



What does pharma look for in evaluating companies as potential partners?

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Alzheimer's Association Business Consortia
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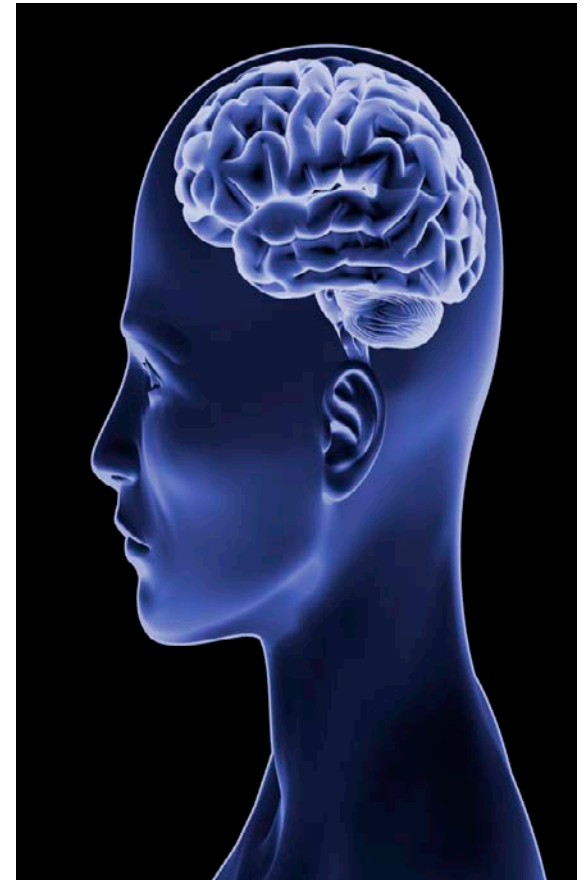
What does pharma look for in evaluating companies as potential partners?

Agenda






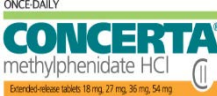
- Neuroscience research at Janssen Research & Development
- What are the challenges in drug discovery in Alzheimer's Disease?
- What are the most pressing needs for Pharma?
- Introduction to J&J Innovation
- Key questions for drug discoverers
- Examples of our partnerships

Janssen R&D Leading the Way in Next Neuroscience Frontier

- Leveraging scientific advances in neural plasticity, cellular resilience
- Building on strategic advantages, internal expertise and strong external networks
- Advancing methodologies in clinical trials, biomarkers, translational medicine
- Moving earlier into disease processes from diagnose and treat to predict and preempt



Janssen R&D Neuroscience Portfolio (as of May 2015)

APPROVED PRODUCTS	PLANNED FILINGS 2015-2019	SELECTED EARLY TO MID STAGE PIPELINE ²
 <p>paliperidone palmitate extended-release injectable suspension 273mg, 410mg, 546mg, 819mg</p>  <p>ONCE-MONTHLY prolonged release suspension for injection paliperidone palmitate</p>  <p>ONCE-MONTHLY paliperidone palmitate extended-release injectable suspension 39mg, 78mg, 117mg, 156mg, 234mg</p>  <p>Extended-Release Tablets 15mg, 3mg, 6mg, 9mg</p>  <p>risperidone Long-Acting Injection</p>  <p>ONCE-DAILY methylphenidate HCl Extended-release tablets 18 mg, 27 mg, 36 mg, 54 mg</p>	<p style="text-align: center;">PLANNED FILINGS</p> <p>Paliperidone palmitate</p> <ul style="list-style-type: none"> • 3-month long-acting injectable (EU) <p>Esketamine (intranasal)</p> <ul style="list-style-type: none"> • Treatment-resistant depression • Major Depressive Disorder at imminent risk for suicide <p>Fulranumab</p> <ul style="list-style-type: none"> • Osteoarthritis pain <p>JNJ-922 (Orexin-2 antagonist)</p> <ul style="list-style-type: none"> • Primary insomnia <p>Point-of-care diagnostic¹</p> <ul style="list-style-type: none"> • Schizophrenia 	<p>Alzheimer's Disease</p> <ul style="list-style-type: none"> • Lead BACE Inhibitor: Alzheimer's dementia in asymptomatic individuals • BACE Inhibitor back up • Anti-Tau vaccine: prodromal Alzheimer's disease • AAB-003: prodromal Alzheimer's disease • Alpha-2C AR antagonist: neurobehavioral symptoms in Alzheimer's disease <p>Mood Disorders</p> <ul style="list-style-type: none"> • JNJ-922 (Orexin-2 antagonist): adjunctive major depressive disorder • Sirukumab: major depressive disorder • Orexin-1 antagonist: mood disorders • P2X7 antagonist: mood disorders • FAAH inhibitor: anxious depression

1. 510(k) filing in US and CE Mark in EU planned.

2. Filings expected beyond 2019. This information is accurate as of the date hereof to the best of the Company's knowledge. Johnson & Johnson assumes no obligation to update this information.

Note: Filings/approvals assumed to be in US, EU unless otherwise noted.

