J-ADNI updates
July 2012 @AAIC

University of Tokyo

J-ADNI

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Japanese ADNI (1ˢᵗ phase)

- **6-year study** (2007-2012)

- **38 clinical sites**

- **600 subjects**

543 cases enrolled

3072 visits completed

- **1.5T MRI**

(3D MPRAGE, ADNI phantom)

- **PET**
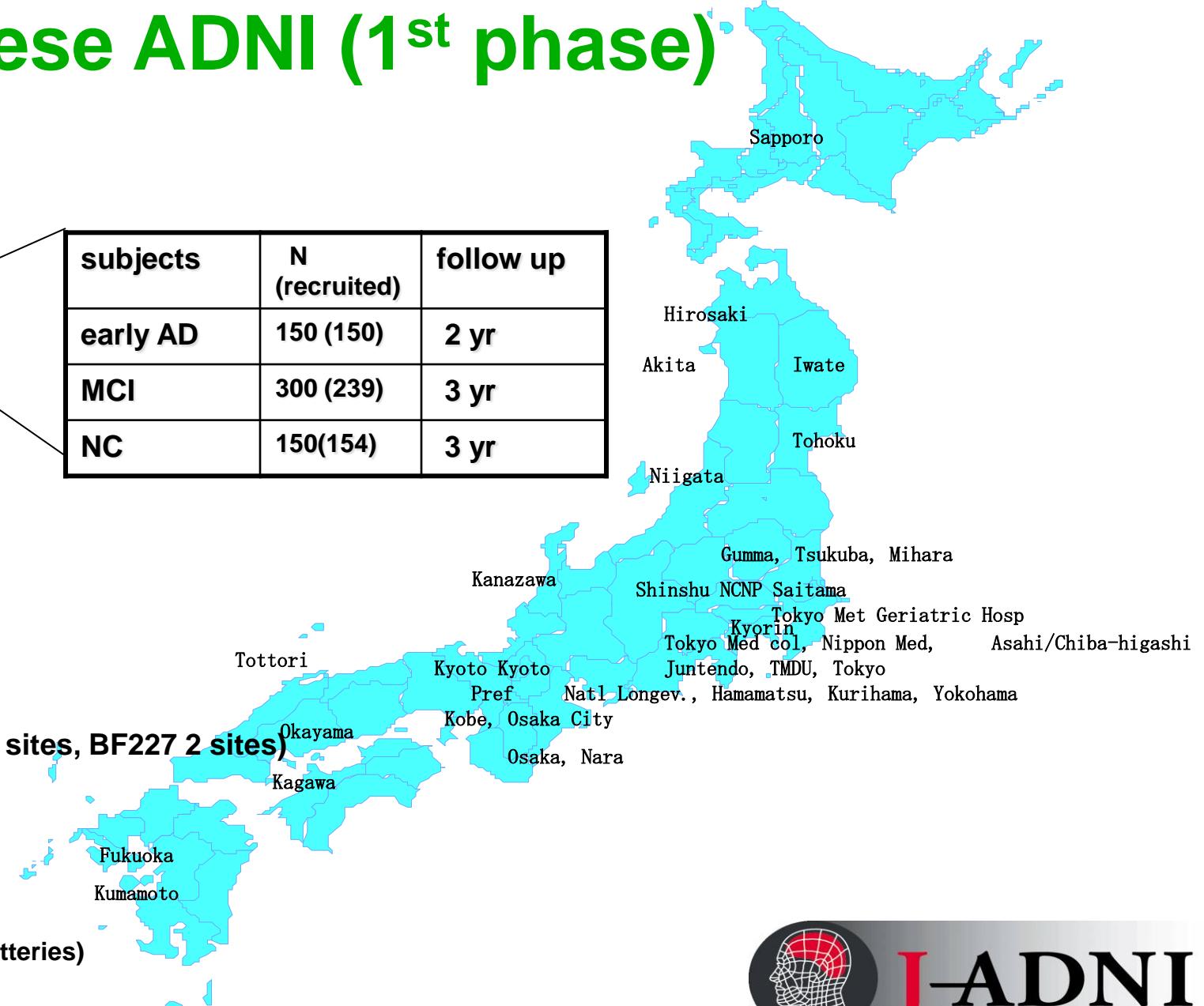
  ---FDG ~67%

  ---amyloid ~42% (PIB 16 sites, BF227 2 sites)

- **Blood + apoE (100%)**

- **CSF ~40%**

- **Clinical** (14 compatible test batteries)

subjects	N (recruited)	follow up
early AD	150 (150)	2 yr
MCI	300 (239)	3 yr
NC	150(154)	3 yr

