

Supplementary information**eTable 1. Assays included in the Olink Target 96 inflammation panel (v. 3022).**

Assay	Uniprot ID	OlinkID	LLOD	Percentage of Data Below LLOD^a
4E-BP1	Q13541	OID00536	0,90806	21 %
ADA	P00813	OID00560	0,60631	1 %
ARTN	Q5T4W7	OID00526	1,12736	96 %
AXIN1	O15169	OID00487	0,37338	95 %
Beta-NGF	P01138	OID00519	0,59807	94 %
CASP-8	Q14790	OID00550	1,00269	91 %
CCL11	P51671	OID00505	1,18676	51 %
CCL19	Q99731	OID00513	1,73797	16 %
CCL20	P78556	OID00556	1,62914	86 %
CCL23	P55773	OID00530	0,46115	6 %
CCL25	O15444	OID00551	1,09603	50 %
CCL28	Q9NRJ3	OID00539	0,83477	32 %
CCL3	P10147	OID00532	0,78104	1 %
CCL4	P13236	OID00498	0,90718	1 %
CD244	Q9BZW8	OID00477	1,35678	29 %
CD40	P25942	OID00542	1,85945	0 %
CD5	P06127	OID00531	0,16260	0 %
CD6	P30203	OID00499	1,41512	54 %
CD8A	P01732	OID05124	0,93613	0 %
CDCP1	Q9H5V8	OID00476	0,53942	0 %
CSF-1	P09603	OID00562	1,24587	0 %
CST5	P28325	OID00491	-0,10249	0 %
CX3CL1	P78423	OID00552	0,88106	54 %
CXCL1	P09341	OID00496	2,05167	5 %
CXCL10	P02778	OID00535	2,25165	2 %
CXCL11	O14625	OID00486	1,05017	39 %
CXCL5	P42830	OID00520	2,00160	45 %
CXCL6	P80162	OID00534	0,82431	36 %
CXCL9	Q07325	OID00490	0,79039	1 %
DNER	Q8NFT8	OID01213	0,02557	0 %
EN-RAGE	P80511	OID00541	0,84732	70 %
FGF-19	O95750	OID00545	1,16181	2 %
FGF-21	Q9NSA1	OID00512	1,69320	89 %
FGF-23	Q9GZV9	OID00507	1,91066	98 %
FGF-5	P12034	OID00509	1,00799	10 %
Flt3L	P49771	OID00533	1,54635	0 %
GDNF	P39905	OID00475	1,70863	95 %
HGF	P14210	OID00522	0,69763	0 %
IFN-gamma	P01579	OID05547	3,23171	61 %
IL-1 alpha	P01583	OID00493	-0,41867	76 %
IL10	P22301	OID00528	1,59637	77 %
IL-10RA	Q13651	OID00508	0,65841	98 %

Pedersen supplementary information

Assay	Uniprot ID	OlinkID	LLOD	Percentage of Data Below LLOD^a
IL-10RB	Q08334	OID00515	0,86804	0 %
IL-12B	P29460	OID00523	0,15284	0 %
IL13	P35225	OID00525	1,08076	97 %
IL-15RA	Q13261	OID00514	0,75215	97 %
IL-17A	Q16552	OID00485	1,02260	86 %
IL-17C	Q9P0M4	OID00483	1,21575	95 %
IL18	Q14116	OID00501	1,16390	0 %
IL-18R1	Q13478	OID00517	1,43949	1 %
IL2	P60568	OID00495	1,64520	99 %
IL-20	Q9NYY1	OID00537	0,70234	98 %
IL-20RA	Q9UHF4	OID00489	1,04665	95 %
IL-22 RA1	Q8N6P7	OID00516	2,21827	100 %
IL-24	Q13007	OID00524	1,42917	99 %
IL-2RB	P14784	OID00492	1,38578	99 %
IL33	O95760	OID00543	1,16366	99 %
IL4	P05112	OID00546	0,39876	100 %
IL5	P05113	OID00559	1,54837	96 %
IL6	P05231	OID00482	1,30559	5 %
IL7	P13232	OID00478	0,81303	73 %
IL8	P10145	OID00471	1,49688	0 %
LAP	P01137	OID00480	0,80172	3 %
LIF	P15018	OID00547	0,39212	73 %
LIF-R	P42702	OID00511	1,06551	1 %
MCP-1	P13500	OID00484	0,97323	0 %
MCP-2	P80075	OID00549	1,50497	5 %
MCP-3	P80098	OID00474	1,59337	99 %
MCP-4	Q99616	OID00504	2,24478	2 %
MMP-1	P03956	OID00510	1,00110	1 %
MMP-10	P09238	OID00527	1,09798	0 %
NRTN	Q99748	OID00548	0,79766	98 %
NT-3	P20783	OID00554	1,02887	95 %
OPG	O00300	OID00479	1,12293	0 %
OSM	P13725	OID00494	0,84772	67 %
PD-L1	Q9NZQ7	OID00518	1,91263	0 %
SCF	P21583	OID00500	1,43993	0 %
SIRT2	Q8IXJ6	OID00538	2,49154	54 %
SLAMF1	Q13291	OID00502	1,17060	96 %
ST1A1	P50225	OID00557	0,88182	96 %
STAMBP	O95630	OID00558	0,75825	55 %
TGF-alpha	P01135	OID00503	0,52702	0 %
TNF	P01375	OID05548	-0,27199	62 %
TNFB	P01374	OID00561	0,91829	7 %
TNFRSF9	Q07011	OID00553	1,78176	1 %
TNFSF14	O43557	OID00506	1,29965	47 %
TRAIL	P50591	OID00488	0,89536	14 %
TRANCE	O14788	OID00521	0,86597	97 %

