Japanese ADNI (1st phase)

- 6-year study (2007-2012)
- 38 clinical sites
- 600 subjects
  - 543 cases enrolled
  - 3072 visits completed

### Subjects

<table>
<thead>
<tr>
<th>Type</th>
<th>N (recruited)</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early AD</td>
<td>150 (150)</td>
<td>2 yr</td>
</tr>
<tr>
<td>MCI</td>
<td>300 (239)</td>
<td>3 yr</td>
</tr>
<tr>
<td>NC</td>
<td>150 (154)</td>
<td>3 yr</td>
</tr>
</tbody>
</table>

- 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)
Organization of J-ADNI

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

Public Funding from
- NEPO, MHLW & JST
  - Ishii (Tokyo Met Inst Geront)
  - Senda (Kobe, Biomed Res Innova)
  - Ito (Nagoya, Natl Inst Longevity)
- Matsuda (Saitama)
- Murayama (Pathology)
- Weiner, NA-ADNI PI

Advisors
- Ihara (Doshisha)
- Iwatsubo (U Tokyo)
- Weiner

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

Operation center
- Consortium office
  - Data registration
  - QC, data analysis
  - QC, evaluation of conversion
  - Sampling
  - Feedback

Clinical core
- Asada (Tsukuba)
- Arai (Tohoku)
- Sugishita (psychology)

Biomarker core
- Kuwano (Arai)

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, MSD, BMS, Pfizer

Imaging and clinical database (NCNP)
- GE, Siemens, Hitachi, Toshiba
- Shimadzu, Mediphysics, Micron

Imaging company ISAB (7)
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)

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

Progression of hippocampal atrophy in MCI converters and AD
12M longitudinal changes in FDG-PET analysis (Ito et al. PET core)
**11C-PiB Amyloid PET imaging**
(Ishii et al. amyloid PET core)

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

**Mean cortical SUVR**

- Negative
- Equivocal
- Positive

Cut off = 1.47

**High PIB positivity rate in ε4 carriers**

**Longitudinal changes in amyloid burden by PET**
CSF biomarker (Kuwano et al. Biochemistry core)

**CSF Aβ, tau**

- **Aβ1-42**
  - Low Aβ(1-42) correlates well with high PIB
  - $P < 0.0001$

- **t-tau**
  - $P < 0.0001$

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**SUVR**

- NL
- MCI
- AD

- 1
- 2
- 3

- 0
- 100
- 200
- 300
- 400
- 500
- 600
- 700
- 800

**Abeta1-42 (pg/mL)**

- NL: 54
- MCI: 92
- AD: 43
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!