

K-ADNI

**Korean Alzheimer's Disease
Neuroimaging Initiative**

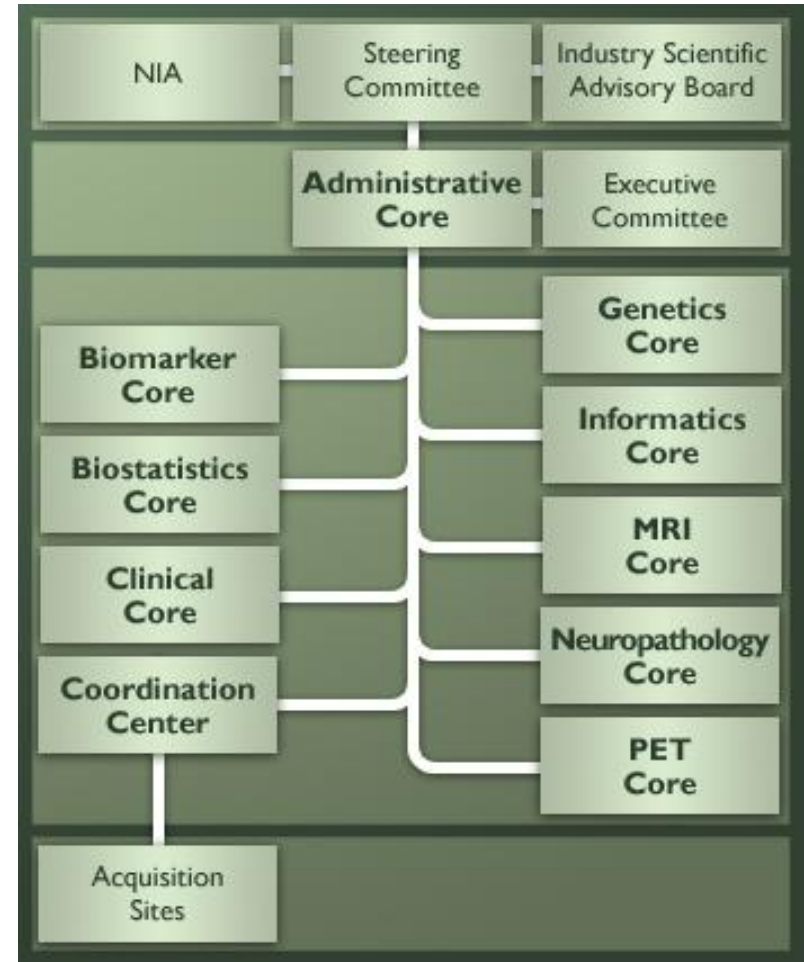
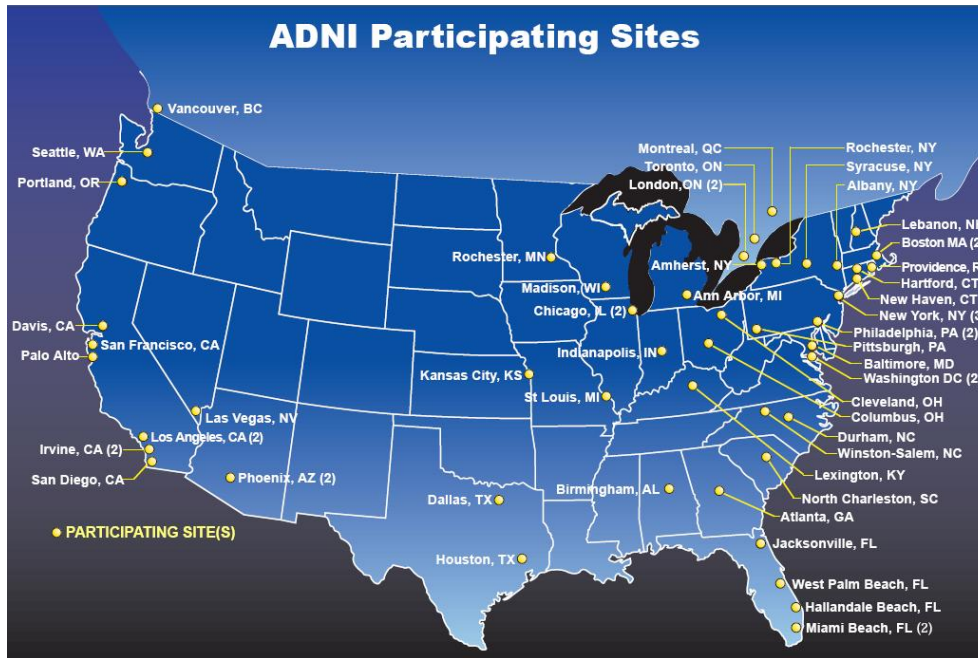
2010. 12. 03.