Pedersen supplementary information

Assay	Uniprot ID	OlinkID	LLOD	Percentage of Data Below LLOD^a
TSLP	Q969D9	OID00497	1,73255	100 %
TWEAK	O43508	OID00555	0,42196	0 %
uPA	P00749	OID00481	1,31872	0 %
VEGFA	P15692	OID00472	1,48674	0 %

^a Assays with >10% values below LLOD were excluded from the analyses.

Abbreviations. ID: Identification number; LLOD: Lower limit of detection

eTable 2. Sensitivity analysis for receiver-operating characteristic models for patients with Parkinson's disease > 65 years versus patients with Dementia with Lewy Bodies or Alzheimer's disease

Predictors	Full Model, PD vs. DLB				Full Model, PD vs. AD			
	OR (95% CI)	<i>P</i> *	AUC [#]	Optimism -adjusted AUC	OR (95% CI)	<i>P</i> *	AUC [#]	Optimism- adjusted AUC
Age	1.00 (0.89 – 1.13)	0.991			1.00 (0.90 – 1.10)	0.927		
Female	0.63 (0.14 – 3.02)	0.555			0.11 (0.90 – 1.10)	0.001		
ADA	1.19 (0.37 – 4.39)	0.775			1.34 (0.47 – 4.69)	0.608		
CD5	2.29 (0.50 – 12.09)	0.297			8.37 (1.85 – 50.02)	0.011		
CD8A	1.57 (0.50 – 5.38)	0.453	0.80	0.68	2.67 (0.93 – 8.78)	0.084	0.85	0.79
CDCP1	1.25 (0.25 – 6.49)	0.786			1.43 (0.32 – 6.99)	0.648		
IL-18R1	2.36 (0.36 – 18.72)	0.385			0.36 (0.06 – 1.87)	0.234		
IL-6	2.93 (1.26 – 12.08)	0.052			2.37 (1.28 – 5.04)	0.014		
MCP-2	0.16 (0.04 – 0.45)	0.003			0.18 (0.03 – 0.33)	< 0.001		

Abbreviations. PD: Parkinson's disease; DLB: Dementia with Lewy bodies; AD: Alzheimer's disease;

OR: Odds ratio; CI: Confidence interval; AUC: Area under the curve

*P-values in bold are statistically significant at $p < 0.05$

eTable 3. Sensitivity analysis for receiver-operating characteristic models for controls > 65 years versus patients with Alzheimer’s disease.

Predictors	Full Model, AD vs. NC			
	OR (95% CI)	<i>P</i> *	AUC [#]	Optimism- adjusted AUC
Age	0.99 (0.88 – 1.11)	0.881		
Female	0.73 (0.10 – 5.27)	0.754		
CD8A	0.03 (0.00 – 0.20)	0.003		
IL-6	2.65 (0.75 – 12.32)	0.155	0.92	0.86
MMP-1	0.99 (0.33 – 2.84)	0.986		
MMP-10	12.96 (2.29 – 138.22)	0.013		

Abbreviations. AD: Alzheimer’s disease; DLB: Dementia with Lewy bodies; PD: Parkinson’s disease;

OR: Odds ratio; CI: Confidence interval; AUC: Area under the curve

*P-values in bold are statistically significant at $p < 0.05$

eTable 4. Sensitivity analysis for receiver-operating characteristic models for patients with Alzheimer's disease versus patients with Parkinson's disease > 65 years