Alzheimer's Disease

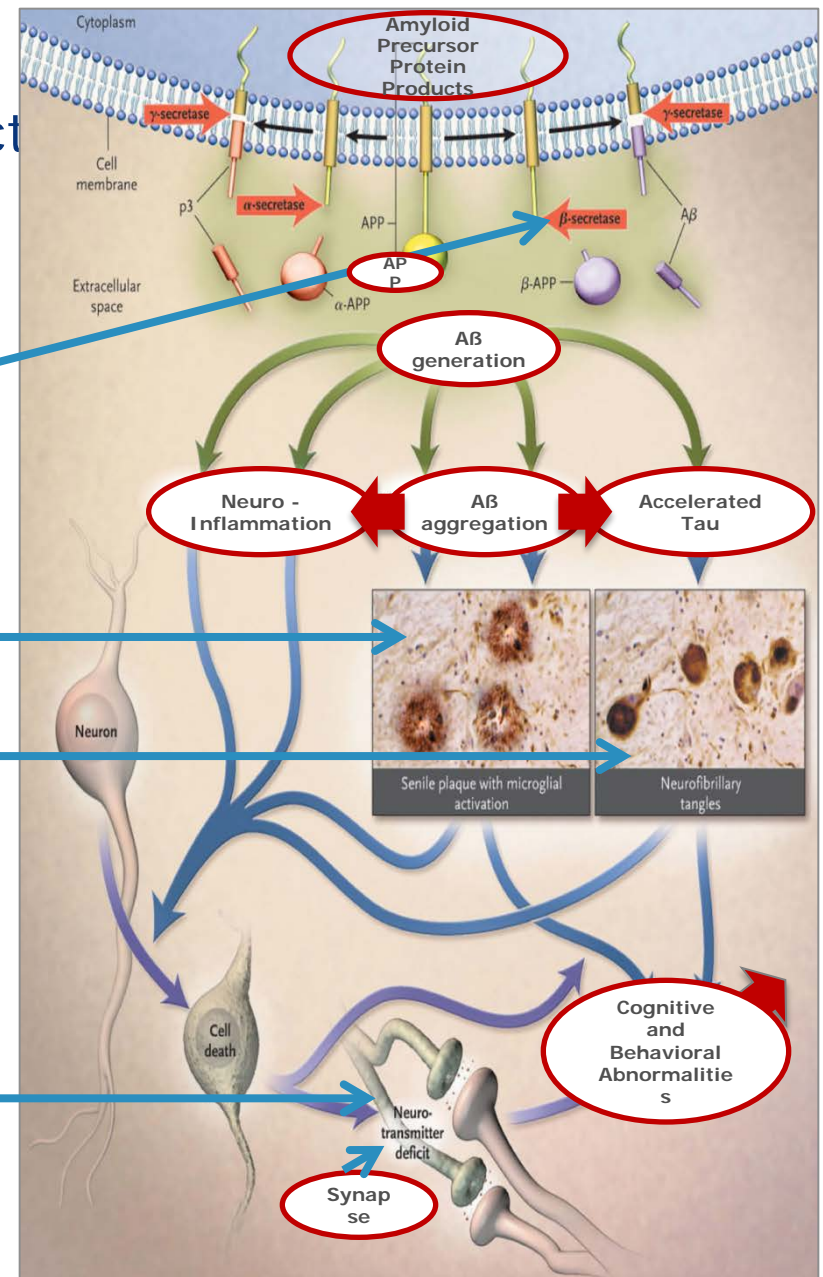
Tackling the Complex Interconnect Pathology on Multiple Fronts

BACE Inhibition

Amyloid Immunotherapy
(N-terminal mAbs)

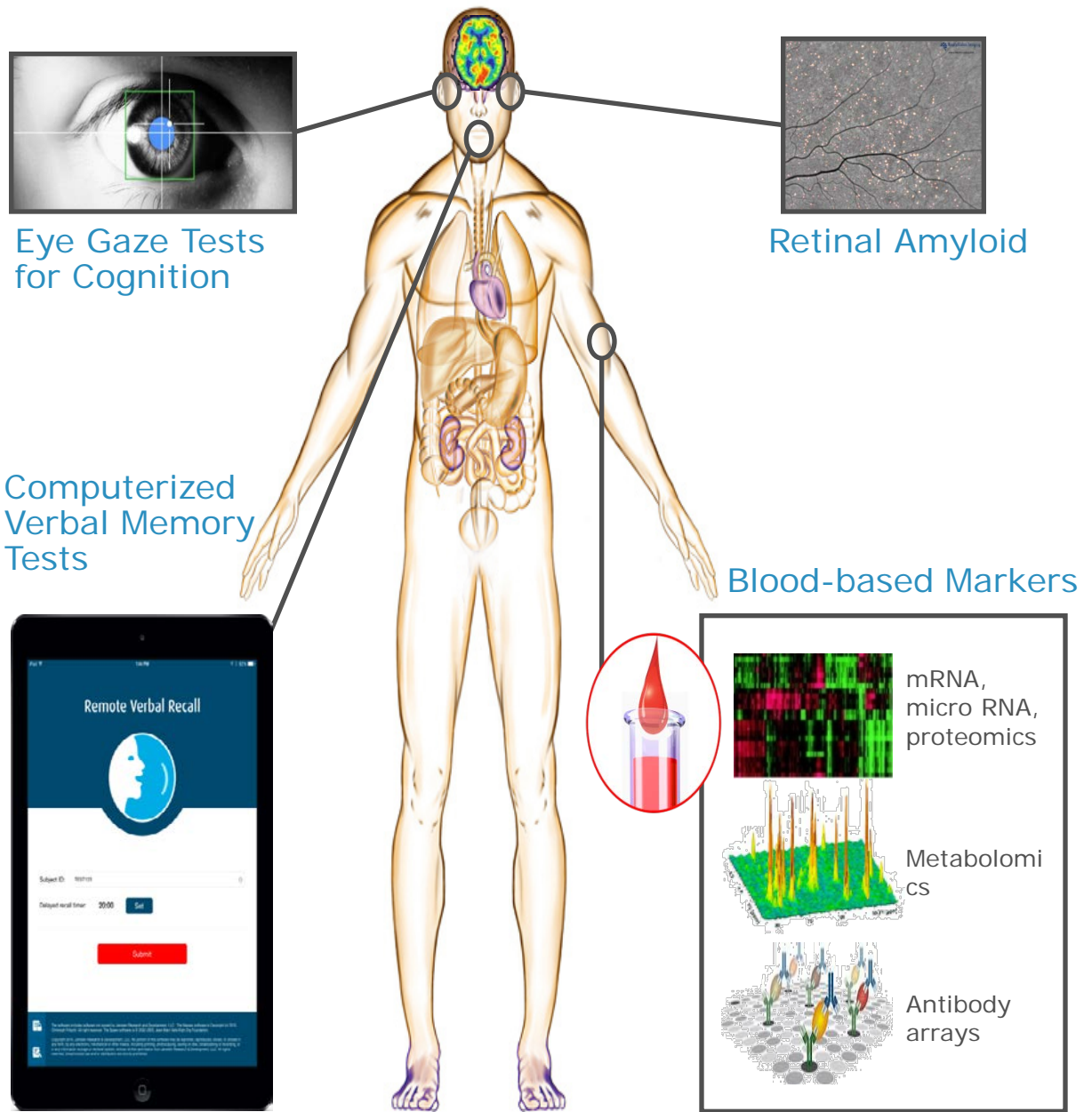
Anti-Tau Vaccine

Preventing synaptic dysfunction?



