The Alzheimer's Association QC program for CSF biomarkers

- **Goals for the external QC program for CSF biomarkers**

  - allow comparisons of biomarker levels between labs (and future harmonization of levels)

  - allow controlling for longitudinal deviations in biomarker levels (due to e.g. batch-to-batch variation for assays)

- **Basic principle:**

For each round, 3 QC samples (pooled CSF) are sent out

2 unique samples	- for comparisons between labs
1 identical samle	- for comparisons over time

Each QC sample has been analyzed by the reference Labs (6 independent runs) to set the level

Frequency: 3 times per year

QC samples analyzed by the Labs, data sent back

Results are reported: Compared with other Labs

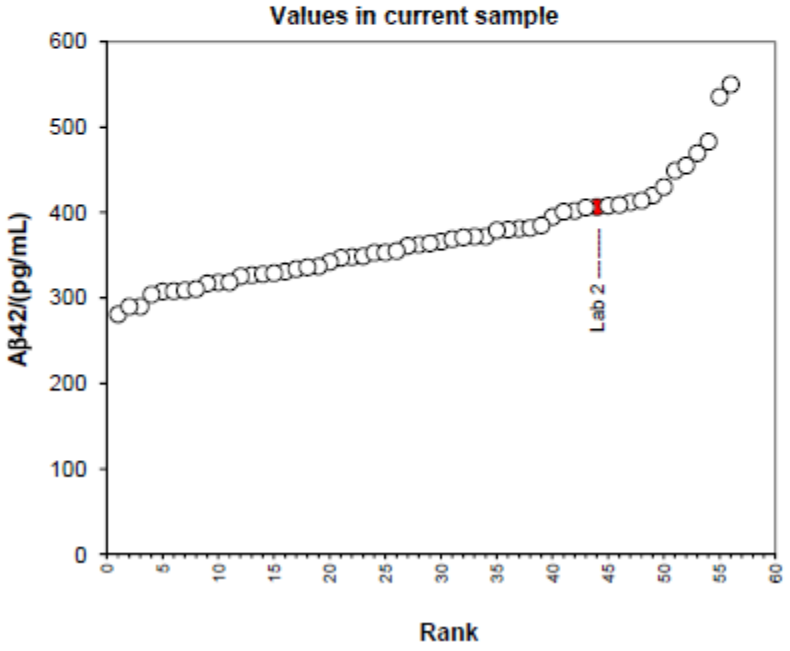
Longitudinal changes

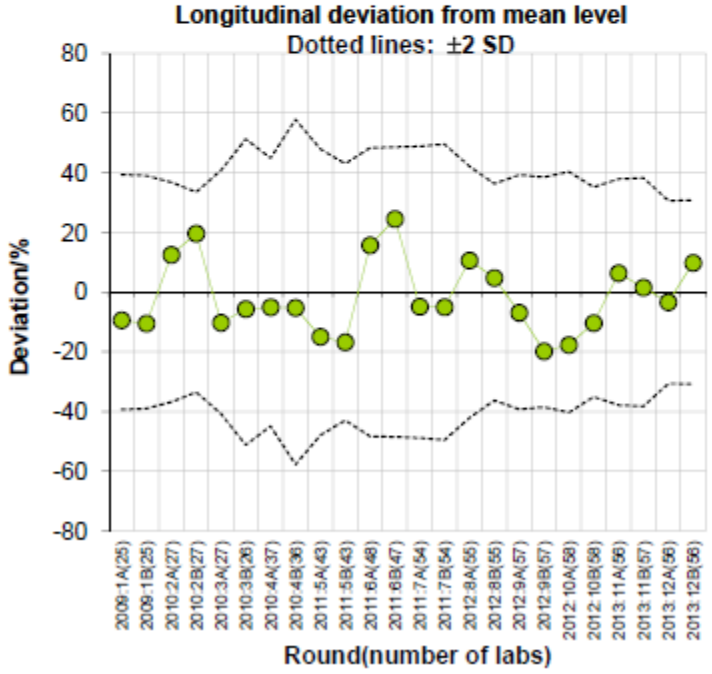
QC program for AD CSF biomarkers – Example of individual lab– round 12 (2013)