**울산의대 서울아산병원
정신과 김성윤**

Alzheimer's Disease Neuroimaging Initiative

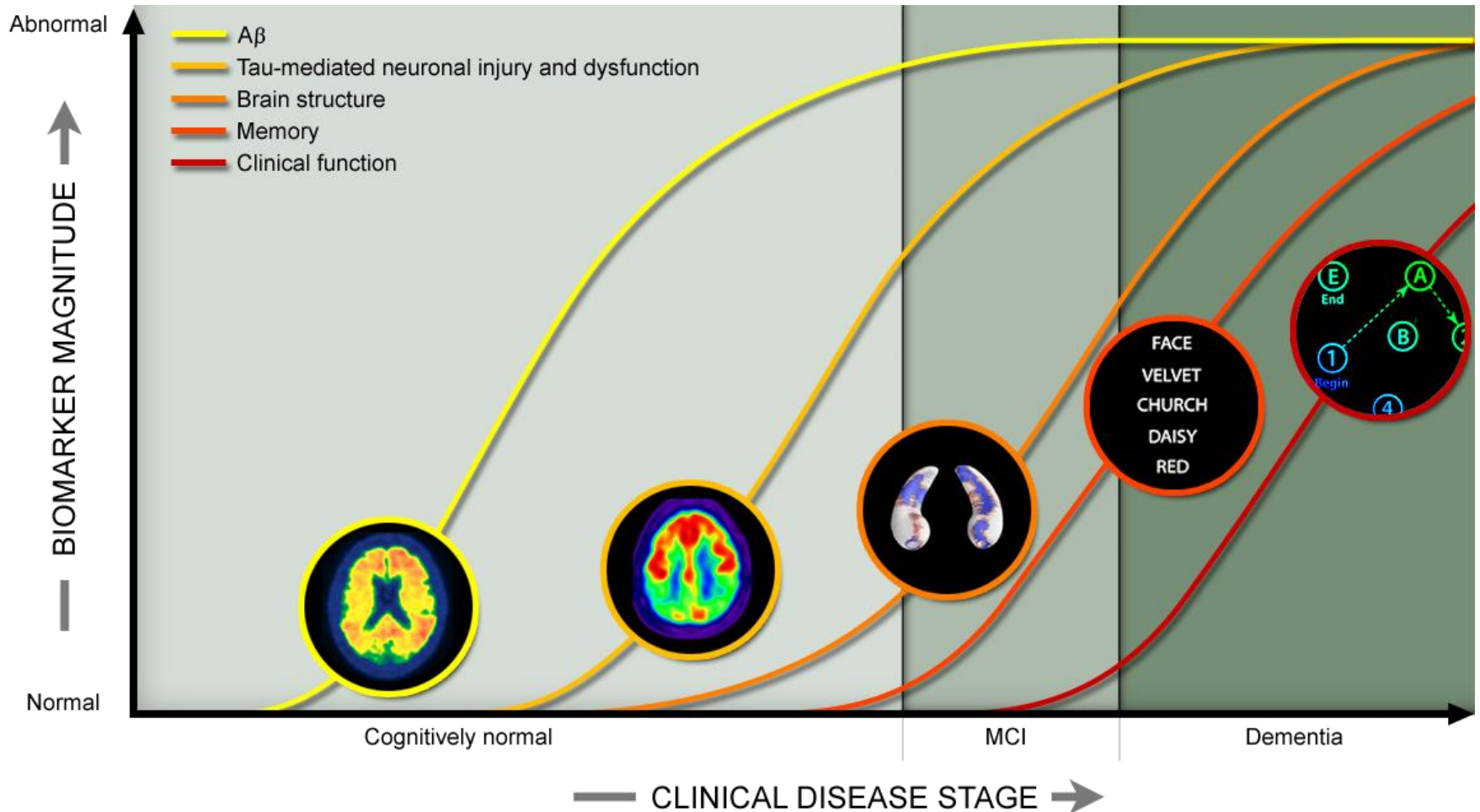
- A six-year, \$65M research study
 - by the National Institute on Aging(NIA) in 2004
 - Largest brain research project supported by NIH
 - \$40M provided by NIA and NIBIB
 - \$25M in private sector
 - 21 organizations (19 companies and 2 non-profits): by the Foundation for NIH
- GOAL
 - to test whether serial MRI, PET and other biomarkers (in blood, urine, and CSF), as well as clinical and neuropsychological assessment, can be combined to measure the progression of MCI and AD
- LONG-TERM GOAL
 - to qualify methods for early detection/ disease progression

