



Biotechnologie & “Big Pharma”

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Merck & Co, Inc.

COMBINING OUR STRENGTHS
SHARING OUR SUCCESSES

College De France
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L'Environnement De La Sante Presente De Nombreux Defis Mais Aussi De Nombreuses Opportunités

Defis

- Rendement Decroissant Du Developement De Medicaments Innovants
- Augmentation Des Couts De Developement Et De Commercialisation
- Pression Sur les Prix Et Sur Le Remboursement
- Contraintes Reglementaires Accrues

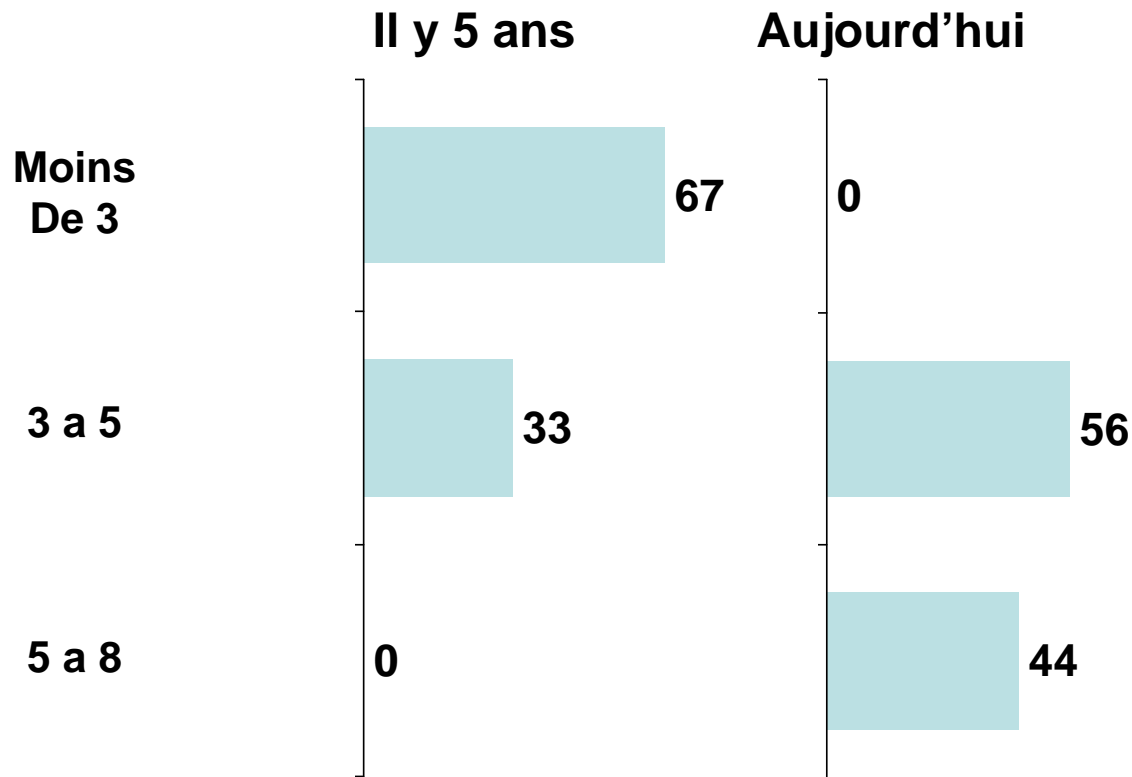
Opportunités

- Augmentation De L'Incidence De Certaines Maladies
- Enormes Besoins Medicaux (i.e. Maladie D' Alzheimer, Oncologie)
- Emergence De Nouvelles Technologies Et D'Innovations Scientifiques Majeures

La Competition en Matiere De Licenses Croit

Competiteurs pour
une license

Pourcentage de repondeurs



Source: McKinsey survey

Le Concept Du Laboratoire Virtuel

L'Acces A L'Innovation Externe Etend La Capacite De Recherche Interne

Les Scientifiques sont encourages a considerer le monde comme un immense "laboratoire virtuel" et a monter les meilleurs programmes que l'origine en soit interne ou externe



99% de la Recherche Biomedicale se fait a l'exterieur de n'importe quelle "Big Pharma"



