

SUPPORTING INFORMATION

Enhanced Detection and Identification of Glycopeptides in Negative Ion Mode Mass Spectrometry

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Table Caption

Table S-1: Combined list of potential bovine lactoferrin (b-LF) glycopeptides after 24 hrs immobilized-pronase digestion and MS analysis in the negative ion mode MALDI FT-ICR MS. Assignments were made strictly based on mass.

Table S-2: Combined list of potential bovine lactoferrin (b-LF) glycopeptides after 24 hrs immobilized-pronase digestion and MS analysis in the positive ion mode MALDI FT-ICR MS.

Table S-3: Combined list of potential kappa casein (k-CN) glycopeptides after 24 hrs immobilized-pronase digestion and MS analysis in the negative ion mode MALDI FT-ICR MS.

Table S-4: Combined list of potential kappa casein (k-CN) glycopeptides after 24 hrs immobilized-pronase digestion and MS analysis in the positive ion mode MALDI FT-ICR MS.

Table S-1

GP Mass (Da)	Relative Intensity	Error (ppm)	Charge State	Glycans				H ₂ O loss	Glycosite	Peptide Mass (Da)	Peptide Sequence
				Hex	HexNAc	Fucose	NeuAc				
2034.7030	100.0	0.3	[M-H] ⁻	8	2	0	0	0	252	315.1179	NNS
2196.7546	81.9	0.3	[M-H] ⁻	9	2	0	0	0	252	315.1179	NNS
1922.7114	76.4	2.6	[M-H] ⁻	5	2	0	0	0	387	689.2803	SGQNVTC
1922.7114	76.4	2.6	[M-H] ⁻	5	2	0	0	0	495	689.2803	VNQTGSC
1922.7114	76.4	0.2	[M-2H+Na] ⁻	3	3	1	0	0	387	642.2722	QQSGQN
1922.7114	76.4	0.8	[M-H] ⁻	4	4	1	0	0	387	299.1230	GQN
1922.7114	76.4	0.8	[M-H] ⁻	3	4	2	0	0	252	315.1179	NNS
1922.7114	76.4	0.8	[M-H] ⁻	4	5	0	0	0	387	242.1015	QN
1922.7114	76.4	0.8	[M-H] ⁻	4	5	0	0	0	495	242.1015	NQ
2018.7058	70.9	0.9	[M-H] ⁻	8	2	0	0	0	387	299.1230	GQN
1856.6544	54.0	0.2	[M-H] ⁻	7	2	0	0	0	387	299.1230	GQN
1881.6887	52.6	1.3	[M-H] ⁻	4	3	2	0	0	252	315.1179	NNS
1881.6887	52.6	1.2	[M-H] ⁻	5	3	1	0	0	387	299.1230	GQN
1881.6887	52.6	4.7	[M-H] ⁻	4	4	0	0	1	387	386.1550	SGQN
1881.6887	52.6	1.2	[M-H] ⁻	5	4	0	0	0	387	242.1015	QN
1881.6887	52.6	1.2	[M-H] ⁻	5	4	0	0	0	495	242.1015	NQ
1963.7406	49.1	3.9	[M-H] ⁻	4	3	0	0	0	387	689.2803	SGQNVTC
1963.7406	49.1	3.9	[M-H] ⁻	4	3	0	0	0	495	689.2803	VNQTGSC
1963.7406	49.1	7.5	[M-2H+Na] ⁻	5	3	1	0	1	252	341.1699	LNN
1963.7406	49.1	7.5	[M-2H+Na] ⁻	5	3	1	0	1	387	341.1699	QNV
1963.7406	49.1	7.5	[M-2H+Na] ⁻	5	3	1	0	1	495	341.1699	VNQ
1963.7406	49.1	0.6	[M-H] ⁻	3	4	0	1	0	564	357.1648	KND

