Merck’s Approach to External Research Partnerships: Sourcing Innovation

Yael Weiss MD, PhD
Director Licensing and External Scientific Affairs
Merck & Co

Stanford, February 9, 2010
Forward Looking Statement

This presentation contains "forward-looking statements" as that term is defined in the Private Securities Litigation Reform Act of 1995. These statements are based on management's current expectations and involve risks and uncertainties, which may cause results to differ materially from those set forth in the statements. The forward-looking statements may include statements regarding product development, product potential or financial performance. No forward-looking statement can be guaranteed and actual results may differ materially from those projected. Merck undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events, or otherwise. Forward-looking statements in this presentation should be evaluated together with the many uncertainties that affect Merck's business, particularly those mentioned in the risk factors and cautionary statements in Item 1A of Merck's Form 10-K for the year ended Dec. 31, 2008, and in any risk factors or cautionary statements contained in the Company's periodic reports on Form 10-Q or current reports on Form 8-K, which the Company incorporates by reference.
My talk today

- About Merck
- About me
- Partnering at/with Merck
- Case study – CV drug development
- Academic partnerships – how and what
About Merck & Co., Inc. (pre merger)

• Merck is a global research-driven pharmaceutical company dedicated to putting patients first.
  – Over 55,000 employees worldwide
  – Products marketed in approximately 200 countries and regions
  – **Sales**: $23.9 billion (2008)   **R&D spend**: $4.8 billion (2008)
• Established in 1891, Merck has a long-standing tradition of developing **innovative new medicines and vaccines** to improve the health and well-being of patients around the world.
• Merck also strives to improve the world’s health through programs that **help ensure patients have access** to our products.
Global Health Care Leader with Diversified Portfolio
Positioned to Capitalize on Growth Opportunities & Combined Strengths

Focused Integrated Effort on Greatest Growth Opportunities
- Emerging Markets
- Biologics
- Vaccines

Expanded and Strengthened Franchises
- Cardiovascular
- Diabetes/Obsesity
- Bone/Immunology/Respiratory/Dermatology
- Oncology
- Neurosciences/Ophthalmology
- Infectious Diseases
- Mature Brands
- Women’s Health/Endocrine

Complementary Businesses
- Animal Health
- Consumer Healthcare
## Robust Phase III Pipeline (1) with Potential for Sustained Growth

<table>
<thead>
<tr>
<th>Phase III</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Coronary Syndrome, Secondary Prevention, TRA</strong></td>
<td>Hepatitis C, boceprevir</td>
</tr>
<tr>
<td><strong>Atherosclerosis, MK-0524A</strong></td>
<td>HIV (treatment experienced), vicriviroc</td>
</tr>
<tr>
<td><strong>Atherosclerosis, MK-0524B</strong></td>
<td>Hot Flashes / Insomnia, esmirtazapine</td>
</tr>
<tr>
<td><strong>Atherosclerosis, MK-0859 (anacetrapib)</strong></td>
<td>HPV, V503</td>
</tr>
<tr>
<td><strong>Cancer, MK-8669 (ridaforolimus)</strong></td>
<td>Ischemia-Reperfusion Injury, acadesine</td>
</tr>
<tr>
<td><strong>Diabetes, MK-0431C (JANUVIA / pioglitazone)</strong></td>
<td>Migraine, MK-0974 (telcagepant)</td>
</tr>
<tr>
<td><strong>Grass pollen allergies, allergy immunotherapy tablet (2)</strong></td>
<td>Ophthalmology, MK-2452 (tafluprost) (3)</td>
</tr>
<tr>
<td><strong>Osteoporosis, MK-0822 (odanacatib)</strong></td>
<td></td>
</tr>
</tbody>
</table>

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(1) The Pipeline is as of 10/15/2009 from Merck's 10-Q filing dated 11/02/2009 and from Schering-Plough's website posting dated 10/22/2009. Combined company pipeline is currently undergoing review and is subject to change.

