

SUPPLEMENTARY MATERIAL for Cerebrospinal fluid immunoglobulins in primary progressive multiple sclerosis are pathogenic (Wong et al., 2023, *Brain*)

Sequencing Data for CSF samples listed in Supplementary Table 3

Patient CSF sample	Antibody	Light Chain Variable Region Sequence	Heavy Chain Variable Region Sequence
PPMS 1	E4877 (C3)	CAGTCTGCCCTGACTCAGCCGCCCTCAGTGTCTGGGGCCCGAGGGGACAGGGGTACCATTCTCTGCACTGGGAGCATCTCCAA CATCTGGGGCGGGTGTGATGTACACTGTACACGACCTTCCAGGAAACAGCCCCAACTCCTCATATGTACAAACCTCTCG ACCTCTCAGGACCTCTGAGCGTCTCTGGTCCAAGTCTGGACAGTCTCAGCTCTTCCGTCATCTGGGCTCCAGGCTGAGG ATGAGGCTGATTATTACTGCGACCTCAATGACACGCGCTGCTGGTTCCTCTCTCGCGGAGGACCAAGTGTACCGTCTCG G	CAGGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGACA BGGTCAAAATGTCTGGATACGCTGGACCTGTGATCGTCACTTCCAGGAGAGGGCTGGAGTGGATTGGGGAATCATCATTA TAGGGGAGCGCCCAACAATAATCCGTCCTCAAGGGTCACTTACGATGTCTCTGATAGCTTCAAGATCAGGATCACTCACT AGTCTGGCTCTGTGACTGCCGCGGACAGGGCTCTTATTTTGTGCGAAGACGGGGCGGCTCCACAGGTATTGGAGTGGTC CGCCAATGGTTCACCCCTGGGCGCAGGGAATCTTGTCACCTCTCTCAG
	E4877 (C10)	GATGTTGTGATGACTCAGTCTCACTCTCCTGCCCTCACCCTGGAGAGCGGCTCCATCTCTCGAGGTCTAGTCAGAGC CTCTGTCATAGTAATGGAAACCACTATTGAAATGGTACTTCGAGAAGCCGAGGAGTCTCCACAGCTCTCTGATCTATTGGG TTCTAATCGGGCTCTCGGGGCTCCGTGACAGGTTGAGTGGACGGTATCAGGACAGAGTTTACACTGAAATCAGCAGAGTGT GAGGCTGAGGATGTGGGGTTTATTACTGCATGCAAGCTCTTCAAACTCTCGGACTCTTGCCGAGGGACCAACTGGATGAGA TCAAAC	CAGGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CCATCAGCAGTATGACTGGTGGACTTGGGTCCGCGAGCCCCAGGAAAGGGCTGGAGTGGATTGGGGAATCATCATTA GTGGGAGCACCACATCAATAGTCTTCTCAAGAGTCTGAGTCACTATCAGTAGACAGGACGAGGACAGTCTCTCCCTGAAT CTGAAGTCTGTGACCGCCCGGACACGGCTGATTTACTGTGCGAGGCTGTGGAGAGCGGTCACAATTAATTTTACTGACTA CTGGGGCAGGGAACCTTGGTCAAGCTCTCTCAG
PPMS 2	C2790 (C34)	GAAATAGTGTAGCAGGACTCTCAGCACCCCTGTCTGTCTCGAGGGAAAGAGCCACCTCTCTCGAGGGCCAGTCCGA GTGTTAGCAGCAACTAGCTGGTACGACGAGAACTGGCCGGGCTCCAGGCTCTCTATTATGTGATCCTAGTGAAGGCC ACTGGATCTCCAGCAGGTGTGAGCGGACGTGGGTCTGGGACAGAGTCTCACTCACCATCAGCAGCTCTGAGTCTGAAGATT TGCAGTTTATTACTGTGACGAGTATAAATCTGGCTCCGCTCAATTTTGGCGGAGGGACAGAGTGGAGATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTTGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGTACT CATCAGCCGTAACTACTAGTGGGCTGGATCCGACGCCCCCGGAGAGGCTACAGTGGATTGGCAGTATCTCTGATAG GGGACCACTACTACAACCCGTCCCTCAAGGCTCGAGTCACATATCATTCGACAGTCCGAAGAACGATCTCTCCAGGCTG ACCTCTGTGACCGCCGACAGACAGCGGCTCTATTACTGTGCGAGAGATTCCCTCAAGGTGCTCTCACTCTCAACCCCTT GACTACTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