1963.7406	49.1	6.0	[M-2H+Na] ⁻	4	4	0	0	1	300	446.2278	FGKN
1963.7406	49.1	0.6	[M-H] ⁻	3	5	1	0	0	387	299.1230	GQN
1963.7406	49.1	0.6	[M-H] ⁻	3	6	0	0	0	387	242.1015	QN
1963.7406	49.1	0.6	[M-H] ⁻	3	6	0	0	0	495	242.1015	NQ
2180.7620	46.5	0.7	[M-H] ⁻	9	2	0	0	0	387	299.1230	GQN
1694.6027	36.2	0.4	[M-H] ⁻	6	2	0	0	0	387	299.1230	GQN
2105.7480	35.8	4.0	[M-H] ⁻	8	2	0	0	0	387	386.1550	SGQN
1943.6912	31.7	2.3	[M-H] ⁻	7	2	0	0	0	387	386.1550	SGQN
2233.7424	31.4	5.9	[M-2H+Na] ⁻	9	2	0	0	0	252	330.1362	CLN
2233.7424	31.4	2.5	[M-2H+Na] ⁻	9	2	0	0	0	564	330.1176	NDT
1719.6346	30.8	6.8	[M-2H+Na] ⁻	5	2	0	0	1	300	446.2278	FGKN
1719.6346	30.8	0.6	[M-H] ⁻	4	3	1	0	0	387	299.1230	GQN
1719.6346	30.8	5.9	[M-H] ⁻	3	4	0	0	1	387	386.1550	SGQN
1719.6346	30.8	0.6	[M-H] ⁻	4	4	0	0	0	387	242.1015	QN
1719.6346	30.8	0.6	[M-H] ⁻	4	4	0	0	0	495	242.1015	NQ
1897.6853	28.6	2.7	[M-2H+Na] ⁻	5	2	0	0	0	387	642.2722	QQSQN
1532.5486	25.2	0.3	[M-H] ⁻	5	2	0	0	0	387	299.1230	GQN
1938.7133	24.8	9.8	[M-2H+Na] ⁻	7	2	0	0	1	252	341.1699	LNN
1938.7133	24.8	9.8	[M-2H+Na] ⁻	7	2	0	0	1	387	341.1699	QNV
1938.7133	24.8	9.8	[M-2H+Na] ⁻	7	2	0	0	1	495	341.1699	VNQ
1938.7133	24.8	8.9	[M-2H+Na] ⁻	7	2	0	0	1	564	341.2063	VKN
2211.7622	24.1	5.1	[M-H] ⁻	9	2	0	0	0	252	330.1362	CLN
2211.7622	24.1	3.3	[M-H] ⁻	9	2	0	0	0	564	330.1176	NDT
2267.7971	23.6	2.1	[M-H] ⁻	9	2	0	0	0	387	386.1550	SGQN
1840.6646	21.3	3.5	[M-H] ⁻	5	3	0	0	1	387	386.1550	SGQN
1840.6646	21.3	2.6	[M-H] ⁻	6	3	0	0	0	387	242.1015	QN

1840.6646	21.3	2.6	[M-H] ⁻	6	3	0	0	0	495	242.1015	NQ
1781.6375	19.1	2.0	[M-H] ⁻	6	2	0	0	0	387	386.1550	SGQN
1678.6118	17.9	3.8	[M-H] ⁻	4	3	0	0	1	387	386.1550	SGQN
1678.6118	17.9	2.9	[M-H] ⁻	5	3	0	0	0	387	242.1015	QN
1678.6118	17.9	2.9	[M-H] ⁻	5	3	0	0	0	495	242.1015	NQ
1979.7401	17.4	3.6	[M-H] ⁻	8	2	0	0	1	300	242.1379	KN
1979.7401	17.4	3.6	[M-H] ⁻	8	2	0	0	1	300	242.1379	NK
1979.7401	17.4	3.6	[M-H] ⁻	8	2	0	0	1	564	242.1379	KN
1947.6775	17.1	3.6	[M-H] ⁻	8	2	0	0	0	252	228.0859	NN
1947.6775	17.1	8.8	[M-2H+Na] ⁻	5	3	1	0	0	495	343.1492	NQT
2071.6953	16.9	3.6	[M-2H+Na] ⁻	8	2	0	0	0	252	330.1362	CLN
2071.6953	16.9	5.4	[M-2H+Na] ⁻	8	2	0	0	0	564	330.1176	NDT
2049.7136	14.5	3.5	[M-H] ⁻	8	2	0	0	0	252	330.1362	CLN
2049.7136	14.5	5.6	[M-H] ⁻	8	2	0	0	0	564	330.1176	NDT
1872.6564	13.6	3.6	[M-H] ⁻	7	2	0	0	0	252	315.1179	NNS
2109.7375	13.6	6.8	[M-H] ⁻	9	2	0	0	0	252	228.0859	NN
1735.6320	12.8	2.6	[M-2H+Na] ⁻	4	2	0	0	0	387	642.2722	QQSGQN
1735.6320	12.8	2.0	[M-H] ⁻	5	3	0	0	0	387	299.1230	GQN
1735.6320	12.8	2.0	[M-H] ⁻	4	3	1	0	0	252	315.1179	NNS
2149.7285	11.8	5.9	[M-2H+Na] ⁻	9	2	0	0	1	252	228.0859	NN
2023.7734	11.3	6.3	[M-H] ⁻	4	4	1	0	0	495	400.1707	NQTG
2023.7734	11.3	0.8	[M-H] ⁻	3	5	0	0	1	495	487.2027	NQTGS
2023.7734	11.3	6.3	[M-H] ⁻	4	5	0	0	0	495	343.1492	NQT
2023.7734	11.3	6.1	[M-H] ⁻	3	5	2	0	0	387	213.1113	NV
2023.7734	11.3	6.1	[M-H] ⁻	3	5	2	0	0	495	213.1113	VN
1984.7245	10.0	3.8	[M-H] ⁻	6	2	0	0	0	387	589.2530	NVTCAT