(2) North American rights only; (3) Launched in certain countries in Europe
Me?
Pipeline woes throughout the industry

Increasing PI/II failures for inefficacy
- Not impacting steady state

Contains “steady state” of
• 2 -3 new mechanisms
• 4- 6 follow on’s

Our Strategy: Continued Investment in Innovation

Extract greatest pipeline value from innovative internal and external R&D

**Internal**
- Increased focus on tools to identify compound limitations early and improve Probability of Success
- Build an outward-facing culture

**External**
- Develop portfolio of external partnerships as an integral component of our global research strategy
- Celebrate the global and distributed nature of innovation!
Current R&D Model: Redefining Product Discovery & Development

Focus on novel science

Deliver best-in-class therapies that provide true value to patients that address significant unmet medical needs
Committed to Investing in R&D

$4.8 billion 2008 R&D spending

10% annual growth for 10 years
Access to External Research Extends Our Research Capacity

All Merck scientists are charged with building a “virtual lab” by mounting the best scientific program in their area, whether it comes from internal research, external collaborations or both.

99% of the world’s biomedical research takes place outside of our research labs.

- Other pharma
- Biotechs
- Academia
- Institutions
Merck licensing strategy results in high-value alliances

65% of Merck’s 2008 revenue is attributable to alliance products and patents

- GARDASIL
- ROTATEQ
- FOSAMAX
- COZAAR / HYZAAR
- ZETIA / VYTORIN
- NEXIUM
- VARIVAX

Revenue includes 50% of all JV revenue (Merck/Schering-Plough, Merial, Sanofi-Pasteur MSD, Johnson&Johnson°Merck)
Merck is Ideally Positioned to Partner in Multiple Therapeutic Modalities

• Proven small molecule platform
  – Compounds approved in 2006/2007
    • ZOLINZA for cancer - CTCL (Aton acquisition)
    • JANUVIA and JANUMET for type 2 diabetes
    • ISENTRESS for HIV

• Proven vaccine platform
  – Vaccines approved in 2006/2007
    • ROTATEQ for infant gastroenteritis (CHOP)
    • ZOSTAVAX for shingles (Osaka Univ. / Biken)
    • GARDASIL for cervical cancer (CSL and others)

• Emerging biologics and peptide platforms
  – Acquisition of GlycoFi and Abmaxis
  – Formation of Merck BioVentures

• A new modality - RNAi technology
  – Acquisition of Sirna Therapeutics
Overview of the Licensing Process

- **Opportunity Initiation**
- **Opportunity Evaluation**
- **Doing the Deal**
- **Managing Partnerships**
“Prospecting / Scouting” for Opportunities

- Our worldwide scouts are senior-level Merck scientists
- They are charged with building close relationships with the local scientific community (companies, academia, VCs, organizations) and seeking out opportunities
- They are the point of contact for potential partners
- They seek and submit nonconfidential information for review
Our Network of Regional Experts
Identifying Innovation and Seeking Partnerships

James M. Schaeffer, PhD
Western United States

Steven Xanthoudakis, PhD
Canada

Rob Pinnock, BSc, PhD
United Kingdom, Republic of Ireland, and South Africa

Hans Boström, MSc, PhD
Scandinavia, The Baltic Countries, and the Benelux

Koichi Kato, PhD
Japan, Singapore

Kuchan Kimm, MD, PhD
Korea

Swami Subramaniam, MD, PhD
India

Steven Xanthoudakis, PhD
Canada

Kuchan Kimm, MD, PhD
Korea

Yael Weiss, MD, PhD
Western United States

Hans Boström, MSc, PhD
Scandinavia, The Baltic Countries, and the Benelux

Reid J. Leonard, PhD
Eastern United States, Latin America

Manfred Horst, MD, PhD, MBA
France, Spain, Portugal, Germany, Russia, and Eastern Europe

Phil Kearney, PhD, MBA
Australia, New Zealand

Margaret Beer, MSc, PhD
Head, European Group, Italy, Switzerland, and Israel

Jing-Shan (Jennifer) Hu, PhD
China, Hong Kong, and Taiwan

Merrill Horst, MD, PhD, MBA
France, Spain, Portugal, Germany, Russia, and Eastern Europe

Phil Kearney, PhD, MBA
Australia, New Zealand

Manfred Horst, MD, PhD, MBA
France, Spain, Portugal, Germany, Russia, and Eastern Europe