	A4128 (C60)	GACATCCAGTGTGACCAAGTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTAGCAGCTATTAAATTTGGTATCAGCAGAAAGCAGGGAAGCCCTAACTCTGATCTCTGCTGCATCAAGTGTGAAG TGGGGTCCGCTCAAGGTGTGAGTGGACAGTCTGGGACAGATTTCACTCTCACCATCAAGTGTCTGAGCTCTGAAGATTG GCAGTACTACTGTCCAAAGAGTTACAGTTCCTCTCGGACGTTTGCCCAAGGGACCAAGGTGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGACTTTTGGGACTGGATCCGACGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGACCACTACTATAACCCGTCCCTCAAGAGTCTGAGTCACTATCAATGAGAGCTCTCCAGAACGATTTCTCCCTGA TGTTGAGCTGTATGACCGCCCGGACACGGCTGTATTCTGTGCGAGAGATTTCCTTGTGCGGGAAGATAAGCAGTCTGCTC ATTGAGTCTCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
PPMS 3	B5259 (C17)	GATATGTGTGATGACAGACTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTGGGCACTATTAATTTGGTATCAACAGAAAGTAGGGAAGCCCTAACTCTGATCTACGATGATCAATTTGGAGA CAGGGGTCCCATCAAGGTTCAAGTGGATGTGATCTGGGACAGATTTCACTCTCATCAAGACGCTCGAGGCTGAAGATTG GCAACTATTACTGTGTCAGAGTATAGATGATATCCCGTCAATTTTGGCAGGGGACCAAGTGGAGATCAAC	GAGGTGCAGTGGTGGAACTCAGGAGAGGCTGTGATCACTCTGGGGGTCTCGAGACTCTCTGTGACGCTCTGAATTTCT CGCTCACTGACTATTACAGTCTGGATCGCGACGCCCCAGGGAAGGGCTGGAGTGGGTCTCAATCAATTATGTGTGCGTGG CACCACCTTCTACGAGCGCCCCGTGAAGGGCGGATTTACAATCTCAGAGACAGTCTCGAAGAACGATATCTCTCAATGA GAGTCTGAGAGCCGACACAGCGGCTCTATTACTGTGCGAGAGCTCATCAAGACGTTGCTGTGAGGGTATTAGATTTTG GGGCCAGGGAACAATGGTCAAGCTCTCTCAG
	B5259 (C33)	GACATCTGTGATGACAGACTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG TATTAGCAGCGTTAGCTGGTATCAACAGAAACAGGGAAGCCCTAACTCTGATCTCTGCTGCATCAAGTGTGAAG GTGGGGTCCCATCAAGGTTCAAGGTCAGCGAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAACTCGAGCTGAAGATT GCAACTTACTATTGTCAACAGGTCAGACTTCCGTACACTTTTGGCAGGGGACCAAGTGGAGATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGACTTTTGGGACTGGATCCGACGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
PPMS 4	A1577	CAGTCTGCCCTGACTCAGCTGCCCTGCTGTCTGGGTCTCTGGACAGTGCATCCGCTCTCTGCACTGGAAACGACATCACT TTTGGGAGTGATTAATCTGTCTGTTACCAACAACACCCAGGCAAGCCCCAACTCATGATTATGAGGACAGTAAAGCG GCCCTCGGGGTTCTTAATCGTCTCTGGTCCAAGTCTGGGACAGGCTCTCTGCACTCTCTGGGCTCAGGCTGAGG ACAGGGTGATTATTACTGCTCTCTTTAGAAGTGATGTAGAGGGGTGCTTTTGGCGGAGGAGCAAGTGAACGCTCT AG	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGACTTTTGGGACTGGATCCGACGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
	D6431 (C11)	GGCATCCGAGTACCAAGTCTCTCTGATCTGTGTCATCTGTGGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG TGTTAAGAGTGTTGGGCTGGTATCAGCAGAAACAGGGAAGCCCTAAAGTCTGATCTGATGATGCTCTCATTTTGGAA AGTGGGTCACATCAAGGTTCAAGCGAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAACTCGAGCTGATGATT TGCAACTTATTACTGCCAACAATGATTTCTTCCGTCATTTTGGCAGGGGACCAAGTGGAGATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
