NULISAseq™ Neuro 220 Panel

Table 3: Performance Validation Data by Target. Targets added to Neuro 220 Panel, respective to the CNS 120 Panel, are highlighted in bold text.

Target	UniProt ID	Protein Name	Detectability (%)		CV (%)				LOD (NPQ) Median (IQR)	Cross Reactivity
					Plasma		CSF			
			Plasma normal n=37	Plasma disease n=135	Intra	Inter	Intra	Inter		
Abeta38	P05067	Amyloid-beta precursor protein	41.86	100	n/a	n/a	8.2	10.6	7.3 (1.5, 8.4)	< 1%
Abeta40	P05067	Amyloid-beta precursor protein	67.44	97.87	16.8	10.9	6.8	11.1	5.7 (0.0, 7.0)	< 1%
Abeta42	P05067	Amyloid-beta precursor protein	58.41	97.87	12.4	19.4	7.9	11.7	11.0 (10.7, 11.3)	< 1%
ACHE	P22303	Acetylcholinesterase	100.0	100.0	6.9	2.2	11.2	2.1	4.2 (3.1, 4.6)	n/a
AGRN	O00468	Agrin	100.0	100.0	7.3	5.3	4.8	6.0	9.4 (9.2, 9.7)	n/a
ANXA5	P08758	Annexin A5	100.0	100.0	4.6	4.1	9.1	10.5	1.8 (1.2, 2.3)	n/a
APOA1	**P02647**	**Apolipoprotein A-I**	**n/a**	**n/a**	**4.5**	**1.2**	**6.5**	**3.5**	**n/a**	**n/a**
APOA2	**P02652**	**Apolipoprotein A-II**	**n/a**	**n/a**	**5.1**	**5.2**	**4.9**	**3.8**	**n/a**	**< 1%**
APOE	P02649	Apolipoprotein E	n/a	n/a	6.3	0.8	3.4	0.8	n/a	< 1%
APOE4	P02649	Apolipoprotein E	24.3	43.0	5.8	1.0	7.1	5.8	0.0 (0.0, 0.6)	< 1%
APOH	**P02749**	**Beta-2-glycoprotein 1**	**n/a**	**n/a**	**12.0**	**15.7**	**4.8**	**7.0**	**n/a**	**n/a**
AQP4	**P55087**	**Aquaporin-4**	**100.0**	**100.0**	**8.1**	**14.0**	**4.7**	**8.0**	**7.8 (7.6, 8.1)**	**n/a**
ARSA	P15289	Arylsulfatase A	97.30	100.0	4.2	5.0	8.1	3.5	9.5 (9.3, 9.6)	< 1%
ATXN2	**Q99700**	**Ataxin 2**	**100.0**	**100.0**	**5.8**	**6.3**	**10.8**	**3.2**	**10.2 (9.9, 10.7)**	**n/a**
ATXN3	**P54252**	**Ataxin 3**	**100.0**	**100.0**	**4.6**	**9.3**	**8.8**	**8.9**	**7.0 (6.8, 7.8)**	**< 1%**
AXL	**P30530**	**AXL receptor tyrosine kinase**	**100.0**	**100.0**	**5.3**	**3.4**	**9.3**	**1.6**	**0.0 (0.0, 0.0)**	**n/a**
BACE1	P56817	Beta-secretase 1	100.0	100.0	6.2	3.5	4.7	5.2	9.3 (9.0, 9.5)	n/a
BASP1	P80723	Brain abundant membrane attached signal protein 1	100.0	100.0	32.5	45.9	69.4	85.6	7.3 (6.7, 8.3)	n/a
BCAN	**Q96GW7**	**Brevican core protein**	**100.0**	**100.0**	**11.8**	**8.9**	**5.7**	**10.3**	**0.0 (0.0, 0.0)**	**n/a**
BD-MAPT	P10636	Microtubule-associated protein tau (Brain-Derived)	81.1	77.8	7.9	4.2	10.7	3.8	12.5 (12.4, 12.6)	< 1%
BD-pTau-181	P10636	Microtubule-associated protein tau (Brain-Derived)	100.0	100.0	8.0	9.4	9.8	4.7	11.2 (10.6, 11.6)	< 1%
BD-pTau-205	**P10636**	**Microtubule-associated protein tau (Brain-Derived)**	**86.5**	**83.7**	**7.1**	**5.5**	**5.4**	**4.3**	**12.6 (12.4, 12.7)**	**n/a**
BD-pTau-212	**P10636**	**Microtubule-associated protein tau (Brain-Derived)**	**100.0**	**100.0**	**6.5**	**4.0**	**5.5**	**2.2**	**11.7 (10.8, 11.8)**	**n/a**
BD-pTau-217	P10636	Microtubule-associated protein tau (Brain-Derived)	83.8	88.9	12.2	8.6	9.6	1.1	8.4 (8.1, 8.6)	< 1%
BD-pTau-231	P10636	Microtubule-associated protein tau (Brain-Derived)	62.2	68.1	5.8	6.4	4.3	5.7	13.2 (13.1, 13.2)	n/a
BDNF	P23560	Brain-derived neurotrophic factor	100.0	100.0	6.2	6.8	n/a	n/a	3.2 (0.0, 4.9)	< 1%