Sapporo

Hirosaki

Akita

Iwate

Tohoku

Niigata

Gumma, Tsukuba, Mihara

Kanazawa

Shinshu NCNP Saitama

Tokyo Met Geriatric Hosp

Kyorin

Tokyo Med col, Nippon Med, Asahi/Chiba-higashi

Tottori

Juntendo, TMDU, Tokyo

Kyoto Kyoto

Pref

Natl Longev., Hamamatsu, Kurihama, Yokohama

Kobe, Osaka City

Okayama

Osaka, Nara

Kagawa

Fukuoka

Kumamoto

J-ADNI

Alzheimer's Disease Neuroimaging Initiative

Organization of J-ADNI

J-ADNI
Alzheimer's Disease Neuroimaging Initiative

6M USD/year (2/3 public funding, 1/3 pharma)

Public Funding from

NEDO, MHLW & JST

Matsuda (Saitama)

Ishii (Tokyo Met Inst Geront)

Senda (Kobe, Biomed Res Innova)

Ito (Nagoya, Natl Inst Longevity)

Advisor Ihara (Doshisha)

PI Iwatsubo (U Tokyo)

WW-ADNI Alz Assoc

Weiner NA-ADNI PI

Asada Tsukuba

Arai Tohoku

Sugishita psychology

Kuwano (Arai) Biomarker core

Murayama Pathology

Imaging core groups
MRI PI:Matsuda；PET: PI Ito
PET QC Senda, PIB: Ishii

Clinical core

QC, evaluation of conversion Sampling

Imaging and clinical database（NCNP）

Operation center

Consortium office

feedback

AD genome study
Kuwano, Ihara

QC, data analysis

Data registration

J-ADNI clinical sites （38 sites）

Imaging company ISAB (7)
GE, Siemens, Hitachi, Toshiba
Shimadzu, Mediphysics, Micron

Japanese-pharma Industry Scientific Advisory Board(11)
Astellas, Eisai, Daiichi Sankyo
Dainippon-Sumitomo, Shionogi
Takeda, Tanabe-Mitsubishi
Eli-Lilly, MSD, BMS, Pfizer

Clinical assessments in J-ADNI (Asada, Arai et al. Clinical Core)

Conversion rate from MCI to AD
(including suspected cases)

- 6M: 32/221
- 12M: 53/179, 29.6%/y
- 18M: 59/130
- 24M: 38/74
- 30M: 12/20
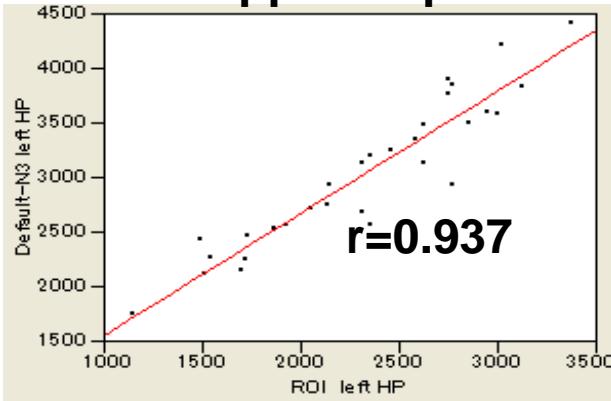
Volumetric analysis by MRI (Matsuda et al. MRI core)

