

Defeating dementia: progress and  
challenges on the road to 2025

**Are we on Track?**

**#DefeatingDementia**

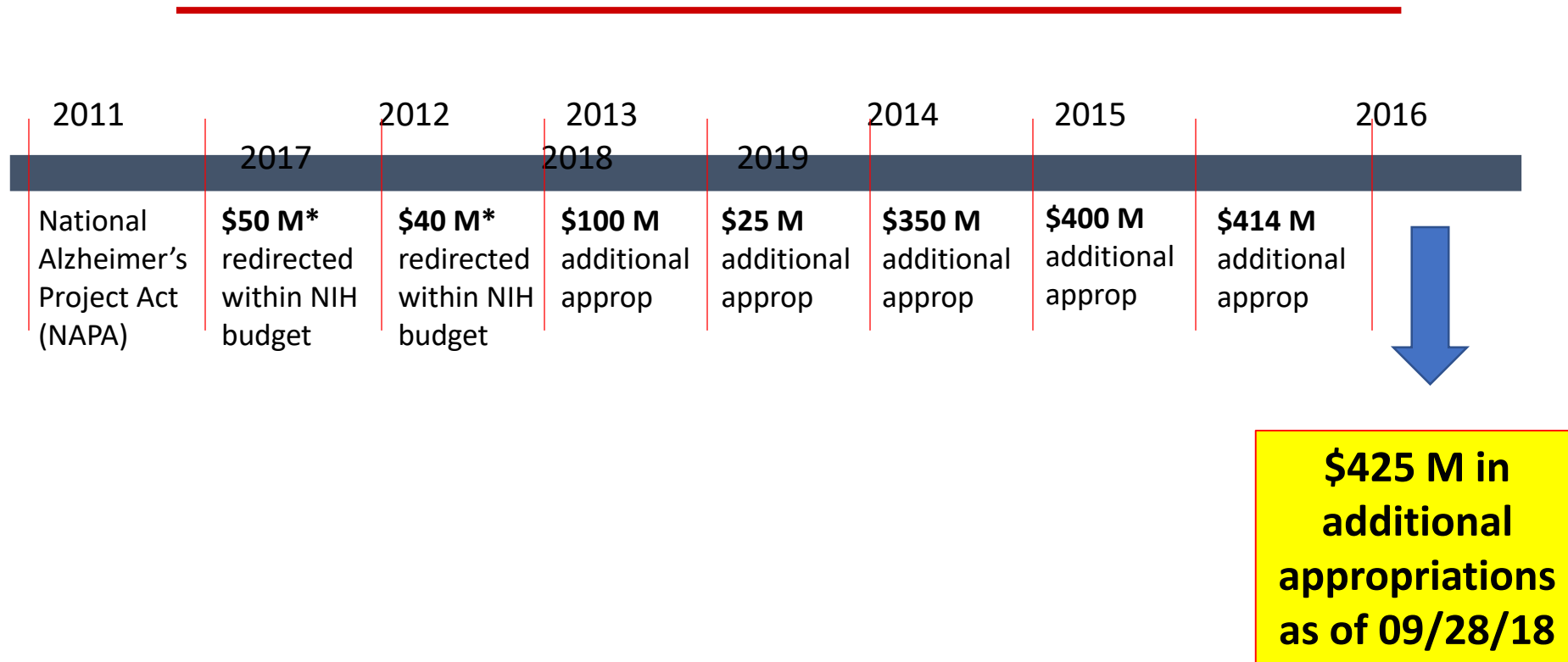
# Defeating dementia: progress and challenges on the road to 2025

