NIA SUPPORT FOR AMYLOID BETA POSITRON EMISSION IMAGING

National Institute on Aging

YEAR 2000: A NEW MILLENIUM

J. Med. Chem. **2001,** *44,* 1905−1914

Radioiodinated Styrylbenzenes and Thioflavins as Probes for Amyloid Aggregates

Z.-P. Zhuang,[†] M.-P. Kung,[†] C. Hou,[†] D. M. Skovronsky,[‡] T. L. Gur,[‡] K. Plössl,[†] J. Q. Trojanowski,[‡] V. M.-Y. Lee,[‡,§] and H. F. Kung*[,†,§]

Departments of Radiology, Pathology and Laboratory Medicine, and Pharmacology, University of Pennsylvania, Philadelphia, Pennsylvania 19104

Acknowledgment. We thank Ms. Laura Cesaro for her editorial assistance. This work was supported by grants from the National Institutes of Health (NS 18509 to H.F.K. and PO1 AG-11542 to V.M.-Y.L.), the Institute for the Study of Aging (M.-P.K.), and a Medical Scientist Training Program Predoctoral Fellowship from the National Institutes of Health (D.M.S.). We also thank

ORIGINAL ARTICLES

Imaging Brain Amyloid in Alzheimer's Disease with Pittsburgh Compound-B

William E. Klunk, MD, PhD,[1] Henry Engler, MD,[2] Agneta Nordberg, MD, PhD,[3,4] Yanming Wang, PhD,[5] Gunnar Blomqvist, PhD,[2] Daniel P. Holt, BS,[5] Mats Bergström, PhD,[2] Irina Savitcheva, MD,[2] Guo-feng Huang, PhD,[5] Sergio Estrada, PhD,[2] Birgitta Ausén, MSCI,[4] Manik L. Debnath, MS,[1] Julien Barletta, BS,[6] Julie C. Price, PhD,[5] Johan Sandell, PhD,[2] Brian J. Lopresti, BS,[5] Anders Wall, PhD,[2] Pernilla Koivisto, PhD,[2] Gunnar Antoni, PhD,[2] Chester A. Mathis, PhD,[5] and Bengt Långström, PhD[2,6]

Ann Neurol 2004;55:306–319

This work was supported by grants from the Alzheimer's Association (IIRG-95-076, TLL-01-3381, W.K.; NIRG-00-2335, Y.W.), the NIH (National Institute of Aging), AG01039, AG20226, W.K.; AG18402 C.M.), Institute for the Study of Aging/American Federation for Aging Research (Y.W.), the Swedish Medical Research Council (project 05817, A.N.), and the Stohnes Foundation (A.N.).

American Journal of Geriatric Psychiatry • Volume 12, Issue 6, Pages 584 - 595 • November/December 2004

In-vivo imaging of Alzheimer disease β-amyloid with [^{11}C]SB-13 PET

Verhoeff, Nicolaas P.L.G.[a, b, c, e] ✉ ; Wilson, Alan A.[a, c];
Takeshita, Shinichiro[b, c]; Trop, Liat[b]; Hussey, Doug[a]; Singh, Kernjit[a];
Kung, Hank F.[d]; Kung, Mei-Ping[d]; Houle, Sylvain[a]

