

# **Academic Partnerships**

Dr Phil Kearney Licensing & External Research November 2012



### Merck's Research Mission: Focus on Priority Disease Areas to Meet Unmet Medical Needs

### **Principles**

- Commit resources to achieve research breadth and depth in priority disease areas
- Prioritize disease areas based on unmet medical need, scientific opportunity, and commercial opportunity
- Develop products that are highly valued by patients, payers, and physicians
- Sustain investment in innovation throughout product lifecycle
- Achieve scientific leadership in priority disease areas

### **Deliver best-in-class targeted and differentiated products**



COMBINING OUR STRENGTHS SHARING OUR SUCCESSES

### Merck Will Pursue Early Research-based Partnerships

- Because there is a high risk of failure in drug discovery, multiple programs are critical to increase overall probability of success
- Merck views the creation of alliances with both companies and academia worldwide as critical for continued success
  - Alliances at all stages of discovery and development complement our innovative and therapeutically diverse pipeline
  - Intense competition exists for high-quality, late-stage opportunities
  - Merck's strong internal research capabilities are an advantage when competing for early-stage partnerships



## Merck Offers a Transparent and Straightforward Licensing Process

#### **Opportunity Identification**

#### **Executing the Deal**





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Alliance Management

### High-value Relationships At All Stages Of R&D



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### Scientific Engagement is Key

#### Large Pharma needs Innovative Partners

- Novel research aligning with existing areas of focus
  - New disease areas or technologies

### Large Pharma can offer Expertise & Experience

- Medical need Requirements for differentiation
  - Scientific and technical know-how
    - > Discovery, Translational, Preclinical
  - Clinical Research Biomarkers, Outcomes
  - > Manufacturing chemicals, biologics, RNAi
- Global regulatory and reimbursement landscape
  - Competition and market realities



Sourcing and Delivering Innovation for Patients and Shareholders...

# Many different ways to leverage our strengths with those of our colleagues (and competitors...)

- Licensing
- Research & Development Partnerships
- Academic Collaborations
- Pre-Competitive Collaborations
- Consortia
- Regional Commercial Deals
- Joint Ventures
- M&A
- Venture Capital Funds



# Appealing features of Academic Collaborations



- New targets from academic basic research
- Platform technologies
- Expert insights and consultation
- 'Ear to the track' for new opportunities
- Shift academic culture's 'center of gravity' toward translational research
- Promote understanding of the challenges of discovering and developing innovative drugs for unmet medical needs
- Career opportunities/recruitment for trainees



### MSD Welcomes Academic Partnerships!

#### Of the Top 20 Large Pharma/Academic Deals of 2012 highlighted by Fierce Biotech, MSD was partnered in four -the most active large Pharma

- ~30% of the highly significant licensing deals that MSD signed in 2011 were with Academic Institutions
  - MSD is mindful of the university's mission and obligations
    - -- We will not try to 'force-fit' a structure that conflicts with university policy
    - -- Open to exploring additional vehicles for "exceptional opportunities"



## Academia and Large Pharma Partner to Put New Drugs on the Market

- Pfizer: "Center for Therapeutic Innovation" hubs in Boston, New York City, San Francisco, and San Diego
- GlaxoSmithKline: Academic Discovery Performance Unit works specifically with academics on a portfolio of novel targets
- Eli Lilly: Global 'Innovation Starts Here' Initiative to Foster Innovation and Quality that will focus on collaboration with academic researchers
- Merck: Key Partner for Calibr... A "ReCalibration" of Academic/Pharma Partnering



# Academic Institutions - Areas of Particular Interest for Licensing and/or Collaboration

- Novel Targets with strong rationale
- Platform Technologies for Biologics/Vaccines
- In-vivo Models
- siRNA delivery technologies
- Biomarkers / Imaging Technologies
- Translational Research Capabilities
- Sponsored Research in Merck's high-priority areas



# Tips for contacting Merck with opportunities

- Understand Merck's strategy and needs
- Provide a clear, concise non-confidential scientific data package for review
- Highlight the advantages of your offering and provide a perspective on its value within the competitive landscape
- Merck's review process is centralized and includes review by the appropriate experts from basic biology, chemistry, preclinical, clinical, marketing and patent

Merck provides a formal review and response for every opportunity



### Merck's Areas of Interest - on the web!



| Table of Contents   |                       |
|---|-----------------------|
| Atherosclerosis and Cardiovascular Diseases                                     |                       |
| Lipids  |                       |
| Vascular vval(Wetabolic Syndrome  |                       |
| Sone, Respiratory, Immunology, and Endocrine (BRIE)                             | SHARING OUR SUCCESSES |
| Anemia  |                       |
| Arthritis   |                       |
| AstrimacOPD   |                       |
| Sarcopenia  |                       |
| Urology   |                       |
| Diabetes and Obesity  |                       |
| Diabetes  |                       |
| offectious Diseases   |                       |
| Antibacterials  |                       |
| Antifungals   |                       |
| Antivirals – HIV  |                       |
| Antivirals – HCV  |                       |
| Vaccines 12   |                       |
| leurosciences and Ophthalmology   |                       |
| Alzheimer's Disease   |                       |
| Circadian Disorders   |                       |
| Ophthalmology   |                       |
| Parkinson's Disease   |                       |
| Schizophrenia   |                       |
| Dincology   |                       |
| Oncology  |                       |
| Capabilities – lechnologies to Evaluate   |                       |
| Bioinformatics IT   |                       |
| Biologic Platforms  |                       |
| Drug Delivery   |                       |
| Drug Discovery Platforms  |                       |
| Molecular Biomerkers 23   |                       |
| RNA Therapeutics  |                       |
|   | REPORT & COLINC.      |
|   | websserbite, M., U.L. |
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SHARING OUR SUCCESSES