**Big Pharma
Biotechs
Universites
Recherche Publique**

L'Exemple De Merck & Co

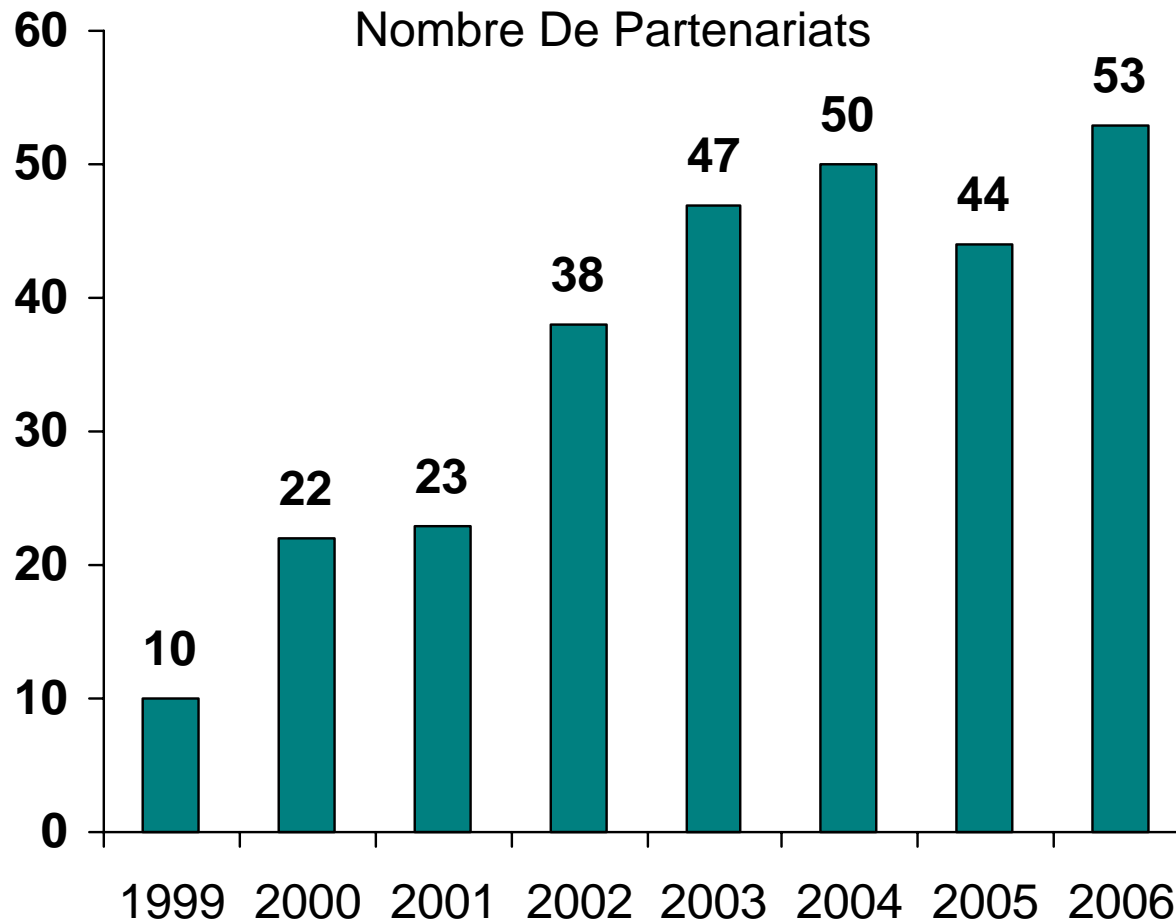
La Strategie De R&D de Merck & Co



- **Assurer une forte expertise & capacite interne**
- **Maximiser cette capacite au travers de collaborations**
- **Collaborer avec les meilleurs partenaires**
- **Evaluer en permanence de nouvelles collaborations**

Combiner l'Expertise Interne et L'Innovation Externe

Les Partenariats : une place de plus en plus importante dans la strategie de recherche et le business