Alzheimer's Disease Non- invasive Diagnostics

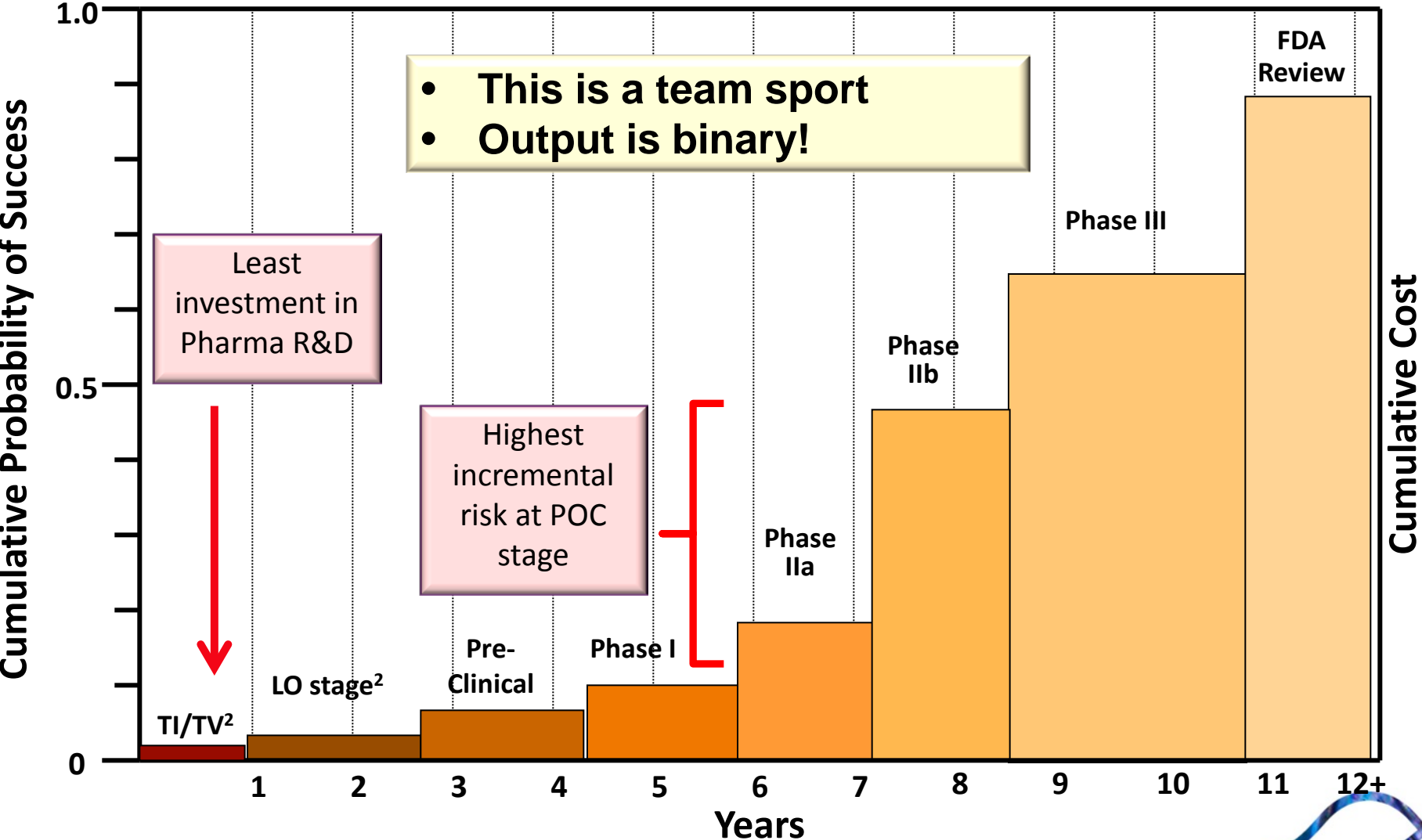
Enable Early
Detection of
Alzheimer's
Pathology in
the
Community



CNS Drug Discovery – Little risk discharge before Phase 2!

Right target, right patient, right tissue, right safety, right commercial value?