**Dr Richard J. Hodes**

Director, National Institute on Aging

#DefeatingDementia

# Increases in Alzheimer's and Related Dementias Research Funding

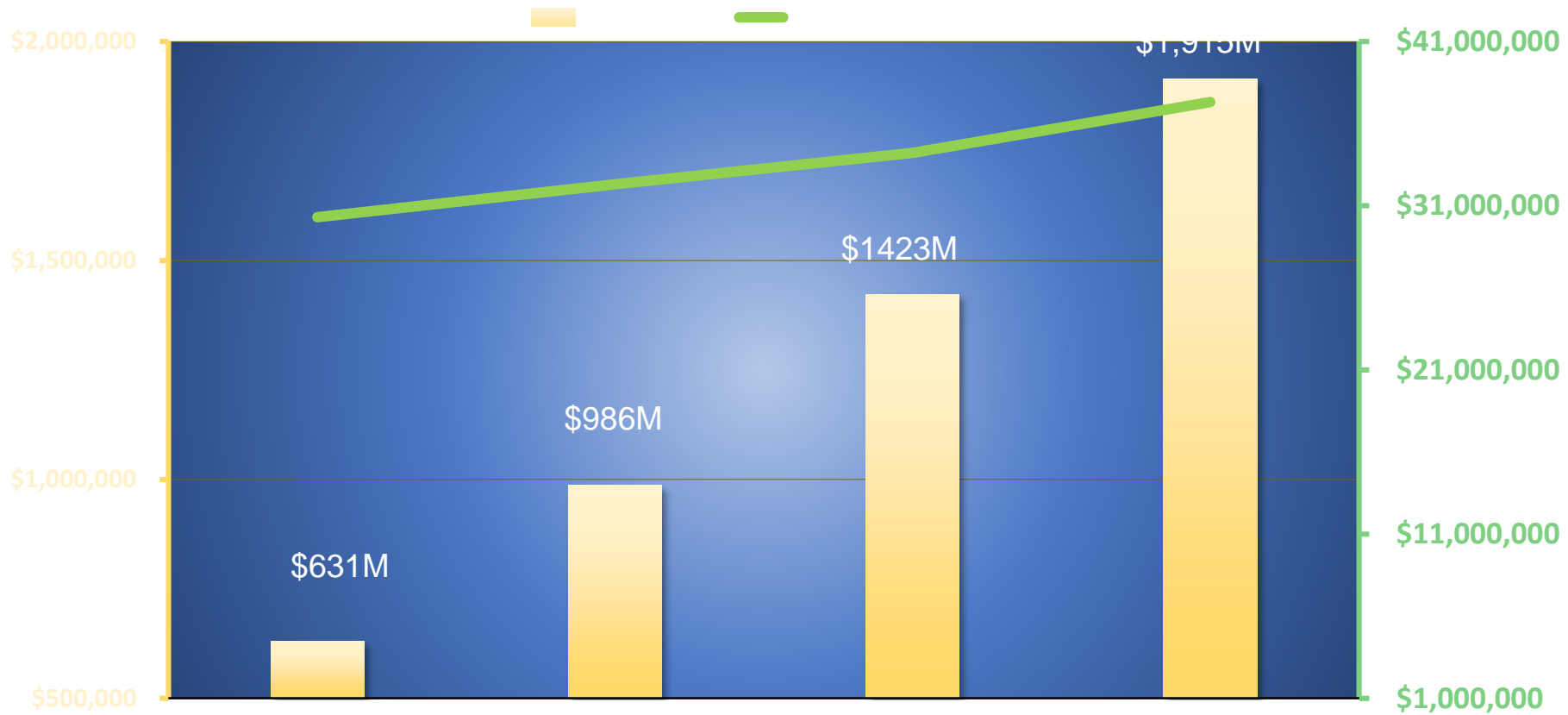


\*one-year money

Years displayed are Fiscal Years

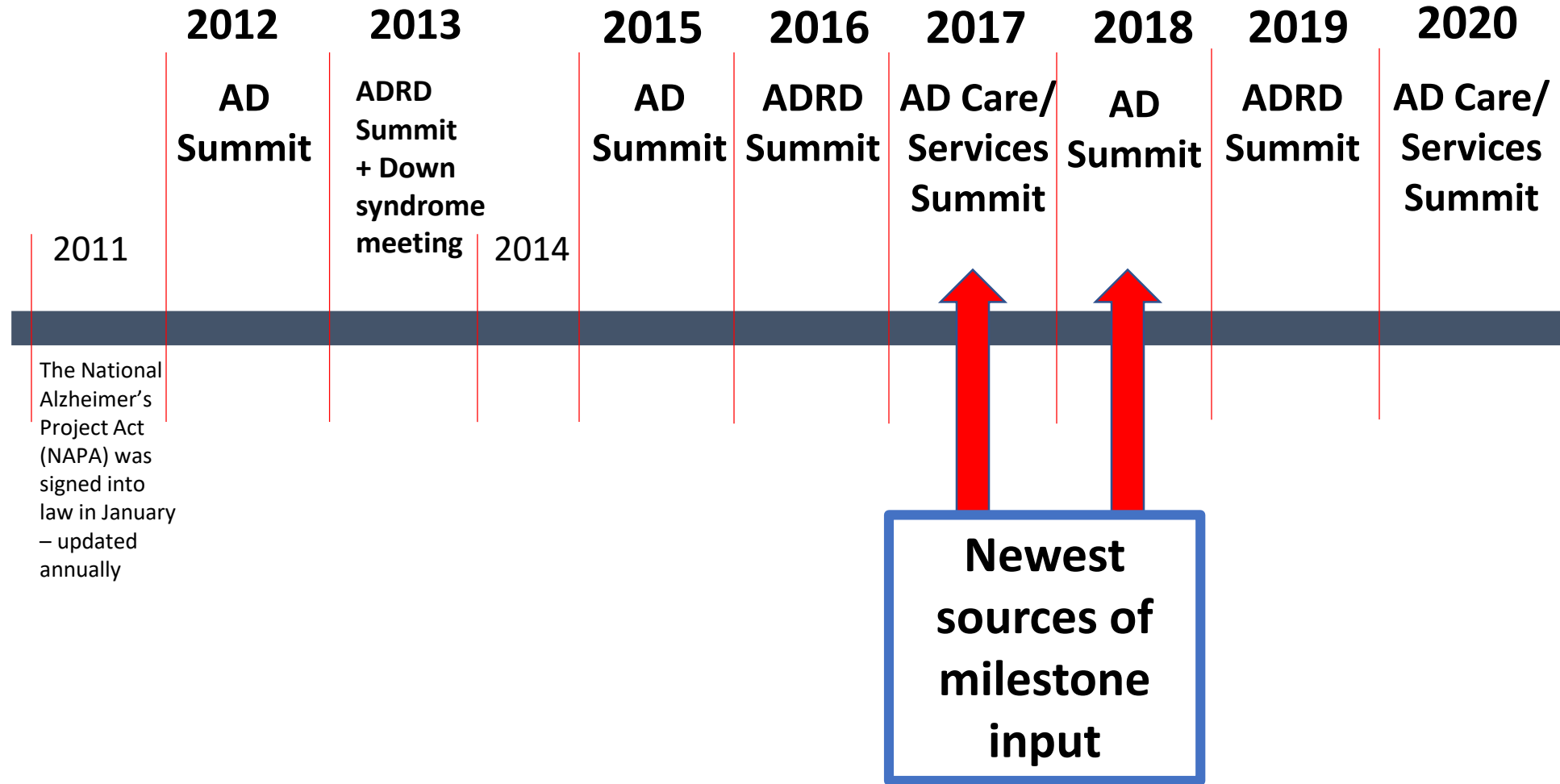
# AD and Related Dementias (AD/ADRD) Research