hipp   entorhinal

FreeSurfer
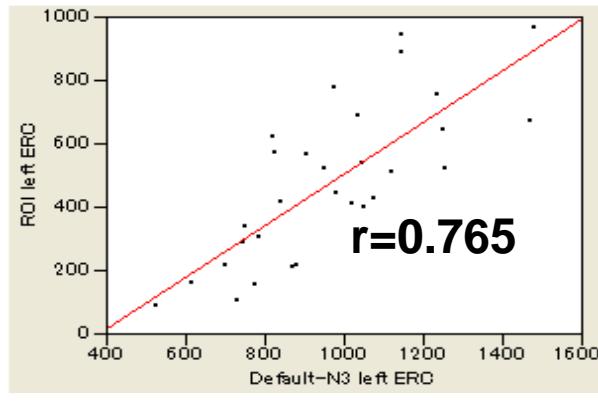
Manual segmention
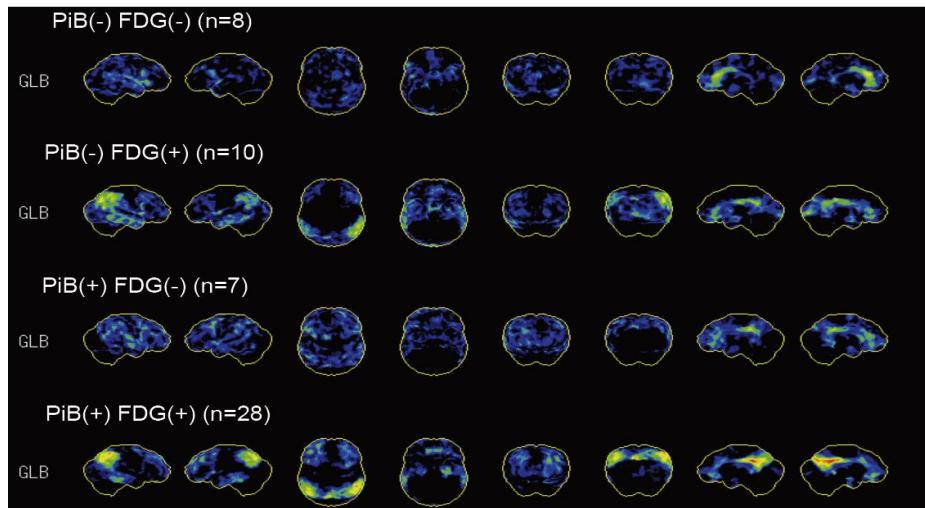
Group	Left Hippocampus		
	screening	12mo later	Atrophy rate % /y
HC	3.74±0.46 (2.50±0.31)	3.71±0.46 (2.48±0.32)	0.7± 4.2
MCI-NC	3.12±0.55 (2.11±0.37)	3.04±0.61 (2.05±0.39)	2.7± 4.8
MCI-C	2.83±0.48 (1.94±0.30)	2.69±0.47 (1.85±0.30)	4.8± 4.9
AD	2.60±0.45 (1.88±0.38)	2.45±0.45 (1.76±0.36)	5.7± 7.1

Left hippocampus

$r=0.937$

Left entorhinal

$r=0.765$

Progression of hippocampal atrophy in MCI converters and AD
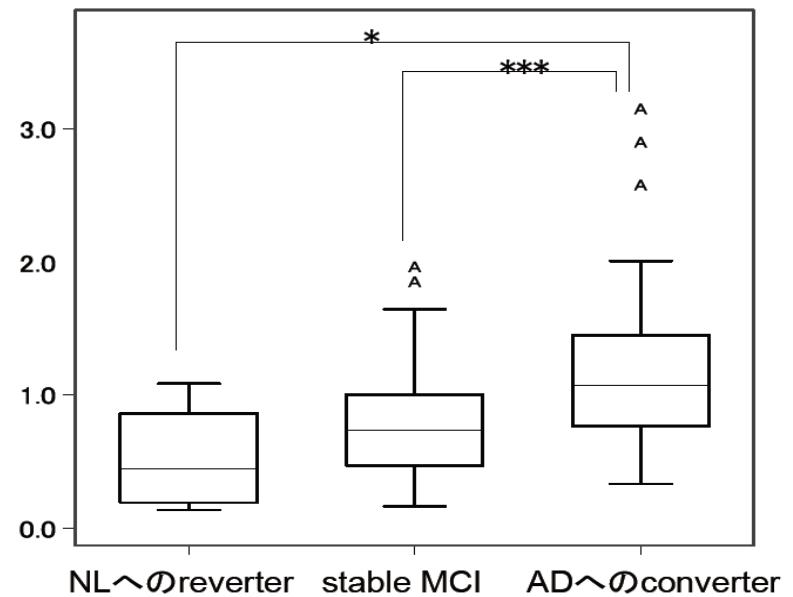
High correlation between hippocampal or entorhinal volumes measured manually or by freesurfer
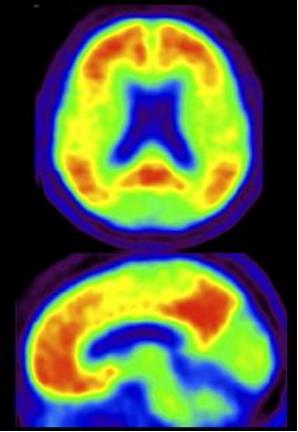
# 12M longitudinal changes in FDG-PET analysis (Ito et al. PET core)


