

Supplementary Data

Long-Term Stability of Alzheimer's Disease Biomarker Proteins in Cerebrospinal Fluid

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SUPPLEMENTARY TABLES

All data analyzed in this study is listed.

Table 1: Data analyzed for Figs. 2 and 3

Table 2: Data analyzed for Fig. 4

Table 3: Values of biomarker concentrations as determined at the different time-points and after re-gauging.

The rows labeled re-gauging give the values after adjusting for the different sensitivity of the assays

which manifest in different absolute values [9]. Since the correlation coefficients are high, we determined constants to re-gauge the newly determined values using the MSD-system to the old values, determined using the Inno systems or the IBL system, the equations are given in the results section.

Table 4: Data analyzed for samples that had been re-frozen.

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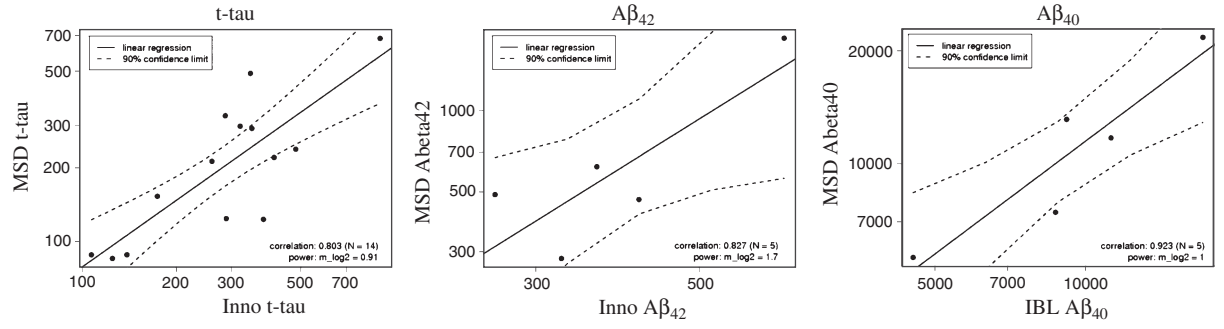


Fig. 1. Comparison of quantitative results for biomarker in CSF samples that have been thawed and re-frozen before thawing for the respective quantifications. All values are in pg/mL and are plotted on log₂-scales. The linear regression is indicated by a straight line, the 90% confidence limit by a dotted line. The correlation coefficients and the power, determined as the slope of the linear regression (m_log2) are given in the different panels. The values for samples thawed and measured immediately are given on the x-axis, values for the aliquots that have been refrozen and re-thawed are given on the y-axis. Left: comparison for t-tau ($n = 14$), middle: comparison for Aβ₄₂ ($n = 5$), right: comparison for Aβ₄₀ ($n = 5$). Inno = Innogenetics; MSD = Mesoscale Discovery; IBL = IBL International.