Aβ42

Between laboratories comparisons

	Gothenburg (Lab 2)		All 56 labs in this round
Round:	2013:12B	Mean:	370 pg/mL
Result:	407 pg/mL	SD:	57 pg/mL
Method:	INNOTEST	CV:	15,4%



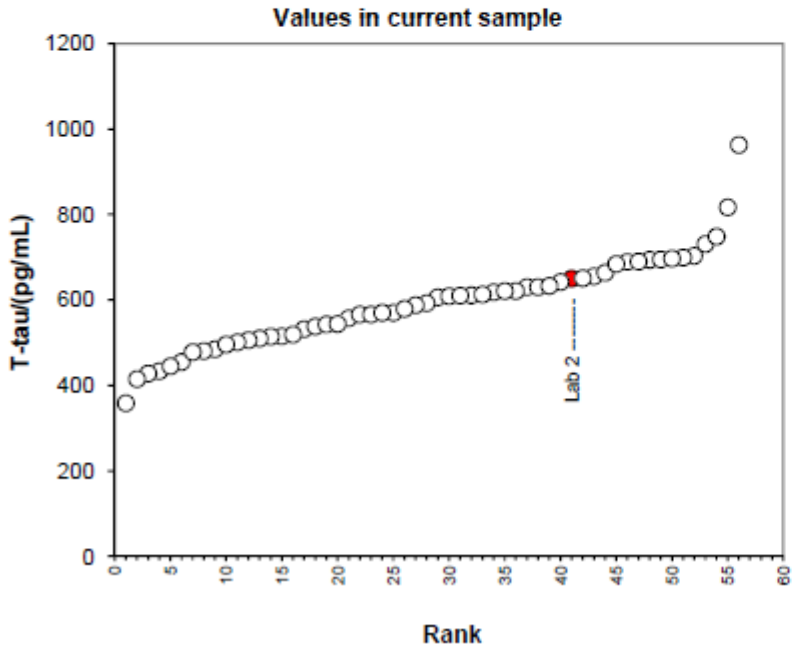


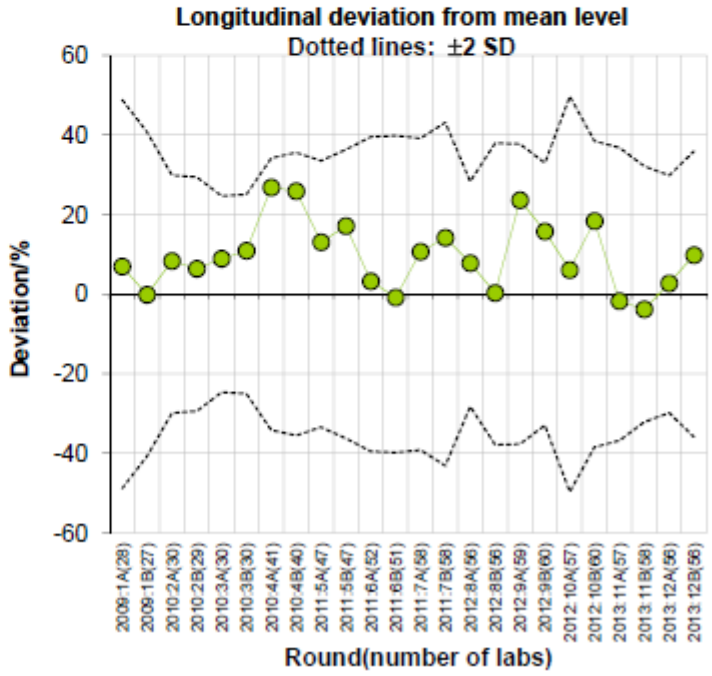
QC program for AD CSF biomarkers – Example of individual lab– round 12 (2013)