1984.7245	10.0	5.6	[M-H] ⁻	6	3	0	0	0	387	386.1550	SGQN
1984.7245	10.0	6.5	[M-2H+Na] ⁻	4	4	0	0	0	387	485.2234	SGQNV
1984.7245	10.0	2.4	[M-2H+Na] ⁻	3	5	0	0	0	252	444.1791	CLNN
1991.6936	9.4	1.5	[M-H] ⁻	6	3	1	0	1	564	229.0699	ND
1991.6936	9.4	4.7	[M-2H+Na] ⁻	5	4	0	0	0	252	330.1362	CLN
1991.6936	9.4	4.6	[M-2H+Na] ⁻	5	4	0	0	0	564	330.1176	NDT
1909.6423	8.8	4.0	[M-2H+Na] ⁻	7	2	0	0	0	252	330.1362	CLN
1909.6423	8.8	5.8	[M-2H+Na] ⁻	7	2	0	0	0	564	330.1176	NDT
2017.6947	8.6	8.2	[M-2H+Na] ⁻	4	5	0	0	0	252	315.1179	NNS
1887.6602	7.9	4.1	[M-H] ⁻	7	2	0	0	0	252	330.1362	CLN
1887.6602	7.9	5.7	[M-H] ⁻	7	2	0	0	0	564	330.1176	NDT
1982.7448	7.9	5.4	[M-H] ⁻	5	3	1	0	0	495	400.1707	NQTG
1982.7448	7.9	0.3	[M-H] ⁻	4	4	0	0	1	495	487.2027	NQTGS
1982.7448	7.9	5.4	[M-H] ⁻	5	4	0	0	0	495	343.1492	NQT
1982.7448	7.9	6.8	[M-2H+Na] ⁻	3	4	1	0	0	387	499.2391	GQNV
1982.7448	7.9	6.8	[M-2H+Na] ⁻	3	4	1	0	0	495	499.2391	VNQTG
1982.7448	7.9	7.3	[M-H] ⁻	4	4	2	0	0	387	213.1113	NV
1982.7448	7.9	7.3	[M-H] ⁻	4	4	2	0	0	495	213.1113	VN
1982.7448	7.9	6.8	[M-2H+Na] ⁻	3	5	0	0	0	387	442.2176	QNV
1982.7448	7.9	6.8	[M-2H+Na] ⁻	3	5	0	0	0	495	442.2176	VNQT
1995.6868	7.8	9.4	[M-2H+Na] ⁻	6	3	1	0	0	564	229.0699	ND
2059.7510	7.0	8.7	[M-2H+Na] ⁻	6	2	0	0	0	387	642.2722	QQSQN
1987.6761	6.9	6.6	[M-2H+Na] ⁻	8	2	0	0	1	252	228.0859	NN
1820.6870	6.7	3.2	[M-H] ⁻	4	3	1	0	0	495	400.1707	NQTG
1820.6870	6.7	3.0	[M-H] ⁻	3	4	0	0	1	495	487.2027	NQTGS
1820.6870	6.7	3.2	[M-H] ⁻	4	4	0	0	0	495	343.1492	NQT

2064.8005	6.4	7.7	[M-2H+Na] ⁻	7	2	0	0	0	300	485.2710	NKSR
2064.8005	6.4	2.5	[M-H] ⁻	4	3	1	0	0	252	644.2952	LCLNNS
2210.7727	6.4	9.3	[M-2H+Na] ⁻	6	3	0	0	0	495	590.2119	NQTGSC
2210.7727	6.4	2.1	[M-2H+Na] ⁻	6	3	1	0	0	252	444.1791	CLNN
2210.7727	6.4	7.2	[M-2H+Na] ⁻	5	4	0	0	1	252	531.2111	CLNNS
2026.7513	6.0	9.9	[M-H] ⁻	6	2	0	0	1	387	613.2820	QSGQNV
2026.7513	6.0	4.4	[M-H] ⁻	6	3	0	0	0	252	428.2019	LNNS
2026.7513	6.0	4.4	[M-H] ⁻	5	3	1	0	0	252	444.1791	CLNN
2026.7513	6.0	1.7	[M-2H+Na] ⁻	3	4	0	1	0	387	398.1914	GQNV
2026.7513	6.0	1.2	[M-H] ⁻	4	4	0	0	1	252	531.2111	CLNNS
2179.7459	5.9	8.4	[M-2H+Na] ⁻	3	5	0	1	1	564	330.1176	NDT
2179.7459	5.9	8.4	[M-2H+Na] ⁻	5	5	0	0	0	252	315.1179	NNS
1776.6600	5.9	10.0	[M-2H+Na] ⁻	6	2	0	0	1	564	341.2063	VKN
1776.6600	5.9	3.4	[M-2H+Na] ⁻	3	3	0	0	0	387	642.2722	QQSGQN
1776.6600	5.9	2.8	[M-H] ⁻	4	4	0	0	0	387	299.1230	GQN
1776.6600	5.9	2.8	[M-H] ⁻	3	4	1	0	0	252	315.1179	NNS
2153.7495	5.9	8.1	[M-2H+Na] ⁻	5	3	1	0	1	252	531.2111	CLNNS
2153.7495	5.9	2.9	[M-2H+Na] ⁻	6	4	0	0	0	252	330.1362	CLN
2153.7495	5.9	5.7	[M-2H+Na] ⁻	6	4	0	0	0	564	330.1176	NDT
1637.5906	5.9	0.7	[M-H] ⁻	5	2	0	0	1	387	386.1550	SGQN
1637.5906	5.9	6.2	[M-H] ⁻	6	2	0	0	0	387	242.1015	QN
1637.5906	5.9	6.2	[M-H] ⁻	6	2	0	0	0	495	242.1015	NQ
1637.5906	5.9	8.5	[M-2H+Na] ⁻	4	3	0	0	0	252	341.1699	LNN
1637.5906	5.9	8.5	[M-2H+Na] ⁻	4	3	0	0	0	387	341.1699	QNV
1637.5906	5.9	8.5	[M-2H+Na] ⁻	4	3	0	0	0	495	341.1699	VNQ
1637.5906	5.9	8.5	[M-2H+Na] ⁻	3	3	1	0	0	564	357.1648	KND