Des Partenariats a Tous Les Stades de la R&D

CSL
GARDASIL®

CHOP/Wistar Institute
ROTATEQ®

Schering-Plough
VYTORIN® / ZETIA®

AstraZeneca
INVANZ®

Yamanouchi / J&J
PEPCID®/PEPCID AC®/
PEPCID COMPLETE®

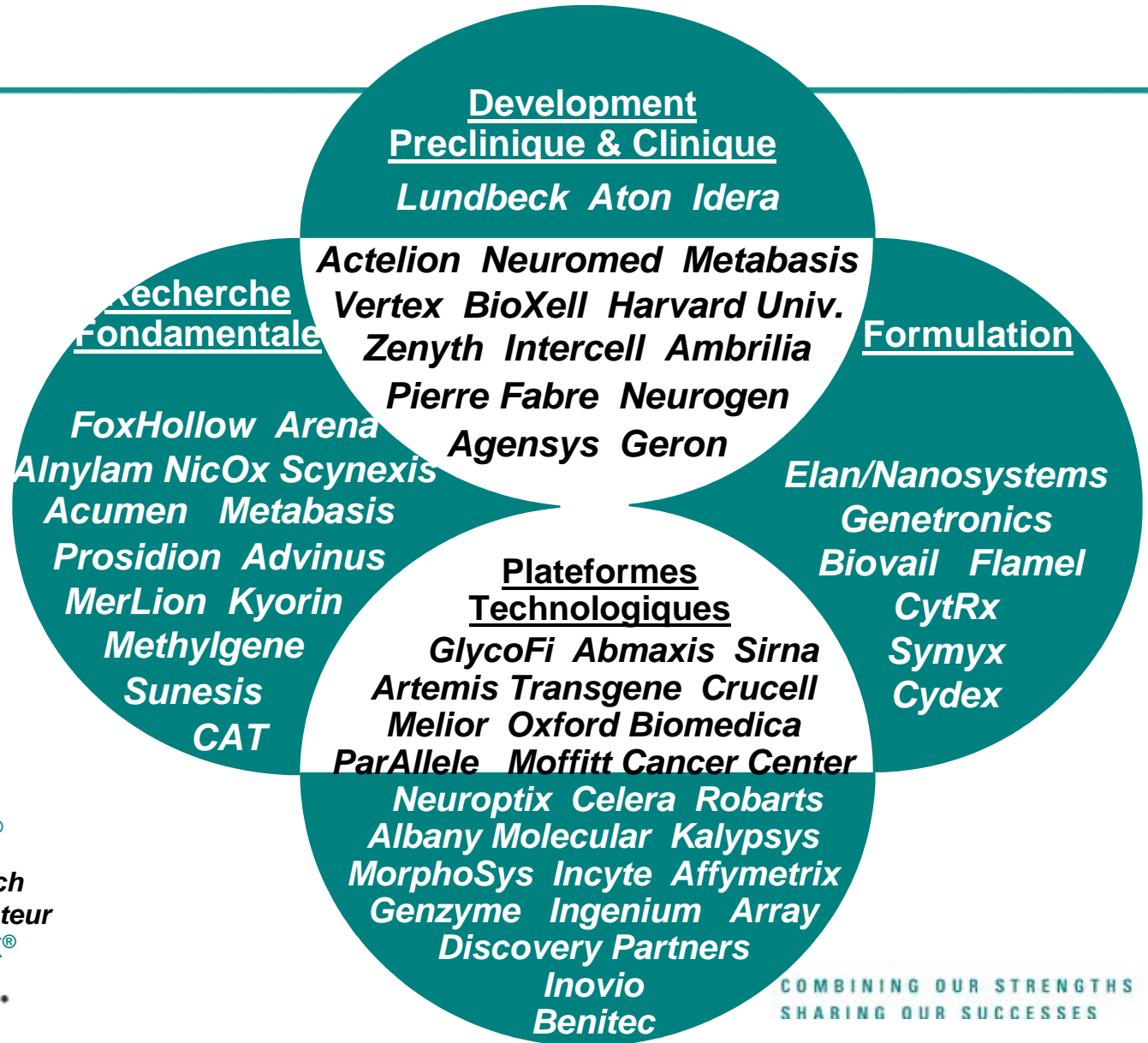
Dupont
COZAAR®/HYZAAR®

Gentili
FOSAMAX®

Kyorin
NOROXIN®

Osaka Univ. / Biken
VARIVAX® / ZOSTAVAX®

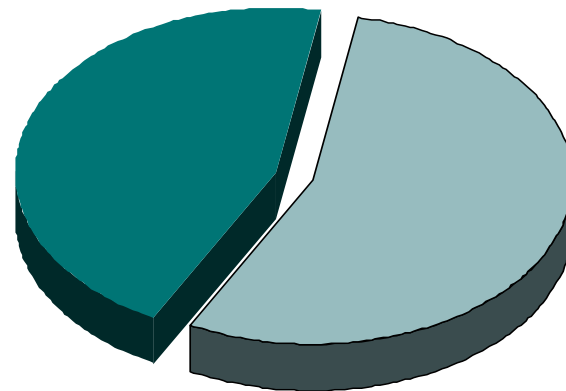
Biogen/Chiron/Genentech
U. Cal/U. Wash/Inst. Pasteur
Hep B Vaccine/COMVAX®



COMBINING OUR STRENGTHS
SHARING OUR SUCCESSES

La Strategie De License De Merck en Chiffres

Plus De 55% des ventes De Merck en 2006 sont plus ou moins directement lies a des Alliances



Licensed Products or Patents:
55% of total sales

Key Products:

- FOSAMAX
- COZAAR / HYZAAR
- ZETIA / VYTORIN
- JV Sanofi Pasteur

Un Processus “Industriel”



**Opportunity Initiation
(Find and Select)**



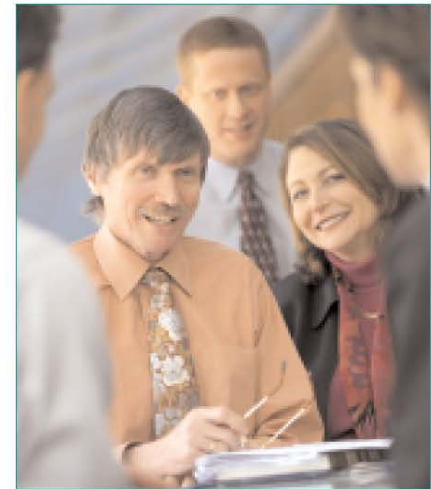
**Doing the Deal
(Negotiate)**



**Alliance Management
(Implement)**

Etape 1: Identification et Initiation des opportunités