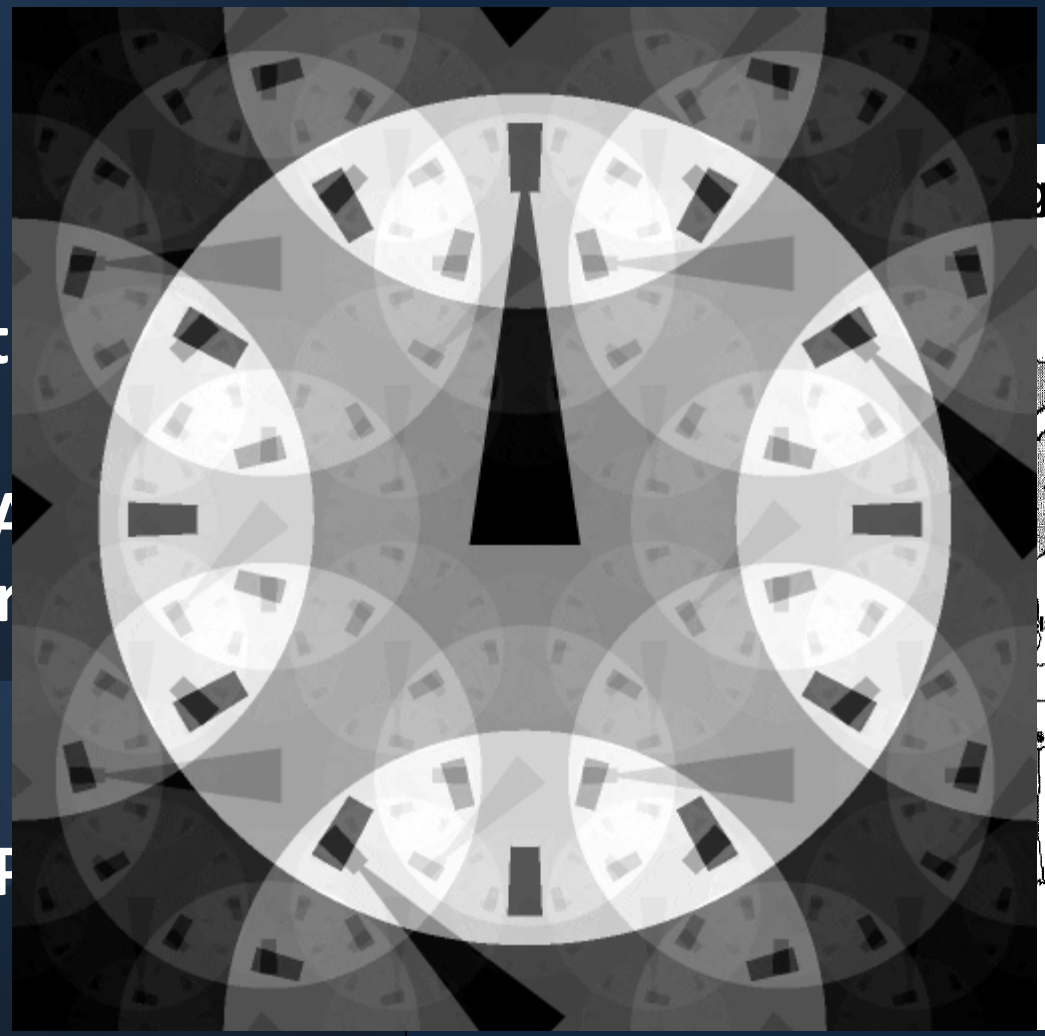
NIH National Institute on Aging

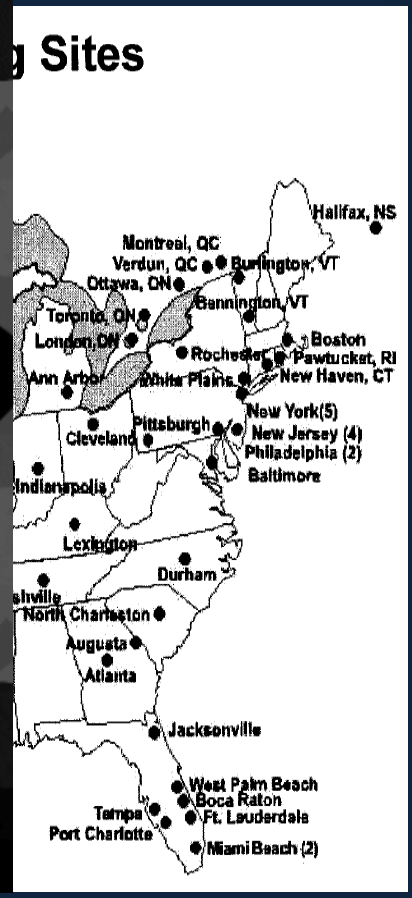
2004: ALZHEIMER'S DISEASE NEUROIMAGING INITIATIVE

ADNI
(U01AG010483)

- September 2005 - St
  recruitment
- 2007- Supplement: A
  PET imaging Pittsbur
  compound B (PiB)

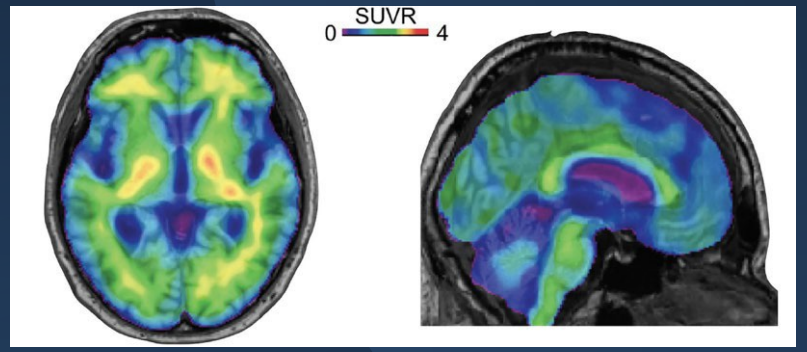
- 2009 ADNI GO: Tau P
  imaging 18F-AV45