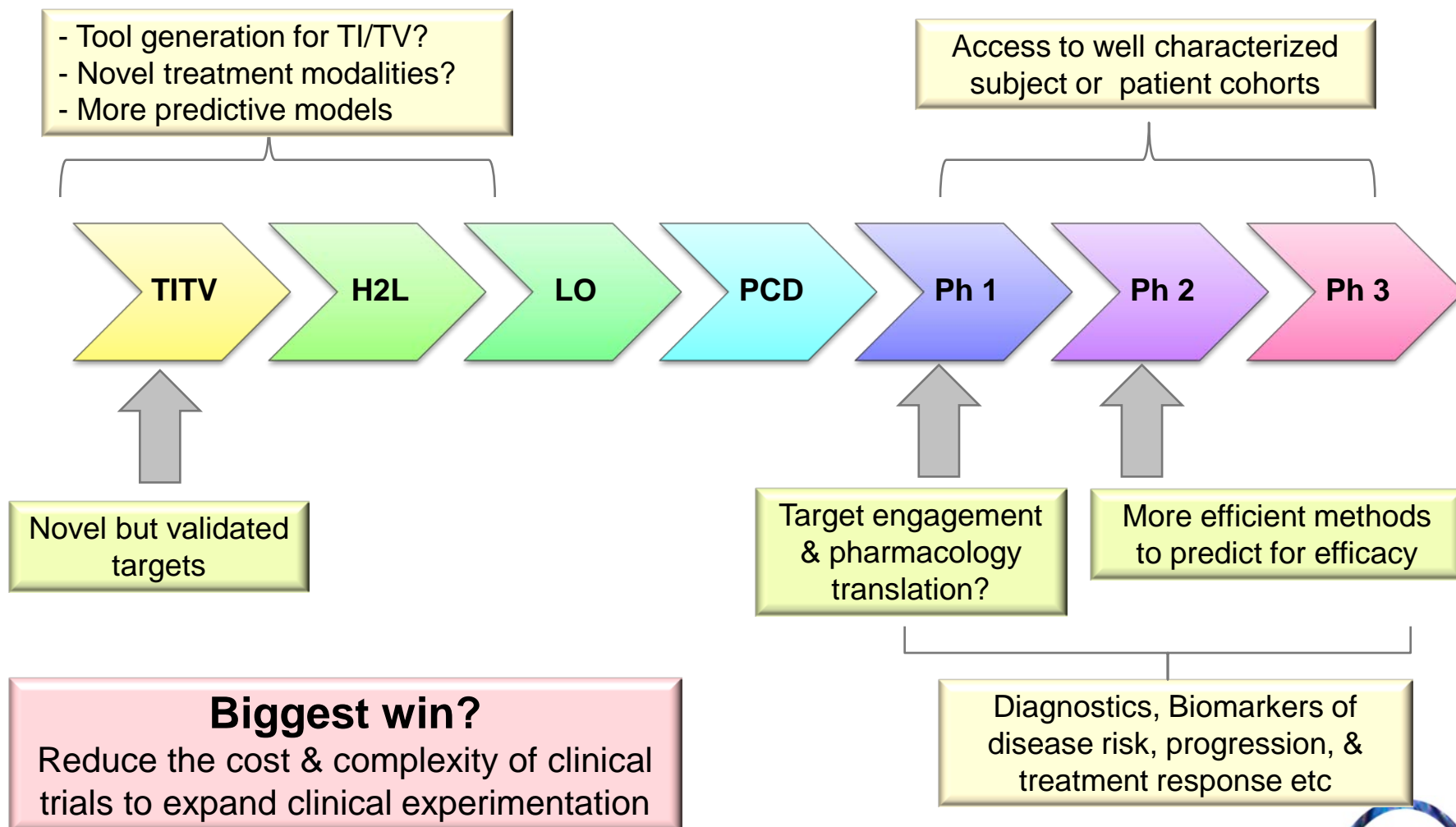
(*Nat Rev Drug Disc*, 2014, 13, 419-431)



The most pressing needs for Pharma?

Right target, right patient, right tissue, right safety, right commercial value

(*Nat Rev Drug Disc*, 2014, 13, 419-431)



*What is defeat? Nothing but education;
nothing but the first steps to something
better.*