- Des Scientifiques à l'écoute sur le terrain
- Echanges non-confidentiels dans un premier temps
- Une Revue mensuelle par un Comité Exécutif pour chacun des Domaines Thérapeutiques
- Echanges des Données Confidentielles (après accord de Confidentialité)
- Validation de l'intérêt scientifique et de l'adéquation stratégique



**Opportunity Initiation
(Find and Select)**



Etape 2: Negociation et Signature de la Transaction

- Designation d'un "Transaction Manager"
- Negotiations des Termes Generaux
- Due diligence
- Approbation Interne (Scientifique et Commerciale)
- Negociation Finale
- Signature de la transaction

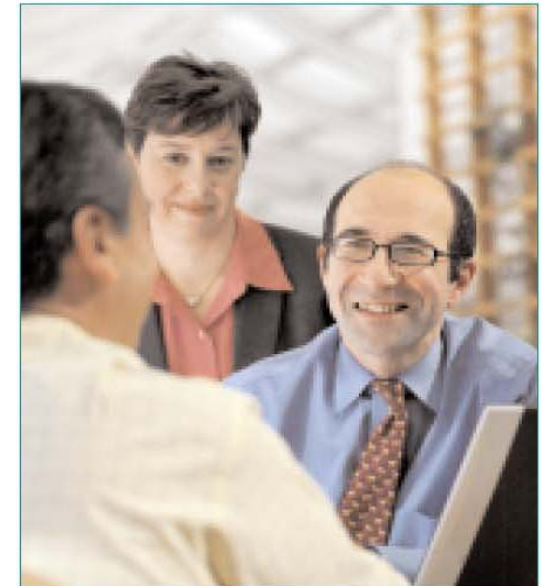


Doing the Deal
(Negotiate)



Etape 3: Management de l'Alliance

- Creation d'une fonction specialement dediee a l'accompagnement des Partenaires:
 - Definition des Besoins
 - Canal de Commuincation privilegie
 - Resolution de Conflit
 - Apprentissage



**Alliance Management
(Implement)**

Signer un deal n'est que la premiere etape de la creation de valeur !