*How Much Are We Spending?*



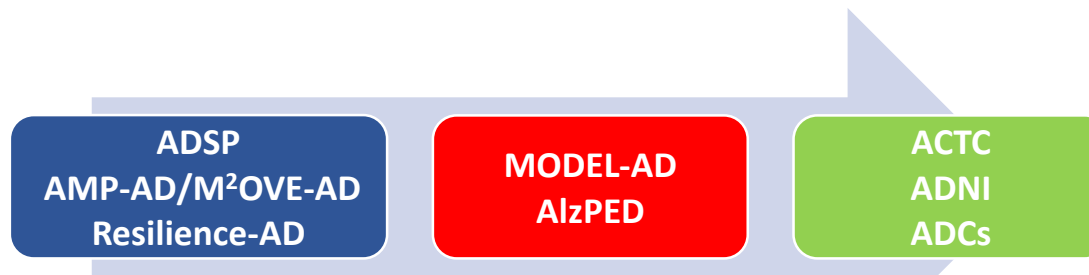
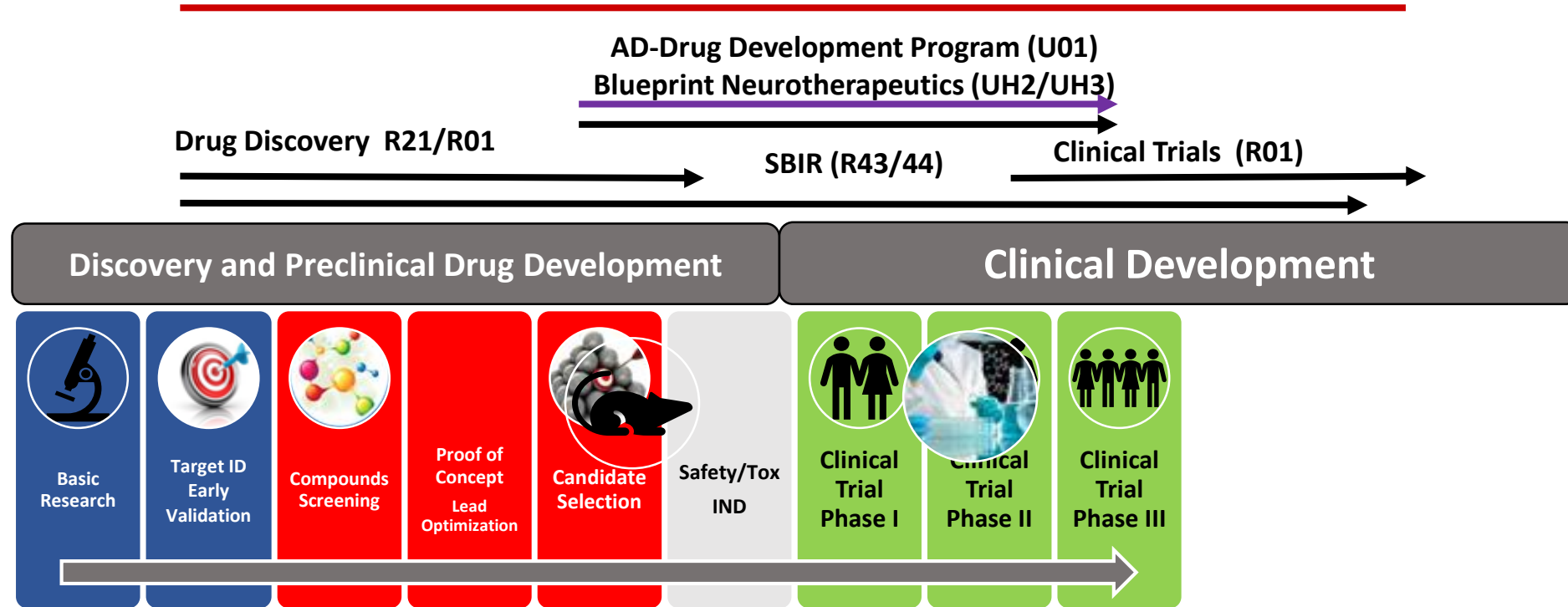
**NIH Funding to AD/ADRD Has Increased Three Fold!**