Sites of ADNI and Organization

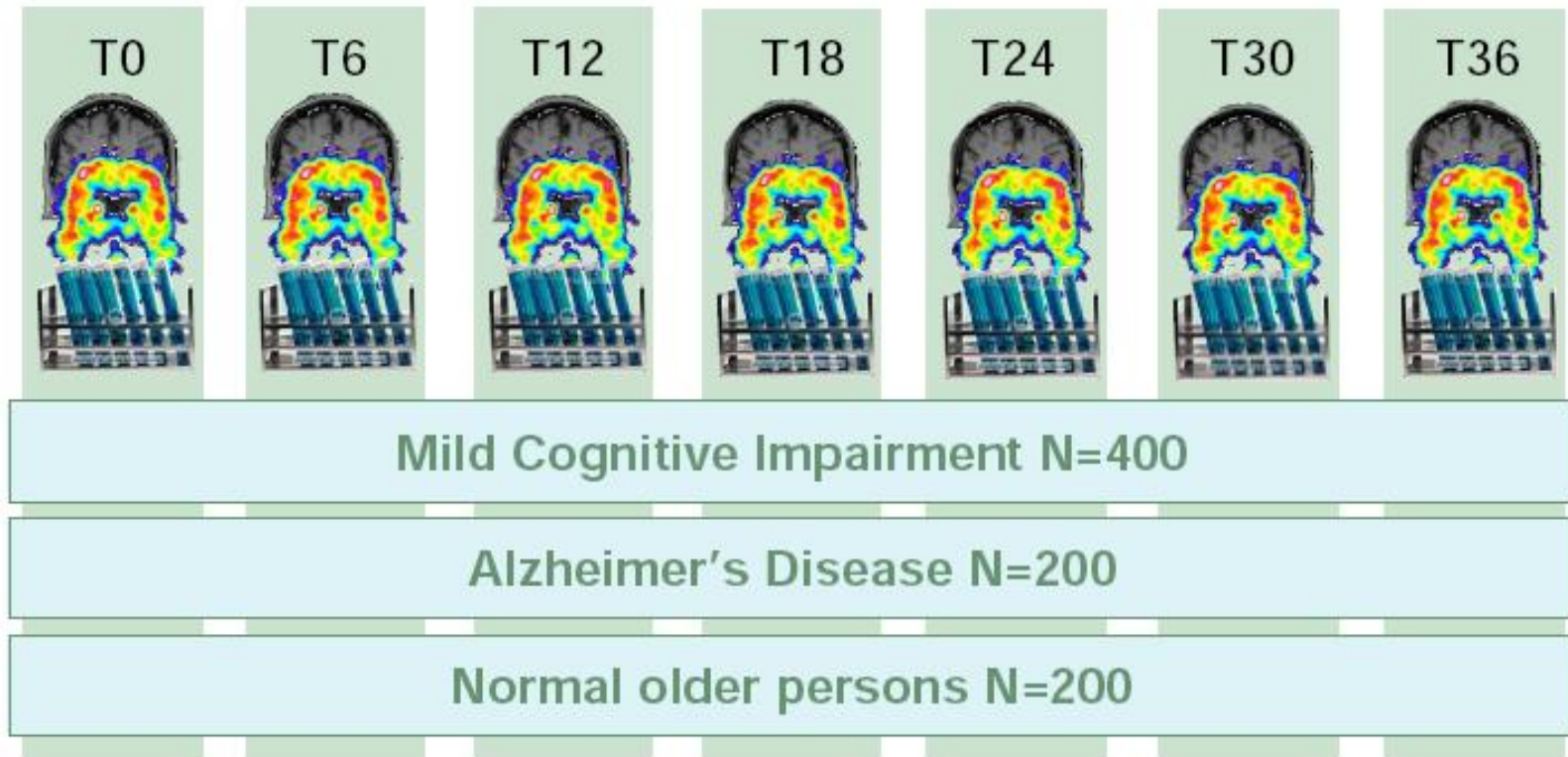


Started 2004, NIA funded, 6 year project, 65 million; 57 sites

Changes of Biomarkers with AD Progression

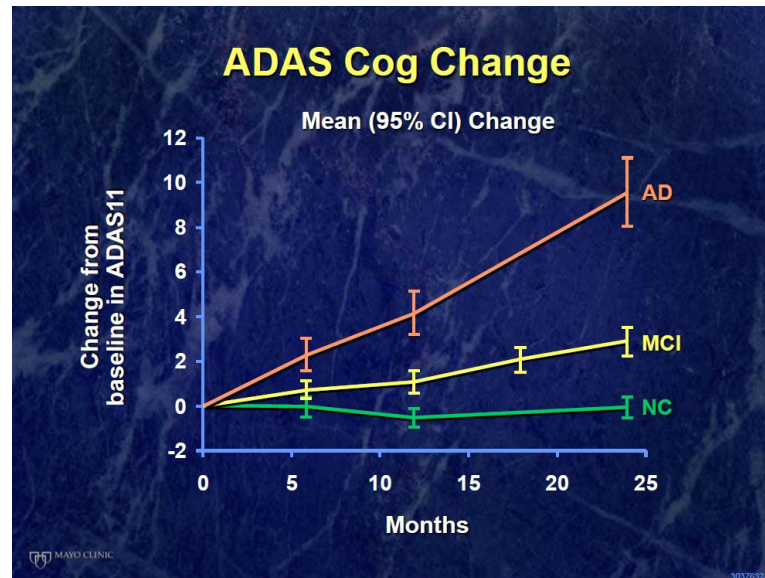
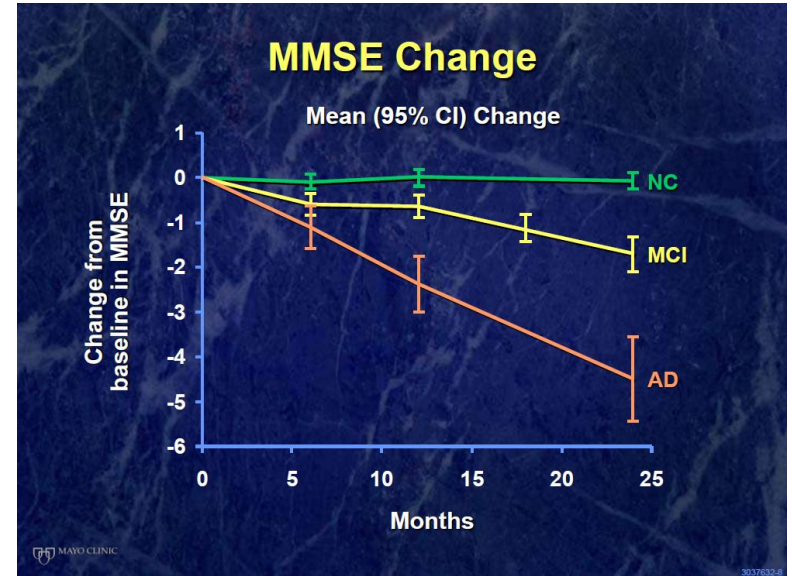
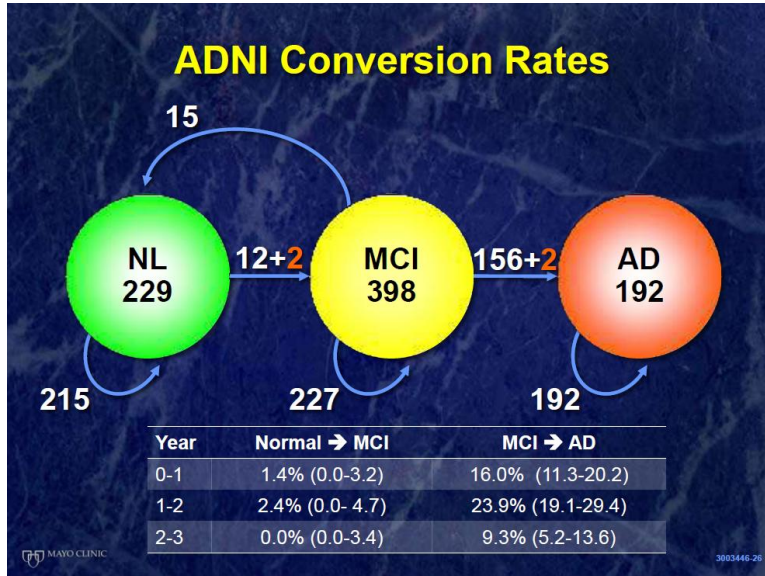