1969.7115	5.8	10.0	[M-2H+Na] ⁻	3	3	0	0	1	387	817.3389	QSQNVTC
1969.7115	5.8	4.3	[M-2H+Na] ⁻	4	3	0	0	0	387	673.2854	GQNVTC
1969.7115	5.8	4.3	[M-2H+Na] ⁻	3	3	1	0	0	387	689.2803	SGQNVTC
1969.7115	5.8	4.3	[M-2H+Na] ⁻	3	3	1	0	0	495	689.2803	VNQTGSC
1969.7115	5.8	7.6	[M-2H+Na] ⁻	3	4	0	1	0	252	341.1699	LNN
1969.7115	5.8	7.6	[M-2H+Na] ⁻	3	4	0	1	0	387	341.1699	QNV
1969.7115	5.8	7.6	[M-2H+Na] ⁻	3	4	0	1	0	495	341.1699	VNQ
1969.7115	5.8	4.8	[M-H] ⁻	5	4	0	0	0	252	330.1362	CLN
1969.7115	5.8	4.6	[M-H] ⁻	5	4	0	0	0	564	330.1176	NDT
1969.7115	5.8	7.6	[M-2H+Na] ⁻	3	5	0	0	0	564	429.1860	NDTV
1961.7052	5.7	8.8	[M-H] ⁻	8	2	0	0	0	300	242.1379	KN
1961.7052	5.7	8.8	[M-H] ⁻	8	2	0	0	0	300	242.1379	NK
1961.7052	5.7	4.0	[M-H] ⁻	7	2	0	0	1	387	386.1550	SGQN
1961.7052	5.7	9.7	[M-H] ⁻	8	2	0	0	0	387	242.1015	QN
1961.7052	5.7	9.7	[M-H] ⁻	8	2	0	0	0	495	242.1015	NQ
1961.7052	5.7	8.8	[M-H] ⁻	8	2	0	0	0	564	242.1379	KN
2141.8037	5.4	8.3	[M-H] ⁻	9	2	0	0	1	300	242.1379	KN
2141.8037	5.4	8.3	[M-H] ⁻	9	2	0	0	1	300	242.1379	NK
2141.8037	5.4	8.3	[M-H] ⁻	9	2	0	0	1	564	242.1379	KN
2339.8484	5.3	2.1	[M-H] ⁻	8	2	0	0	1	387	602.2483	GQNVTC
2339.8484	5.3	0.7	[M-H] ⁻	9	2	0	0	0	564	458.2125	KNDT
1829.6407	5.2	1.7	[M-H] ⁻	5	3	1	0	1	564	229.0699	ND
1829.6407	5.2	5.2	[M-2H+Na] ⁻	4	4	0	0	0	252	330.1362	CLN
1829.6407	5.2	5.0	[M-2H+Na] ⁻	4	4	0	0	0	564	330.1176	NDT
2048.7153	5.0	7.8	[M-2H+Na] ⁻	5	3	0	0	0	495	590.2119	NQTGSC
2048.7153	5.0	4.5	[M-2H+Na] ⁻	5	3	1	0	0	252	444.1791	CLNN