# NIH Research Implementation Milestones drive progress and are *Based on Broad Input*



<https://www.nia.nih.gov/alzheimers/milestones>

# Translational Programs and Infrastructure for AD and ADRD



**Enabling Infrastructure**



## Progress over 4 years:

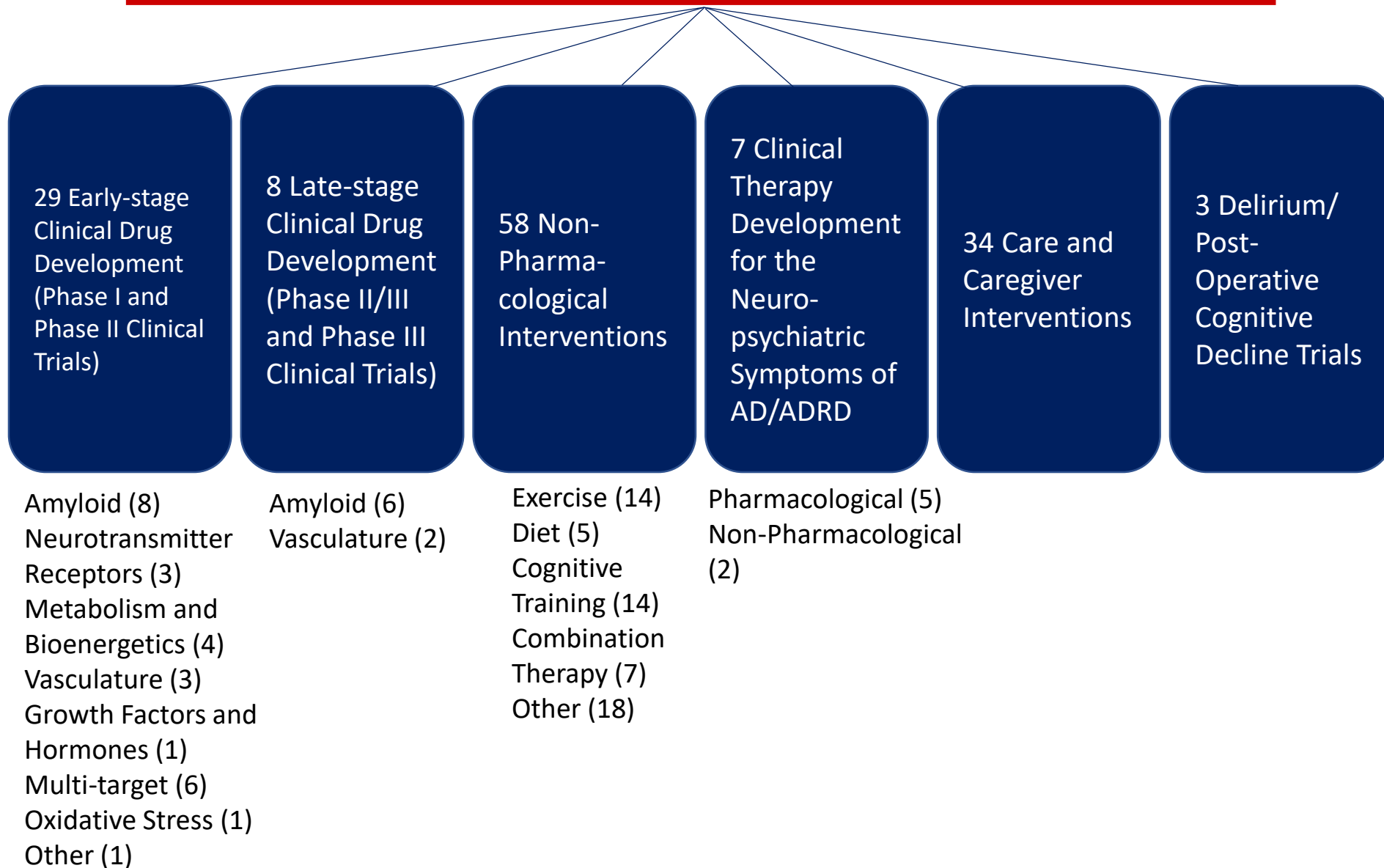
- Centralized data resource established- AMP-AD portal
- All data sharing deliverables met
- Over 100 candidate targets nominated; currently undergoing data-driven prioritization for further preclinical validation
- A variety of experimental validation models developed
- Novel biomarker discovery initiated

## AMP-AD Teams

### Candidate Targets: preliminary list

SNRNP70	TGFBR1	CCDC85C	RGS4
U1-A	TGFBR2	CIC	SCN2A
U1-C	BMPR1A	CSRP1	OLFM3
SNRPN	BMPR1B	DAB2IP	SLC22A10
SNRPB	CRHR1	FAM63A	ENAH
PLCD1	TREM2	FURIN	WWTR1
PTRHD1	TYROBP	HMG20B	LRP10
SFRP1	S100A8	IGFBP5	SYP
PPP1R7	S100A9	ISYNA1	PCSK1
DNM3	P2RY2	KIF1C	KMO
RTN4	P2RX7	PADI2	PTTG1IP
EPB41L3	P2RY12	SLC38A2	MLIP
TUBB3	P2RY13	SNAP25	DLGAP1
PLEC	OSMR	STX1A	MOAP1
ANXA5	TLR4	STXBP3	PRKCB
MSN	CR1	SV2B	YAP1
CD44	CSF1R	SYT1	GNA13
LMNA	CX3CR1	SYT12	TRIM56
	SPI1	ZBTB47	
	TNFRSF10A	VGF	
	TNFRSF10B	PLXNB1	