ADNI: Data Collection



**Clinical, Cognitive tests, blood, CSF(minimum 20%)
1.5 T MRI(100%), 3.0T MRI(25%), FDG-PET(50%), PiB-PET(50%)**

Results of ADNI 1



Results of ADNI 1

- More than 90 ADNI related scientific papers published PLUS,
- Standardization:
 - imaging, biomarkers
- Neuroscience:
 - relationships among biomarker trajectories elucidate neurobiology
- Trials:
 - new understanding of biomarkers has facilitated interventional studies in very early AD
- Data sharing:
 - ADNI has demonstrated the power of real-time public data sharing
- Collaboration:
 - academia, industry, non-profits, regulatory agencies world-wide

ADNI: Further Plan

- ADNI 1: Normal, MCI, AD
- ADNI GO (Grand Opportunity): Early MCI
- ADNI 2: Normal, EMCI, LMCI, AD



ADNI GRAND OPPORTUNITY (“GO”) GRANT

- A two year, \$24M grant was awarded to ADNI through the Federal stimulus package (Oct. 2009)
 - To add a cohort of 200 early MCI(EMCI) patients
- Follows late MCI(LMCI) and controls from ADNI for an additional year
- Lumbar punctures on all new subjects
- F18 amyloid imaging on all existing ADNI and new GO subjects
- Adds simple cognitive screening tool suitable for primary care setting (e.g. MOCA and AD8)
- Completes the analysis of all ADNI data

ADNI RENEWAL (ADNI 2)

- A five year, \$69M renewal of ADNI
 - Begin in October 2010 and run through September 2015
 - Follow 400 controls and MCI from ADNI for five more years
 - Enroll 100 additional EMCI patients which supplements the 200 from the GO grant
 - Enroll 150 new controls, LMCI, and AD patients
- MRI at 3 months, 6 months and annually
- F18 amyloid imaging and FDG-PET at baseline and year two
- Lumbar punctures on all subjects at time of enrollment
- Provide ADNI data analysis and new DNA, RNA, and cell line sample collection

Non-governmental Funding for US-ADNI

- ISAB (Industry Scientific Advisory Board)



ADNI Industry Scientific Advisory Board FOUNDATION FOR THE National Institutes of Health

New members Abbott, Genentech, FNIH_Slide2 Roche, Bayer



alzheimer's association INSTITUTE FOR THE STUDY OF AGING

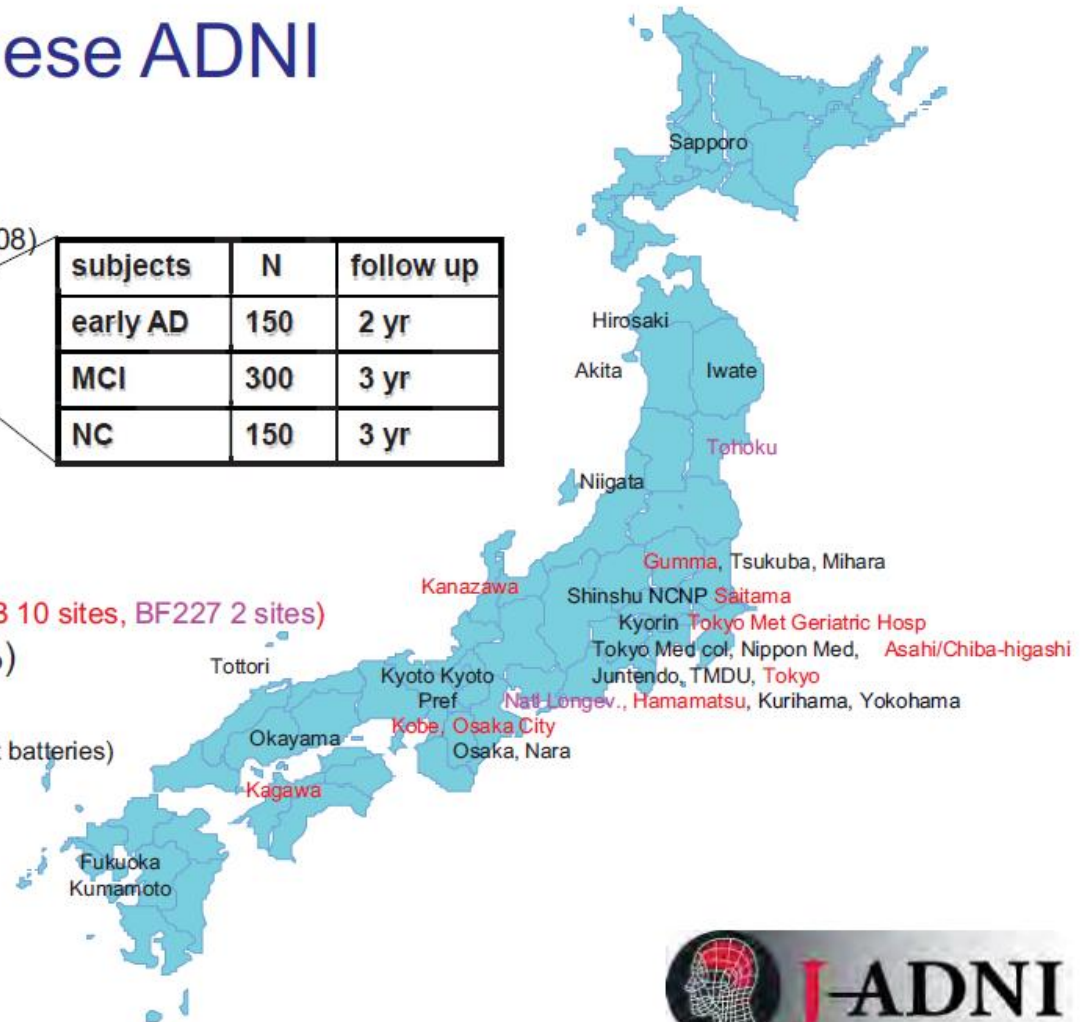
PIB/PET Supplement : Alzheimer's Association and GE Healthcare
Cerebrospinal Fluid Extension: Alzheimer's Association, AstraZeneca, Cure Alzheimer's Fund, Merck, Pfizer and an anonymous foundation
Genome-Wide Genotyping : Gene Network Sciences, Merck, Pfizer and an anonymous foundation
Genome-Wide Genotyping Genetic Analysis: NIBIB, Merck, Pfizer and an anonymous foundation