T-tau

Between laboratories comparisons

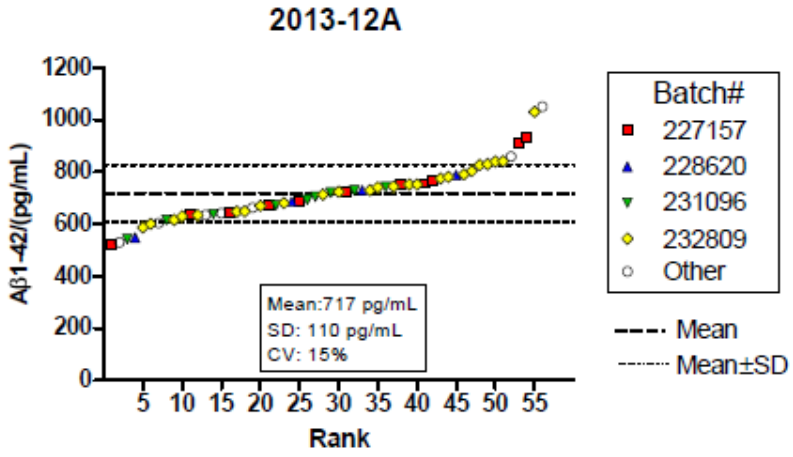
	Gothenburg (Lab 2)		All 56 labs in this round
Round:	2013:12B	Mean:	592 pg/mL
Result:	650 pg/mL	SD:	106 pg/mL
Method:	INNOTEST	CV:	18%

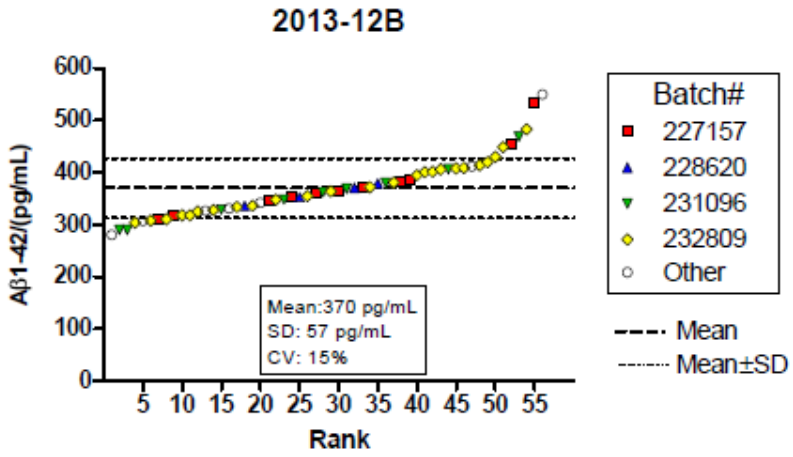




QC program for AD CSF biomarkers – results – round 12 (2013)