C1q	**P02745, P02746, P02747**	**Complement C1q and subunits A, B, C**	**n/a**	**n/a**	**11.4**	**9.5**	**6.6**	**10.1**	**n/a**	**< 1%**
CALB2	P22676	Calretinin	75.7	78.5	20.2	17.0	8.8	2.1	7.2 (6.8, 7.5)	n/a
CCL11	P51671	Eotaxin	100.0	100.0	13.4	8.1	n/a	n/a	6.6 (6.1, 6.9)	n/a
CCL13	Q99616	C-C motif chemokine 13	100.0	100.0	5.0	3.2	15.0	3.0	0.0 (0.0, 3.0)	< 1%
CCL17	Q92583	C-C motif chemokine 17	100.0	100.0	7.0	1.4	14.8	0.0	0.0 (0.0, 4.5)	n/a
CCL18	**P55774**	**C-C motif chemkine 18**	**100.0**	**100.0**	**4.9**	**2.3**	**n/a**	**n/a**	**0.0 (0.0, 0.0)**	**n/a**
CCL2	P13500	C-C motif chemokine 2	100.0	100.0	6.6	3.7	5.2	3.5	3.2 (0.0, 4.3)	n/a
CCL22	O00626	C-C motif chemokine 22	100.0	100.0	5.6	2.9	13.8	6.5	0.0 (0.0, 1.7)	n/a
CCL26	Q9Y258	C-C motif chemokine 26	100.0	100.0	6.2	2.0	14.1	3.4	6.0 (5.7, 6.3)	n/a
CCL3	P10147	C-C motif chemokine 3	100.0	100.0	4.4	2.5	4.1	2.4	3.4 (3.0, 3.8)	294.3% [a]
CCL4	P13236	C-C motif chemokine ligand 4	100.0	100.0	9.9	3.9	19.3	0.0	0.0 (0.0, 4.5)	1438.1%[b]
CCL5	**P13501**	**C-C motif chemkine 18**	**100.0**	**100.0**	**9.0**	**5.3**	**n/a**	**n/a**	**3.8 (3.2, 4.2)**	**n/a**
CD33	**P20138**	**Myeloid cell surface antigen CD33**	**100.0**	**100.0**	**7.7**	**3.2**	**13.3**	**4.2**	**5.1 (4.2, 5.6)**	**n/a**
CD40LG	P29965	CD40 ligand	100.0	100.0	6.3	3.9	n/a	n/a	0.0 (0.0, 0.0)	n/a
CD63	P08962	CD63 antigen	100.0	100.0	4.4	1.8	6.9	1.5	6.8 (6.7, 6.9)	< 1%
CGRP	**P06881**	**Calcitonin gene-related peptide 1**	**18.9**	**25.2**	**25.4**	**40.6**	**28.5**	**24.8**	**9.2 (8.8, 9.7)**	**n/a**
CHI3L1	P36222	Chitinase-3-like protein 1	100.0	100.0	6.4	2.3	4.6	2.4	6.1 (5.2, 6.7)	< 1%
CHIT1	Q13231	Chitotriosidase-1	95.35	100.0	8.9	3.9	9.5	3.8	0.0 (0.0, 0.0)	< 1%
CNDP1	**Q96KN2**	**Beta-Ala-His dipeptidase**	**90.7**	**89.36**	**5.9**	**6.5**	**7.3**	**7.2**	**0.0 (0.0, 0.0)**	**< 1%**
CNTN2	Q02246	Contactin-2	100.0	98.5	n/a	n/a	5.8	6.9	0.0 (0.0, 0.0)	n/a

NULISAseq™ Neuro 220 Panel

Table 3: Performance Validation Data by Target. Targets added to Neuro 220 Panel, respective to the CNS 120 Panel, are highlighted in bold text.

Target	UniProt ID	Protein Name	Detectability (%)		CV (%)				LOD (NPQ) Median (IQR)	Cross Reactivity
			Plasma n=43	CSF n=47	Plasma		CSF			
					Intra	Inter	Intra	Inter		
CRH	**P06850**	**Corticoliberin**	**97.3**	**99.3**	**13.3**	**7.2**	**7.8**	**10.7**	**8.9 (8.7, 9.4)**	**n/a**
CRP	P02741	C-reactive protein	n/a	n/a	8.7	3.0	3.2	15.8	n/a	< 1%
CSF1R	**P07333**	**Macrophase colony-stimulating factor 1 receptor**	**100.0**	**100.0**	**6.4**	**3.1**	**8.5**	**4.0**	**0.0 (0.0, 0.0)**	**n/a**
CSF2	P04141	Granulocyte-macrophage colony-stimulating factor	97.3	100.0	6.5	4.7	7.7	2.7	9.8 (9.2, 10.1)	n/a
CST3	P01034	Cystatin-C	100.0	100.0	5.2	3.6	4.3	5.3	6.5 (6.2, 6.9)	n/a
CST5	**P28325**	**Cystatin-D**	**100**	**99.3**	**6.9**	**32.7**	**n/a**	**n/a**	**5.9 (4.6, 6.8)**	**n/a**
CTNNB1	**P35222**	**Catenin beta-1**	**73.0**	**84.4**	**6.9**	**8.0**	**8.7**	**3.5**	**12.4 (12.2, 12.6)**	**n/a**
CX3CL1	P78423	Fractalkine	100.0	100.0	5.2	4.3	6.7	4.7	6.0 (5.7, 6.5)	n/a