Conclusion

- Les Alliances Externes sont pour les grandes compagnies pharmaceutiques un element cle et discriminant pour ;la croissance future
 - Plateformes Technologiques
 - Programmes Precliniques
 - Programmes de development clinique
 - Etc..

***Combiner nos forces,
Partager nos succes***

Merci de votre attention !

Back Up slides

Merck seeks high value relationships

Key 2006 transactions include:

Anti-Infectives/Antivirals/Vaccines

AMBRILIA
CRUCCELL
IDERA
INTERCELL
PARATEK

CNS

ACUMEN
J. DAVID GLADSTONE INSTITUTES
NEUROMED
NEUROPTIX

Technologies

ABMAXIS
ALNYLAM
GLYCOFI
SIRNA

Other

ADVINUS (Metabolic Disorders)
HARVARD UNIVERSITY (Ophthalmology)
MOFFITT CANCER CENTER (Cancer)

Cardiovascular

FOXHOLLOW
NICOX

Partnering Context

- Because there is a high risk of failure in drug discovery, multiple programs are critical to help increase the probability of success
- Merck and other big pharma recognize that various types of partnerships will increase productivity
 - Intense competition for high-quality opportunities
- Alliances with companies worldwide as critical for continued success
 - Alliances at all stages of the discovery and development complement our innovative and therapeutically diverse pipeline



Sirna 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

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

Ambrilia - HIV/AIDS Protease Inhibitor Program



- Exclusive worldwide rights to Ambrilia's HIV protease inhibitor program, including PPL-100 (in Phase I) and back-up compounds
- PPL-100, a once-daily regimen, is shown to be well-tolerated and has a high genetic barrier that makes it less likely to develop resistant strains
- *"We are very pleased to partner on PPL-100 with Merck, a company that has been a leader in anti-HIV drug development, and are confident that Merck will successfully advance the development of PPL-100."*
 - *Hans J. Mader, president and chief executive officer of Ambrilia*



Idera – Novel Vaccine Collaboration

- Broad collaboration to research, develop and commercialize Idera’s Toll-like Receptor agonists by incorporating them in therapeutic and prophylactic vaccines being developed by Merck for oncology, infectious disease and Alzheimer’s disease
- “We are extremely pleased to collaborate with Merck, a global pharmaceutical leader with a reputation for innovative research... we look forward to working closely with Merck’s world-class chemists to expand our portfolio of novel TLR’s...”
 - *Sudhir Agrawal, D. Phil., chief executive officer and chief scientific officer of Idera*



Moffitt Collaboration: Personalized Medicine to Treat Cancer

- Collaboration to link molecular technology and clinical data to enhance the ability to diagnose and treat patients, and to discover and develop new targeted therapies
- Identify the right drug for the right patient - individualize treatment for patients with various types of cancer
- Partnership between patients, community providers, industry and government to personalize and improve cancer care



Gladstone Institute - small molecule modulators of ApoE4-induced AD Pathogenicity

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

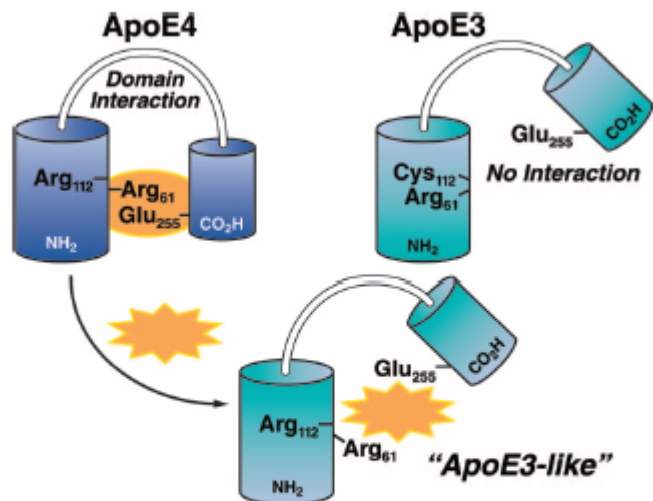


Fig. 2. ApoE4 domain interaction can be disrupted by small molecules (represented by gold symbol). In apoE4, Arg-61 in the N-terminal domain interacts with Glu-255 in the C-terminal domain. Small molecules that are predicted to interact with apoE4 in the region of Arg-61 would disrupt domain interaction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