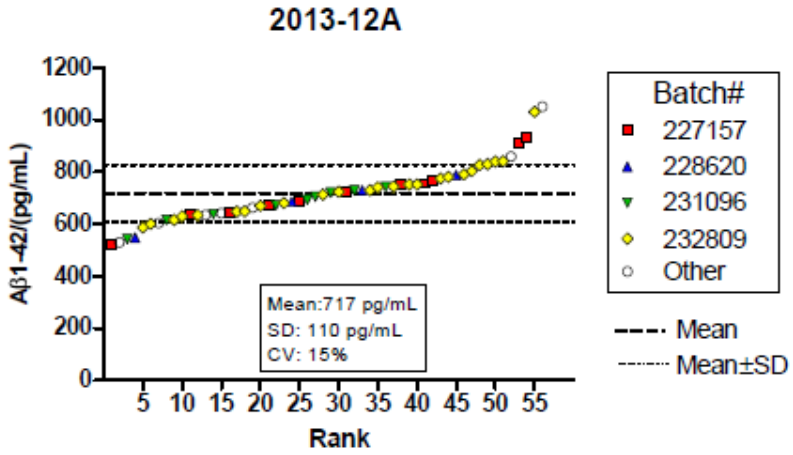
Innogenetics ELISAs - 56 labs

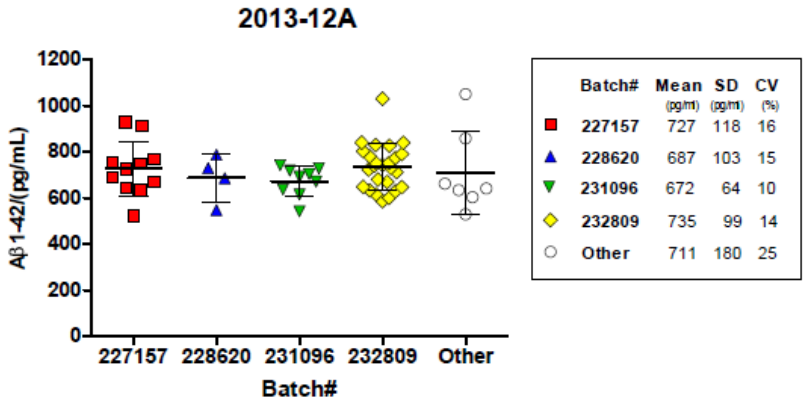


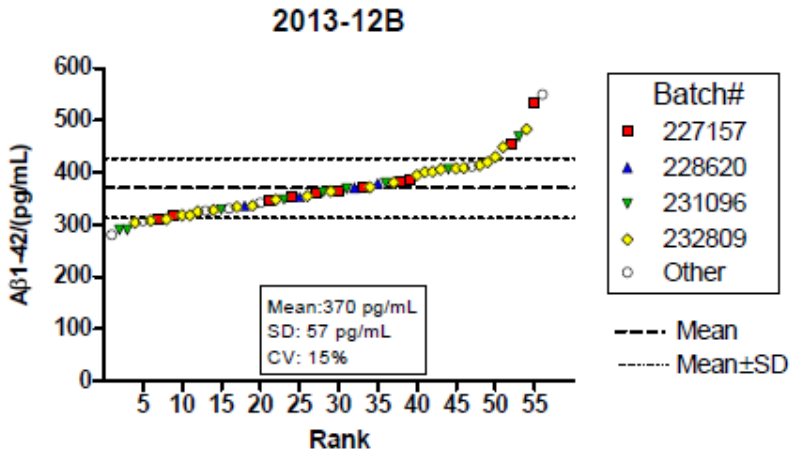


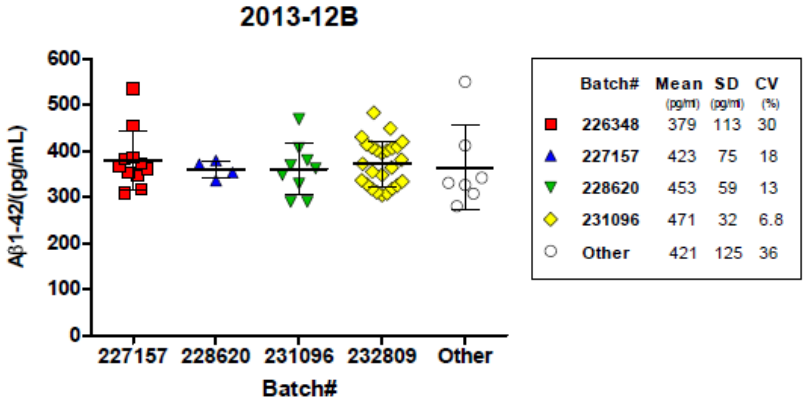
QC program for AD CSF biomarkers – results – round 12 (2013)