CXCL1	P09341	Growth-regulated alpha protein	100.0	95.74	6.5	14.9	10.7	15.4	8.4 (8.1, 8.6)	< 1%
CXCL10	P02778	C-X-C motif chemokine 10	100.0	100.0	8.0	2.9	5.8	5.9	0.0 (0.0, 0.0)	n/a
CXCL13	**O43927**	**C-X-C motif chemokine 13**	**100.0**	**100.0**	**6.0**	**2.9**	**14.2**	**4.2**	**0.0 (0.0, 0.0)**	**n/a**
CXCL8	P10145	Interleukin-8, IL8	100.0	100.0	5.0	11.3	3.8	10.7	7.5 (7.2, 7.9)	< 1%
DDC	P20711	Aromatic-L-amino-acid decarboxylase	100.0	100.0	3.6	2.3	8.0	1.6	2.9 (2.6, 3.1)	n/a
DKK1	**O94907**	**Dickkopf-related protein 1**	**100.0**	**100.0**	**6.6**	**8.0**	**16.1**	**10.0**	**7.2 (6.6, 7.7)**	**< 1%**
DLG4	**P78352**	**Disks large homolog4**	**73.0**	**86.7**	**9.5**	**9.2**	**10.9**	**6.3**	**11.3 (10.1, 11.5)**	**n/a**
DNM1L	**O00429**	**Dynamin 1 like**	**81.1**	**91.9**	**9.1**	**7.7**	**12.3**	**7.5**	**7.7 (7.3, 8.0)**	**n/a**
EDA2R	**Q9HAV5**	**Tumor necrosis factor receptor superfamily member 27**	**86.5**	**91.9**	**14.3**	**5.3**	**14.3**	**8.8**	**8.3 (7.9, 8.6)**	**n/a**
EFEMP1	**Q12805**	**EGF-containing fibulin-like extracellular matrix protein 1**	**100.0**	**100.0**	**6.8**	**0.2**	**10.3**	**0.4**	**0.0 (0.0, 0.0)**	**n/a**
EGFR	**P00533**	**Epidermal growth factor receptor**	**100.0**	**100.0**	**6.7**	**4.3**	**16.6**	**6.6**	**0.0 (0.0, 0.0)**	**n/a**
EIF4EBP1	**Q13541**	**Eukaryotic translation initiation factor 4E-binding protein 1**	**100.0**	**100.0**	**6.6**	**5.7**	**16.4**	**10.3**	**8.9 (8.3, 9.3)**	**n/a**
ENO2	P09104	Gamma-enolase	100.0	100.0	4.5	5.2	5.0	4.3	4.0 (3.1, 5.3)	n/a
F2R	**P25116**	**Coagulation factor II thrombin receptor**	**100.0**	**100.0**	**7.5**	**5.9**	**15.3**	**3.9**	**7.6 (1.5, 8.5)**	**n/a**
FABP3	P05413	Fatty acid-binding protein, heart	100.0	100.0	5.9	2.4	5.3	3.3	3.2 (2.4, 3.8)	n/a
FAM3B	**P58499**	**Protein FAM3B**	**83.8**	**85.2**	**10.9**	**5.0**	**10.9**	**6.2**	**7.3 (6.7, 7.7)**	**< 1%**
FCGR2A	**P12318**	**Low affinity immunoglobulin gamma Fc region receptor II-a**	**100.0**	**98.5**	**10.5**	**4.2**	**27.9**	**7.5**	**0.0 (0.0, 0.0)**	**n/a**
FCGR2B	**P31994**	**Low affinity immunoglobulin gamma Fc region receptor II-b**	**21.6**	**19.3**	**17.1**	**15.5**	**8.8**	**21.0**	**9.4 (8.9, 9.7)**	**n/a**
FCN2	Q15485	Ficolin-2	100.0	100.0	8.1	9.1	n/a	n/a	0.0 (0.0, 0.0)	< 1%
FGF2	P09038	Fibroblast growth factor 2	94.6	95.6	8.0	4.3	8.9	5.7	8.8 (8.7, 8.9)	n/a
FGF21	**Q9NSA1**	**Fibroblast growth factor 21**	**100.0**	**100.0**	**4.6**	**3.2**	**15.4**	**0.0**	**4.5 (4.1, 5.1)**	**n/a**
FLT1	P17948	Vascular endothelial growth factor receptor 1	100.0	100.0	6.4	3.4	8.7	6.0	8.3 (8.0, 8.4)	n/a
FOLR1	P15328	Folate receptor alpha	100.0	100.0	8.1	2.4	6.6	2.9	2.1 (0.0, 3.1)	n/a
GAP43	**P17677**	**Neuromodulin**	**100.0**	**100.0**	**7.9**	**4.7**	**11.0**	**12.1**	**10.8 (10.4, 11.5)**	**n/a**
GAS6	**Q14393**	**Growth arrest-specific protein 6**	**100.0**	**100.0**	**9.8**	**6.4**	**12.7**	**7.6**	**0.0 (0.0, 0.0)**	**n/a**
GBA	**P04062**	**Glucosylceramidase beta**	**100.0**	**99.3**	**7.0**	**8.0**	**11.2**	**7.3**	**7.7 (7.4, 8.0)**	**< 1%**