MCI群のFDG-PET所見
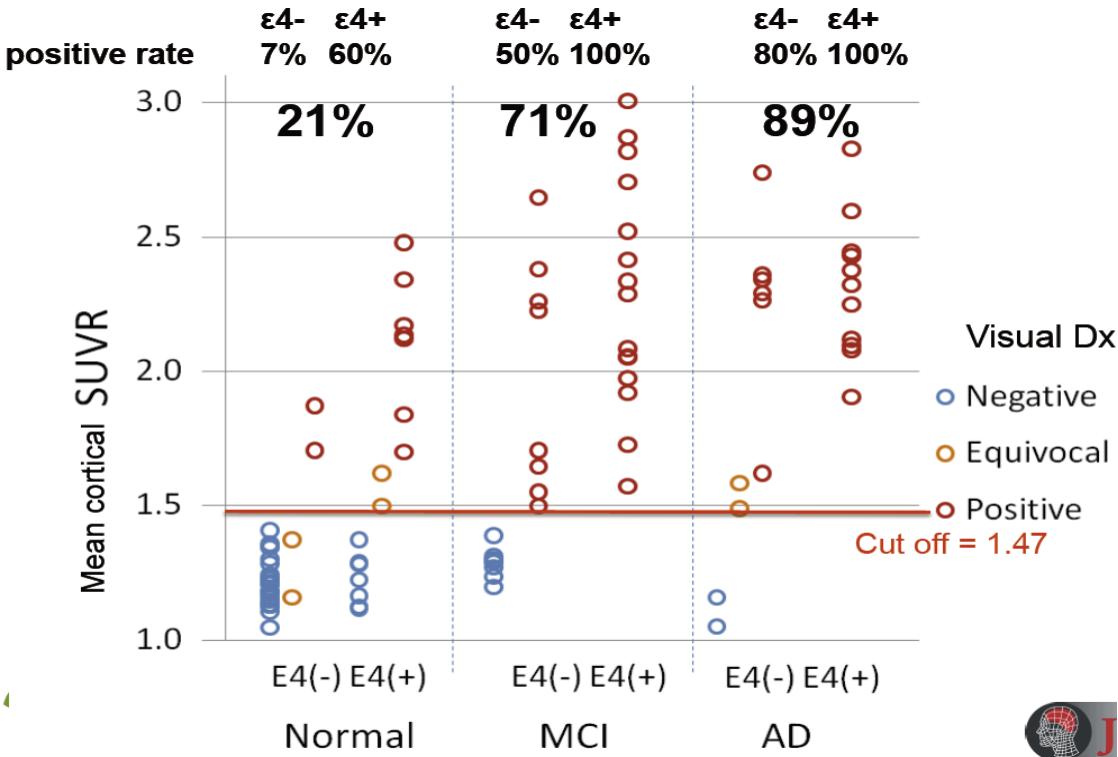
PET score
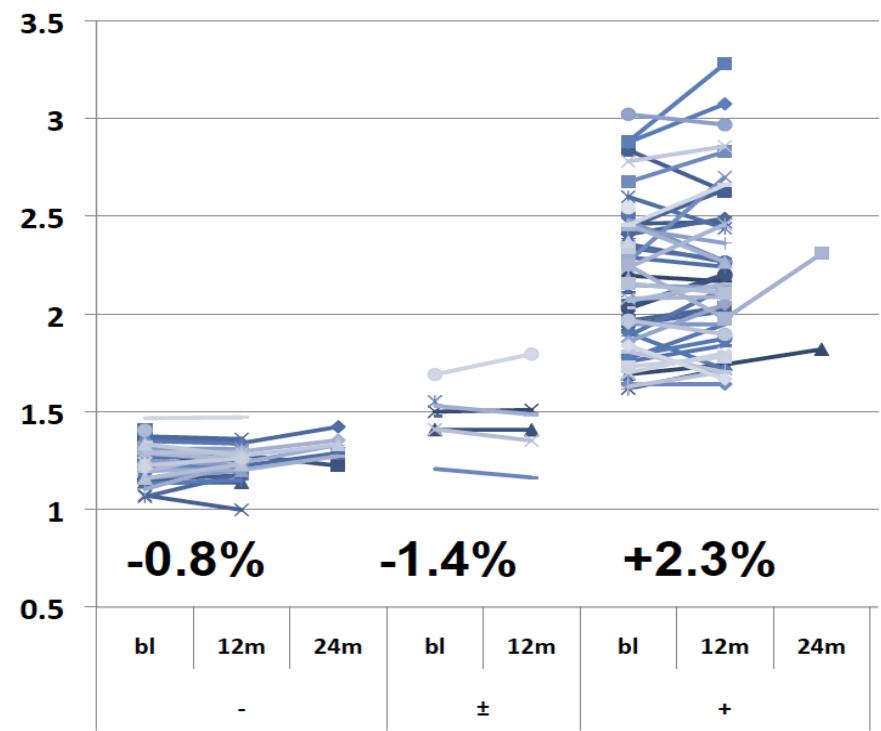
^{11}C-PiB Amyloid PET imaging
(Ishii et al. amyloid PET core)
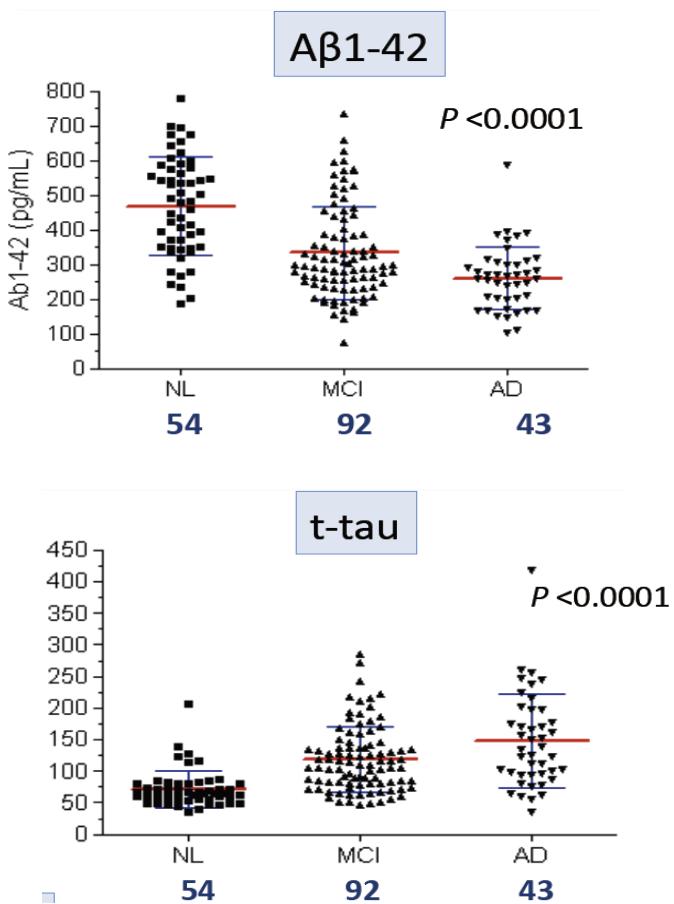