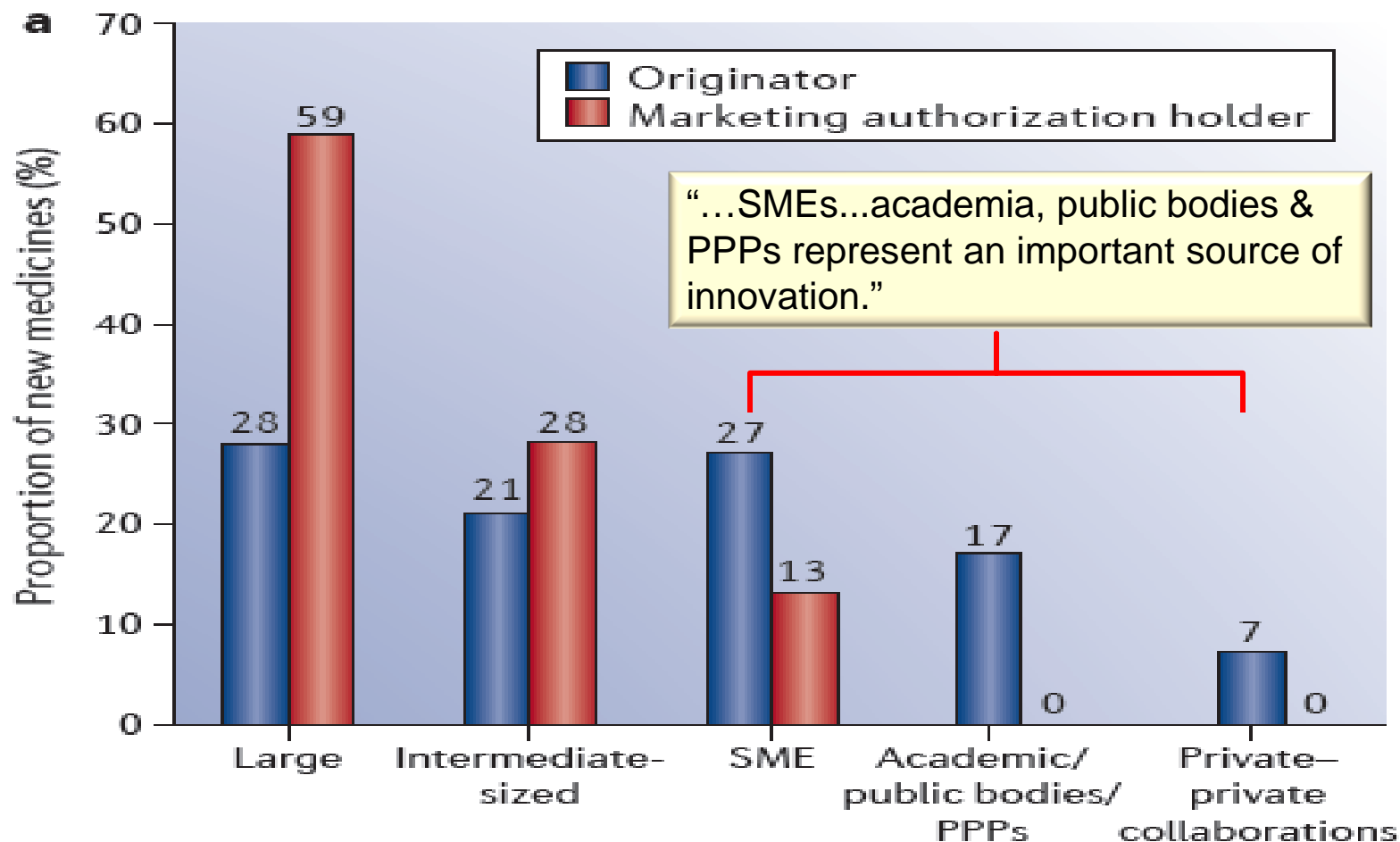
- Proverb

*The secret is to gang up on the
problem, rather than each other.*

- Thomas Stallkamp

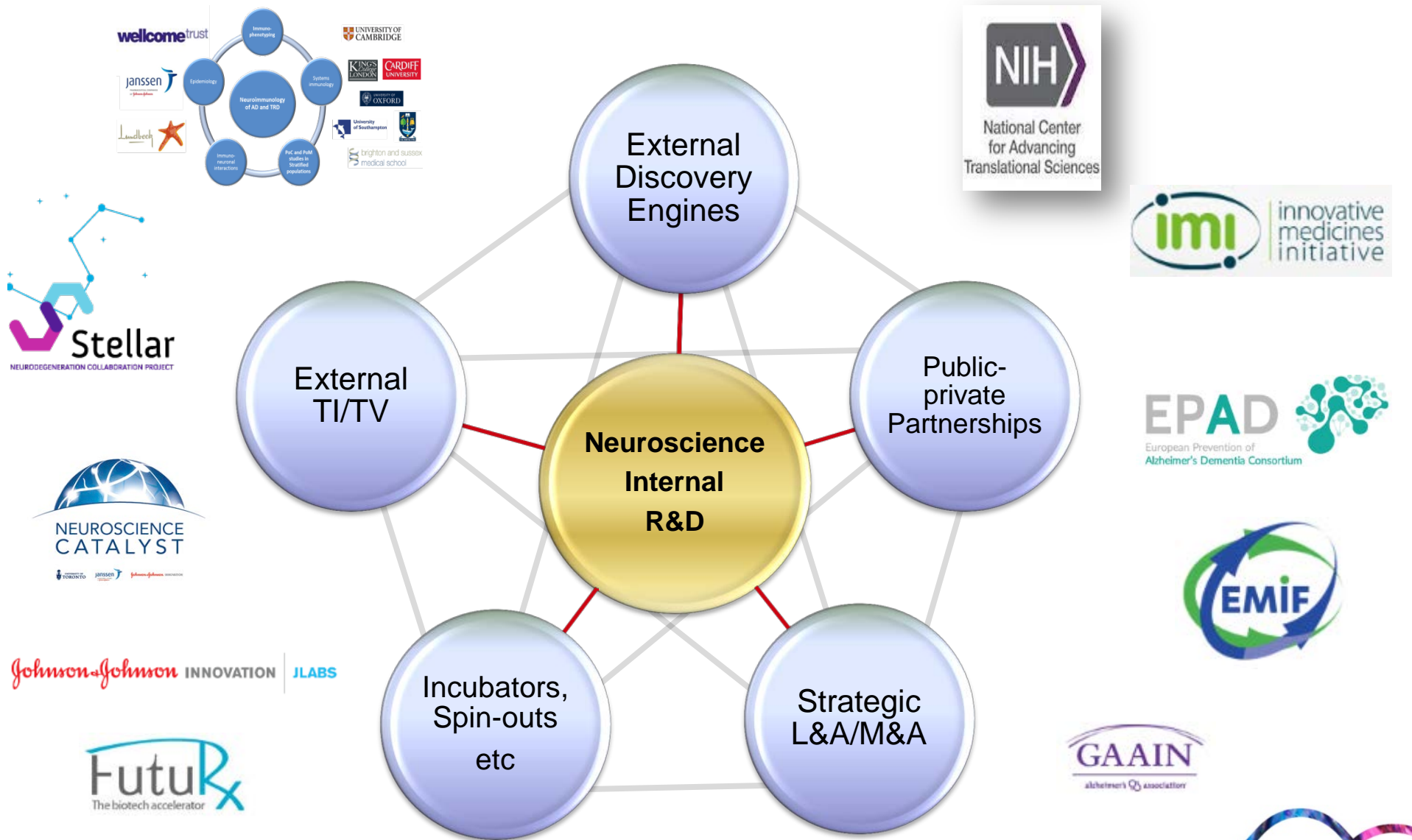


External drug discovery is not new - Origin of medicines in the EU (2010-12)