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



Collaboration with Harvard to identify inhibitors of the Visual Cycle for the treatment of AMD

NATURE | Vol 441 | 8 June 2006

nature

BUSINESS

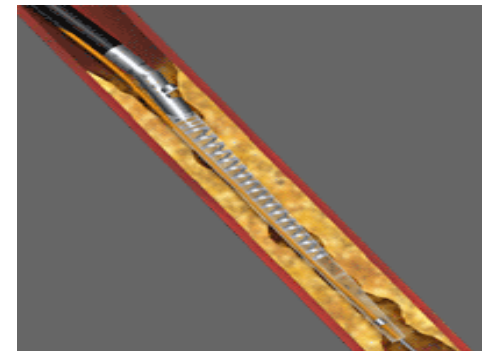
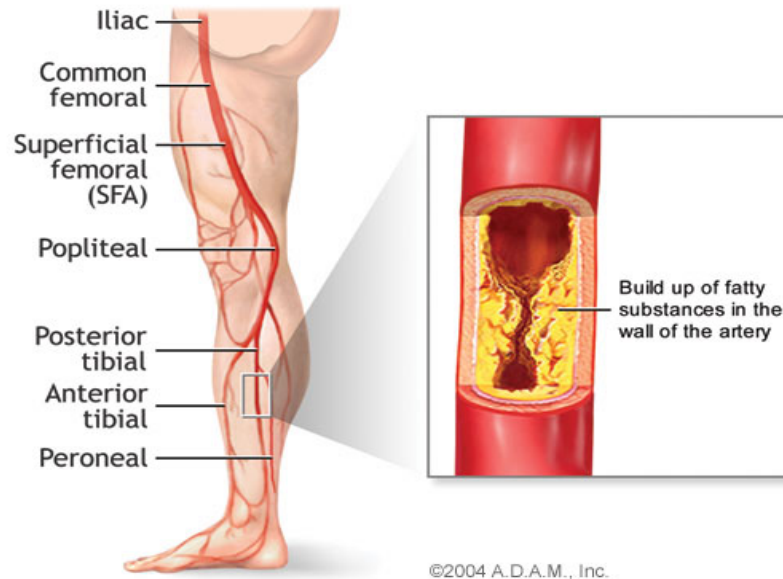
Biochemist strikes gold

Merck is tapping into academic research in its hunt for drug candidates. Meredith Wadman reports on the company's latest deal with Harvard.



Foresight: Merck strikes a deal that may help find a cure for a retina disease that affects millions.