Jing-Shan (Jennifer) Hu, PhD
China, Hong Kong, and Taiwan

Pharmacists, Clinical Scientists, and Laboratory Specialists

Greg Wiedenrecht, PhD, CLP
Vice President and Head Central Scientific Contact

Margaret Beer, MSc, PhD
Head, European Group, Italy, Switzerland, and Israel

Phil Kearney, PhD, MBA
Australia, New Zealand
We Have Defined Our Areas of Interest

- Merck publishes our Areas of Interest twice each year.
- For each therapeutic area, we list the Mechanism of Actions that we are interested in and those that we are not.
- Late-stage clinical compounds (phase 2b or beyond) are of interest in any therapeutic area.
- Visit us at: www.merck.com/licensing to learn more!
Scientific / Commercial Evaluation

- Initial nonconfidential review by Review and Licensing Committees
- Confidentiality disclosure agreement signed
- Confidential review by therapeutic area experts
- Face-to-face scientific meetings
- Senior scientific management approval
- Commercial assessment where applicable, occurs in parallel
Agreement Information

Docket Number: 18134
Agreement Type: License for Product Candidate
Agreement Priority: Normal
Agreement Status: Fully Executed
Outside Party: Sumitomo Pharmaceuticals Co., Ltd.

Priority: Normal
Initiation Type: Prospecting
Target: SMP13496, an atypical antipsychotic in Phase II
Description: SMP13496, (Lurasidone) an atypical antipsychotic in Phase IIb.
Key Issues: Re-opened on 02Dec04

Initial Correspondence Date: 02/09/2004
Date Received: 02/09/2004
Discuss at Next LMC: 0
Discuss at Next LOC: 0
Project Team Formed: 0
Mouse Related: 0

Merck Initiator and Approver

Merck Initiator: Whiting, Paul
Phone: 01279 440535
Fax: 
Dept ID: 9524
Department: Molecular & Cellular Neuroscience
Doing the Deal
Creative & Flexible Approaches

• Term sheet negotiations conducted by Transaction Manager
• Due diligence occurs
• Definitive agreements negotiated
• Agreements executed
We Constantly Scan for Partnering Opportunities

2008 Alliances

6000 Licensing Interactions

2000 Opportunities Reviewed

569 Reviewed under a CDA

Key Acquisitions & Signed Agreements
Select transactions: 2007-2009 (to-date)

Licensing aligns with franchises and new technologies… opportunities to grow under New Merck

**Significant announced transactions completed to-date in 2009**

**Anti-Infectives/ Antivirals/Vaccines**
- Cubist
- Idera
- **Medarex/MBL**
- Orchid
- Ranbaxy
- **UTSA/Health Science Center**

**Technologies**
- Depomed
- **Insmed***
- MicroDose
- Nuevolution
- Xencor

*acquisitions

**Oncology**
- Ariad
- **AstraZeneca**
- Celera
- Dana Farber
- Piramal Life Sciences

**Diabetes/Obesity**
- Marcadia
- Ambrx
- **Galapagos**

**Bone/Respiratory/ Inflammation/ Endocrine**
- **Galapagos**
- GTx (Endocrine)
- Harvard University (Osteoporosis)
- Japan Tobacco (Osteoporosis)

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- **Medarex/MBL**
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**Bone/Respiratory/ Inflammation/ Endocrine**
- **Galapagos**
- GTx (Endocrine)
- Harvard University (Osteoporosis)
- Japan Tobacco (Osteoporosis)
## Merck Late-Stage Pipeline: July 15, 2009