Japanese ADNI

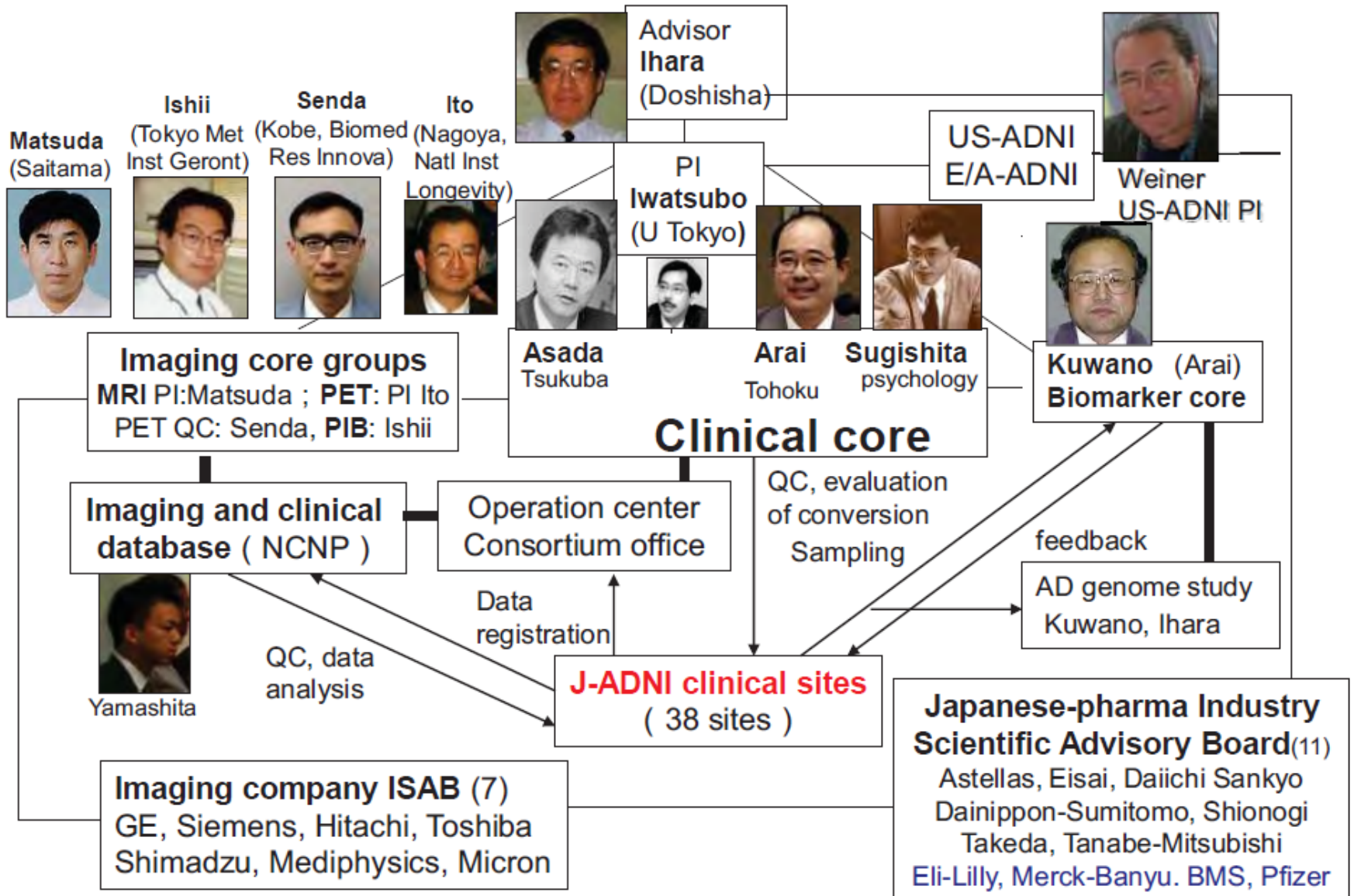
Japanese ADNI

- 5-year study (since 2008)
- 38 clinical sites
- 600 subjects
- 1.5T MRI
(3D MPRAGE,
ADNI phantom)
- PET
 - FDG ~71%
 - amyloid ~44% (PIB 10 sites, BF227 2 sites)
- Blood + apoE (100%)
- CSF ~39%
- Clinical (14 compatible test batteries)