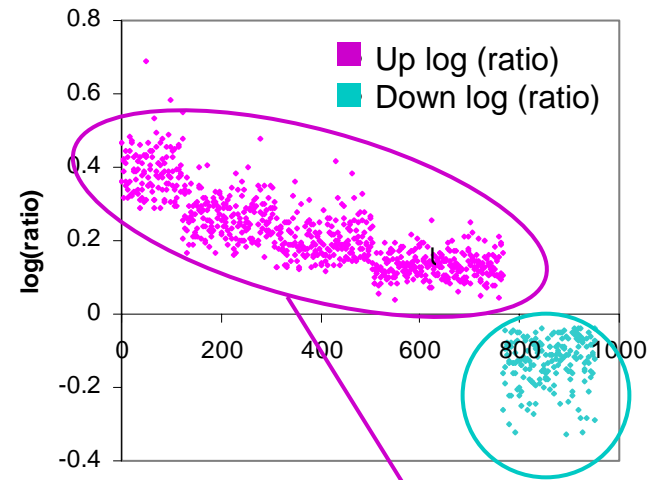
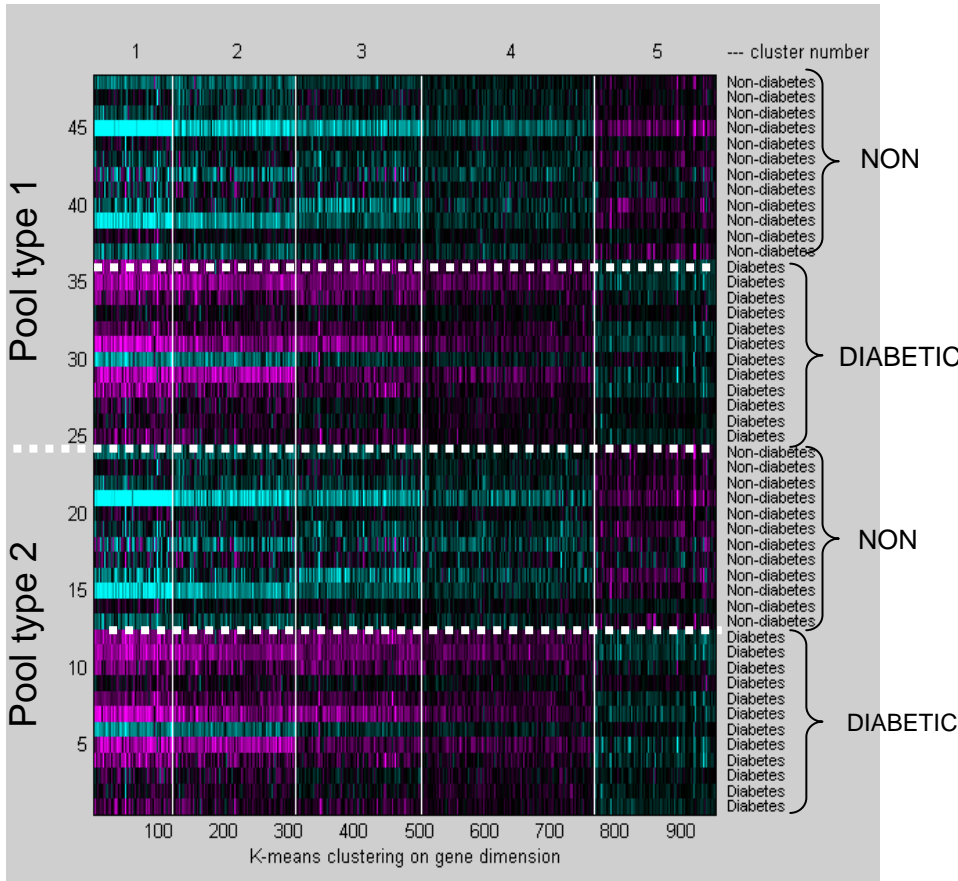
Collaboration with FoxHollow on Atherosclerosis



- 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 ($p < 10^{-17}$)

Merck is Uniquely Positioned to Partner in Multiple Therapeutic Modalities

- **Established small molecule platform**
 - Two new mechanism compounds approved in 2006
 - ZOLINZA for cancer - CTCL (Aton acquisition)
 - JANUVIA for type 2 diabetes
- **Established vaccine platform**
 - Three new vaccines received FDA approved in 2006
 - ROTATEQ for infant gastroenteritis (CHOP)
 - ZOSTAVAX for shingles (Osaka Univ. / Biken)
 - GARDASIL for cervical cancer (CSL and others)
- **Building on our vaccine technologies to build biologics and peptide platform**
 - Recent acquisition of GlycoFi and Abmaxis
- **Leveraging RNAi technology & Molecular Profiling**
 - Recent acquisition of Sirna
 - Collaborations critical
 - Research tools and with potential to develop future therapies

We Have Defined Our Areas of Interest

High Priority

Alzheimer's Disease
Atherosclerosis
Cardiovascular disease
Diabetes
Vaccines
Obesity
Oncology
Pain
Sleep Disorders

Focused Interest

Antibiotics
Antifungal
Antiviral (HCV, HIV)
Asthma
COPD
Neurodegeneration
Ophthalmology
Osteoporosis
Schizophrenia
Stroke

Technology Platforms

Biologics and Antibodies
Drug Delivery
Information Technologies
Molecular Profiling / Molecular Biomarkers
New Vaccine Technology
Research Technologies / Drug Discovery Platforms
In Vivo Imaging