Innogenetics ELISAs - 56 labs



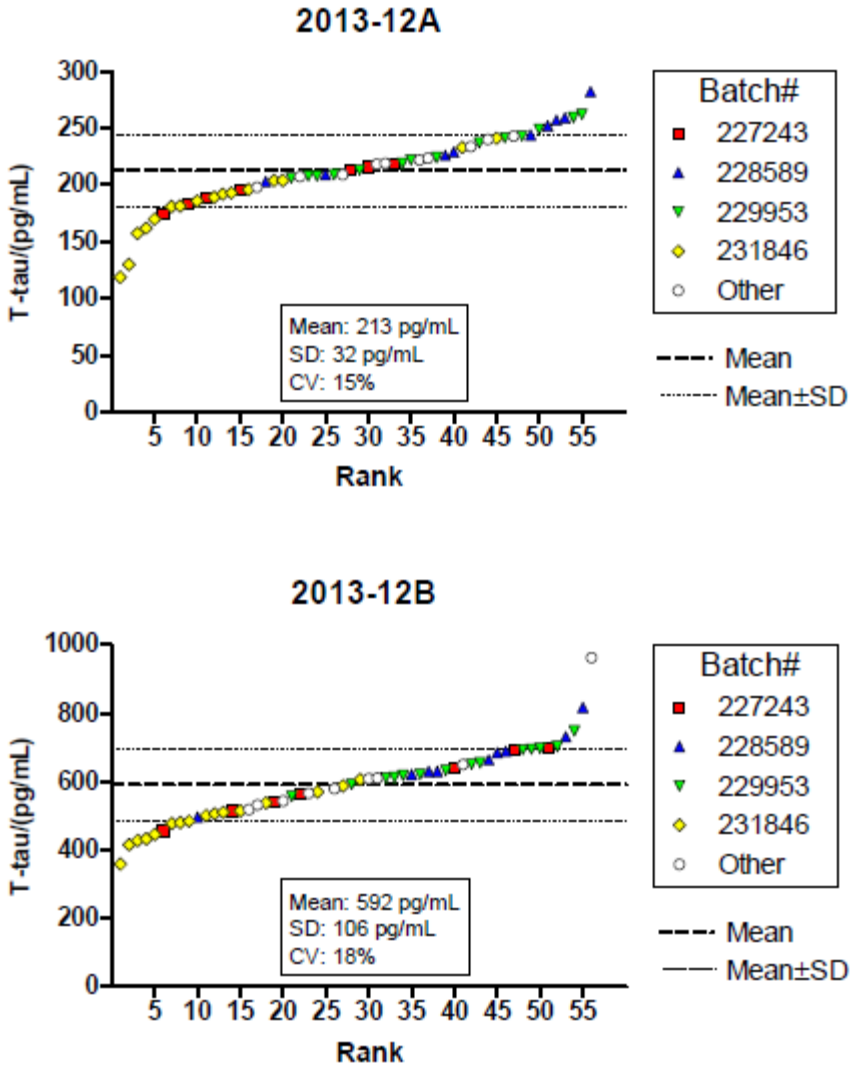






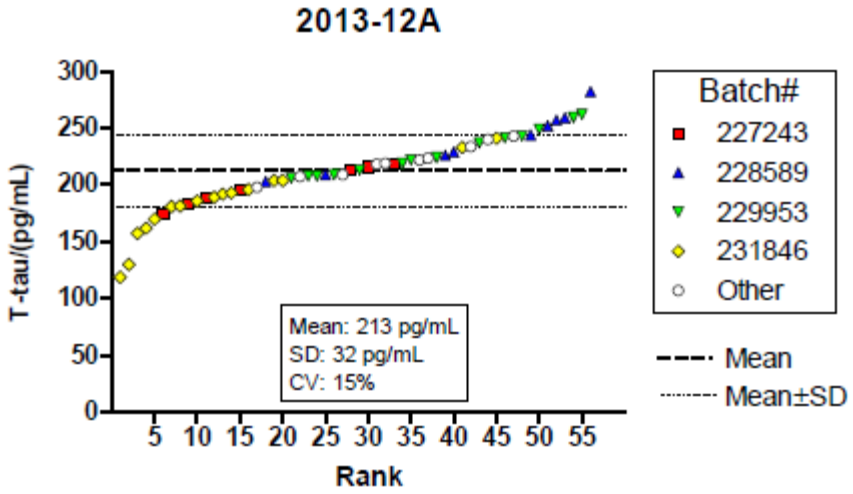
QC program for AD CSF biomarkers – results – round 12 (2013)