# Ongoing NIA AD/ADRD and Related Intervention and Prevention Trials (~140)





# Recruitment to a growing AD/ADRD workforce

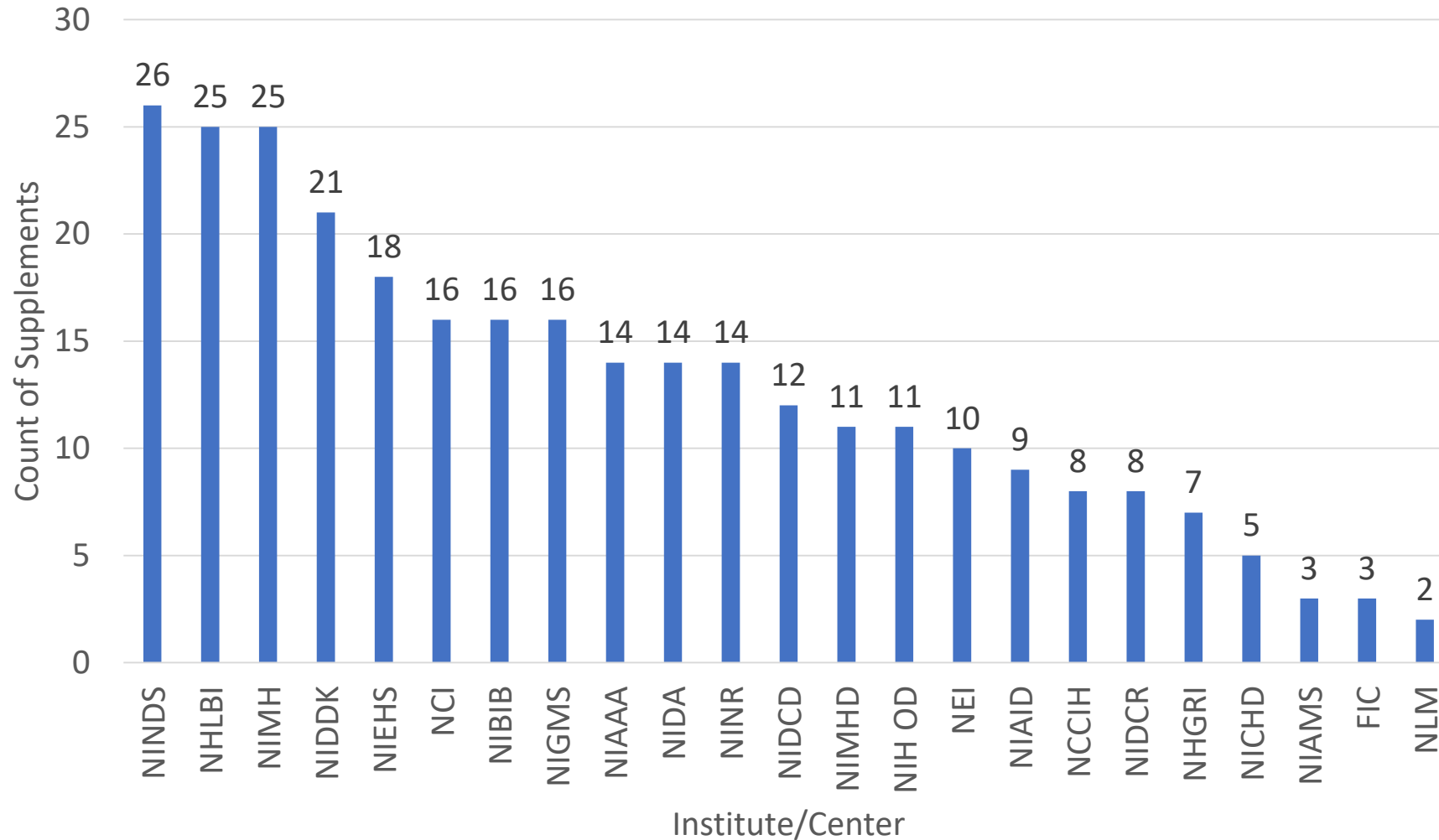
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**Over 1/4** of NIA's Alzheimer's and related dementias awardees from Fiscal Year 2015-2018 were either new or early stage investigators

