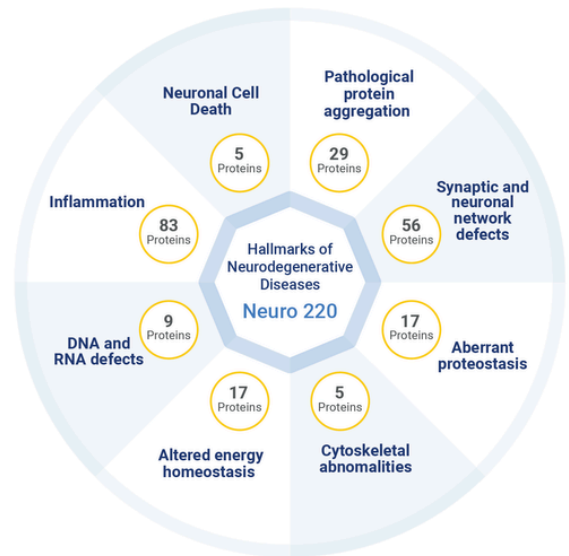


# NULISAseq™ Neuro 220 Panel

One powerful panel for comprehensive neurodegenerative research.

Blood based biomarkers of disease progression and therapeutic response are transforming the field of neurology. The NULISAseq™ Neuro 220 Panel offers comprehensive coverage of the Hallmarks of Neurodegenerative Diseases (*Cell*, Volume 186, Issue 4, 693 - 714) with highly sensitive and specific multiplexed analysis of 220 biomarkers from a single sample.

Extending beyond the canonical ATN (Amyloid/Tau/Neurodegeneration) framework to include coverage of inflammation, synuclein pathology, and vascular biomarkers, this panel enables precise detection and longitudinal tracking of key biology, providing researchers with an automated solution to dissect disease heterogeneity, uncover co-pathologies and identify signatures of disease prognosis, and therapeutic response in clinical cohorts.

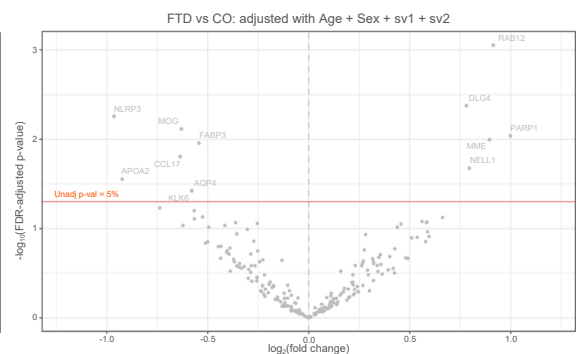
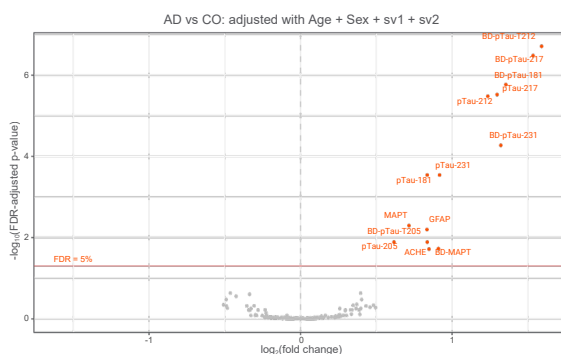
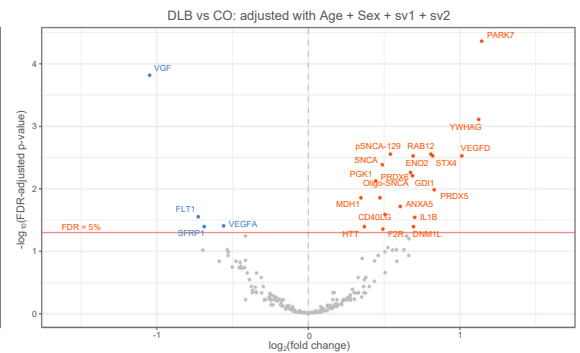
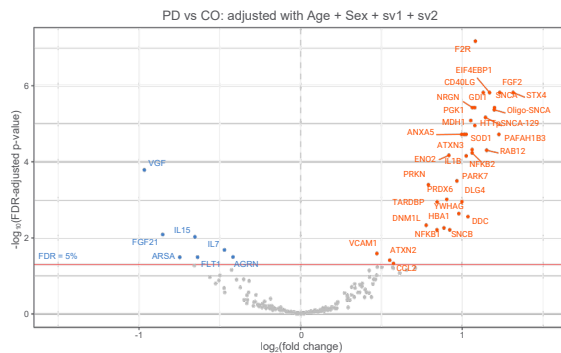


- **Comprehensive analysis** of the hallmarks of neurodegenerative diseases - 220 biomarkers from a single sample
- **Expanded content** provides increased coverage for multiple diseases including AD, PD, TBI, ALS, MS, and gliomas
- **Broadest coverage** of ptau isoforms with a suite of 12 highly specific assays covering both brain derived and total tau species
- **Novel content** for Parkinson's Disease developed in collaboration with leading researchers in the field
- **Ultra-high sensitivity** enables compatibility with non-invasive sample collection devices and the potential for pre-symptomatic detection
- **Automation** ensures high reproducibility and ease of use

## Resolving clinical heterogeneity and identifying co-pathologies

Detect disease-specific proteins despite significant overlap amongst neurodegenerative diseases. A mixed cohort of 169 plasma samples (control=36, AD=36, PD=37, DLB=36, FTD=24) uncovered co-pathologies in non-AD dementias.

