ADNI in Japan (J-ADNI update)

Takeshi Iwatsubo
Japanese ADNI

- 7-year study (since 2007)
- 38 clinical sites
- 600 subjects
- 541 cases enrolled
- 2327 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

<table>
<thead>
<tr>
<th>Type</th>
<th>N</th>
<th>Follow up</th>
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<tbody>
<tr>
<td>Early AD</td>
<td>150 (145)</td>
<td>2 yr</td>
</tr>
<tr>
<td>MCI</td>
<td>300 (244)</td>
<td>3 yr</td>
</tr>
<tr>
<td>NC</td>
<td>150 (152)</td>
<td>3 yr</td>
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</table>
Organization of J-ADNI

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

Public Funding from NEDO, MHLW & JST

Iwatsubo (U Tokyo)

Advisory Board

Ihara (Doshisha)

PI

Ito (Nagoya, Natl Inst Longevity)

Senda (Kobe, Biomed Res Innova)

Ishii (Tokyo Met Inst Geront)

Imaging core groups

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

Clinical core

Asada Tsukuba

Arai Tohoku

Sugishita psychology

Kuwano (Arai) Biomarker core

Murayama Pathology

Operation center

Consortium office

QC, data analysis

QC, evaluation of conversion
Samplign

Sampling feedback

AD genome study
Kuwano, Ihara

J-ADNI clinical sites

(38 sites)

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

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

Imaging and clinical database (NCNP)

Public Funding from NEDO, MHLW & JST

6M USD/year (2/3 public funding, 1/3 pharma)
Clinical assessments in J-ADNI (Asada, Arai, Yamada, Shoji, Ikeda, Urakami, Sugishita, Takahashi) – apparently higher conversion rate?

**Conversion rate from MCI to AD**

(including suspected cases)

- 6M: 32/221 (14.5%)
- 12M: 53/179 (29.6% y)
- 18M: 59/130 (45.4%)
- 24M: 38/74 (51.4%)
- 30M: 12/20 (60.0%)
Volumetric analysis by MRI (Matsuda)

High correlation between hippocampal or entorhinal volumes measured manually or by freesurfer

Left hippocampus

$\rho = 0.937$

Left entorhinal

$\rho = 0.765$

12 M longitudinal changes in FDG-PET analysis (Ito)
$^{11}$C-PiB Amyloid PET imaging (Ishii)

<table>
<thead>
<tr>
<th>positive rate</th>
<th>ε4-</th>
<th>ε4+</th>
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<tbody>
<tr>
<td>7%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td>100%</td>
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- **21%**
- **71%**
- **89%**

Visual Dx
- Negative
- Equivocal
- Positive

Cut off = 1.47

**High PIB positivity rate in ε4 carriers**
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