GDF15	Q99988	Growth/differentiation factor 15	100.0	100.0	5.2	4.6	5.5	1.9	8.9 (8.5, 12.4)	n/a
GDI1	P31150	Rab GDP dissociation inhibitor alpha	100.0	97.87	7.0	5.2	8.6	4.9	8.9 (8.4, 9.3)	n/a
GDNF	P39905	Glial cell line-derived neurotrophic factor	78.4	88.1	6.0	1.4	8.5	1.6	9.4 (9.2, 9.5)	< 1%
GFAP	P14136	Glial fibrillary acidic protein	100.0	100.0	7.8	2.5	4.6	3.1	6.7 (5.9, 7.3)	n/a
GLP1R	**P43220**	**Glucagon-like peptide 1 receptor**	**100.0**	**100.0**	**8.8**	**5.0**	**7.7**	**4.5**	**8.5 (8.1, 8.8)**	**n/a**
GOT1	P17174	Aspartate aminotransferase, cytoplasmic	100.0	100.0	6.4	1.0	7.3	2.7	8.0 (7.7, 8.3)	< 1%
GPNMB	**Q14956**	**Transmembrane glycoprotein NMB**	**100.0**	**100.0**	**7.8**	**6.1**	**18.2**	**12.2**	**6.5 (5.9, 7.3)**	**n/a**
GRN	**P28799**	**Progranulin**	**100.0**	**100.0**	**6.3**	**3.0**	**19.1**	**10.5**	**7.3 (6.8, 7.5)**	**n/a**
GSDMD	**P57764**	**Gasdermin D**	**35.1**	**40.0**	**8.5**	**10.0**	**6.3**	**16.0**	**11.6 (11.4, 11.8)**	**n/a**
GSDME	**O60443**	**Gasdermin E**	**100.0**	**98.5**	**13.1**	**15.2**	**13.5**	**7.4**	**9.8 (9.3, 10.4)**	**n/a**

NULISAseq™ Neuro 220 Panel

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			Plasma n=43	CSF n=47	Plasma		CSF			
					Intra	Inter	Intra	Inter		
HBA1	P69905	Hemoglobin subunit alpha	100.0	100.0	5.3	2.9	12.3	4.9	1.6 (1.1, 2.0)	< 1%
HMOX1	**P09601**	**Heme oxygenase 1**	**100.0**	**100.0**	**7.6**	**4.2**	**n/a**	**n/a**	**2.7 (0.0, 5.7)**	**n/a**
HPGDS	**O60760**	**Hematopoietic prostaglandin D synthase**	**100.0**	**100.0**	**8.9**	**7.3**	**14.3**	**1.9**	**9.9 (9.4, 10.3)**	**n/a**
HSPB1	**P04792**	**Heat Shock protein beta-1**	**100.0**	**100.0**	**9.9**	**3.4**	**20.3**	**0.0**	**0.0 (0.0, 0.7)**	**< 1%**
HTT	P42858	Huntingtin	100.0	100.0	5.4	3.3	8.1	5.1	8.8 (8.5, 9.1)	< 1%
ICAM1	P05362	Intercellular adhesion molecule 1	100.0	100.0	8.4	3.9	n/a	n/a	0.0 (0.0, 0.0)	n/a
IFNG	P01579	Interferon gamma	100.0	100.0	6.2	3.3	11.6	30.6	8.9 (8.4, 9.4)	n/a
IGF1R	P08069	Insulin-like growth factor 1 receptor	100.0	100.0	5.1	1.4	4.9	1.0	11.4 (11.4, 11.5)	n/a
IGFBP7	Q16270	Insulin-like growth factor-binding protein 7	100.0	100.0	7.2	3.7	5.9	5.1	8.1 (7.8, 8.7)	n/a
IL10	P22301	Interleukin-10	100.0	100.0	6.9	2.2	11.5	1.5	6.2 (6.0, 6.6)	n/a
IL12p70	P29459_ P29460	Interleukin-12 subunit beta_Interleukin-12 subunit alpha	100.0	99.3	7.3	2.7	15.3	6.2	8.4 (8.0, 8.8)	n/a
IL13	P35225	Interleukin-13	100.0	100.0	6.4	10.4	7.0	8.7	10.0 (9.9, 10.2)	n/a
IL15	P40933	Interleukin-15	100.0	100.0	6.3	4.1	5.4	4.2	8.3(7.9, 8.7)	n/a
IL16	Q14005	Pro-interleukin-16	100.0	100.0	4.5	2.2	8.7	2.0	4.1 (3.7, 5.6)	n/a
IL17A	Q16552	Interleukin-17A	97.3	90.4	7.0	3.8	7.4	5.5	10.7 (10.5, 10.8)	n/a
IL18	Q14116	Interleukin-18	100.0	100.0	3.9	3.3	15.4	4.0	2.9 (1.4, 3.5)	n/a
IL1B	P01584	Interleukin-1 beta	51.4	64.4	10.0	3.0	16.7	0.0	5.3 (4.9, 5.8)	n/a
IL2	P60568	Interleukin-2	100.0	100.0	8.8	9.0	11.2	9.7	6.7 (6.4, 7.1)	n/a
IL33	O95760	Interleukin 33	91.9	89.6	10.0	8.0	15.0	8.2	7.2 (6.9, 7.8)	n/a
IL4	P05112	Interleukin-4	86.5	89.6	13.6	13.9	18.3	7.9	7.0 (6.7, 7.3)	n/a