High PIB positivity rate in ε4 carriers
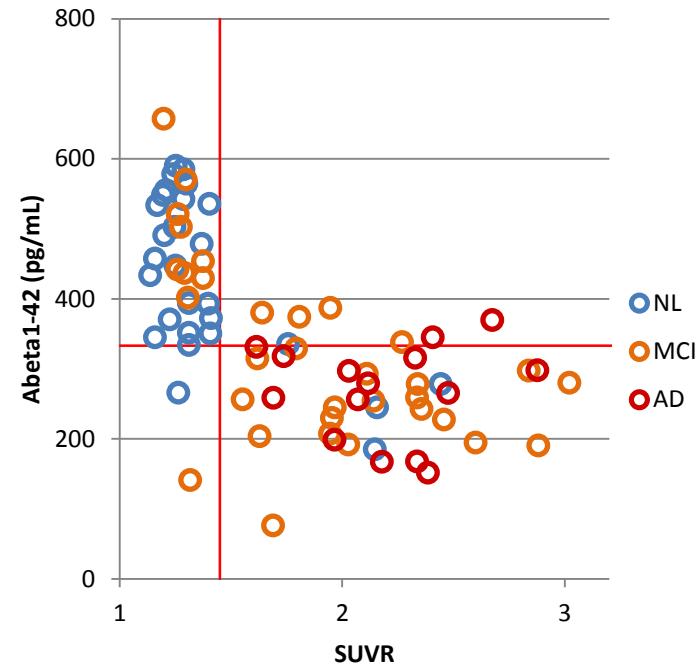
Longitudinal changes in amyloid burden by PET

CSF biomarker (Kuwano et al. Biochemistry core)

CSF Aβ, tau

Low Aβ(1-42) correlates well with high PIB

Future perspective of J-ADNI

J-ADNI1 to be completed by 2013-14

Co-analysis with NA/US-ADNI data to be facilitated, pending completion of QC/basic analysis of J-ADNI data

J-ADNI2 currently being negotiated with government, which will focus on MCI and preclinical AD

Setting the basis for clinical trials of DMTs in Japan!