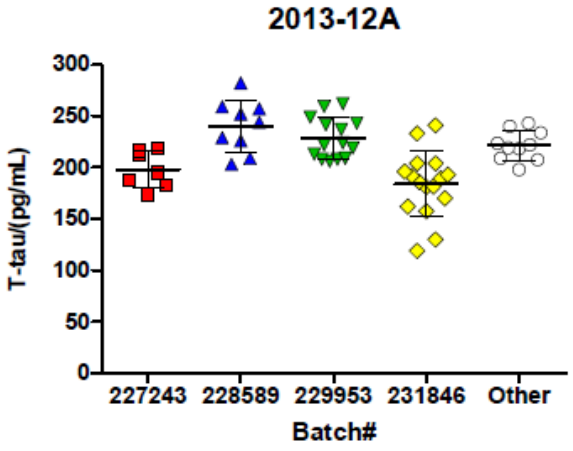
Innogenetics ELISAs - 56 labs



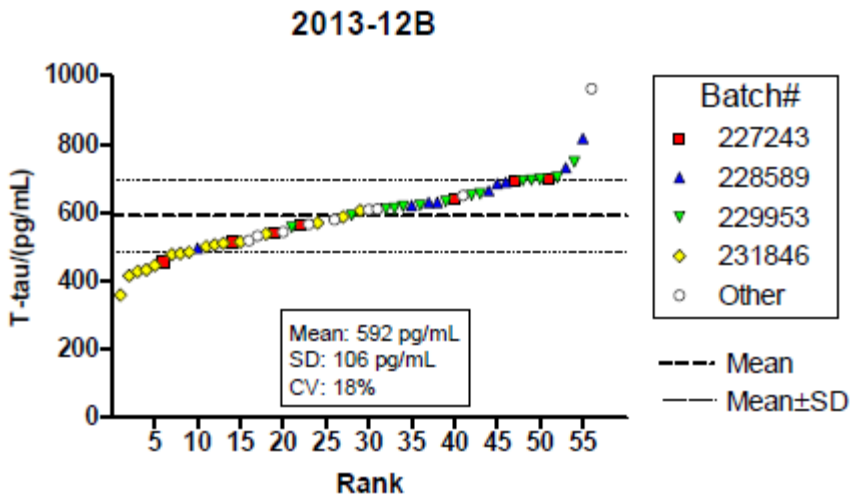
QC program for AD CSF biomarkers – results – round 12 (2013)

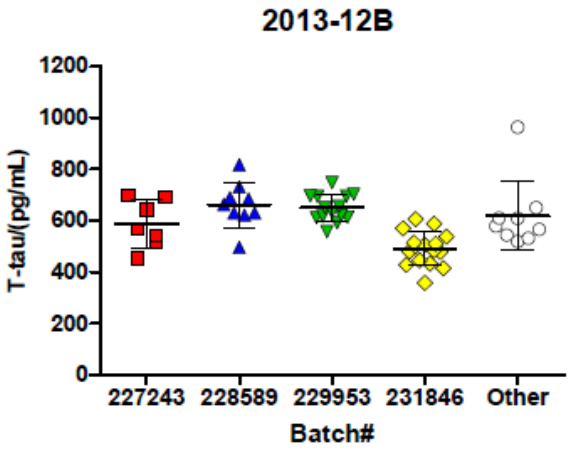
Innogenetics ELISAs - 56 labs





Batch#	Mean (pg/ml)	SD (pg/ml)	CV (%)
227243	198	18	9.0
228589	240	26	11
229953	229	19	8.6
231846	184	32	17
Other	221	14	6.5

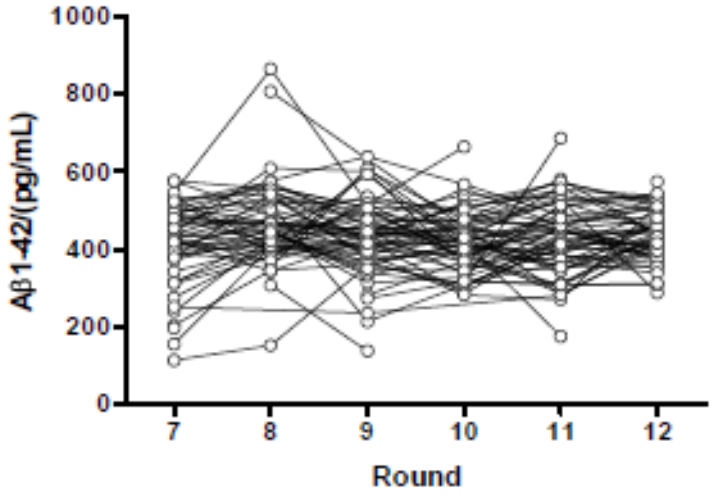




Batch#	Mean (pg/ml)	SD (pg/ml)	CV (%)
227243	587	93	16
228589	662	88	13
229953	649	52	8.1
231846	491	66	13
Other	614	129	21