### Contribution of Licensing

<table>
<thead>
<tr>
<th>Phase II</th>
<th>Phase II</th>
<th>Phase III</th>
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<tbody>
<tr>
<td>Alzheimer's Disease, MK-0249</td>
<td>Infectious Disease, V419</td>
<td>Atherosclerosis, MK-0524A</td>
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<tr>
<td>Anemia, MK-2578</td>
<td>Infectious Disease, V710</td>
<td>Atherosclerosis, MK-0524B</td>
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<td>Atherosclerosis, MK-1903</td>
<td>Insomnia, MK-4305</td>
<td>Atherosclerosis, MK-0859</td>
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<td>Cancer, MK-0646</td>
<td>Osteoporosis, MK-5442</td>
<td>(anacetrapib)</td>
</tr>
<tr>
<td>Cardiovascular, MK-0736</td>
<td>Psychiatric Disease, MK-0594</td>
<td>Cancer, MK-8669</td>
</tr>
<tr>
<td>Cardiovascular, MK-6621 *</td>
<td>Psychiatric Disease, MK-5757</td>
<td>(ridaforolimus)</td>
</tr>
<tr>
<td>(vernakalant [oral])</td>
<td>Psychiatric Disease, MK-8998</td>
<td>Diabetes, MK-0431C</td>
</tr>
<tr>
<td>Diabetes, MK-0893</td>
<td>Respiratory Disease, MK-0476C</td>
<td>HPV, V503</td>
</tr>
<tr>
<td>Diabetes, MK-0941</td>
<td>Respiratory Disease, MK-0633</td>
<td>Migraine, MK-0974</td>
</tr>
<tr>
<td>Diabetes, MK-8245</td>
<td></td>
<td>(telcagepant)</td>
</tr>
<tr>
<td>Infectious Disease, MK-3415A</td>
<td>Sarcopenia, MK-2866</td>
<td>Ophthalmology, MK-2452</td>
</tr>
<tr>
<td>Infectious Disease, MK-7009</td>
<td>(ostarine)</td>
<td>(tafluprost)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Osteoporosis, MK-0822</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(odanacatib)</td>
</tr>
</tbody>
</table>

**Progressed since February, 2009**

* An affiliate of the Company has exclusive rights outside of the United States, Canada and Mexico to vernakalant (IV) for rapid conversion of acute atrial fibrillation to normal heart rhythm. On July 26, 2009, the Company submitted a Marketing Authorization Application to the European Medicines Agency seeking marketing approval for vernakalant (IV) in the EU.

**Disclosed Licensing Contribution**

*COMMITTING OUR STRENGTHS TO SHARING MEDICAL ADVANCEMENT*
Success in Building Partnerships

Approximately 250 significant transactions over the past 5 years

- Year 1999: 10
- Year 2000: 22
- Year 2001: 23
- Year 2002: 38
- Year 2003: 47
- Year 2004: 50
- Year 2005: 44
- Year 2006: 53
- Year 2007: 55
- Year 2008: 46
Partnering Innovation

External Basic Research

• External Basic Research (EBR) is Merck’s newest discovery research area (2008) and an integral part of our global R&D strategy
  – Integrated within the Merck basic research structure
  – Aligned with MRL franchise strategies and pipeline priorities

• EBR’s mission is to develop and implement a strategy to expand the scope of Merck’s early pipeline utilizing external sources of innovation

• EBR is charged with delivering 25% of Merck’s early pipeline from external partnerships within 3-5 years
External Basic Research Strategy: Balancing Partnerships

• EBR will balance different types of partnerships to extract greatest pipeline value from external research
  – Across disease areas
  – Across phases of discovery
Partnerships are critical to the success of new drug development

Approximately 65% of Merck’s 2008 revenue is attributable to alliance products and patents

Licensed Products or Patents:
65% of total sales**

Misson:
• Develop and implement a strategy to expand the scope of Merck’s early pipeline utilizing external sources of innovation
• Goal: Deliver 25% of Merck’s early pipeline from external partnerships

**Revenue includes 50% of all JV revenue (Merck/Schering-Plough, Merial, Sanofi-Pasteur MSD, Johnson&Johnson/Merck)
What Is Merck Seeking from Partners?

- Excellence in Science!
  - Quality of the science
  - Subject Matter Expertise
- Enthusiasm to collaborate openly
- Shared vision of bringing the best medicine to patients worldwide

Combining Our Strengths, Sharing Our Successes
What does Merck look for in a candidate therapeutic entity?

- **Potency** in-vitro and in-vivo
- **Mechanism** -- evidence that agent “hits the target” in animals
  - Minimally a pharmacodynamic assay
  - Ideally, activity in a validated animal model
- **Selectivity** vs. a large range of receptors, enzymes, ion channels
- Preliminary **toxicology** data
- Oral **bioavailability** (for small molecules)
- Good **half-life** for biologics or small molecules
- **Strong IP** position
  - On the target
    - Minimally, Freedom to Operate
  - On the molecule
    - Most compound patents can be designed around; This is why there are so many “fast followers” or “me too” drugs
Academic Institutions - Areas of Particular Interest for Licensing and/or Collaboration

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

Defining Goals, Delivering against a Work Plan and Respecting Intellectual Property are the keys to a successful collaboration.