- RNAi could significantly change the way we go about discovering and developing drugs, and could become a new way to treat patients with unmet medical needs
- GlycoFi, Inc.: Novel, yeast-based proprietary protein optimization technology



Next Generation Biotherapeutics

- Abmaxis, Inc.: Leader in Discovery and Optimization of Monoclonal Antibodies
  - Break-through antibody engineering technology platform
    - AISIM<sup>™</sup>: Abmaxis in-silico Immunization





### **Gladstone Institute – Innovative Therapies for Alzheimer's Disease**



- Major collaboration with Dr. Robert Mahley of the J. David Gladstone Institute to develop drugs directed to the ApoE pathway
- Apolipoprotein E4 has been linked to a variety of neurodegenerative diseases including Alzheimer's
  - ApoE4 expression is a major risk factor for developing AD
  - Blocking ApoE4-induced neuronal damage may lead to disease modification strategies
- Merck and Gladstone will conduct a joint research program to discover modulators of ApoE4 function. Gladstone will receive milestone payments and product-based royalties.





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# Moffitt Collaboration: Personalized Medicine to Treat Cancer



A National Cancer Institute Comprehensive Cancer Center At the University of South Floride

- Innovative collaboration to improve cancer prevention and treatment by linking molecular technology and rich clinical data to enhance the ability to diagnose and treat patients, and to discover and develop new targeted therapies
- By studying and comparing patients' responses to specific treatments, scientists hope to learn which drugs work best in different patients, enabling them to individualize treatment for patients with various types of cancer
- Involves partnership between patients, community providers, industry and government to personalize and improve cancer care
- Through public-private partnerships like this one, Merck is pursuing rapid advancements in discovery, translation and delivery of new personalized therapies for cancer and other diseases





COMBINING OUR STRENGTHS SHARING OUR SUCCESSES

# Guiding Principles for External Alliances

- No floor or ceiling for number of licensed programs and projects
- Equal incentives for licensed programs and internal programs
- Transactions in all stages of research, development
- Flexibility in deal structures
- Speed in deal making
- Creation of value for each partner
- Leverage strengths of each partner
- Long-term thinking



### Partnerships are Key to our Success

# Approximately 55% of MSD's 2011 human health revenue is attributable to alliance products and patents



Revenue includes 50% of full year JV revenue (Sanofi-Pasteur MSD and J&J/Merck)



COMBINING OUR STRENGTHS Sharing our successes Recent Licensing and Business Development Deals Strengthen Franchises, Technologies and Commercial Areas





### **California Institute for Biomedical Research**

- Calibr is a new independent, not-for-profit organization established to accelerate the translation of basic biomedical research to innovative new medicines to treat disease.
- Calibr is led by Peter G. Schultz, Ph.D., a world-renowned chemist, biotechnology entrepreneur and professor of chemistry at The Scripps Research Institute in San Diego.
- Mission is to shorten timelines from academic discovery to commercial development, facilitate collaborations with academic partners, leverage the expertise/resources of academic labs.
- In addition to MSD funding there will be financial support from federal, foundation and philanthropic funding.



# Calibr- Distinct from other Pharma forays into Academic Space



- Sourcing innovation is not geographically restricted
  - Recruit ideas from anywhere
- Attractive to entrepreneurs
  - Provides access to HTS/MedChem
  - Supports and advances basic/preclinical projects
  - An alternative to VC funding
- Operationally efficient
  - Predefined work plans
  - Projects will advance or spin-out and not remain beyond animal POC
  - Both the Institute and entrepreneurs are focused on drug discovery
  - Advancing 'projects', not 'newcos'
  - Experienced, in-house staff



### **External Research Initiative**

MSD's need for Early Space and Academic Collaborations: MINT (Merck/MSD Initiative for New Targets)

- Inadequate number of projects in the target validation space from internal target discovery initiatives and external ideas
  - Industry wide problem
- Clear need to better leverage academic science in the early space



# You've discovered something significant. Now discover us!



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### Pick "Best-in-Class" over "First-in-Class"

Innovation can come in two forms:

- 1. First-in-class is expensive and time consuming. Progress is episodic and the path is tortuous.
- 2. "Best in class" (or "best for a particular market") improvements can be rapid and systematic - an engineering paradigm.
- India could position itself as the best-in-class Center of Excellence. Partner with innovator companies to fast-track projects designed to 'best' molecules which first show clinical POC.
  - Use all of the IT/modeling, traditional MedChem, delivery and formulation expertise of India.





Question:

How do we accelerate growth in innovative R&D in India?

### A few thoughts to consider:

- Innovate innovation build on India's unique strengths and weaknesses to revolutionize pharma's R&D efforts
- Fund the phenomenon provide financial resources to fund novel programs and collaborations
- Choose Best-in-Class over First-in-Class Build on strengths to provide "better" medicines to patients around the world