2048.7153	5.0	9.9	[M-2H+Na] ⁻	4	4	0	0	1	252	531.2111	CLNNS
2048.7153	5.0	1.4	[M-H] ⁻	6	4	0	0	1	564	229.0699	ND
2172.7942	4.9	1.3	[M-H] ⁻	7	2	0	0	0	564	615.2653	NDTVW
2123.7527	4.7	1.2	[M-H] ⁻	8	2	0	0	1	387	386.1550	SGQN
2123.7527	4.7	6.5	[M-H] ⁻	9	2	0	0	0	387	242.1015	QN
2123.7527	4.7	6.5	[M-H] ⁻	9	2	0	0	0	495	242.1015	NQ
2251.7935	4.7	6.8	[M-H] ⁻	8	2	0	0	1	387	514.2136	QSGQN
2276.8228	4.6	7.7	[M-H] ⁻	6	3	1	0	1	387	514.2136	QSGQN
2276.8228	4.6	2.8	[M-H] ⁻	4	6	1	0	1	564	229.0699	ND
1619.5916	4.5	6.4	[M-H] ⁻	5	2	0	0	0	387	386.1550	SGQN
2229.8159	4.3	0.5	[M-2H+Na] ⁻	9	2	0	0	0	495	326.1954	IVN
2229.8159	4.3	8.6	[M-H] ⁻	5	4	0	0	0	495	590.2119	NQTGSC
2229.8159	4.3	2.7	[M-H] ⁻	5	4	1	0	0	252	444.1791	CLNN
2229.8159	4.3	7.7	[M-H] ⁻	4	5	0	0	1	252	531.2111	CLNNS
1779.6631	4.3	1.6	[M-H] ⁻	4	3	0	0	1	495	487.2027	NQTGS
1779.6631	4.3	4.7	[M-H] ⁻	5	3	0	0	0	495	343.1492	NQT

Table S-2

Glycopeptide Mass (Da)	Relative Intensity (%)	Error (ppm)	Charge State	Glycans			NeuAc	H ₂ O loss	Glycosite	Peptide Mass (Da)	Peptide Sequence
				Hex	HexNAc	Fucose					
2080.6799	100.0	0.5	[M+2Na-H] ⁺	8	2	0	0	0	252	315.1179	NNS
2242.7275	88.6	2.8	[M+2Na-H] ⁺	9	2	0	0	0	252	315.1179	NNS
2058.7026	45.0	1.8	[M+Na] ⁺	8	2	0	0	0	252	315.1179	NNS
1918.6293	42.9	0.6	[M+2Na-H] ⁺	7	2	0	0	0	252	315.1179	NNS
2220.7507	35.9	0.5	[M+Na] ⁺	9	2	0	0	0	252	315.1179	NNS
2214.8010	31.2	1.4	[M+Na] ⁺	7	2	0	0	1	564	615.2653	NDTVW
1968.6946	29.9	1.3	[M+Na] ⁺	6	2	0	0	1	252	531.2111	CLNNS
1896.6497	24.7	1.8	[M+Na] ⁺	7	2	0	0	0	252	315.1179	NNS
1683.5618	23.8	1.7	[M+2Na-H] ⁺	6	2	0	0	0	387	242.1015	QN
1683.5618	23.8	1.7	[M+2Na-H] ⁺	6	2	0	0	0	495	242.1015	NQ
1562.5366	22.5	2.6	[M+2Na-H] ⁺	4	3	0	0	0	387	242.1015	QN
1562.5366	22.5	2.6	[M+2Na-H] ⁺	4	3	0	0	0	495	242.1015	NQ
1603.5638	22.2	2.9	[M+2Na-H] ⁺	3	4	0	0	0	387	242.1015	QN
1603.5638	22.2	2.9	[M+2Na-H] ⁺	3	4	0	0	0	495	242.1015	NQ
1927.6699	21.0	2.6	[M+2Na-H] ⁺	5	4	0	0	0	387	242.1015	QN
1927.6699	21.0	2.6	[M+2Na-H] ⁺	5	4	0	0	0	495	242.1015	NQ
2192.8235	18.4	2.4	[M+H] ⁺	8	2	0	0	0	252	471.2190	NNSR
2192.8235	18.4	0.6	[M+H] ⁺	7	2	0	0	1	564	615.2653	NDTVW
2376.8562	16.5	1.4	[M+Na] ⁺	9	2	0	0	0	252	471.2190	NNSR
2376.8562	16.5	0.3	[M+Na] ⁺	8	2	0	0	1	564	615.2653	NDTVW
1756.5778	16.2	1.4	[M+2Na-H] ⁺	6	2	0	0	0	252	315.1179	NNS
2009.7250	14.3	2.6	[M+Na] ⁺	7	2	0	0	0	252	428.2019	LNNS