subjects	N	follow up
early AD	150	2 yr
MCI	300	3 yr
NC	150	3 yr




Organization of J-ADNI



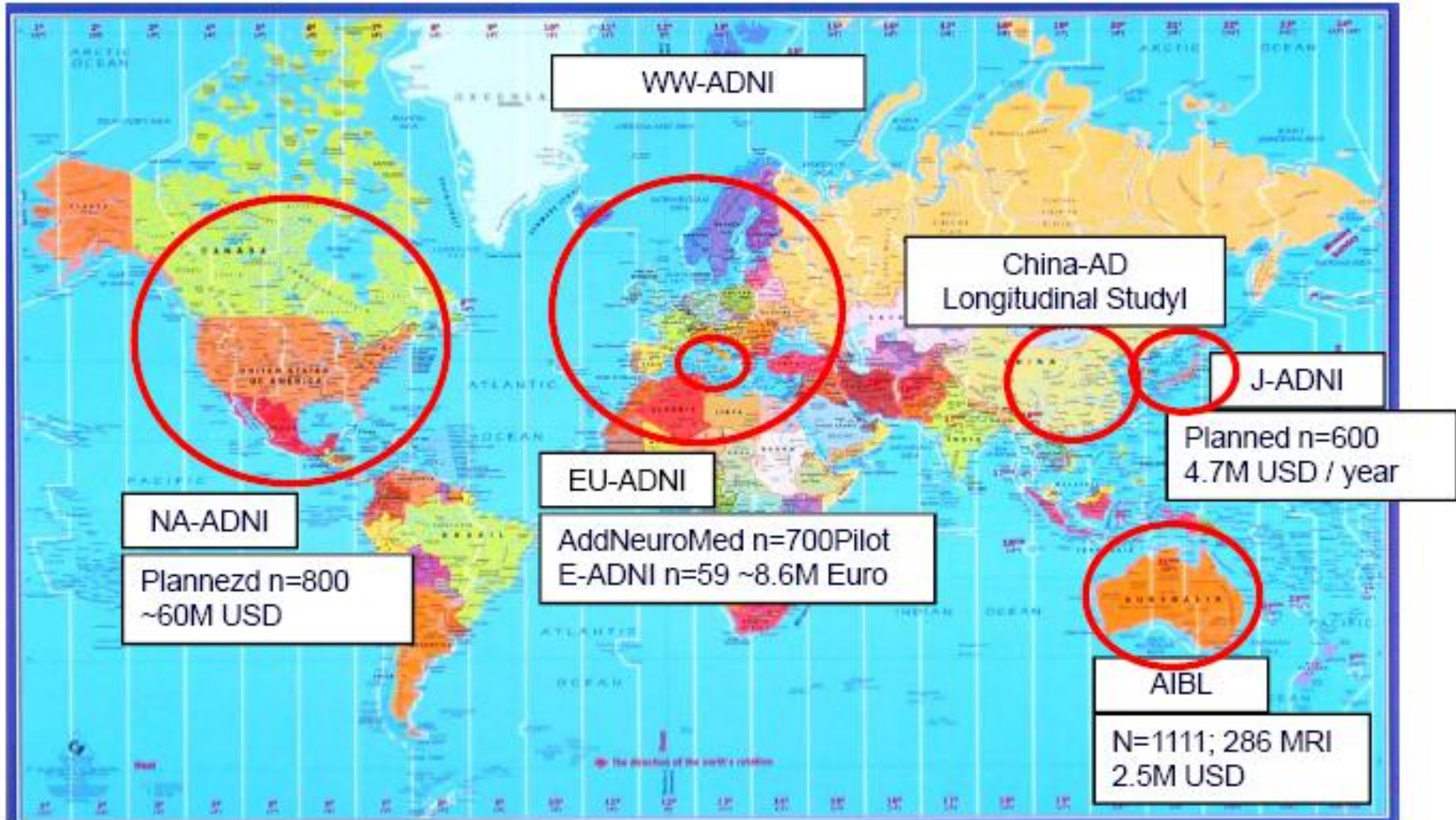
J-ADNI Demographics (2010. Jan)



Clinical core PI Takashi Asada, Hiroyuki Arai

	Total (n=237)	Normal (n=105)	MCI (n=89)	AD (n=43)
Age (USA)	70.7	68.0 (76.4)	72.7 (75.3)	73.2 (75.8)
Sex (female) (USA)	54.9%	51.4% (48%)	56.2% (35.4%)	60.5% (47.4%)
education (USA)	13.1	13.7 (15.6)	13.0 (16.0)	11.7 (14.7)
% apoEε4(+) in 286 cases (USA)	 Biomarker core PI Ryozi Kuwano	25.0% (26.6%)	58.7% (53.5%)	62.3% (65.6%)

Worldwide Alzheimer's Disease Neuroimaging Initiative (WW-ADNI)



World-wide ADNI symposium

(Nov 22-23, 2009, Sendai)

- 350 participants, 26 presentations from US-ADNI, J-ADNI, AIBL, E-ADNI, Korea, China
- Presentations on WW-ADNI activities; discussions on WW-collaborations