IL5	P05113	Interleukin-5	100.0	100.0	9.7	13.2	6.7	13.3	6.3 (5.5, 6.7)	n/a
IL6	P05231	Interleukin-6	100.0	100.0	6.5	2.9	5.4	1.9	8.9 (8.5, 9.3)	n/a
IL6R	P08887	Interleukin-6 receptor subunit alpha	100.0	100.0	7.2	7.6	n/a	n/a	0.0 (0.0, 4.8)	n/a
IL7	P13232	Interleukin-7	100.0	100.0	6.0	6.6	11.2	4.6	8.7 (8.2, 8.8)	n/a
IL9	P15248	Interleukin-9	100.0	100.0	7.5	3.8	6.7	1.7	7.9 (0.0, 8.2)	n/a
ITGAV	**P06756**	**Integrin subunit alpha V**	**100.0**	**100.0**	**6.3**	**6.2**	**10.3**	**18.0**	**9.8 (9.5, 10.2)**	**n/a**
KDR	P35968	Vascular endothelial growth factor receptor 2	100.0	100.0	9.1	0.4	15.6	2.2	0.0 (0.0, 0.0)	< 1%
KLK6	Q92876	Kallikrein-6	100.0	100.0	11.2	6.1	4.8	8.9	7.1 (6.3, 7.9)	< 1%
L1CAM	**P32004**	**Neural cell adhesion molecule L1**	**100.0**	**100.0**	**5.5**	**2.5**	**14.1**	**4.1**	**3.8 (2.4, 4.8)**	**n/a**
LDLR	**P01130**	**Low-density lipoprotein receptor**	**100.0**	**100.0**	**8.5**	**4.0**	**20.5**	**2.1**	**5.8 (0.0, 6.5)**	**n/a**
LGALS3	**P17931**	**Galectin-3**	**100.0**	**100.0**	**6.9**	**3.5**	**n/a**	**n/a**	**0.0 (0.0, 0.0)**	**< 1%**
LRRK2	**Q5S007**	**Leucine-rich repeat serine/threonine-protein kinase 2**	**100.0**	**100.0**	**6.0**	**10.4**	**14.2**	**9.5**	**9.1 (8.6, 9.9)**	**< 1%**
MAG	**P20916**	**Myelin associated glycoprotein**	**94.6**	**90.4**	**4.2**	**4.1**	**3.8**	**5.0**	**13.1 (13.0, 13.2)**	**n/a**
MDH1	P40925	Malate dehydrogenase, cytoplasmic	100.0	100.0	4.8	2.6	8.9	6.7	3.1 (1.9, 3.7)	n/a
MDK	**P21741**	**Midkine**	**97.3**	**95.6**	**6.5**	**5.0**	**7.4**	**7.4**	**12.8 (12.5, 12.9)**	**n/a**
mHTT-exon1	**P42858**	**Huntingtin**	**2.7**	**12.6**	**n/a**	**n/a**	**n/a**	**n/a**	**10.5 (10.1, 11.1)**	**< 1%**
MME	P08473	Membrane metalloendopeptidase	97.3	100.0	8.5	5.3	n/a	n/a	2.2 (0.0, 4.0)	n/a
MMP10	**P09238**	**Stromelysin-2**	**100.0**	**100.0**	**6.7**	**5.9**	**14.9**	**7.1**	**11.7 (8.5, 11.8)**	**n/a**
MMP9	**P14780**	**Matrix metalloproteinase-9**	**100.0**	**100.0**	**5.5**	**1.4**	**7.9**	**5.1**	**4.0 (3.3, 4.5)**	**< 1%**
MOG	**Q16653**	**Myelin-oligodendrocyte glycoprotein**	**100.0**	**100.0**	**7.5**	**4.7**	**4.0**	**6.8**	**0.0 (0.0, 5.3)**	**n/a**
MSLN	Q13421	Mesothelin	100.0	100.0	4.6	3.8	11.9	3.0	5.8 (4.5, 6.5)	n/a
NCAM1	**P13591**	**Neural cell adhesion molecule 1**	**100.0**	**100.0**	**5.6**	**0.6**	**6.4**	**0.9**	**0.0 (0.0, 0.0)**	**n/a**
NEFH	**P12036**	**Neurofilament heavy polypeptide**	**100.0**	**99.3**	**6.3**	**3.1**	**5.1**	**3.2**	**10.6 (10.5, 10.7)**	**< 1%**
NEFL	P07196	Neurofilament light polypeptide	100.0	100.0	6.1	3.9	3.7	4.5	10.6 (10.5, 10.8)	n/a
NELL1	**Q92832**	**Protein kinase C-binding protein NELL1**	**100.0**	**100.0**	**10.3**	**8.6**	**16.9**	**8.6**	**8.9 (8.7, 9.2)**	**< 1%**
NFKB1	**P19838**	**Nuclear factor NF-kappa-B p105 subunit**	**100.0**	**100.0**	**6.0**	**6.3**	**18.7**	**0.0**	**8.3 (7.5, 8.7)**	**n/a**

NULISAseq™ Neuro 220 Panel

Table 3: Performance Validation Data by Target. Targets added to Neuro 220 Panel, respective to the CNS 120 Panel, are highlighted in bold text.