1946.7141	13.5	0.6	[M+H] ⁺	6	2	0	0	1	252	531.2111	CLNNS
1734.5951	13.0	1.0	[M+Na] ⁺	6	2	0	0	0	252	315.1179	NNS
1661.5815	11.9	2.8	[M+Na] ⁺	6	2	0	0	0	387	242.1015	QN
1661.5815	11.9	2.8	[M+Na] ⁺	6	2	0	0	0	495	242.1015	NQ
2354.8709	10.5	0.0	[M+H] ⁺	9	2	0	0	0	252	471.2190	NNSR
2354.8709	10.5	1.8	[M+H] ⁺	8	2	0	0	1	564	615.2653	NDTVW
1905.6898	9.9	3.6	[M+Na] ⁺	5	4	0	0	0	387	242.1015	QN
1905.6898	9.9	3.6	[M+Na] ⁺	5	4	0	0	0	495	242.1015	NQ
1499.5266	9.7	1.7	[M+Na] ⁺	5	2	0	0	0	387	242.1015	QN
1499.5266	9.7	1.7	[M+Na] ⁺	5	2	0	0	0	495	242.1015	NQ
2052.7500	8.2	1.3	[M+Na] ⁺	7	2	0	0	0	252	471.2190	NNSR
2052.7500	8.2	0.6	[M+Na] ⁺	6	2	0	0	1	564	615.2653	NDTVW
1790.6473	6.8	5.1	[M+Na] ⁺	5	3	0	0	0	252	330.1362	CLN
1665.5632	6.4	5.2	[M+Na] ⁺	6	2	0	0	1	252	228.0859	NN
1724.5911	6.4	3.3	[M+2Na-H] ⁺	4	3	0	0	1	387	386.1550	SGQN
1987.7461	5.9	1.1	[M+H] ⁺	7	2	0	0	0	252	428.2019	LNNS
2069.7590	5.1	8.4	[M+Na] ⁺	8	2	0	0	0	495	326.1954	IVN
2069.7590	5.1	6.4	[M+H] ⁺	8	2	0	0	1	252	330.1362	CLN
1442.4916	4.9	7.0	[M+2Na-H] ⁺	3	2	0	0	0	495	487.2027	NQTGS
2030.7782	4.8	6.3	[M+H] ⁺	7	2	0	0	0	252	471.2190	NNSR
2030.7782	4.8	4.4	[M+H] ⁺	6	2	0	0	1	564	615.2653	NDTVW
2028.7245	4.7	0.2	[M+Na] ⁺	7	2	0	0	1	564	429.1860	NDTV
2235.7761	4.2	2.7	[M+Na] ⁺	9	2	0	0	0	252	330.1362	CLN
2257.7595	4.0	3.3	[M+2Na-H] ⁺	9	2	0	0	0	252	330.1362	CLN
1765.6140	4.0	1.1	[M+2Na-H] ⁺	4	3	1	0	0	387	299.1230	GQN
2067.7813	3.9	4.6	[M+Na] ⁺	5	3	1	0	1	252	443.2202	LCLN

2067.7813	3.9	0.5	$[M+2Na-H]^+$	3	4	1	0	1	252	542.2561	NNSRA
1572.5450	3.8	2.9	$[M+Na]^+$	5	2	0	0	0	252	315.1179	NNS
2110.7839	3.7	2.4	$[M+H]^+$	9	2	0	0	0	252	227.1270	LN
1594.5297	3.7	4.5	$[M+2Na-H]^+$	5	2	0	0	0	252	315.1179	NNS
2047.7677	3.7	7.8	$[M+H]^+$	7	2	0	0	0	387	488.2053	NVTCA
2197.7883	3.6	1.7	$[M+Na]^+$	7	2	0	0	0	387	616.2639	QNVTC
1749.6157	3.6	2.3	$[M+Na]^+$	6	2	0	0	0	252	330.1362	CLN
1546.5441	3.3	4.1	$[M+2Na-H]^+$	4	2	0	0	0	564	429.1860	NDTV
1984.6932	3.3	3.5	$[M+2Na-H]^+$	4	4	1	0	0	252	315.1179	NNS
1984.6932	3.3	3.5	$[M+2Na-H]^+$	5	4	0	0	0	387	299.1230	GQN
2095.6975	3.2	0.8	$[M+2Na-H]^+$	8	2	0	0	0	252	330.1362	CLN
2095.6975	3.2	8.1	$[M+2Na-H]^+$	8	2	0	0	0	564	330.1176	NDT