**Over 1/3** of NIA's Alzheimer's and related dementias awardees were new to the field

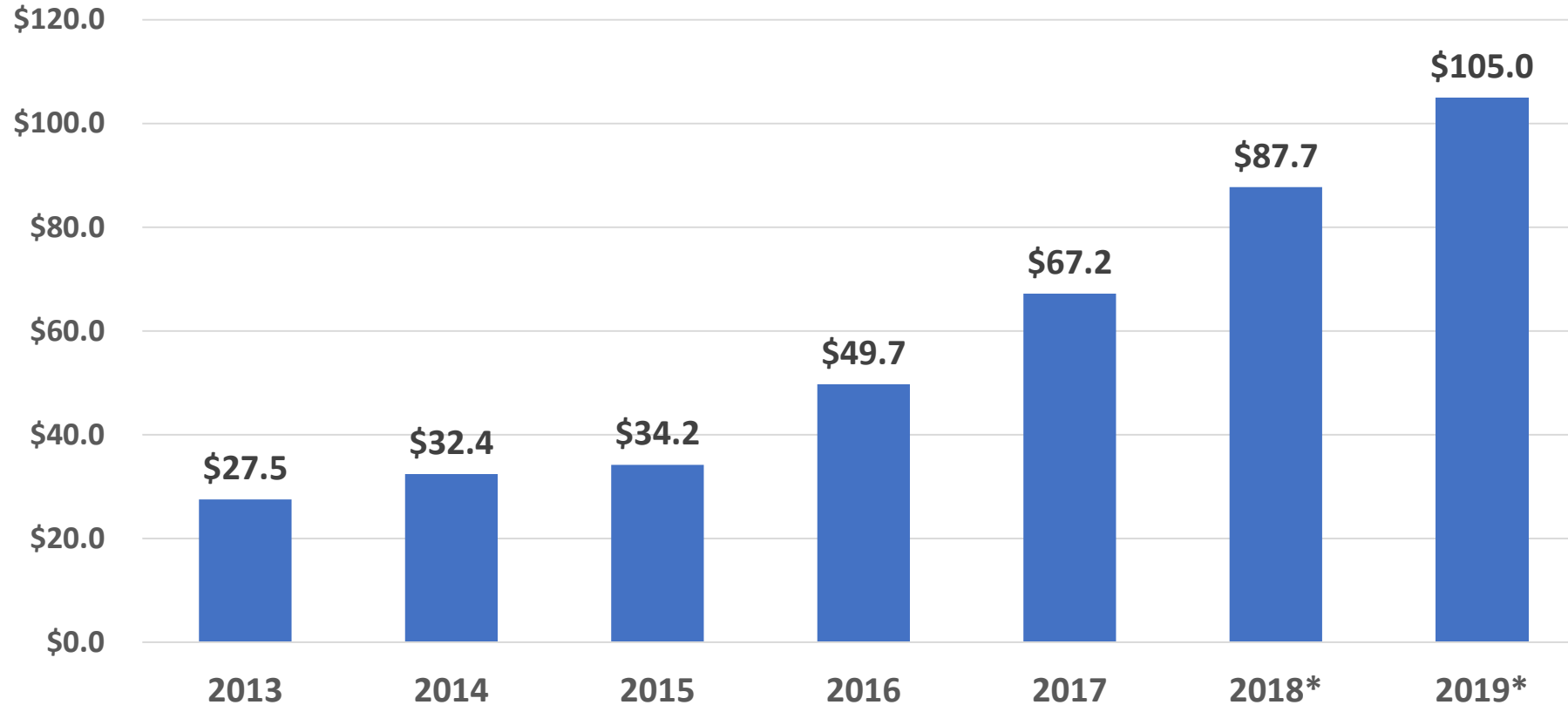
# Supplements by Institute/Center

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# NIA SBIR/STTR Obligations

Dollars in Millions



\*estimates

## International Alzheimer's and Related Dementias Research Portfolio (IADRP)

Our database brings together funded research supported by public and private organizations both in the US and abroad all categorized using the Common Alzheimer's and Related Dementias Research Ontology or CADRO.

Category All Categories	Funding Organization All Funding Organizations	Year All Years	<input type="text"/>	Advanced Search
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**40+**

Public and Private Funding  
Organizations in Over 10  
Countries



**9000+**

Unique basic, translational,  
clinical and health services  
research projects and resources



**5000+**

Researchers across over 1000  
academic institutions



**\$7B+**

Research Funding

## New IADRP Database

### Highlights

- Search research by specific related dementias
- Integrate new codes/changes to CADRO
- Link research to related clinical trials, patents and data repositories
- Visualize search results with dynamic charts and graphs

### Contacts

- Dr. Charlene Liggins – NIA  
([ligginsc@mail.nih.gov](mailto:ligginsc@mail.nih.gov))
- Dr. Jordan Gladman – NINDS  
([Jordan.Gladman@nih.gov](mailto:Jordan.Gladman@nih.gov))
- Dr. Heather Snyder –  
Alzheimer's Association  
([hsnyder@alz.org](mailto:hsnyder@alz.org))

# What do we need moving forward?

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**Data sharing** – open science framework, target sharing, etc.

**New ideas and a larger workforce** – interdisciplinary teams, junior investigators

**Interventions to test earlier plus hope for later stage disease**  
– recruitment is key

**Better understanding of the biology and overlap with other dementias** – improved animal models, risk assessment, disease detection, progression, prediction, resilience, etc.

**Improved insights into disease disparities**

**Expanded caregiver research** – benefits to people with dementia as well as their caregivers

# Defeating dementia: progress and challenges on the road to 2025

**Stéphane Hogan**

Head of Sector Neuroscience, European Commission

#DefeatingDementia



# EU support for research on dementia

*WDC Summit*

*London, 5 December 2018*

Stéphane Hogan  
Head of Sector - Neuroscience  
Health Directorate  
DG Research & Innovation

# EU support for research - complementary actions



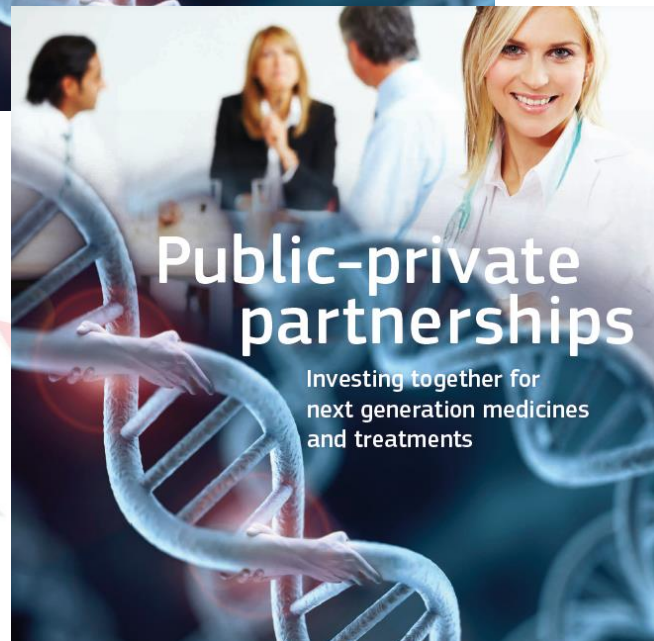
## Collaborative research

Real-life solutions based on joint problem-solving



## Public partnerships

Harnessing global expertise to fight poverty-related diseases



## Public-private partnerships

Investing together for next generation medicines and treatments



## Global co-operation

One world, one team working to solve common health challenges



# EU support for research & innovation (1)



- **Funding basic research**
  - **ERC for frontier research**
  - **Marie Skłodowska-Curie Actions**  
(for mobility, training & career development)
- **Funding translational research** for large-scale collaborative research, including clinical trials
- **Innovative Medicines Initiative (IMI)**  
Fostering cooperation between academia and industry (and within industry)