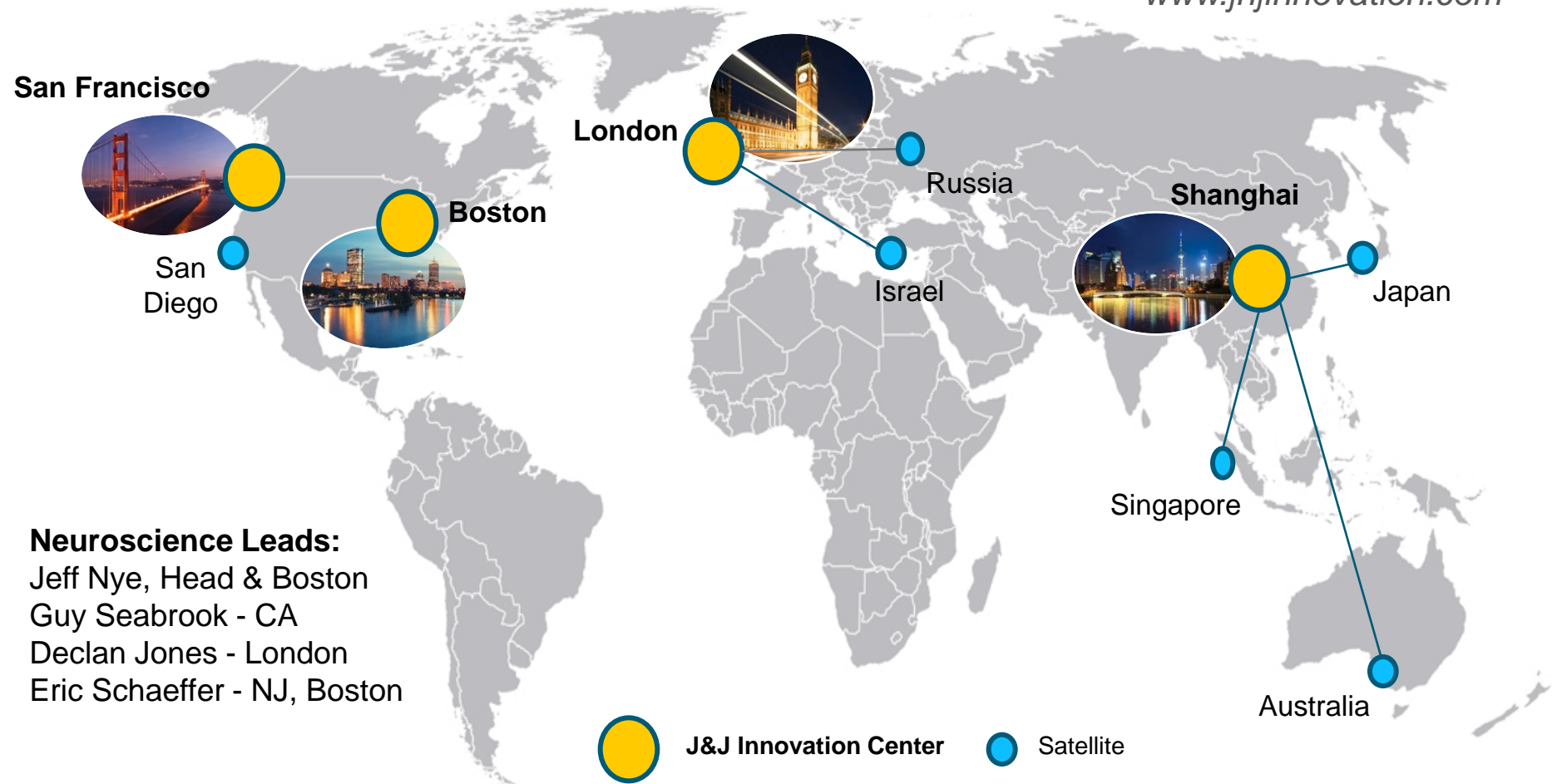
Lincker et al. *Nat Rev Drug Disc* 2014; 13; 92-9

Integrated Internal and External R&D model



Johnson & Johnson INNOVATION Our Innovation Centres

www.jnjinnovation.com



Neuroscience Leads:

- Jeff Nye, Head & Boston
- Guy Seabrook - CA
- Declan Jones - London
- Eric Schaeffer - NJ, Boston

- Janssen Business Development
- Our Corporate VC – J&J Development Corporation
- Our Incubator - JLABS <http://jllabs.jnjinnovation.com/>



J&J Innovation - What We Consider & How We Prioritize

- ***Conviction level of experts in science & target***
- ***Ability to establish pre-clinical and clinical POC***
- ***Time and cost to preclinical and clinical POC***
- Leadership potential (competitive landscape)
- Strategic fit for J&J
- IP strength
- Collaboration capability of partner
- ***Patient impact (medical need)***
- Societal impact (e.g. patient years)
- ***Transformative potential at time of launch***
- Cost of access (deal terms)

***Delivering
Clinical POC***

Key questions for drug discoverers

- What problem will this solve?
 - What standard of care will this displace in 10-15 years time?
- What is the strategy for discovery & development?
 - Is it a druggable target?
 - How far along the path can you take this (Exit?)?
 - Do you have the right support network?
 - *Are there killer experiments and Go/No Go points?*
 - *When are the major risks discharged?*
- What do you “own” and what do you want to control?
- How does a partnership mesh with your company’s overall strategy?
- What are you looking for from a partner?



Example partnerships: Therapeutics in AD



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10 Mar Alector Teams Up with Johnson & Johnson Innovation to Explore Novel Alzheimer's Target

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By Alector In Johnson & Johnson, Partnerships



SAN FRANCISCO – **March 10, 2014** – Alector, LLC announced today a collaborative research agreement facilitated by the Johnson & Johnson Innovation Center in California. Under the agreement, Janssen Pharmaceuticals, Inc. will fund research in one of Alector's targets through proof-of-concept disease models and will retain a time-limited option to negotiate a commercial agreement.

Alector is located at Janssen Labs @QB3 in San Francisco. Through a collaboration with QB3, Janssen Labs @QB3 aims to provide a capital efficient, flexible model for external companies pursuing important healthcare innovations. It features a no-strings attached approach which is a key component of the flagship Janssen Labs in San Diego.



evotec

TOP STORY

Evotec announces TargetAD collaboration with Johnson & Johnson Innovation to identify and develop novel Alzheimer's disease therapies

* Collaborative effort will explore genes dysregulated in Alzheimer's disease patients to identify new targets for drug discovery and development

Hamburg, Germany - 08 November 2013: Evotec AG (Frankfurt Stock Exchange: EVT, TecDAX, ISIN:

TOP STORY

Evotec achieves important milestone in TargetAD collaboration with Janssen in Alzheimer's disease

Hamburg, Germany - 12 January 2016: Evotec AG (Frankfurt Stock Exchange: EVT, TecDAX, ISIN:

Cypralis

Novel Medicines for Degenerative Diseases

Cypralis Limited announces collaboration with Johnson & Johnson Innovation in the field of neurodegenerative diseases

🕒 7th December 2015

Ongar, UK, 7th December 2015 / Cypralis, a life sciences company focussed on the discovery of therapeutics for the modulation of peptidyl-prolyl isomerases (PPIases), has entered into a collaboration with Janssen Pharmaceuticals I

Example partnerships – Diagnostics in AD



Targeted Diagnostics for Brain Health



DiamiR Announces Research Collaboration With Johnson & Johnson Innovation

MONMOUTH JUNCTION, NJ--(Marketwired - January 11, 2016) - DiamiR, LLC, a developer of innovative minimally invasive diagnostic tests, announced today that it has entered into a research collaboration agreement with Janssen Pharmaceuticals, Inc. (Janssen), one of the Janssen Pharmaceutical Companies of Johnson & Johnson. Johnson & Johnson Innovation facilitated the agreement.