Table S-3

GP Mass (Da)	Relative Intensity (%)	Error (ppm)	Charge State	Glycans			H ₂ O loss	Glycosite	Peptide Mass (Da)	Peptide Sequence
				Gal	GalNAc	NeuAc				
1152.4810	100.0	0.7	[M-H] ⁻	1	1	0	0	152/154	770.3446	GEPTSTPT
1517.6102	75.5	1.4	[M-H] ⁻	2	2	0	0	152 & 154	770.3446	GEPTSTPT
1443.5753	67.9	0.2	[M-H] ⁻	1	1	1	0	152/154	770.3446	GEPTSTPT
1808.7067	45.7	0.6	[M-H] ⁻	2	2	1	0	152 & 154	770.3446	GEPTSTPT
1734.6709	15.0	0.0	[M-H] ⁻	1	1	2	0	152/154	770.3446	GEPTSTPT
2099.8059	14.8	1.3	[M-H] ⁻	2	2	2	0	152 & 154	770.3446	GEPTSTPT
1465.5597	12.3	1.5	[M-2H+Na] ⁻	1	1	1	0	152/154	770.3446	GEPTSTPT
1830.6912	11.4	0.8	[M-2H+Na] ⁻	2	2	1	0	152 & 154	770.3446	GEPTSTPT
1355.5631	11.3	2.7	[M-H] ⁻	1	2	0	0	152 & 154	770.3446	GEPTSTPT
1355.5631	11.3	4.4	[M-2H+Na] ⁻	1	1	1	1	186	642.3337	NTVQVT
1525.5928	7.8	1.2	[M-H] ⁻	2	2	1	0	152 & 154	487.2278	TSTPT
1557.5726	7.3	2.7	[M-2H+Na] ⁻	1	2	1	0	152 & 154	659.2762	SGEPTST
1399.5885	5.2	2.0	[M-H] ⁻	1	2	0	0	152 & 154	814.3709	EPTSTPTT
1399.5885	5.2	2.0	[M-H] ⁻	0	2	1	0	152 & 154	685.3283	PTSTPTT
1399.5885	5.2	2.0	[M-H] ⁻	1	2	0	0	152 & 154	814.3709	PTSTPTTE
1399.5885	5.2	3.7	[M-2H+Na] ⁻	1	1	1	1	186	686.3599	QVTSTAV
1399.5885	5.2	3.7	[M-2H+Na] ⁻	1	1	1	1	186	686.3599	VQVTSTA
1790.6996	5.1	2.7	[M-2H+Na] ⁻	1	1	2	1	163	786.3759	EAVESTVA
1756.6536	4.9	0.4	[M-2H+Na] ⁻	1	1	2	0	152/154	770.3446	GEPTSTPT
1273.5107	4.4	3.4	[M-H] ⁻	1	1	1	0	154	600.2755	TPTEA
2121.7896	4.4	2.1	[M-2H+Na] ⁻	2	2	2	0	152 & 154	770.3446	GEPTSTPT
1816.6913	3.8	2.7	[M-H] ⁻	2	2	2	0	152 & 154	487.2278	TSTPT
1816.6913	3.8	2.7	[M-H] ⁻	2	2	2	0	152 & 154	487.2278	TSTPT

2390.8989	3.8	0.2	[M-H] ⁻	2	2	3	0	152 & 154	770.3446	GEPTSTPT
1646.6595	3.8	2.8	[M-H] ⁻	1	2	1	0	152 & 154	770.3446	GEPTSTPT
1234.4983	3.5	2.3	[M-H] ⁻	2	2	0	0	152 & 154	487.2278	TSTPT
1539.5975	3.3	5.9	[M-H] ⁻	2	2	1	1	152 & 154	483.2329	PTSTP
1539.5975	3.3	2.1	[M-2H+Na] ⁻	2	2	0	0	152 & 154	770.3446	GEPTSTPT
1720.6963	3.3	4.1	[M-2H+Na] ⁻	1	1	2	1	186	716.3705	TVQVTST
982.4111	3.2	0.1	[M-H] ⁻	1	1	0	0	154	600.2755	TPTEA
1381.5743	2.3	1.2	[M-2H+Na] ⁻	0	1	1	1	163	830.4022	ESTVATLE
1381.5743	2.3	1.2	[M-2H+Na] ⁻	1	1	1	0	186	686.3599	QVTSTAV
1381.5743	2.3	1.2	[M-2H+Na] ⁻	1	1	1	0	186	686.3599	VQVTSTA
1381.5743	2.3	7.0	[M-2H+Na] ⁻	0	1	1	1	186	830.4134	NTVQVTST
1547.5737	2.1	0.6	[M-2H+Na] ⁻	2	2	1	0	152 & 154	487.2278	TSTPT
681.2856	2.0	3.0	[M-H] ⁻	1	1	0	0	154	299.1481	TPT
1295.4924	2.0	3.2	[M-2H+Na] ⁻	1	1	1	0	154	600.2755	TPTEA
1178.5320	2.0	0.1	[M-H] ⁻	0	1	1	0	142	667.3541	EIPTIN
1360.5438	2.0	4.0	[M-H] ⁻	1	1	1	1	152/154	669.2970	GEPTSTP
1360.5438	2.0	4.0	[M-H] ⁻	1	1	1	0	154	687.3075	STPTTEA
1337.5499	2.0	2.5	[M-2H+Na] ⁻	0	1	1	1	163	786.3759	EAVESTVA
1337.5499	2.0	2.5	[M-2H+Na] ⁻	1	1	1	0	186	642.3337	NTVQVT
1451.5638	1.9	6.7	[M-H] ⁻	1	1	2	0	152/154	487.2278	TSTPT
1451.5638	1.9	6.7	[M-H] ⁻	1	1	2	0	154	487.2278	STPTT
1451.5638	1.9	6.7	[M-H] ⁻	1	1	2	0	163	487.2278	AVEST
1451.5638	1.9	6.7	[M-H] ⁻	1	1	2	0	163	487.2278	ESTVA
1690.6838	1.9	1.6	[M-H] ⁻	1	2	1	0	152 & 154	814.3709	EPTSTPTT
1690.6838	1.9	1.6	[M-H] ⁻	0	2	2	0	152 & 154	685.3283	PTSTPTT
1690.6838	1.9	1.6	[M-H] ⁻	2	2	0	0	152 & 154	943.4135	EPTSTPTTE