Well defined Goals are critical
- Objective is always to produce new knowledge that is aligned with Merck’s research and product development goals
- May be Strategic (“breakthrough” science) or Tactical (an accepted approach, but elegantly executed)

Funding is based on the work plan, not just for general lab support
- Deliver against the plan
- Not just to fill gaps between grants

Intellectual property is important
- License to pre-existing IP sometimes needed
- Ideally the effort will create new Intellectual Property
- Merck will always seek rights to use such IP, however not always exclusive rights

Merck is mindful of the University’s mission and obligations
Tips for contacting Merck with opportunities

- Understand Merck’s mission 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
Some recent Academic transactions of particular interest
**Pre-Merger: Select Merck transactions: 2007-2009 (to-date)**

Licensing Aligns with Franchises and New Technologies

New Franchises = New Opportunities

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**Significant announced transactions completed to-date in 2009**

<table>
<thead>
<tr>
<th>Category</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anti-Infectives/Antivirals/Vaccines</strong></td>
<td>Cubist, Idera, Medarex/MBL, Orchid, Ranbaxy, UTSA/Health Science Center</td>
</tr>
<tr>
<td><strong>Oncology</strong></td>
<td>Ariad, AstraZeneca, Celera, Dana Farber, Piramal Life Sciences</td>
</tr>
<tr>
<td><strong>Diabetes/Obesity</strong></td>
<td>Marcadia, Ambrx, Galapagos</td>
</tr>
<tr>
<td><strong>Bone/Respiratory/Inflammation/Endocrine</strong></td>
<td>Galapagos, GTx (Endocrine), Harvard University (Osteoporosis), Japan Tobacco (Osteoporosis)</td>
</tr>
<tr>
<td><strong>CNS/Ophthalmology</strong></td>
<td>Addex (PD &amp; Schiz), Gladstone Institutes, Santen</td>
</tr>
<tr>
<td><strong>Cardiovascular</strong></td>
<td>Cardiome, Galapagos, KineMed, NovaCardia, Portola, Xenon</td>
</tr>
</tbody>
</table>

*acquisitions
Visual Cycle Inhibitors for Macular Degeneration

- Harvard and Merck executed a patent license agreement covering retinoid and non-retinoid visual cycle inhibitors for the treatment of atrophic age related macular degeneration.
- Hypothesis: Preservation of retinal pigment epithelial cells is achieved by slowing the visual cycle and reducing toxic lipofuscin accumulation.
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.

• Another example of innovative early-stage partnering by Merck
Gladstone Institute - small molecule modulators of ApoE4-induced AD Pathogenicity

Research collaboration and exclusive license agreement relating to three different mechanisms of ApoE pathogenicity

- ApoE converting enzyme responsible for cleaving ApoE
- ApoE4 domain interactions
- ApoE4 effects on mitochondrial integrity and function

Fig. 2. ApoE4 domain interaction can be disrupted by small molecules (represented by gold symbol). In apoE4, Arg-61 in the N-terminal domain interacts with Glu-255 in the C-terminal domain. Small molecules that are predicted to interact with apoE4 in the region of Arg-61 would disrupt domain interaction and convert apoE4 to an “apoE3-like” molecule.
Moffitt Collaboration: Personalized Medicine to Treat Cancer

• 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
Collaboration with FoxHollow on Atherosclerosis

- Characterize the components of arterial plaque
- Identify markers of plaque growth, regression
- Drive the development of novel treatments for atherosclerosis
FoxHollow in action – pathway mining for drug candidate selection

Gene signatures in atherosclerotic plaque

Upregulated genes are significantly enriched for immune cell activation processes (p <10^{-17})
UTSA, Health Science Center: Collaboration with Merck to Develop Chlamydia Vaccine (April ’09)

• The University of Texas at San Antonio (UTSA) and the University of Health Science Center at San Antonio (Health Science Center) will work with Merck on a vaccine for chlamydia, targeting the common sexually transmitted bacterium *Chlamydia trachomatis*.

• Merck will fund research at UTSA and the Health Science Center and collaborate closely with their team of researchers who have demonstrated that, in animal models of genital chlamydial infection, a vaccine composed of a select group of recombinant *C. trachomatis* antigens can successfully accelerate bacterial clearance, and importantly, preserve female reproductive function.