- In addition to the High Priority and Focused Interest areas, Merck will continue to pursue partnering opportunities in other disease areas where clinical proof of concept exists.*
- Merck will also pursue partnerships in diagnostics and devices to enable core Rx business.*

We Developed a Transparent and Straightforward Licensing Process

Opportunity Identification



**Opportunity Initiation
(Find and Select)**

Executing the Deal



**Doing the Deal
(Negotiate)**

Alliance Management

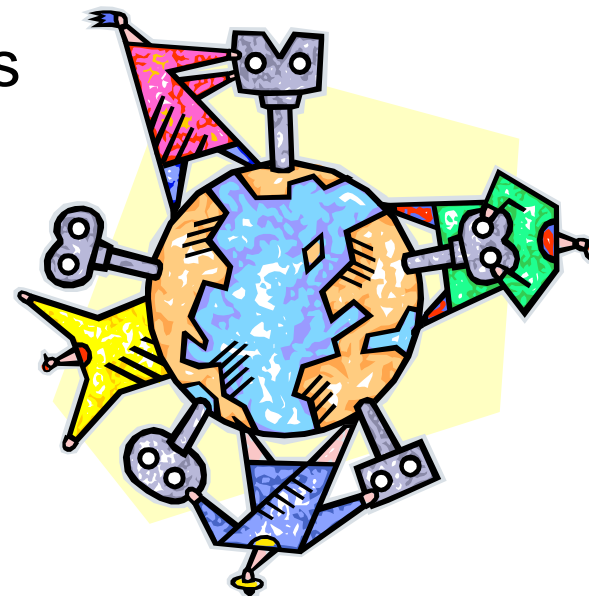


**Alliance Management
(Implement)**



We Built a Regional Scouting Function in Key Locations To Build Personal Relationships

- Senior level Merck scientists
- Build close relationships with local scientific community (companies, academia, VC's, organizations)
- Point of contact for potential partners
- Key locations established:
 - Western & Eastern Europe
 - United States
 - Canada
 - Japan
 - Australia
 - China
 - Korea



Leaving No Stone Unturned: Merck's Evaluation of New Opportunities

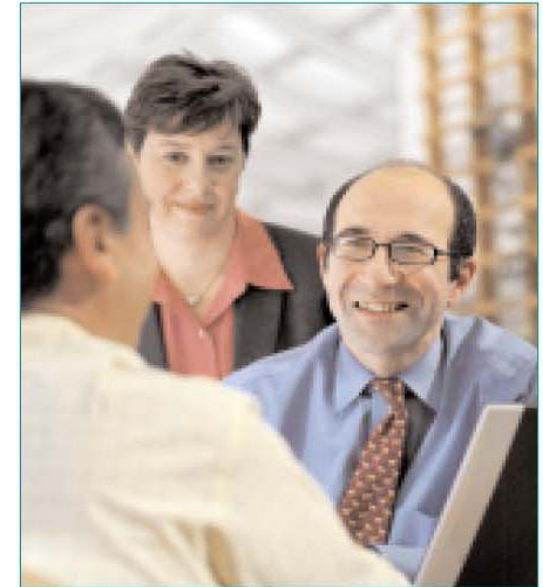
- Key objective at all levels of MRL
- Clear prioritization of interests
 - Therapeutic areas and technology
 - Cross divisional
 - Aligned with worldwide business strategy for each franchise
- Efficient screening of all opportunities
 - Proactive and reactive
 - Strategic and opportunistic
 - Through monthly Review and Licensing Committees
 - Involvement of over 200 Merck experts in basic biology and chemistry, preclinical, patent, clinical and marketing

We have developed Guiding Principles for Partnerships...and we live by them!

- Alliances driven by strategic priorities
- 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

We Created an Alliance Management Organization To Foster High Quality Long Term Relationships

- Create added value across life-cycle of partnership
 - From early involvement in agreement negotiations to performance monitoring, facilitation in conflict resolution, and evolution of alliance when needed
- Provide partners with a clear and enriching channel of communication
 - Partners deserve our full attention
 - Transparent and candid dialogue
- Provide Merck management with a center of expertise
 - Sharing best practices and learning from our partners



**Alliance Management
(Implement)**

Thank You!

Questions & Feedback



Please visit our website at www.merck.com/licensing/