Target	UniProt ID	Protein Name	Detectability (%)		CV (%)				LOD (NPQ) Median (IQR)	Cross Reactivity
			Plasma n=43	CSF n=47	Plasma		CSF			
					Intra	Inter	Intra	Inter		
NFKB2	**Q00653**	**Nuclear factor kappa B subunit2**	**100.0**	**100.0**	**8.0**	**9.0**	**14.5**	**13.4**	**8.7 (8.1, 10.0)**	**n/a**
NGF	P01138	Beta-nerve growth factor	100.0	100.0	5.3	1.8	8.7	1.4	10.2 (10.1, 10.4)	n/a
NLRP3	**Q96P20**	**NLR family pyrin domain containing 3**	**51.4**	**61.5**	**5.9**	**4.5**	**5.7**	**5.2**	**10.0 (9.9, 10.2)**	**n/a**
NPTX1	**Q15818**	**Neuronal pentraxin-1**	**100.0**	**100.0**	**6.4**	**1.7**	**3.6**	**3.8**	**11.3 (11.2, 11.5)**	**n/a**
NPTX2	**P47972**	**Neuronal pentraxin-2**	**100.0**	**100.0**	**5.8**	**2.3**	**4.7**	**2.3**	**10.6 (10.3, 10.8)**	**n/a**
NPTXR	**O95502**	**Neuronal pentraxin receptor**	**100.0**	**100.0**	**7.9**	**5.2**	**6.1**	**6.3**	**8.8 (8.5, 9.0)**	**n/a**
NPY	**P01303**	**Neuropeptide Y**	**100.0**	**100.0**	**11.3**	**8.6**	**11.4**	**7.4**	**6.0 (5.8, 6.2)**	**n/a**
NRGN	**Q92686**	**Neurogranin**	**100.0**	**100.0**	**6.2**	**6.9**	**17.3**	**10.0**	**7.7 (7.4, 7.8)**	**n/a**
NT-proBNP	**P16860**	**N-terminal prohormone of bain natriuretic peptide**	**100.0**	**99.3**	**10.5**	**4.8**	**18.7**	**10.0**	**6.2 (5.9, 6.6)**	**< 1%**
NTRK2	**Q16620**	**BDNF/NT-3 growth factors receptor**	**100.0**	**100.0**	**6.7**	**5.2**	**10.2**	**12.2**	**7.9 (7.7, 8.2)**	**n/a**
NTRK3	**Q16288**	**NT-3 growth factor receptor**	**100.0**	**100.0**	**7.1**	**3.4**	**8.4**	**6.4**	**9.5 (9.2, 10.5)**	**n/a**
Oligo-SNCA	P37840	Alpha-synuclein	67.6	76.3	12.8	10.7	27.3	19.0	2.9 (2.0, 3.4)	99.3% [c]
PAFAH1B3	**Q15102**	**Platelet-activating factor acetylhydrolase IB subunit gamma**	**100.0**	**100.0**	**4.2**	**4.0**	**16.1**	**2.6**	**7.8 (7.6, 8.3)**	**n/a**
PARK7	Q99497	Protein/nucleic acid deglycase DJ-1	94.6	98.5	8.5	21.5	14.4	7.7	9.3 (8.9, 9.8)	< 1%
PARP1	**P09874**	**Poly [ADP-ribose} polymerase 1**	**37.8**	**45.9**	**5.2**	**5.9**	**5.0**	**4.1**	**9.1 (8.9, 11.0)**	**n/a**
PDGFC	**Q9NRA1**	**Platelet-derived growth factor C**	**100.0**	**100.0**	**5.2**	**4.6**	**12.0**	**3.4**	**6.5 (6.0, 6.9)**	**n/a**
PDGFRB	P09619	Platelet-derived growth factor receptor beta	100.0	100.0	6.3	3.0	14.7	3.2	0.0 (0.0, 1.8)	n/a
PDLIM5	Q96HC4	PDZ and LIM domain 5	81.1	68.1	8.2	5.3	6.2	0.5	8.4 (8.3, 8.6)	n/a
PGF	P49763	Placenta growth factor	100.0	100.0	5.2	2.4	5.3	2.0	9.7 (9.6, 9.9)	n/a
PGK1	P00558	Phosphoglycerate kinase 1	100.0	100.0	4.6	4.3	11.4	12.7	10.2 (9.7, 10.4)	22.7% [d]
PLAUR	**Q03405**	**Urokinase plaminogen activator surface receptor**	**100.0**	**100.0**	**5.1**	**2.8**	**7.3**	**3.0**	**5.8 (5.3, 6.2)**	**n/a**
pLRRK2-S1292	**Q5S007**	**Leucine-rich repeat serine/threonine-protein kinase 2**	**56.8**	**68.1**	**22.9**	**29.2**	**26.7**	**21.7**	**10.8 (10.5, 11.7)**	**n/a**
POSTN	Q15063	Periostin	100.0	100.0	8.4	4.0	n/a	n/a	0.0 (0.0, 0.0)	n/a
PPBP	**P02775**	**Platelet basic protein**	**n/a**	**n/a**	**6.4**	**1.0**	**5.6**	**5.2**	**n/a**	**n/a**
pPRKN-S65	**O60260**	**E3 ubiquitin-protein ligase parkin (Parkin)**	**27.0**	**28.9**	**21.3**	**130.2**	**12.3**	**22.0**	**9.3 (8.7, 9.6)**	**10.1% [e]**
PPY	**P01298**	**Pancreatic prohormone**	**100.0**	**100.0**	**7.9**	**4.0**	**n/a**	**n/a**	**6.7 (5.5, 7.2)**	**n/a**
pQ-ATXN3	**P54252**	**Ataxin-3**	**78.4**	**79.3**	**9.3**	**23.0**	**30.4**	**31.9**	**8.6 (8.2, 9.0)**	**5.1% [f]**
pQ-HTT	**P42858**	**Huntingtin**	**5.4**	**20.7**	**17.9**	**54.3**	**19.9**	**57.0**	**10.5 (10.0, 11.2)**	**1.8% [g]**
pRAB10-T73	**P61026**	**Ras-related protein Rab-10**	**24.3**	**41.5**	**21.4**	**27.5**	**23.6**	**22.8**	**10.0 (9.7, 10.5)**	**< 1%**