Boat tour in Matsushima



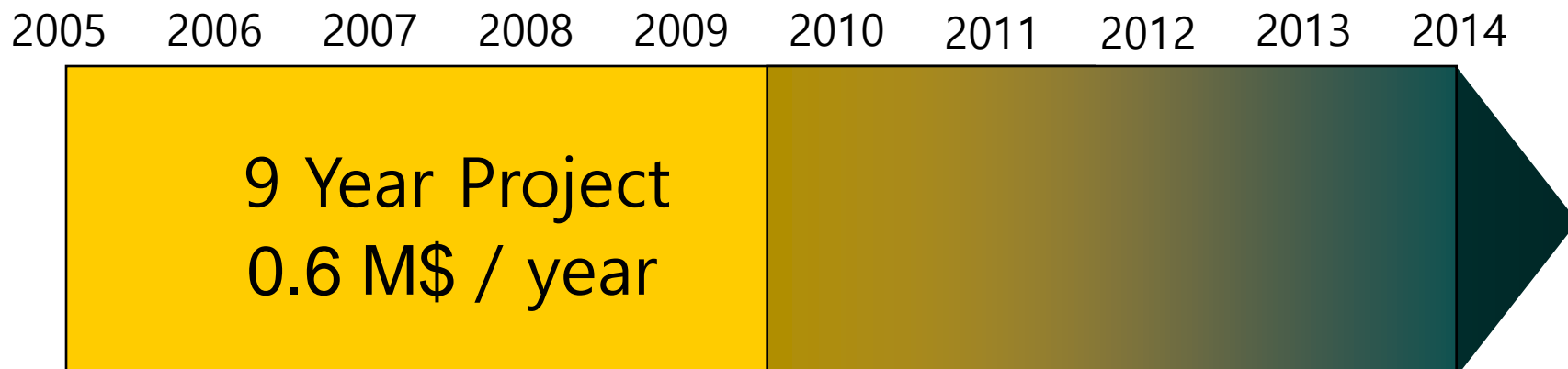
Rationale for K-ADNI

- Need for international collaboration in AD and dementia research
- Accumulation of research experiences in Korean researchers
- Need for new drug development and clinical trials
- Harmonization of global AND regional needs required

CRCD, CREDOS

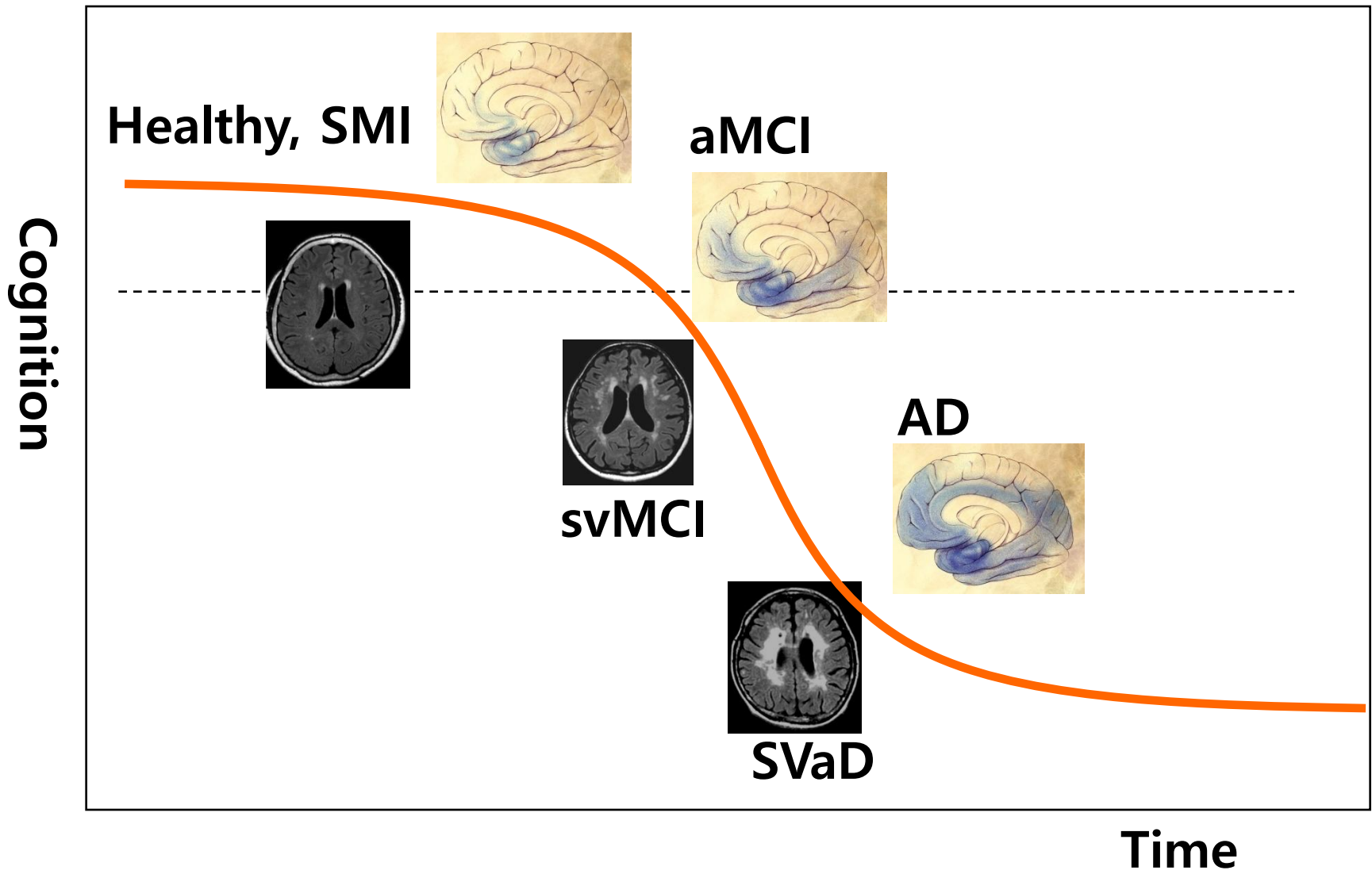


Clinical Research Center for Dementia of South Korea (CREDOS)