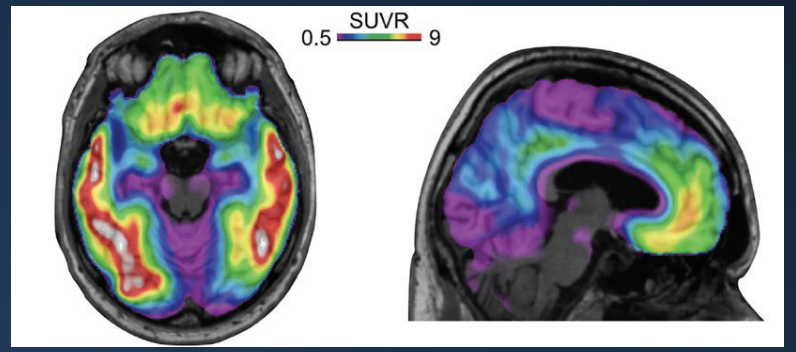


National Institute on Aging

2018: NIA-AA A-T-N Framework



β Amyloid



Tau

Neuro degeneration

ELSEVIER

Alzheimer's & Dementia

Alzheimer's & Dementia 14 (2018) 535-562

2018 National Institute on Aging—Alzheimer's Association (NIA-AA) Research Framework

NIA-AA Research Framework: Toward a biological definition of Alzheimer's disease

Clifford R. Jack, Jr.,[a,*], David A. Bennett[b], Kaj Blennow[c], Maria C. Carrillo[d], Billy Dunn[e], Samantha Budd Haeberlein[f], David M. Holtzman[g], William Jagust[h], Frank Jessen[i], Jason Karlawish[j], Enchi Liu[k], Jose Luis Molinuevo[l], Thomas Montine[m], Creighton Phelps[n], Katherine P. Rankin[o], Christopher C. Rowe[p], Philip Scheltens[q], Eric Siemers[r], Heather M. Snyder[d], Reisa Sperling[s]

Contributors[†]: Cerise Elliott, Eliezer Masliah, Laurie Ryan, and Nina Silverberg

[a]*Department of Radiology, Mayo Clinic, Rochester, MN, USA*
[b]*Department of Neurological Sciences, Rush University, Chicago, IL, USA*
[c]*Department of Psychiatry and Neurochemistry, University of Gothenburg, Gothenburg, Sweden*
[d]*Medical & Scientific Relations, Alzheimer's Association, Chicago, IL, USA*
[e]*Office of Drug Evaluation, FDA, Silver Spring, MD, USA*
[f]*Biogen, Cambridge, MA, USA*
[g]*Department of Neurology, Washington University, St. Louis, MO, USA*
[h]*Department of Public Health and Neuroscience, University of California Berkeley, Berkeley, CA, USA*
[i]*Department of Psychiatry, University of Cologne, Medical Faculty, Cologne, Germany*
[j]*Department of Medicine, University of Pennsylvania, Philadelphia, PA, USA*
[k]*Prothena Biosciences, Inc., San Francisco, CA, USA*
[l]*BarcelonaBeta Brain Research Center, Pasqual Maragall Foundation and Hospital Clinic-IDIBAPS, Barcelona, Spain*
[m]*Department of Pathology, Stanford University, Standford, CA, USA*
[n]*Formerly at National Institute on Aging, Bethesda, MD, USA*
[o]*Department of Neurology, University of California San Francisco, San Francisco, CA, USA*
[p]*Department of Molecular Imaging, Austin Health, University of Melbourne, Melbourne, Australia*
[q]*Department of Neurology, VU University Medical Center, Amsterdam, Netherlands*
[r]*Formerly at Eli Lilly and Company, Indianapolis, IN, USA*
[s]*Department of Neurology, Brigham and Women's Hospital, Boston, MA, USA*

$A^-T^-(N)^-$	Normal AD biomarkers
$A^+T^-(N)^-$	Alzheimer's pathology
$A^+T^+(N)^-$	Alzheimer's Disease
$A^+T^+(N)^+$	Alzheimer's Disease
$A^+T^-(N)^+$	Concomitant pathology

Alzheimer's Disease Continuum

NIH National Institute on Aging

DIAN
Dominantly Inherited Alzheimer Network

ADRCs Alzheimer's Disease Research Centers

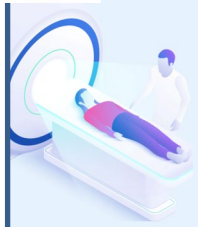
ABC-DS
Alzheimer Biomarkers Consortium
Down Syndrome

LEADS
Longitudinal Early-Onset Alzheimer's Disease Study

ADNI
Alzheimer's Disease Neuroimaging Initiative

Berkeley
The Berkeley Aging Cohort Study (BACS)

2022



Standardized Centralized Alzheimer's & Related Dementias Neuroimaging
SCAN

UCSF Weill Institute for Neurosciences | Memory and Aging Center

HARVARD AGING BRAIN
Massachusetts General Hospital – Harvard Medical School – Brigham and Women's Hospital