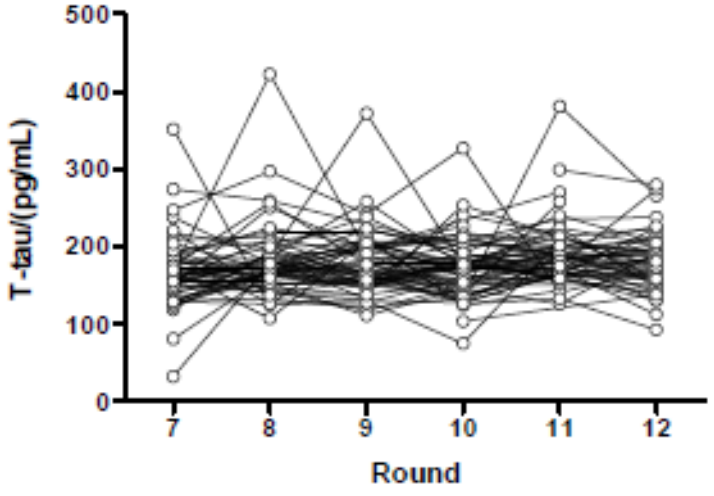
QC program for AD CSF biomarkers – Longitudinal results 2013

INNOTEST Aβ42



Mean/(pg/mL)	413	466	428	418	430	441
SD/(pg/mL)	107	108	97	77	99	66
CV%	26	23	23	19	23	15

INNOTEST T-tau



Mean/(pg/mL)	168	182	176	172	191	180
SD/(pg/mL)	46	48	42	39	41	37
CV%	27	26	24	23	22	20

Interim Results from JPND project A3

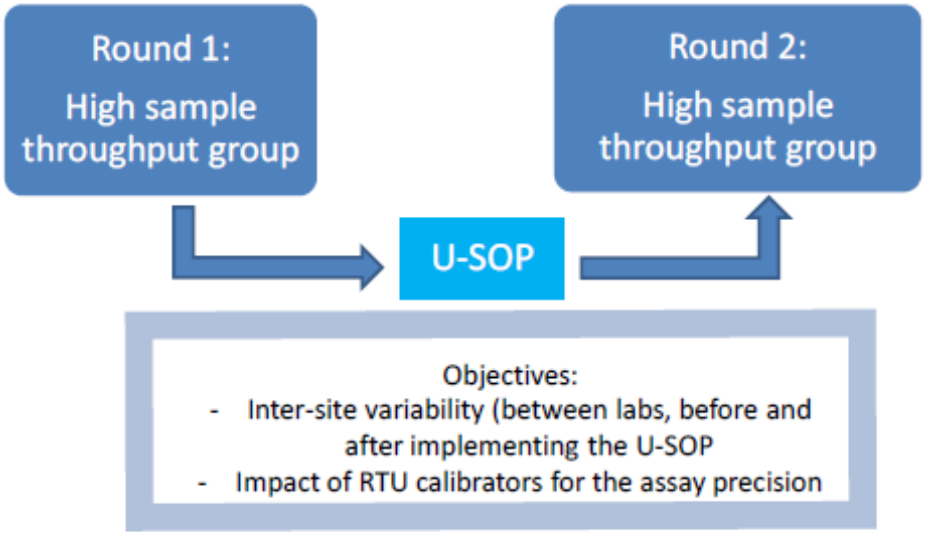
AIM

The JPDN-WP 3 intends to explore the causes (test protocol / SOP) of between-center variability in CSF biomarkers measurements using Innogenetics ELISA kits.

Working scheme JPND-WP3

1st study (11 centers with high sample throughput)

period: March-May 2013



Interim Results from JPND project A3

Inter-center variability (%CV) based on calibration curve used:

CSF	ref	RTU	Lowering (in %) for RTU
Abeta (10 centra)	17,4	12,2	30%
TAU (10 centra)	13,3	9,5	29%
PTAU (9 centra)	12,3	9,2	25%

Spin-off effects of the QC program ➔ precompetitive collaborations

Institute for Reference Materials and Measurements
Ingrid Zegers

- Reference material

International Federation of Clinical Chemistry
Scientific Division

- WG for CSF proteins
- Reference methods

Joint Program for Neuro-Degenerative Diseases
Bengt Winblad

- Biomarker standardization

Global Biomarker Standardization Consortium (GBSC)
Maria Carrillo

alzheimer's association
the compassion to care, the leadership to conquer

Academic Units
World Wide

Biotech Companies ➔ New validated / automated assays

- *ADx Neuroscience / Euroimmune*
- *Innogenetics*
- *Meso-Scale Discovery*
- *Ortho Clinical Diagnostics / Saladax*
- *Roche Diagnostics*

The QC Program for CSF Biomarkers

➔ *Long term Effect read-out*

alzheimer's association
the compassion to care, the leadership to conquer