Data courtesy of Carlos Cruchaga, PhD, WashU Medicine, Neurogenomics and Informatics Center



Learn more about NULISA and its utilization in neurodegenerative research.



# NULISAseq™ Neuro 220 Panel

Comprehensive analysis of 220 biomarkers across major hallmarks in neurodegenerative diseases

Aberrant proteostasis		Altered Energy Homeostasis		Pathological Protein Aggregation		
ARSA	pRab10-T73	CNDP1	HMOX1	Abeta38 (ab38)	BD-pTau-21	pTARDBP-S409
CD63	pRab12-S106	DDC	MDH1	Abeta40 (ab40)	BD-pTau-231	pTau-181
CST3	pRab29-T71	DNM1L(DRP1/DLP1)	PARK7	Abeta42 (ab42)	BD-tTau	pTau-205
CST5	PSME1	ENO2	PGK1	APOE4	GRN (Progranulin)	pTau-212
GBA1 (GCase)	RAB29	FABP3	pPRKN-	ATXN2	HTT	pTau-217
GPNMB	SQSTM1	FGF21	S65	ATXN3	mHTT-exon1 (HTT)	pTau-231
HSP27	UBB	GLP1R	PRDX5	BACE1	pQ-ATXN3	SNCA
KLK6	UCHL1	GOT1	PRDX6	BD-pTau-181	pQ-HTT	SNCB
MME		HBA1; HBA2	SOD1	BD-pTau-205	PSEN1	tTau (MAPT)
				BD-pTau-212	pSNCA-129	

DNA and/or RNA defects			Neuronal Cell Death		Cytoskeletal Abnormalities	
CRH	PARP1	REST	FAM3B	VSNL1 (VILIP)	MAG	PTPRS
EIF4EBP1	pLRRK2-S1292	RUVBL2	GSDMD	YWHAG	NEFH	STMN2
LRRK2 (pS1292)	PRKN	TARDBP	GSDME		NfL (NEFL)	

Synaptic and Neuronal Network Defects						
ACHE	CGRP	EGFR	IGF1R	NPTX1	PAFAH1B3	SMOC1
AGRN	CNTN2	FGF2 (bFGF)	IGFBP7	NPTX2	PDGFRB	SNAP25
ApoA1	CTNNA1	FGFBP1	KDR (VEGFR-2)	NPTXR	PDLIM5	STX4
APOA2	CX3CL1 (Fractalkine)	FLT1 (VEGF R1)	L1CAM	NPY	PPY	TEK (TIE-2)
BASP1	Dkk1	FOLR1	LDLR	NRGN	PTN	VEGF-A
BCAN	DLG4 (PSD-95)	GAP43	NCAM1	NTRK2	Rab10	VEGF-D
BDNF	EDA2R	GDI1	NELL1	NTRK3	Rab12	VEGF
CALB2	EFEMP1	GDNF	NGF (β-NGF)	Oligo-SNCA	SFRP1	YWHAZ

Inflammation						
ANXA5	CCL26 (Eotaxin-3)	CXCL10 (IP-10)	IFNG (IFN-γ)	IL-5	NFKB1	SAA1
APOE	CCL3 (MIP-1α)	CXCL13 (BCA-1)	IL-10	IL-6	NFKB2	Serpina3
APOH	CCL4 (MIP-1β)	CXCL8 (IL-8)	IL-12A IL-12B	IL-6R (IL-6RA)	NLRP3	SFTPD
AQP4	CCL5 (RANTES)	F2R	IL-13	IL-7	NT-ProBNP	SLIT2
AXL	CD33	FCGR2A (CD32A)	IL-15	IL-9	PDGFC	SPP1
C1Q	CD40LG	FCGR2B (CD32B)	IL-16	ITGAV (CD51)	PGF (PLGF)	TIMP3
CCL11 (Eotaxin)	CHI3L1 (YKL-40)	FCN2	IL-17A	LGALS3	PLAUR	TNF (TNF-α)
CCL13 (MCP-4)	CHIT1	GAS6	IL-18	MDK (Midkine)	POSTN	TNFSF14 (CD258)
CCL17 (TARC)	CRP	GDF-15	IL-1B	MMP10 (MMP10)	PRBP	TREM-1 (sTREM1)
CCL18	CSF1R (CD115)	GFAP	IL-2	MMP-9	PROS1	TREM-2
CCL2 (MCP-1)	CSF2 (GM-CSF)	HPGDS	IL-33	MOG (MOG)	S100A12 (EN-RAGE)	VCAM-1 (CD106)
CCL22 (MDC)	CXCL1 (GROα)	ICAM1 (CD54)	IL-4	MSLN	S100B	



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