DiamiR has developed a proprietary targeted approach for early detection and monitoring of neurodegenerative diseases based on quantitative analysis of brain-enriched microRNA pairs in plasma. In this collaboration, DiamiR and Janssen Neuroscience teams will jointly investigate how DiamiR technology can be used in the context of clinical development of a therapeutic agent for treatment of neurodegenerative disease indications.



HOME

PRESS

CLINICAL TRIALS

NeuroVision Expands Collaboration with Janssen Research & Development, LLC to Advance Alzheimer's Research

SACRAMENTO, Calif. (Feb. 10, 2016) – NeuroVision Imaging LLC has announced completion of a nonexclusive license agreement with Janssen Research & Development LLC, one of the Janssen Pharmaceutical Companies of Johnson & Johnson, that will significantly expand the companies' collaboration.

The collaboration will enable NeuroVision to further validate its retinal imaging technology and develop its technology for potential early detection and monitoring of amyloid pathology related to Alzheimer's disease. The collaboration is intended to help NeuroVision further develop the foundation for wide, global adoption of its technology, including participation in Janssen clinical trials.

Novel Partnerships - Incubators

- ▶ FutuRx - leverages the dynamic scientific environment in Israel
 - ▶ Combines the attributes of VC, Pharma, Academia, local management
 - ▶ Vast experience in company start ups, drug development know-how in multiple diseases & technologies



Johnson & Johnson INNOVATION | JLABS

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July 21, 2015

Upcoming Events

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LET'S TALK INNOVATION

JOHNSON & JOHNSON IS
COMMITTED TO COMBAT
HIV THROUGH THE
PREVENTION,
DETECTION, EDUCATION
AND TREATMENT

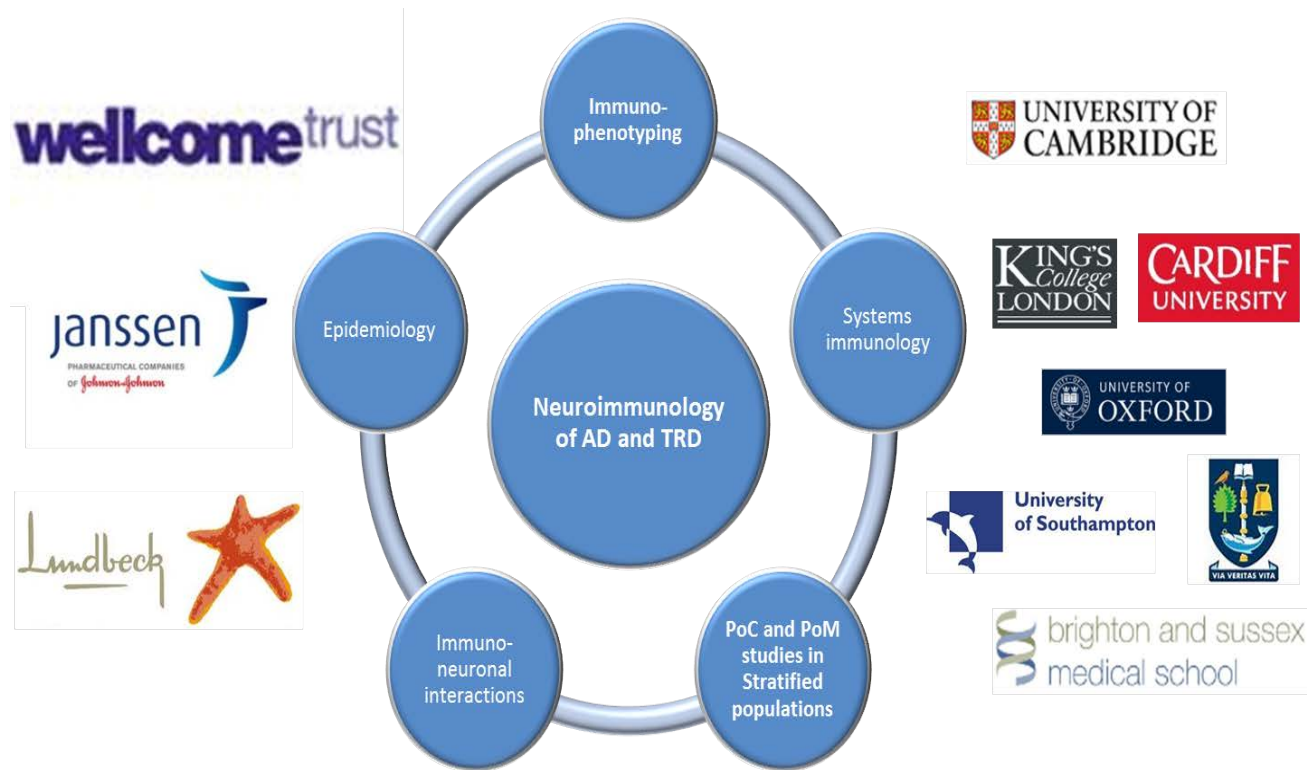
#MakeHIVstory fact: The red
ribbon was adopted as an

- ▶ JLABS provides a 'no strings attached' access to incubator facility
 - ▶ Space & equipment
 - ▶ Educational and nurturing program
 - ▶ Currently SF, La Jolla, Boston, Houston, Toronto.....

<http://jlabs.jnjinnovation.com/>

De-risking early science – identify biomarkers, repurpose clinical assets?