pRAB12-S106	**Q61Q22**	**Ras-related protein Rab-12**	**21.6**	**37.0**	**52.2**	**17.4**	**18.4**	**21.2**	**11.6 (9.3, 11.8)**	**< 1%**
pRAB29-T71	**O14966**	**Ras-related protein Rab-7L1**	**37.8**	**39.3**	**18.9**	**116.6**	**23.9**	**26.8**	**6.1 (5.6, 6.40**	**< 1%**
PRDX5	**P30044**	**Peroxiredoxin-5, mitochondrial**	**81.1**	**85.9**	**8.9**	**9.8**	**21.3**	**18.7**	**10.0 (9.7, 11.5)**	**n/a**
PRDX6	P30041	Peroxiredoxin-6	100.0	100.0	4.8	6.8	10.1	4.2	5.9 (5.6, 6.0)	n/a
PRKN	**O60260**	**E3 ubiquitin-protein ligase parkin**	**100.0**	**100.0**	**4.9**	**3.8**	**5.6**	**4.7**	**10.3 (5.0, 10.4)**	**< 1%**
PROS1	**P07225**	**Vitamin K-dependent protein S**	**n/a**	**n/a**	**6.0**	**1.5**	**4.7**	**1.8**	**n/a**	**n/a**
PSEN1	P49768	Presenilin 1	100.0	100.0	9.5	10.8	15.9	11.5	8.4 (7.7, 8.7)	n/a
PSME1	**Q06323**	**Proteassome activator complex subunit1**	**97.3**	**100.0**	**7.2**	**3.0**	**14.2**	**5.0**	**9.4 (8.0, 10.0)**	**n/a**
pSNCA-S129	P37840	Alpha-synuclein	100.0	100.0	6.1	3.5	11.1	10.8	9.5 (9.4, 9.7)	< 1%
pTARDBP-S409	Q13148	TAR DNA-binding protein 43	100.0	100.0	3.4	2.8	4.1	2.6	8.6 (8.4, 8.8 0	< 1%
pTau-181	P10636	Microtubule-associated protein tau	100.0	100.0	6.2	4.9	7.4	2.4	10.2 (9.8, 10.5)	< 1%
pTau-205	**P10636**	**Microtubule-associated protein tau**	**100.0**	**100.0**	**6.5**	**7.9**	**5.8**	**5.7**	**9.4 (9.0, 10.5)**	**< 1%**
pTau-212	**P10636**	**Microtubule-associated protein tau**	**100.0**	**100.0**	**8.6**	**5.7**	**5.6**	**3.6**	**8.5 (8.0, 9.1)**	**< 1%**
pTau-217	P10636	Microtubule-associated protein tau	100.0	97.0	13.6	8.1	8.2	0.2	7.7 (6.9, 8.2)	< 1%
pTau-231	**P10636**	**Microtubule-associated protein tau**	**100.0**	**100.0**	**5.2**	**4.9**	**3.3**	**5.9**	**9.7 (9.5, 10.6)**	**< 1%**
pTDP43-409	**Q13148**	**TAR DNA-binding protein 43**	**73.0**	**80.7**	**7.7**	**13.5**	**10.9**	**8.7**	**13.0 (12.7, 13.2)**	**< 1%**

NULISAseq™ Neuro 220 Panel

Table 3: Performance Validation Data by Target. Targets added to Neuro 220 Panel, respective to the CNS 120 Panel, are highlighted in bold text.

Target	UniProt ID	Protein Name	Detectability (%)		CV (%)				LOD (NPQ) Median (IQR)	Cross Reactivity
			Plasma n=43	CSF n=47	Plasma		CSF			
					Intra	Inter	Intra	Inter		
PTN	P21246	Pleiotrophin	5.4	9.6	12.1	8.1	20.5	11.5	5.1 (4.8, 5.4)	n/a
PTPRS	**Q13332**	**Receptor-type tyrosine-protein phosphate S**	**100.0**	**100.0**	**4.6**	**2.9**	**9.3**	**2.7**	**4.1 (3.7, 4.6)**	**n/a**
RAB10	**P161026**	**RAB10, member RAS oncogene family**	**100**	**100.0**	**6.1**	**4.2**	**8.4**	**6.9**	**9.4 (9.2, 9.6)**	**< 1%**
RAB12	**Q6IQ22**	**RAB12, member RAS oncogene family**	**62..2**	**83.7**	**14.4**	**17.9**	**28.9**	**16.9**	**10.0 (9.4, 10.5)**	**< 1%**
RAB29	**O14966**	**RAB29, member RAS oncogene family**	**100.0**	**100.0**	**5.4**	**2.4**	**10.3**	**2.4**	**6.7 (6.3, 7.1)**	**< 1%**
REST	**Q13127**	**RE1 silencing transcription factor**	**100.0**	**100.0**	**6.0**	**3.6**	**13.4**	**6.1**	**10.1 (9.8, 10.2)**	**n/a**
RUVBL2	**Q9Y230**	**RuvB like AAA ATPase 2**	**78.4**	**86.7**	**3.8**	**3.2**	**4.2**	**1.4**	**10.2 (10.1, 11.1)**	**n/a**
S100A12	P80511	Protein S100-A12	100.0	100.0	6.6	9.2	10.4	12.4	5.1 (4.5, 5.5)	< 1%
S100B	**P04271**	**S100 calcium binding protein B**	**100.0**	**100.0**	**6.3**	**4.8**	**5.7**	**2.6**	**7.5 (7.2, 7.6)**	**n/a**
SAA1	P0DJI8	Serum amyloid A-1 protein	100.0	100.0	3.4	1.0	18.2	9.0	0.0 (0.0, 0.0)	< 1%
SERPINA3	**P01011**	**Alpha-1-antichymotrypsin**	**n/a**	**n/a**	**6.8**	**3.4**	**2.7**	**3.8**	**n/a**	**< 1%**
SFRP1	Q8N474	Secreted frizzled-related protein 1	100.0	96.3	7.1	10.4	7.4	8.3	12.6 (12.5, 12.8)	n/a