Predictors	Full Model, AD vs. PD			Optimism-adjusted AUC
	OR (95% CI)	P*	AUC [#]	
Age	1.03 (0.93 – 1.14)	0.599		
Female	7.80 (2.03 – 37.94)	0.005		
CD8A	0.41 (0.17 – 0.89)	0.035	0.92	0.89
IL-6	0.32 (0.14 – 0.61)	0.002		
MMP-1	4.72 (2.37 – 11.10)	<0.001		
MMP-10	4.70 (1.78 – 15.71)	0.004		

Abbreviations. PD: Parkinson's disease; AD: Alzheimer's disease; OR: Odds ratio; CI: Confidence interval; AUC: Area under the curve

*P-values in bold are statistically significant at $p < 0.05$

eTable 5. Associated genes and biological function of CSF biomarkers identified through EN analysis.

Biomarker	Full Name*	Uniprot ID[†]	Associated gene[†]	Chromosomal location[§]	Biological function*[#]
ADA	Adenosine deaminase	P00813	ADA	20q13.12	Catalyzes the hydrolytic deamination of adenosine and 2-deoxyadenosine (PubMed:8452534, PubMed:16670267).
CCL23	C-C motif chemokine 23	P55773	CCL23	17q12	Shows chemotactic activity for monocytes, resting T-lymphocytes, and neutrophils, but not for activated lymphocytes.
CD5	T-cell surface glycoprotein CD5	P06127	CD5	11q12.2	May act as a receptor in regulating T-cell proliferation.
CD8A	T-cell surface glycoprotein CD8 alpha chain	P01732	CD8A	2p11.2	Integral membrane glycoprotein that plays an essential role in the immune response and serves multiple functions in responses against both external and internal offenses.
CDCP1	CUB domain-containing protein 1	Q9H5V8	CDCP1	3p21.31	May be involved in cell adhesion and cell matrix association.
FGF-19	Fibroblast growth factor 19	O95750	FGF19	11q.13.3	Involved in the suppression of bile acid biosynthesis through down-regulation of CYP7A1 expression, following positive regulation of the JNK and ERK1/2 cascades.
IL-18R1	Interleukin-18 receptor 1	Q13478	IL18R1	2q12.1	Within the IL18 receptor complex, responsible for the binding of the proinflammatory cytokine IL18, but not IL1A nor IL1B (PubMed:8626725, PubMed:14528293, PubMed:25261253, PubMed:25500532).
IL-6	Interleukin 6	P05231	IL6	7p15.3	Cytokine with a wide variety of biological functions.
MCP-2/ CCL8	Monocyte chemotactic protein 2/C-C motif chemokine ligand 8	P80075	CCL8	17q12	Chemotactic factor that attracts monocytes, lymphocytes, basophils and eosinophils.

Biomarker	Full Name*	Uniprot ID[†]	Associated gene[†]	Chromosomal location[§]	Biological function*[#]
MMP-1	Matrix metalloproteinase-1	P03956	MMP1	11q22.2	Cleaves collagens of types I, II, and III at one site in the helical domain.
MMP-10/ SL-2	Matrix metalloproteinase-10/Stromelysin-2	P09238	MMP10	11q22.2	Can degrade fibronectin, gelatins of type I, III, IV, and V; weakly collagens III, IV, and V.

*From *Olink Target 96 Inflammation* (<https://www.olink.com/products-services/target/inflammation/>)

[†] From Uniprot (<https://www.uniprot.org/>)

[§] From NCBI Gene (<https://www.ncbi.nlm.nih.gov/gene/>)

[#] Biological function description is the first sentence from “*Uniprot Function Description*” section on each biomarker webpage

eTable 6. Receiver-operating characteristic models for patients with Parkinson's disease versus patients with Dementia with Lewy Bodies or Alzheimer's disease.

