

Nicholas Piramal and Merck in Drug Discovery and Development Agreement

- Based on selected targets provided by Merck
- NPIL will conduct a drug discovery program from hits to leads through preclinical candidate selection, followed by IND-enabling non-clinical and clinical trials demonstrating proof-of-concept in oncology.
- Merck has option to advance promising drug candidates into late stage clinical trials and to commercialize these drug candidates.
- NPIL is eligible to receive milestone payments of up to \$175 million per target plus royalties on product sales.

Why Asia Pacific?

- Skilled Workforce
 - Large pool of scientists with chemistry and biology talent and expertise
 - Repatriation of US and EU-trained scientists to India & China
 - 34,987 scientists returned to China in 2005
- State of the Art Chemistry, Manufacturing and R&D Infrastructure
 - Favorable cost structure
- High caliber public research institutes and universities
- Growing Awareness and Recognition of the importance of IPR
- Entrepreneurial Spirit driving R&D for NMEs & Biologics
- Strong IT Infrastructure Focused on Life Sciences
- Large and Growing Pool of Patients
 - Large pool of treatment-naïve patients
 - One in every four deaths in China is cancer related (2 million patients with lung cancer by 2025)
 - In India, over 50 million HIV-positive cases; over 20 million diabetes patients and over 5 million cases of hypertension
- Increased Government support and dedicated investment for bio industry development

Investing in Teams: External Basic Research's Contract Partnerships



Merck Team at WuXi Apptech

- Enthusiastic and talented scientists working in program teams led by EBR chemists
- Delivering product candidates for MRL pipeline
 - >20 programs currently progressing in contract partnerships across the globe

We Constantly Scan for Partnering Opportunities

2008 Alliances

- Committed to ensuring a strong internal research capability
- Leverage this capability by identifying the best external opportunities
- Openly collaborate with the best partners

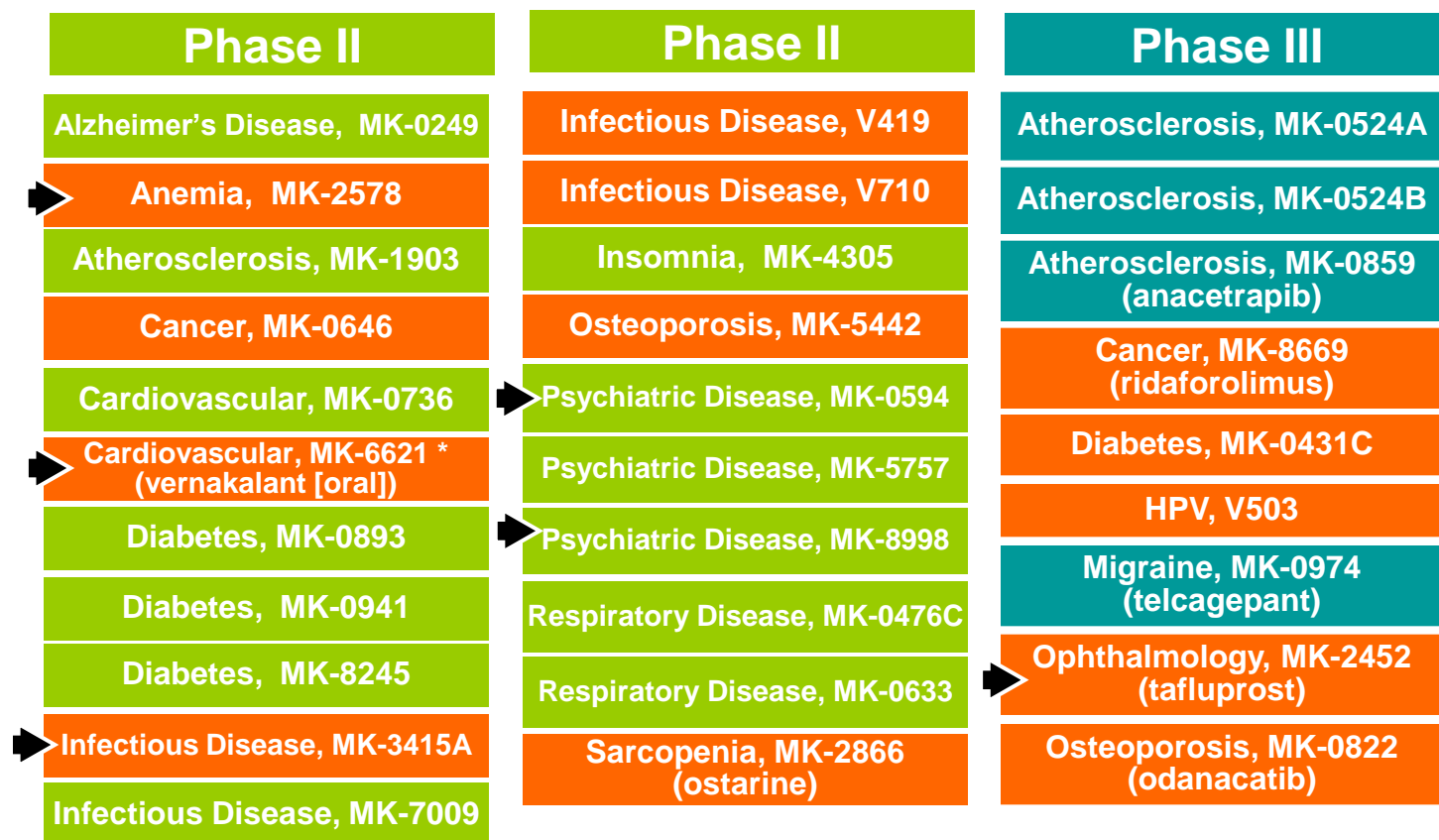


Key Acquisitions & Signed Agreements




Merck Late-Stage Pipeline: July 15, 2009

Contribution of Licensing



▶ *Progressed since February, 2009*

 **Disclosed
Licensing
Contribution**

Innovation has no boundaries

In the past 5 years, Merck has signed significant deals with partners in the following countries



Merck's Relationships in Asia

918 agreements executed in Asia between 2001 and August 2008*



*Includes CDAs, MTAs, Study, Evaluation, Fee-for-Service, and Major Licensing Deals

You've discovered something significant.

Now discover us!

Jing-Shan Hu, Ph.D.
Director, Licensing & External Research
China, Hong Kong and Taiwan
E-mail: jing_shan_hu@merck.com



Swami Subramiam MD, Ph.D.
Director, Licensing & External Research
India
E-mail: swaminathan_subramaniam@merck.com



Phil Kearney, Ph.D. MBA
Director, Licensing & External Research
Australia New Zealand and Malaysia
E-mail: phil_ Kearney@merck.com