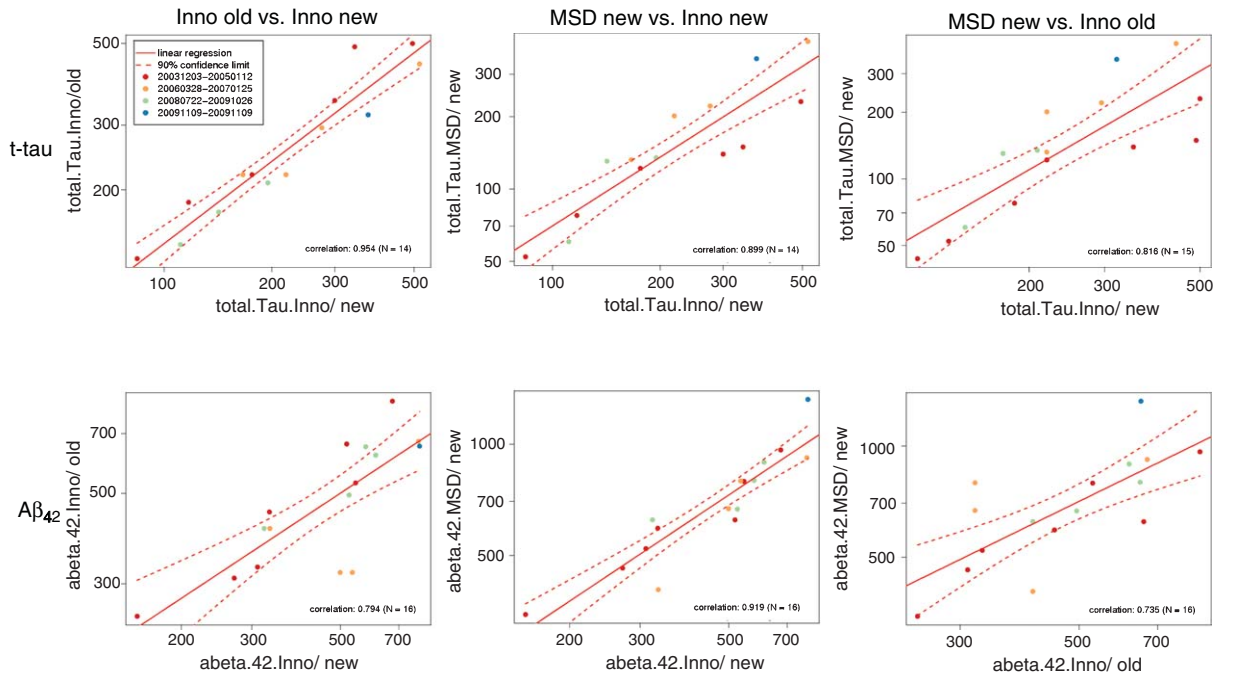


Fig. 2. Comparison of biomarker concentrations obtained in long-term stored CSF using different methods plotted on a log₂-scale. The color code for the age of the samples (date of lumbar puncture) is given in the upper left hand corner of the first plot. The correlation coefficients are given in the lower right of each plot. Upper row: **total-Tau**. Left: comparison Innogenetics (Inno) old/new. Middle: comparison MSD new/Inno old. Right: comparison MSD new/Inno new. Lower row: same as above for Aβ₄₂.

Table 1
Biomarker concentrations obtained in long term-stored CSF using different methods

Date of 1 st quantification	t-tau Inno old	t-tau Inno new	t-tau MSD new	A β ₄₂ Inno old	A β ₄₂ Inno new	A β ₄₂ MSD new
03.12.2003	130	84	52	840	674	965
03.12.2003	110	<75	43	660	518	624
20.01.2004	220	176	121	250	155	346
27.01.2004	500	495	230	450	332	592
12.01.2005	185	117	77	530	545	794
12.01.2005	350	300	139	310	271	462
12.01.2005	490	341	149	330	310	522
28.03.2006	440	518	410	320	535	796
30.03.2006	220	219	201	320	499	669
24.01.2007	295	276	221	410	333	404
25.01.2007	220	166	132	670	783	920
22.07.2008	142	111	60	650	578	798
24.07.2008	>1200	>1200	903	410	322	625
28.07.2008	209	195	135	620	612	895
26.10.2009	174	142	130	495	525	667
09.11.2009	320	372	348	652	788	1324

All values in pg/mL, data without exact values (grey) were excluded from statistical analysis.

Table 2
Biomarker concentrations in samples collected in between June 2005 and October 2006 and re-evaluated between December 2009 and February 2010

t-tau Inno old	t-tau MSD new	A β ₄₂ Inno old	A β ₄₂ MSD new	A β ₄₀ IBL old	A β ₄₀ MSD new
476	235	842	1014	8969	7548
648	427	648	670	8943	7187
871	1172	830	973	14349	10533
452	330	539	504	5164	5611
877	446	1572	2369	16610	10874
262	131	726	596	4935	4735
897	238	741	684	7979	8060
528	187	791	716	8310	7184
n.d.	838	887	814	9929	8651
430	329	652	637	5599	7403
465	131	1182	1841	8686	10497
1163	439	950	1203	9181	10034
332	142	419	418	4500	5171
1198	451	673	709	10228	7574
1044	805	902	1155	9660	11348
422	291	534	409	5351	5601
839	1126	804	792	10856	9381
311	158	1558	2007	9581	9065
447	286	1126	1227	7167	6632
474	1541	677	694	13856	11237
1068	1904	781	541	17143	7998
1150	1727	640	669	11781	10991
632	709	873	1045	9539	9510
333	183	1216	1980	8943	9925
871	858	778	937	10289	9728
1164	1963	937	1097	14346	10844
688	688	750	695	8021	6515
561	479	580	514	7688	8439
1155	1405	694	866	9088	10213
422	372	346	566	4203	5854
711	712	1257	1448	11835	11107
1875	2375	866	672	15055	9508
331	131	699	1530	6782	7907
539	433	650	212	7857	3609
2047	3223	829	513	19616	8503