# EU-funded collaborative brain research



## A comprehensive approach



- Genetics
- Brain circuit synaptology
- Taxonomy
- Common mechanisms in co-morbidities



- Genome-wide association
- Gene-environment interaction
- Networking of cohorts
- Systems biology



- Dietary interventions
- On-line tailored interventions
- At-risk individuals
- Pharmacological secondary prevention



- Fluid biomarkers
- Imaging biomarkers
- Cognitive assessment
- Multimodal biomarkers



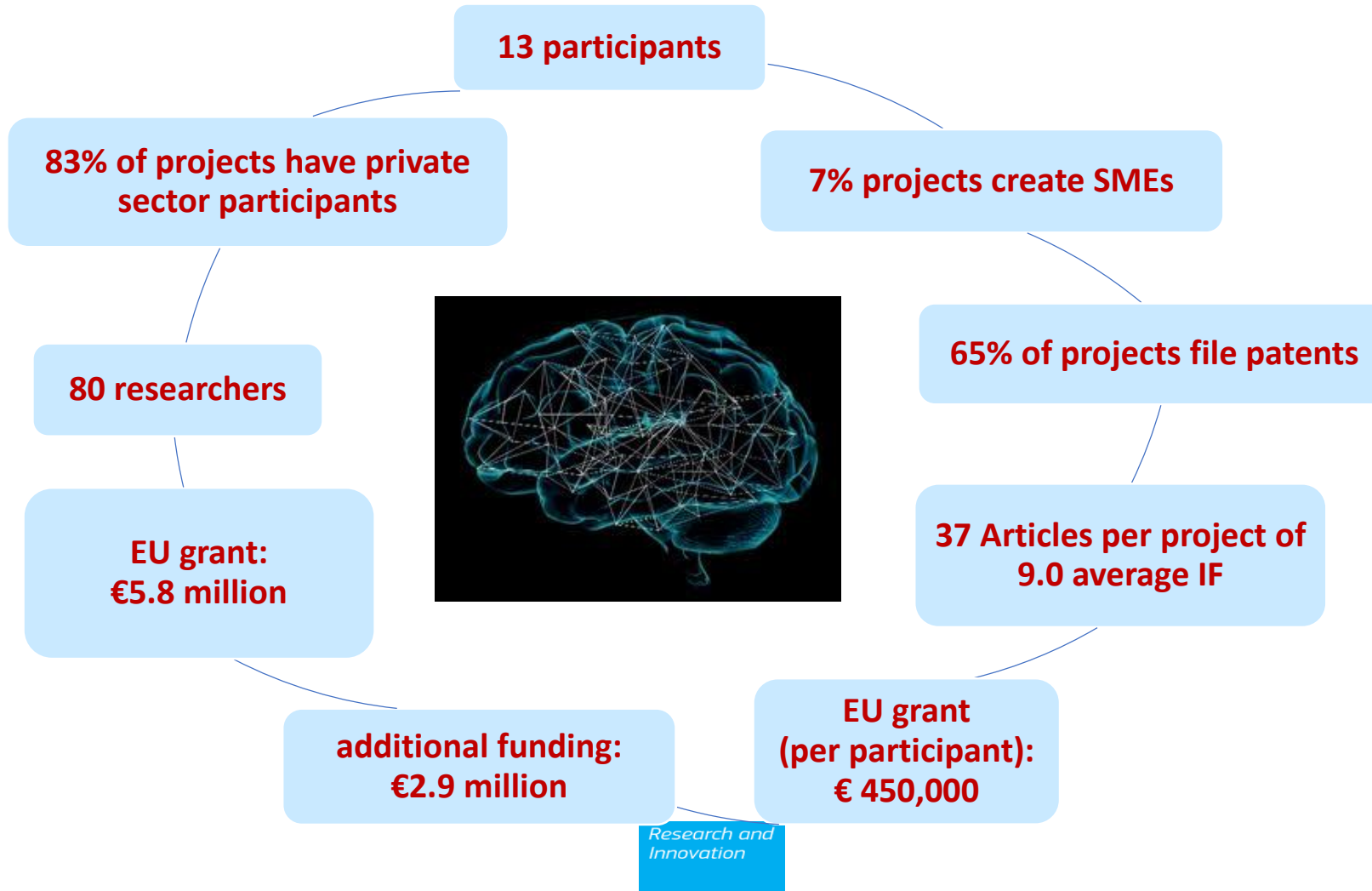
- Drug discovery
- Preclinical
- Proof-of-concept
- Clinical Trial



- Quality of life
- Technology assisted care
- Care-giver support
- Sustainability