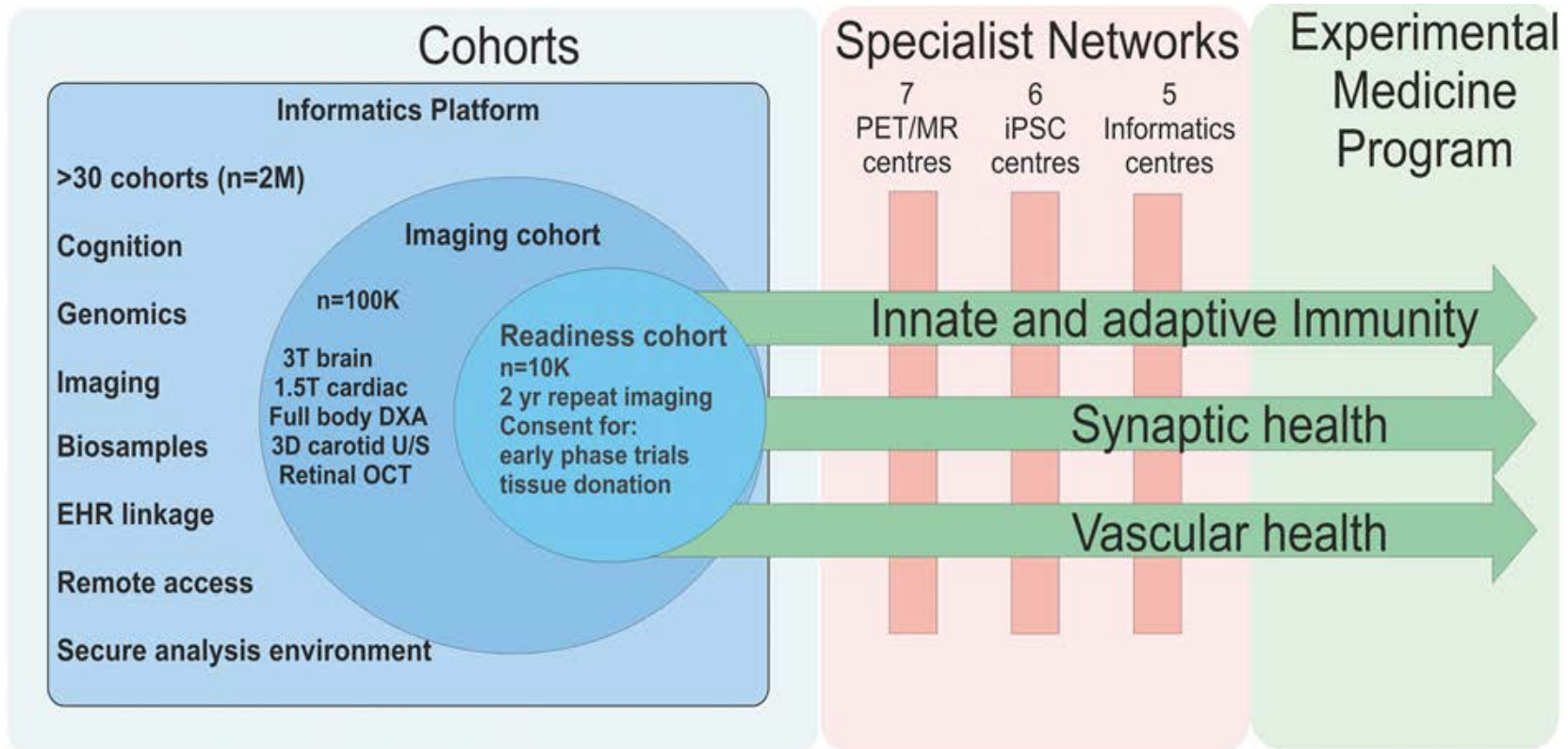
- Neuroinflammation in Mood & Alzheimer's (NIMA) consortium



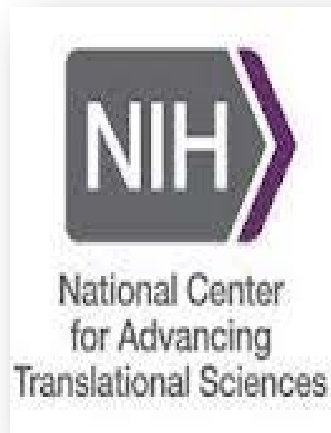
- Builds upon existing projects (e.g., EMIF) to investigate NI in AD
 - Bioinformatics, epidemiology, preclinical, and clinical projects
- Identify biomarkers, select patients, reposition drugs etc

Dementias Platform UK – improving experimental medicine in AD

- Consortium of UK Academics, SME, & Pharma partners (>\$85M funding)
- Provides platform and infrastructure for dementia research
 - **Deliver informatics, biomarkers, cohorts & subjects (EPAD), experimental medicine studies**



PPP to re-position novel clinical assets



“Discovering New Therapeutic Uses for Clinical Stage Molecules”

- Probe potential new indications for novel targets
- De-risk novel mechanisms to drive further discovery investments
- Co-funded model - clinical supply from industry, study funding from NIH

“Development of a novel therapeutic for smoking cessation”

Academic Partners: Darlene H. Brunzell, Ph.D., Virginia Commonwealth University, Richmond and Kenneth Alan Perkins, Ph.D., University of Pittsburgh

Industry Partner: Janssen Research & Development, LLC



Nicotinic $\alpha 7$ PAM

JNJ39393406



MRC-Industry Asset Sharing Initiative



ECNP Medicines Chest



*Some sources of funding for dementia drug discovery.....



News story

Health secretary announces \$100m Dementia Discovery Fund

From: Department of Health
First published: 17 March 2015
Part of: Dementia



DEMENTIA Consortium



Alzheimer's Drug Discovery Foundation



Seeding Drug Discovery



Funding to facilitate early-stage small-molecule drug discovery. The awards help applicants with a potential drug target or new chemistry embark on a programme of compound discovery and/or take later stage projects towards clinical trials.

Cultivating Innovation in Dementia Research

The Dementia Discovery Fund is a close collaboration between charity, industry and the government, to provide much-needed investment in innovative dementia research

**far from exhaustive list*

Thank you

DJone119@its.jnj.com

www.jnjinnovation.com

 INNOVATION