PPMS 5	D6431 (C14)	GATGTTGTGATGACAGACTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG TGTAAGTAGTACACTCGCTGGTACGACGAGAACTGGCCAGGCTCCGAGGCTCTCATCTATGTTGATCTAGGAGGG CCACTGGGCTCCACTGAGGTTCAAGTGGTCTGGGACAGATTTCACTCTCACCATCAACAACTGAGGCTCAAGTGAAGA TTTGTGAGTGTATTACTGTGACGAGTCTGGTGTACTCAGCATCCTCTGCGCAGGGGACAGAGTGGAGATTAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
	D6436 (C2)	GACATCTGTGATGACAGACTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTAGCAACTTATTAGCTTGGTATCAGCAGAAACAGGGAAGCCCTAAAGTCTGATCTGCTGATCAGTCTTTGGAAG AGGGGTCCCATCAAGGTTCAAGCGAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAACTCGAGCTGAAGATTG CAACTTATTACTGTCCAAAGATATAACTCTCTCTGGGACGTTTGCCGAGGGGACCAAGTGGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
PPMS 6	D6436 (C8)	GATGTTGTGATGACAGACTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CTCTGGAAGAGTGTGGAACCACTCACTGAATTTGGTTCAGCAGAGGCGAGGCACTCTCAAGGCGCTCATTTATGAGGT TTTCAACGGGCACTGGGGTCCAGAGAGATTCAGCGGAGTGGTCAAGCATGATTTCACATGAAGATCAGGAGTGTGAGG GAGGCTGAGGATGTGGGGTTTATTACTGCATGCAAGGTACATTTGGGCTCCGAGTCTGGCAGGAGGACCAAGGTGGAA ATCAAC	GAGGTGCAGTGGTGGAACTCAGGAGAGGCTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
	D6436 (C9)	GACATCCGTTGACCAAGTCTCCATCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTAGCAACTTATTAGCTTGGTATCAGCAGAAACAGGGAAGCCCTAAAGTCTGATCTGCTGATCAGTCTTTGGAAG GTGGGGTCCCATCAAGGTTCAAGCGAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAACTCGAGCTGAAGATTG CAACTTATTACTGTCCAAAGATATAACTCTCTCTGGGACGTTTGCCGAGGGGACCAAGTGGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
PPMS 7	C6665 (C5)	GATGTTGTGATGACCAAGTCTCTCTCTGTGCTGCCCTGGACAGCGGGCTCCATCTCTCGAAGTCTAGTCAGAGC CTCTGTCAGTGGTGTGGAAGAGCATTTGATTTGGTACTGTGAGAAGCCGAGGCAAGTCTCCACACTCTCAATATGAAGTT TCCAGCGGGTCTTCTGGAGTGGCAGATAGTTCAAGTGGACGGGTCAGGACAGATTTCACTCTCACCATGGAATCAGGCGGGT GAGGCTGAGGATGTGGGGTTTATTACTGCATGCAAGGTATTACTCTCCGAGGAGCTTGGCAGGAGGACCAAGGTGGAA ATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
RRMS 1	A5528 (C3)	GACATCCGGTTGACCAAGTCTCTCTCGTCTGTGATCTGTAGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTAGCAACTTATTAGCTTGGTATCAGCAGAAACAGGGAAGCCCTAAAGTCTGATCTGCTGATCAGTCTTTGGAAG TGGGGTCCCATCAAGGTTCAAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAACTCGAGCTGAAGATTG CAACTTATTACTGTCCAAAGATATAACTCTCTCTGGGACGTTTGCCGAGGGGACCAAGTGGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