## A typical EU-funded collaborative project - profile



# Collaborative R&I projects (FP7 & Horizon 2020)



- Dementia in Horizon 2020 (2014-2018): 91 projects/€195 million



- INnovative, Midlife INtervention for Dementia Deterrence



- Impact of nutritional lipids on neuronal and cognitive performance in aging, Alzheimer's disease & vascular dementia - First randomized controlled trials with 2-year follow-up of patients with prodromal AD



- Validation of a fast and simple peripheral blood diagnostic biomarker kit for Alzheimer's disease



- Prevention of Dementia using mobile phone applications (targeting socio-economically deprived populations)

# EC support for research & innovation (1)

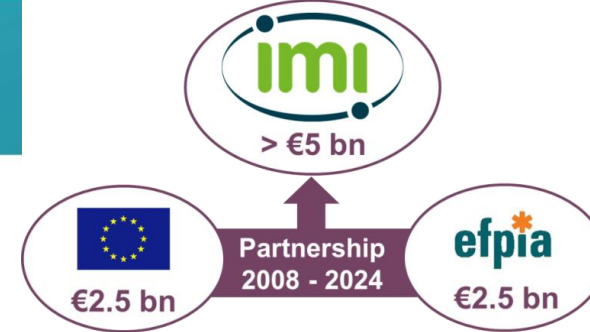


Human Brain Project



- **Supporting research infrastructures**
  - The Human Brain project (HBP)
- **Fostering European collaboration at national level**
  - Joint Programme for Neurodegenerative Disease research (JPND)
- **International cooperation for implementation research**
  - Global Alliance for Chronic Diseases (GACD):  
14 member agencies

# Public-private partnerships



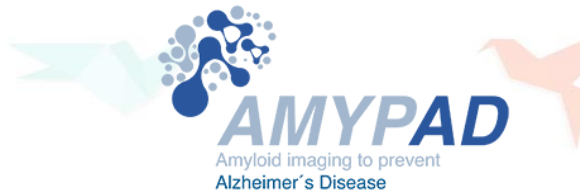
- IMI: world's largest PPP in life sciences
- To improve development of medicines
- Unprecedented inter-industry collaboration and with academia, patients, regulators...
- IMI Alzheimer's disease Joint Platform: EC contribution € 58.2 million



- European Prevention of Alzheimer's Dementia consortium

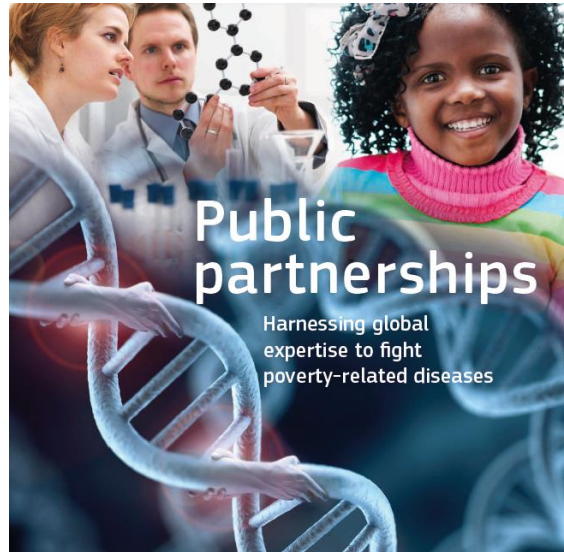


- Organising mechanistic knowledge of neurodegenerative diseases to improve drug development and therapy



- Investigate value of  $\beta$ -amyloid brain scans as a diagnostic and therapeutic marker for Alzheimer's disease

# Public-Public partnerships



- Foster coordination of research activities of 30 Member States and other countries
- Support and align national strategies
- Develop common R&I agenda
- Co-invest in research - joint calls: €150m
- Develop international collaboration



# Accelerating brain research

Coordinating European brain research & developing global initiatives

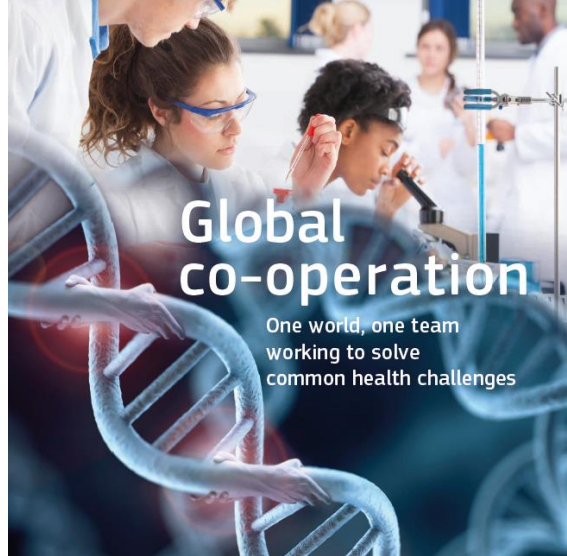
=> **EBRA project: European Brain Research Area**



- European Brain Council (EBC), JPND, NEURON, Human Brain Project
- Nov. 2018 – Oct. 2021 - EU funding €2 million
- EBRA will coordinate and foster synergies in brain research
  - integrate EU funded initiatives and foster thematic clusters
  - align brain research strategies and initiate new ones
  - develop international collaboration



# Global co-operation



- International funders
- Flexible arrangements
- Common goals defined with researchers
- critical mass
- Sharing tasks, costs, infrastructures & data
- Sharing best practices



Global Research Collaboration for Infectious Disease Preparedness





*Thank you*

**HORIZON  
2020**

"Open Science, Open Innovation,  
Open to the World"

*Research and  
Innovation*