Predictors	Full Model, PD vs. DLB				Full Model, PD vs. AD			
	OR (95% CI)	<i>P</i> *	AUC [#]	Optimism- adjusted AUC	OR (95% CI)	<i>P</i> *	AUC [#]	Optimism- adjusted AUC
Age	0.92 (0.83 – 0.99)	0.050			0.91 (0.84 – 0.97)	0.010		
Female	0.62 (0.14 – 2.78)	0.514			0.10 (0.03 – 0.34)	< 0.001		
ADA	1.19 (0.41 – 3.64)	0.749			1.05 (0.44 – 2.43)	0.915		
CD5	1.93 (0.45 – 9.50)	0.386			5.13 (1.37 – 23.33)	0.022		
CD8A	1.25 (0.42 – 3.86)	0.688	0.82	0.73	2.18 (0.83 – 6.30)	0.128	0.88	0.84
CDCP1	1.21 (0.25 – 6.15)	0.810			1.26 (0.30 – 5.58)	0.754		
IL-18R1	3.12 (0.58 – 21.36)	0.210			0.46 (0.10 – 2.03)	0.307		
IL-6	2.56 (1.21 – 8.22)	0.049			2.00 (1.16 – 3.84)	0.024		
MCP-2	0.16 (0.04 – 0.46)	0.002			0.18 (0.06 – 0.42)	<0.001		

Abbreviations. PD: Parkinson's disease; DLB: Dementia with Lewy bodies; AD: Alzheimer's disease;

OR: Odds ratio; CI: Confidence interval; AUC: Area under the curve

*P-values in bold are statistically significant at $p < 0.05$

eTable 7. Receiver-operating characteristic models for patients with Alzheimer’s disease versus patients with Parkinson’s disease or Dementia with Lewy Bodies.

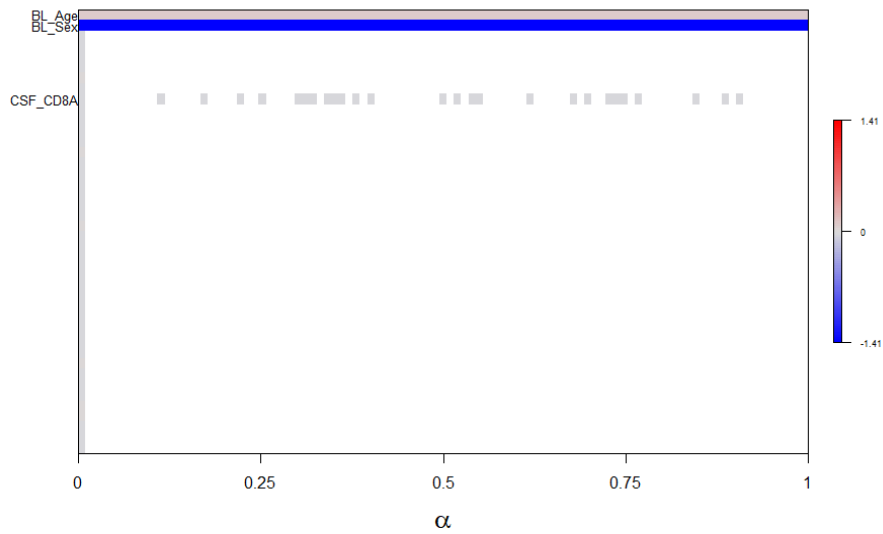
Predictors	Full Model, AD vs. DLB				Full Model, AD vs. PD			
	OR (95% CI)	<i>P</i> *	AUC#	Optimism -adjusted AUC	OR (95% CI)	<i>P</i> *	AUC#	Optimism- adjusted AUC
Age	1.02 (0.91 – 1.15)	0.668			1.08 (1.00 – 1.18)	0.072		
Female	3.70 (0.75 – 19.69)	0.108			7.90 (2.14 – 36.30)	0.004		
CD8A	0.68 (0.19 – 2.20)	0.535	0.81	0.71	0.41 (0.17 – 0.90)	0.036	0.94	0.92
IL-6	0.88 (0.23 – 3.06)	0.845			0.33 (0.15 – 0.60)	0.001		
MMP-1	1.57 (0.60 – 4.64)	0.370			4.89 (2.50 – 11.13)	<0.001		
MMP-10	2.84 (0.93 – 12.70)	0.106			4.74 (1.82 – 15.25)	0.003		

Abbreviations. AD: Alzheimer’s disease; DLB: Dementia with Lewy bodies; PD: Parkinson’s disease;

OR: Odds ratio; CI: Confidence interval; AUC: Area under the curve

**P*-values in bold are statistically significant at $p < 0.05$

eFigure 1.



eFigure 1. Results from regularized regression with elastic net penalization for α -values between 0 and 1 for DLB compared to controls. Variables positively associated with disease status (i.e. increased values are associated with disease) are highlighted with red, while variables negatively associated with disease status (i.e. decreased values are associated with disease) are highlighted in blue. Intensity of color reflects the strength of association. The strongest association for a PEA biomarker was observed for CD8A, but this was not robust across all levels of α .