SFTPD	P35247	Pulmonary surfactant-associated protein D	100.0	100.0	7.0	3.5	11.7	2.5	6.4 (6.2, 6.7)	n/a
SLIT2	O94813	Slit homolog 2 protein	100.0	100.0	6.7	3.8	12.0	6.1	9.9 (9.6, 10.0)	< 1%
SMOC1	Q9H4F8	SPARC-related modular calcium-binding protein 1	100.0	100.0	9.5	4.2	20.9	11.1	7.9 (7.5, 8.2)	n/a
SNAP25	P60880	Synaptosomal-associated protein 25	10.8	5.2	3.5	0.7	3.8	1.5	13.2 (13.1, 13.2)	n/a
SNCA	P37840	Alpha-synuclein	100.0	100.0	4.7	3.8	12.6	6.2	4.4 (3.6, 5.0)	< 1%
SNCB	Q16143	Synuclein beta	5.4	16.3	16.2	33.7	11.1	3.6	10.0 (9.8, 10.1)	n/a
SOD1	P00441	Superoxide dismutase [Cu-Zn]	100.0	100.0	6.4	3.0	4.2	3.2	5.9 (5.3, 6.2)	< 1%
SPP1	**P10451**	**Osteopontin**	**100.0**	**100.0**	**8.2**	**6.3**	**5.8**	**6.7**	**5.5 (4.8, 6.0)**	**< 1%**
SQSTM1	Q13501	Sequestosome-1	100.0	100.0	7.6	3.2	9.3	3.1	5.5 (5.1, 6.1)	n/a
STMN2	**Q93045**	**Stathmin-2**	**100.0**	**100.0**	**6.4**	**5.4**	**3.9**	**4.5**	**9.2 (9.0, 9.4)**	**< 1%**
STX4	**Q12846**	**Syntaxin-4**	**100.0**	**100.0**	**5.5**	**3.5**	**16.8**	**0.2**	**4.7 (3.4, 5.1)**	**n/a**
TARDBP	Q13148	TAR DNA-binding protein 43	100.0	100.0	3.4	2.8	4.1	2.6	8.6 (8.4, 8.8)	n/a
TEK	Q02763	Angiopoietin-1 receptor	100.0	100.0	5.0	2.3	15.3	5.7	2.0 (0.0, 3.2)	n/a
TIMP3	P35625	Metalloproteinase inhibitor 3	100.0	100.0	5.7	6.1	16.3	5.4	0.0 (0.0, 5.0)	n/a
TNF	P01375	Tumor necrosis factor	100.0	100.0	6.0	3.6	15.7	3.6	8.8 (8.2, 9.1)	n/a
TNFSF14	**O43557**	**Tumor necrosis factor ligand superfamily member 14**	**100.0**	**100.0**	**4.3**	**3.3**	**22.0**	**0.0**	**4.1 (3.5, 4.9)**	**n/a**
TREM1	Q9NP99	Triggering receptor expressed on myeloid cells 1	100.0	100.0	5.5	3.7	14.7	5.2	6.5 (5.9, 7.3)	n/a
TREM2	Q9NZC2	Triggering receptor expressed on myeloid cells 2	100.0	100.0	6.0	1.9	6.8	3.0	0.0 (0.0, 0.0)	n/a
tTau (MAPT)	P10636	Microtubule-associated protein tau	100.0	100.0	7.9	4.7	8.4	1.5	8.9 (8.4, 9.7)	< 1%
UBB	P0CG47	Polyubiquitin-B	45.9	54.8	5.5	3.3	4.1	2.9	11.4 (11.3, 11.4)	n/a
UCHL1	P09936	Ubiquitin carboxyl-terminal hydrolase isozyme L1	23.3	31.9	1.1	0.0	6.2	2.9	12.4 (12.3, 12.6)	n/a
VCAM1	P19320	Vascular cell adhesion protein 1	100.0	100.0	5.4	4.1	16.7	5.0	0.0 (0.0, 0.0)	n/a
VEGFA	P15692	Vascular endothelial growth factor A	100.0	100.0	4.8	3.1	4.3	2.5	8.1 (7.9, 8.3)	< 1%
VEGFD	O43915	Vascular endothelial growth factor D	100.0	100.0	8.7	2.8	9.8	3.8	10.4 (10.3, 10.6)	n/a
VGF	O15240	VGF nerve growth factor inducible	100.0	100.0	6.8	5.8	5.2	4.4	8.3 (7.9, 9.0)	n/a
VSNL1	P62760	Visinin-like protein 1	100.0	100.0	8.0	5.6	4.8	5.1	9.4 (9.0, 9.6)	9.9% [h]
YWHAG	P61981	Tyrosine 3-monooxygenase/tryptophan 5-monooxy-genase activation protein gamma	100.0	100.0	7.2	3.8	5.8	2.3	11.7 (11.4, 11.9)	< 1%
YWHAZ	P63104	14-3-3 protein zeta/delta	2.7	2.2	8.2	6.1	10.9	0.0	8.9 (8.7, 9.0)	n/a

a. Cross-reactivity with CCL3L1, which has 95% homology with CCL3. CCL3L1 is not in the Neuro 220 panel.
b. Cross-reactivity with CCL4L1, which has 97% homology with CCL4. CCL4L1 is not in the Neuro 220 panel.
c. Cross-reactivity with pSNCA, < 1% with unphosphorylated SNCA Ag. Potential aggregation of the pSNCA antigen during testing has not been assessed.
d. Cross-reactivity with PGK2, which has 88% homology with PGK1. PGK2 is not in the Neuro 220 panel.
e. Cross-reactivity with PRKN, but affinity against p-PRKN-S65 much higher.
f. Cross-reactivity with ATXN3. Due to uniqueness of this target (polyQ-length mutation), 1% criteria may not apply in this situation.
g. Cross-reactivity with HTT. Due to uniqueness of this target (polyQ-length mutation), 1% criteria may not apply in this situation.
h. Cross-reactivity with HPCAL4, which has 89% homology with VSNL1. HPCAL4 is not in the Neuro 220 panel.