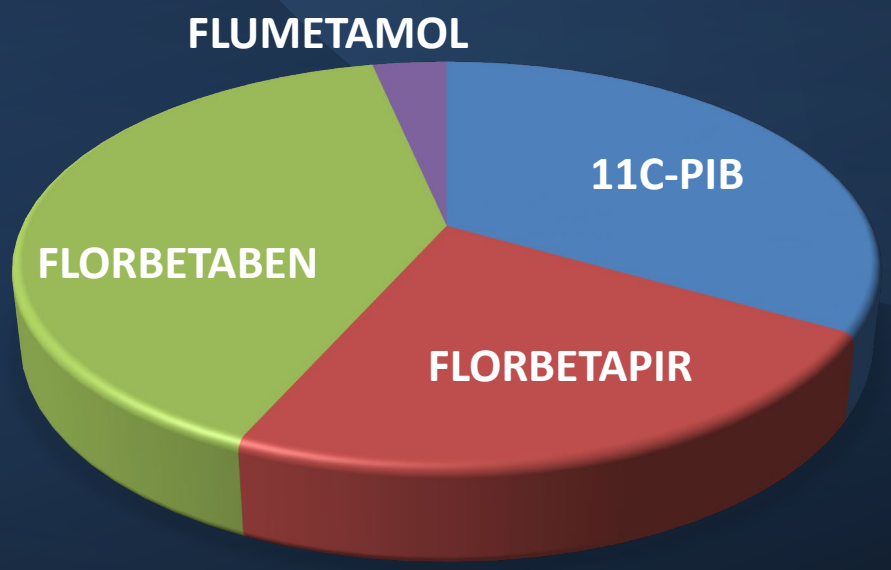
Wisconsin Registry for Alzheimer's Prevention

NIH National Institute on Aging

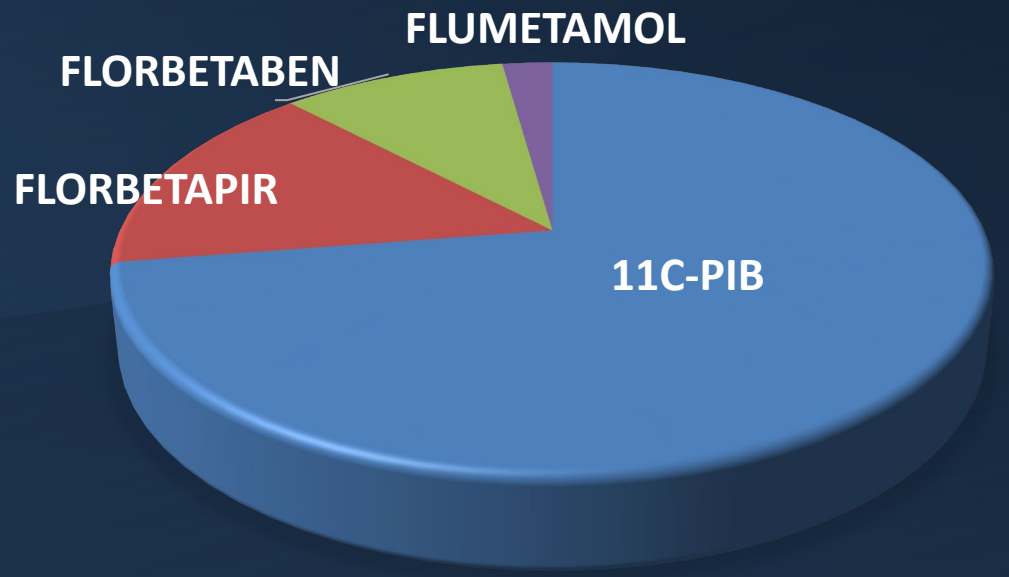
MAYO CLINIC
Mayo Clinic Olmsted Study of Aging (MCSA)

2022

- 30 ONGOING INTERVENTION STUDIES, FEATURING ABETA-PET AS DIAGNOSTIC BIOMARKER FOR PATIENT ENROLLMENT, OR TO DETERMINE TRAJECTORIES OF DISEASE



- 91 ACTIVE RESEARCH STUDIES IN LIVING HUMAN SUBJECTS (NOT INTERVENTIONAL) INVOLVING ABETA-PET SCANS OR DATA TO STUDY DISEASE



NIH National Institute on Aging

1974: Congress grants authority to form NIA to provide leadership in aging research, training, information dissemination, and other programs relevant to aging and older people.

2012: HHS announces the National Plan to Address Alzheimer's Disease. NIA continues to play a critical role in developing the first goal of the plan: To Effectively Treat or Prevent Alzheimer's Disease.