Table 2
(Continued)

t-tau Inno old	t-tau MSD new	A β ₄₂ Inno old	A β ₄₂ MSD new	A β ₄₀ IBL old	A β ₄₀ MSD new
473	474	595	269	8910	5306
446	365	812	677	8527	5652
300	160	1497	1064	13824	6296
n.d.	5398	742	608	14819	7396
655	666	858	699	16357	7467
773	489	625	254	6722	3371
349	228	697	246	10242	4346

All values in pg/mL, n.d. = not determined.

Table 3
Values of biomarker concentrations as determined and after re-gauging

t-tau Inno OLD	t-tau MSD NEW	t-tau regauged	A β ₄₂ Inno OLD	A β ₄₂ MSD NEW	A β ₄₂ regauged	A β ₄₀ IBLOLD	A β ₄₀ MSD NEW	A β ₄₀ regauged
476	235	378	842	1014	992	8969	7548	9155
648	427	578	648	670	721	8943	7187	8196
871	1172	1181	830	973	961	14349	10533	19427
452	330	481	539	504	580	5164	5611	4689
877	446	595	1572	2369	1905	16610	10874	20874
262	131	249	726	596	660	4935	4735	3195
897	238	382	741	684	734	7979	8060	10618
528	187	321	791	716	760	8310	7184	8189
n.d.	838	931	887	814	838	9929	8651	12456
430	329	480	652	637	694	5599	7403	8765
465	131	250	1182	1841	1570	8686	10497	19276
1163	439	589	950	1203	1131	9181	10034	17411
332	142	264	419	418	502	4500	5171	3899
1198	451	600	673	709	754	10228	7574	9228
1044	805	905	902	1155	1097	9660	11348	22985
422	291	440	534	409	494	5351	5601	4669
839	1126	1148	804	792	821	10856	9381	14956
311	158	286	1558	2007	1677	9581	9065	13842
447	286	435	1126	1227	1149	7167	6632	6836
474	1541	1434	677	694	742	13856	11237	22481
1068	1904	1666	781	541	612	17143	7998	10435
1150	1727	1555	640	669	720	11781	10991	21387
632	709	827	873	1045	1015	9539	9510	15424
333	183	317	1216	1980	1659	8943	9925	16985
871	858	947	778	937	933	10289	9728	16234
1164	1963	1702	937	1097	1054	14346	10844	20743
688	688	810	750	695	742	8021	6515	6567
561	479	627	580	514	588	7688	8439	11778
1155	1405	1343	694	866	879	9088	10213	18118
422	372	524	346	566	633	4203	5854	5159
711	712	829	1257	1448	1304	11835	11107	21896
1875	2375	1949	866	672	723	15055	9508	15416
331	131	250	699	1530	1361	6782	7907	10168
539	433	583	650	212	298	7857	3609	1731
2047	3223	2419	829	513	588	19616	8503	11980
473	474	622	595	269	358	8910	5306	4132
446	365	517	812	677	728	8527	5652	4766
300	160	289	1497	1064	1030	13824	6296	6080
n.d.	5398	3487	742	608	670	14819	7396	8745
655	666	791	858	699	746	16357	7467	8936
773	489	635	625	254	343	6722	3371	1484
349	228	370	697	246	334	10242	4346	2633

Table 4
Comparison of quantitative results for biomarker in CSF samples that have been thawed and re-frozen

t-tau Inno fresh	t-tau MSD thawed	A β ₄₂ Inno fresh	A β ₄₂ MSD thawed	A β ₄₀ IBL fresh	A β ₄₀ MSD thawed
289	124				
287	328				
380	123				
174	153				
482	239				
260	213				
345	490				
107	88				
125	85				
320	297	652	1847	17178	21718
349	291	264	489	11252	11714
411	221	325	284	8716	7419
897	682	363	620	9174	13125
139	88	414	469	4524	5623

All values in pg/mL.