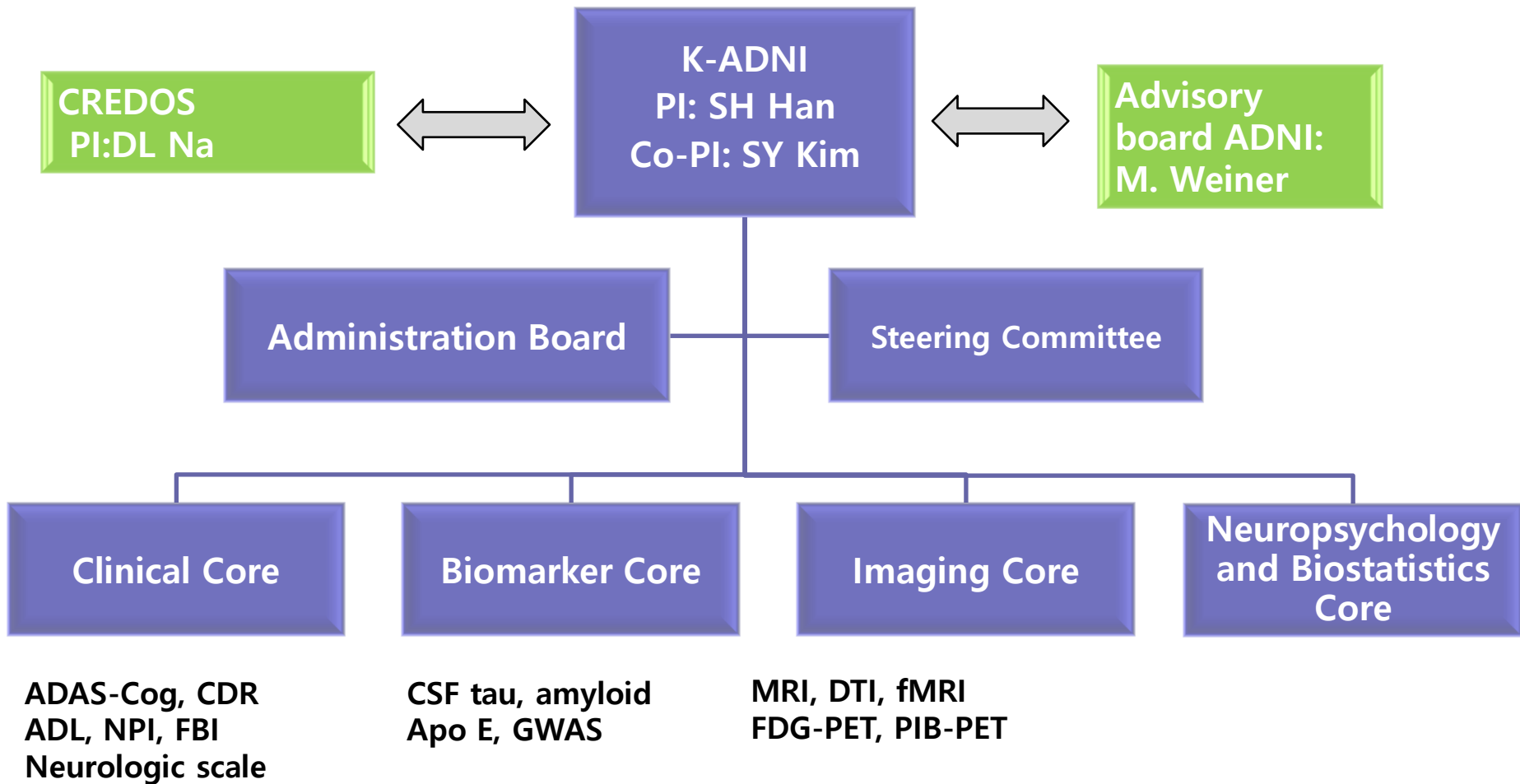


Funded by the Ministry of Health, Welfare, and Family Affairs

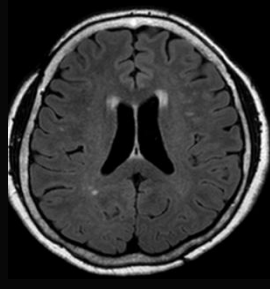
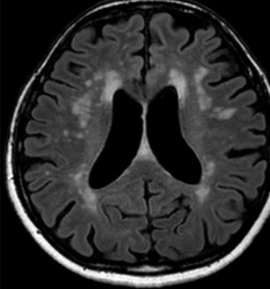
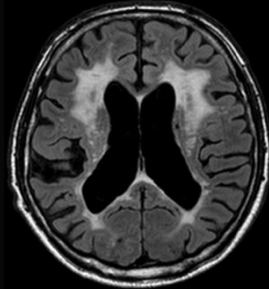
Primary focus of CREDOS



K-ADNI: Organization



K-ADNI : 500 cases

Healthy, SMI aMCI, AD svMCI, SVaD		WMH on MRI		
		minimal	moderate	severe
				
C O G N I T I O N	No cognitive impairment	100		
	Mild cognitive impairment	100	50	50
	Mild to moderate dementia	100	50	50
	Severe dementia			

5 Year Follow Up Study



	BL	6 M	12 M	18 M	24 M	30 M	36 M
NP Test: ADAS-cog, SNSB, ADL, CGA-NPI, FBI etc.	○	○	○	○	○	○	○
Biomarkers: Blood, LP, Genetic	○		○		○		○
Neuroimaging: MRI, FDG PET, Amyloid PET	○	○	○	○	○	○	○

Collaborative Networks

- Collaborations among Korean researchers
 - Cohorts and networks:
 - CRCDC (Clinical Research Centers in Dementia)
 - Community based or hospital based cohorts
 - Collaboration between departments (Neurology, Psychiatry)
 - Collaborations between clinical and basic science researchers
- International Collaborations
 - Liaisons with US-ADNI, J-ADNI, AA (Alzheimer's Association)
 - World Wide ADNI Symposium (Sendai, Japan, 2009)

Collaborative Networks

- Governmental Support
 - Administration of Health, Welfare, and Family
- Collaboration with Industries
 - Pharmaceutical companies: global and local
 - Medical devices companies: technical and financial supports and collaborations

향후 과제

- 치매 전문 분야내의 협조 관계 필수적
 - 정신과, 신경과, 핵의학과, 영상의학과, 기초의학
 - 학계, 산업계, 정부, 민간 기구
- WW ADNI에서 요구하는 기본 요건 + 우리 나라 고유의 연구 과제 개발
- 지속적 funding source 개발
- 후학 연구진 양성 체계 set-up
- Biomarker 연구 체계