• The partnership is an exciting development in the fight against infectious disease and aligns with Merck’s commitment to R&D in areas of unmet medical need.
DNDi: Working with Merck to Find Treatments for World's Most Neglected Tropical Diseases (June ’09)

• The Drugs for Neglected Diseases initiative (DNDi) and Merck will collaborate on improved treatments for neglected tropical diseases (NTDs).

• Collaboration covers wide range of NTDs, including visceral leishmaniasis and Chagas disease, that cause significant morbidity and mortality worldwide and disproportionately affect the world’s poorest citizens.

• Merck will contribute small molecules and related intellectual property to DNDi for early stage programs. Both partners will share intellectual property generated through early development with Merck retaining the option for later stage development and registration of drug candidates.

• Both organizations have a legacy of providing treatments which have had an immediate global health impact. DNDi has made available antimalarial medicines which have saved the lives of millions of people. Merck’s discovery and development of ivermectin has enabled their ongoing donation program to fight river blindness and lymphatic filariasis.
The New Deal
Seeking Closer Ties, Drug Companies And Universities
Shake Up Model For Research Alliances

Focus on Merck’s agreement with Harvard University on new treatments for osteoporosis (Professor Laurie Glimcher)

- Example of a new breed of industry-academia alliances with close connections between the teams
- Jointly design project proposals, jointly do research, patent and publish results together
- Accelerate the move from basic biology → drug targets → medicines
DFCI – “Team” Approach to Cancer Drug Development

- Center for Applied Cancer Science (CACS) to investigate drug targets using integrative and cross-species genomic analysis as well as functional and clinicopathological validation testing
- CACS faculty and Merck scientists will work together to shepherd the drug assay development of lead compound development and then test drug candidates in CACS model systems
- The collaborators will work together to further evaluate tumor pathobiology and clinical outcomes to better pinpoint the tumor types most susceptible to the drug candidates
For Discussion: How can Pharma and Academia help each other discover novel therapies?

• How far can the University take Translational Research?
  – Target identification & Validation
  – Chemistry, Formulation
  – PK, Metabolism, Toxicology
  – Experimental Medicine
  – Clinical Development to Proof of Concept

• How to better leverage existing models for collaboration?
  – Funding
  – More interactive collaboration – access to Pharma infrastructure

• What new models are needed?
  – Gap funds
  – Collaboration Centers/ Incubators
  – Others?

Combining our strengths, Sharing our successes
Summary

• External Alliances are a key strategic component of future growth
  – Enabling Technologies
  – Preclinical programs
  – Clinical Development compounds
  – Biologics & vaccines

• What is Merck seeking from Partners?
  – Excellence in Science
    • Quality of the science
    • Subject Matter Expertise
  – Enthusiasm to collaborate openly
  – Shared vision of bringing the best medicine to patients worldwide

Combining our strengths,
Sharing our successes
Collaboration Creates Value

Combining our Strengths
Sharing our Successes

Biotech Industry
- Discovery
- Innovation
- Subject Matter expertise

Merck
- Novel technology application
- Development
- Commercialization expertise
- Subject Matter expertise
You’ve discovered something significant. *Now discover us!*

Yael_weiss@merck.com

www.merck.com/licensing
Sirna Therapeutics Acquisition

- Merck acquired Sirna Therapeutics, Inc., a leader in developing RNA interference (RNAi) therapies
  - Latest example of Merck’s aggressive strategy of targeted acquisitions and external research collaborations in order to complement our internal research efforts.
- The acquisition of Sirna complements the RNA expression analysis that Merck has been doing since the 2001 acquisition of Rosetta Inpharmatics, Inc.
- 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
  - Potential uses in oncology, age-related macular degeneration (AMD), hepatitis C, asthma and others
Merck Acquires GlycoFi and Abmaxis

• Acquisitions position Merck to become a significant player in biologic drug discovery and development
  – Complement Merck’s expertise in yeast expression technology

• GlycoFi, Inc.: Novel, yeast-based proprietary protein optimization technology
  – Glycoengineering provides advantage over current methods in protein production (monoclonal antibodies and protein therapeutic agents): Increased quality, decreased cost, increased speed

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