RRMS 2	E6347 (C3)	GACATCGTGTGATGACCAAGTCTCCATCTCGTCTGTGATCTGTGGGAGACAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTAGCAATTTTGTGCTGGTATCAGCAGAAACAGGGAAGTTCTCAAGGTCTGATCTATGTTGATCTCAACTTTGGAAT CAGGGGTCCCTTACGGTTCAGTGGCAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAACTCGAGCTGAAGATTG GCAACTTATTACTGTCCAAAGATATAACTGCGCTCGGAGCTTGCCGAGGGGACCAAGTGGAAATCAAC	GAGGTGCAGTGGTGGAACTCAGGAGAGGCTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
RRMS 3	B6374 (C4)	GATATGTGTGATGACTCAGCACCCCTGGTGTGAGTCTCCGACAGACAGCGGCAAGTCACTGCTGTGGAGTGTATTGCC AAAGCTATATGCTCAATTTGGTATCAGCAGAAACAGGCAAGCCCTGCTGTGATGATATATAAGACATTTAGAGGCGCTCA GGGATCTCTGAGGACTCTCTGGCTCAGCTCAGGACCAACACTCAGCTTGACCATCAGTGGAGTCCAGGCAAGACAGGCT CTGACTATTACTGTCAATCAGCAGACAGAGTGGTACTGGGTGTTTGGCGAGGGGACCAAGTGAAGTCTTGAAT GCAACTTATTACTGTCCAAAGATATAACTGCGCTCGGAGCTTGCCGAGGGGACCAAGTGGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
RRMS 4	A5788 (C4)	GAAATTTGTGTTGACGAGTCTCCAGCACCCCTGCTTTGTCTCGAGGGAAAGAGCCACCTCTCTCGAGGGCCAGTCAGAG TGTTAGCAGCTCTTTAGCTTGTGTACAGCAGAAAGCAGGCGAGGCTCTCATCTATGATACCTTCAAGAGGGGCA CTGGGATCTCCAGCAGGTTCASTGGGCAAGTGGTCTGGGACAGATTTCACTCTCACCATCAGCAGGCTCAGGCTGAAGATT TGCAATTTTATTCTGTGACGAGCTTCAACTGGCAATTTCTTGGCGGAGGGGACAGGTTGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
SPMS 1	E6042 (C42)	GACATCGTGTGATGACCAAGTCTCCATCTCGTCTGTGATCTGTGGGAGAGAGTACCATTCTGCCGGGCAAGTCAGAG CATTTAGCAATTTTAGGCTGGTATCAACACAACAGGCAAGCCCTCAAGGCGCTGATCTATGCTGGCTCAACTTACAAA GTGGGTCCTCTCAAGATTAGCGGCGAGTGGATCTGGCAGAGATTTCACTCTCACCATCAGCAGGCTCGAGCTGAAGATTG GCAACTTATTACTGTCTACAAGATGGCGATTACCCTCTGACTATTGCTCAAGGACCAAGGTGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
SPMS 2	C6270 (C14)	GAAATTTGTGTTGACACAGTCTCCAGCACCTCTGTCTGTCTCGAGGGAAAGAGCCACCTCTCTCGAGGGCCAGTCAGAG TGTTAGCAGCTCTTTAGCTTGTGTACAGCAGAAAGCAGGCGAGGCTCTCATCTATGATACCTTCAAGAGGGGCA CTGGTATCTCCGAGGTTCASTGGGCAAGTGGTCTGGGACAGATTTCACTCTCACCATCAGCAGGCTCAGGCTGGAAGATT GCAAGTATTACTGTGACGAGTATAAATCTGGCTGAGCTTCTTGGCGAGGGGACAGGTTGAAATCAAC	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
SPMS 3	E6097 (C1)	CAGTCTGCCCTGACTCAGCTCCTCTCAGGCTCTGGGACCCGCGCAGAGGGTACCATTCTCTTGTGGAAGCAGCTCCAA CATCTGGAAGTAAATGATAGCTGGTACAGCAGGTCCTCAAGGCGGCCCCAACTCCTCATCTATAAGAGTAAATAGCGG CCCTCAGGCTCCCTGATGAGTCTCTGGCTCAAGTCTGGACCTCAGGCTCTCTGGCAGTCTGAGTGGCTCAATGTGAAGT GAGGCTGAGTATTACTGTGCTGTGGGATGACAGCTGACTGTAATTCATCTGGCGGTGGCAACAGGTGAGGACCTCTCG	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG
SPMS 4	E5572 (C4)	CAGTCTGCCCTGACTCAGCTCCTCTGAGTGTCTGGGGCCCGGACAGGGGTACCATTCTCTGCACTGGAGGCAAGCTCCAA CATCTGGGACAGAGTATTGTACACTGGTACAGCATCTTCCAGGACAGGCCCCAACTCCTCATCTATGGGACCAACAACT GCCCTCCGGGTCCTGACGCTCTCTGCTGCCAAGTCTGGACCTCAGCTCTGGCATCAGTGGGCTGAGGCTGAGAGA TGAGGCTGATTATTACTGCCAGTCTATGACAGTAGGCTGAGTGGCTGGTCTGCGGAGGAGGACCAAGTGAACGCTCTCA A	CAGTGCAGCTGCAGGAGTGGGCGCCAGGACTGGTGAAGCTTTCAGAGAGCTGGTCCCTCACTGCAATGTCTCTGGTGGCT CATCAGCAGGTTAATGAGTGGTGTGAGCTGGATCCGTCAGCCCCAGGAAAGGGCTGGAGTGGATTGGGAGATCTATTTA TAGTGGGAACTACTATTACAACCCGTCCCTCAAGAGTCTGAGTCACTATCCCTAGACAGCTCTCAAGAACCAATTTCTCCTGA TCTGTGCTCTGTGACCGCCGACATACGCTGTATATTACTGTGCGAGACATCTTGGATTGATGTGCTGTGACTGATCA ACAATCGTCTGCACCTGGGCGCAGGGAACCTGGTCAAGCTCTCTCAG

DC 1	HTLV-1 A2698 (C2)	CAGTCTGTGCTGACTCAGCCACCTCAGCGTCTGCGACCCCGGGCAGAGGGTCACCATCTCTTGTCTGGAAGCACCTCCAA CATCGGAAGTAATACTGTTAACTGGTACCAGCAGCTCCCCGGAACGGCCCCAAACTCCTCATCTATACTAATAATCAGCGGCC CTCAGGGGGTCCCTGACCGATTCTCTGGCTCCAAGTCTGGCACCTCAGCCTCCCTGGCCATCAGTGGGCTCAGTCTGAGGATG AGGCTGGTTATTACTGTGCAGCATGGGATGACAGCCTGAGTGGTTGGGTGTTGCGCGGAGGGACCAAGCTGACCGCCCTAG	CAGGTGCAGCTGGTGGAGTCTGGGGCTGAGGTGAAGAAGCCTGGGTCTCAGTGAAGGTCTCCTGCAAGGCTTTTGGAGGC ACCTTCAGCACCTATGCTATCATCTGGGTACGACAGGCCCTGGACAAGGGCTTGAGTGGATGGGAGGGATTCTCCCTATCCT TGGTAAAACGAACTACGCACAGAACTCCAGGGCAGAGTCACGATGACCGGGACAAATCCACGAGCACAGCCTACATGGAG TTGAGTAGCCTGAGATCTGAGGATACGGCCGTGTATTACTGTGCGAGAGAGGGTGGGAGAGTGGCAGCTGCTAAGAATTGG TTGAGCCCTGGGGCCAGGGAACCTGGTCAACCGTCTCCTCAG
DC 2	ALS C5380 (C3)	GCCATCCGGATGACCCAGTCTCCATCTCCTGTCTGCACTGTAGGAGACAGAGTCACCATCACTTGCCTGGGCGAGTCAGGG CATTAGCACTATTTTAGCCTGGTATCAGCAGAAACAGGGAAGTTCTAAGCTCCTGATCTATGCTGCATCCTCTTTGCAATC AGGGGTCCCATCTCGTTCAGTGGCAGTGGATCTGGGACAGATTCACTCTCACCATCAGCAGCCTGCAGCCTGAAGATGTTG CAACTTATTACTGTCAAAAGTATAACAGTGCCCTTGGACGTTGCGCCAAGGGACCAAGGTGGAATCAAAAC	CAGTCCAGCTGGTACAGTCTGGAGGAGGCTTGATCCAGCCTGGGGGGTCCCTGAGACTCTCCTGTGCAGCCTCTGGGTCA CCGTGAGTAGCACTACATGAGCTGGGTCCGCCAGGCTCCAGGGAAGGGGCTGGAGTGGGTCTCAGTTATTTATAGCGGTG GTAGCACATACACGCAGACTCCGTGAAGGGCCGATTCACTCTCCAGAGACAATCCAAGAACACGCTGTATCTTCAAATG AACAGCCTGAGAGCCGAGGACACGGCCGTGTATTACTGTGCGAGACTAAGAACTACTACTACGTTATGGACGCTCTGGGGCC AGGGGACCCCGGTACCGTCTCCTCA
DC 3	ALS D5686 (C4)	GAAATTGTGATGACGAGTCTCCGGCCACCTGTCTGTGTCTCAGGGGAAGAGCCACCTCTCCTGCAGGGCCAGTCAGA GTATTAGCAGCAACTTGGCTGGTACACAGCAAGAACTTGGCCAGGCTCCAGGCTCTCATCTATGGTGCATCCACAGGGCC ACTGGTATCCAGCCAGGGTCAGTGGCGGTGGGTCTGGGACAGAGTTCACTCTCACCATCAGCAGCCTGCAGTCTGAAGATT TTGCAGTTTATTACTGTCAAGCAATATAATATCTGGCCATACACTTTCGGCCCTGGTACCAAGTGGATCTCAAAAC	GAAGTGCAGCTGGTGCAGTCTGGGGGGAGACTTGGTCAGCCGGGGGGGTCCCTGAGACTCTCCTGTGCAGCCTCTGGATT ACCGGCAGTAGCACTACATGAGTTGGGTCCGCCAGTCCCGGGAAGGGGCTGGAGTGGGTTTCACTTATTACGGCAGTG GTGGCACACTCTACGCAGGCCCGTTAAGGGGAGATTCACTATCTCCAGAGACAATCCAAGACGATGTTGTATCTCAAATG AACTACCTGAGAGTCAAGGACACGGCTGTTTATTATTGCTGAGAGATGAGGCCCACTACGGCGGTACTCTGTCTACTGGG GCCAGGGAAACCTTGTGAGCGTCTCCTCAG