1690.6838	1.9	1.6	[M-H] ⁻	1	2	1	0	152 & 154	814.3709	PTSTPTTE
1690.6838	1.9	3.0	[M-2H+Na] ⁻	1	1	2	1	186	686.3599	QVTSTAV
1690.6838	1.9	3.0	[M-2H+Na] ⁻	1	1	2	1	186	686.3599	VQVTSTA
1626.6429	1.8	2.7	[M-H] ⁻	2	2	1	0	152 & 154	588.2755	TSTPTT
1746.7076	1.8	6.3	[M-H] ⁻	0	2	1	1	152 & 154	1014.4506	EPTSTPTTEA
1257.5132	1.8	1.4	[M-H] ⁻	1	1	1	0	152/154	584.2806	PTSTPT
1051.4346	1.8	2.0	[M-H] ⁻	1	1	0	0	152/154	669.2970	GEPTSTP
1671.6459	1.8	5.6	[M-2H+Na] ⁻	1	1	2	0	152/154	685.3283	PTSTPTT
768.3171	1.8	2.0	[M-H] ⁻	1	1	0	0	152/154	386.1802	PTST
768.3171	1.8	2.0	[M-H] ⁻	1	1	0	0	152/154	386.1802	TSTP
768.3171	1.8	2.0	[M-H] ⁻	1	1	0	0	154	386.1802	STPT
1540.5996	0.8	6.6	[M-2H+Na] ⁻	1	1	1	1	152/154	827.3661	ASGEPTSTP

Table S-4

GP Mass (Da)	Relative Intensity (%)	Error (ppm)	Charge State	Glycans			H ₂ O loss	Glycosite	Peptide Mass	Peptide Sequence
				Gal	GalNAc	NeuAc				
1176.4730	100.0	3.1	[M+Na] ⁺	1	1	0	0	152/154	770.3446	GEPTSTPT
1541.6096	48.3	0.5	[M+Na] ⁺	2	2	0	0	152 & 154	770.3446	GEPTSTPT
1467.5750	29.1	2.0	[M+Na] ⁺	1	1	1	0	152/154	770.3446	GEPTSTPT
1445.5946	20.3	3.1	[M+H] ⁺	1	1	1	0	152/154	770.3446	GEPTSTPT
1198.4592	15.5	0.6	[M+2Na-H] ⁺	1	1	0	0	152/154	770.3446	GEPTSTPT
1379.5602	11.6	4.8	[M+2Na-H] ⁺	1	1	1	1	186	642.3337	NTVQVT
1379.5602	11.6	3.0	[M+Na] ⁺	1	2	0	0	152 & 154	770.3446	GEPTSTPT
1832.7174	10.5	7.2	[M+Na] ⁺	2	2	1	0	152 & 154	770.3446	GEPTSTPT
1563.5979	10.1	4.6	[M+2Na-H] ⁺	2	2	0	0	152 & 154	770.3446	GEPTSTPT
1154.4974	8.4	2.4	[M+H] ⁺	1	1	0	0	152/154	770.3446	GEPTSTPT
1489.5598	7.6	3.9	[M+2Na-H] ⁺	1	1	1	0	152/154	770.3446	GEPTSTPT
1511.5421	5.7	4.0	[M+2Na-H] ⁺	1	1	2	1	152/154	483.2329	PTSTP
582.2518	5.7	2.2	[M+H] ⁺	1	1	0	0	142	198.1004	PT
582.2518	5.7	2.2	[M+H] ⁺	1	1	0	0	152	198.1004	PT
582.2518	5.7	2.2	[M+H] ⁺	1	1	0	0	154	198.1004	TP
1557.5857	5.5	3.7	[M+2Na-H] ⁺	0	1	1	0	152/154	1000.4349	GEPTSTPTE
1810.7372	5.0	8.2	[M+H] ⁺	2	2	1	0	152 & 154	770.3446	GEPTSTPT
992.4423	4.8	0.4	[M+H] ⁺	0	1	0	0	152/154	770.3446	GEPTSTPT
1423.5890	4.8	4.8	[M+Na] ⁺	0	2	1	0	152 & 154	685.3283	PTSTPTT
1423.5890	4.8	4.8	[M+Na] ⁺	1	2	0	0	152 & 154	814.3709	EPTSTPTT
1423.5890	4.8	4.8	[M+Na] ⁺	1	2	0	0	152 & 154	814.3709	PTSTPTE
1736.6976	4.7	7.0	[M+H] ⁺	1	1	2	0	152/154	770.3446	GEPTSTPT
1014.4234	4.3	0.4	[M+Na] ⁺	0	1	0	0	152/154	770.3446	GEPTSTPT

990.4130	4.1	0.4	[M+Na] ⁺	1	1	0	0	152/154	584.2806	PTSTPT
1258.4957	3.9	3.0	[M+Na] ⁺	2	2	0	0	152 & 154	487.2278	TSTPT
1648.6829	3.0	8.1	[M+H] ⁺	1	2	1	0	152 & 154	770.3446	GEPTSTPT
1854.7054	3.0	3.8	[M+Na] ⁺	2	2	2	1	152 & 154	483.2329	PTSTP
1471.5514	2.5	2.9	[M+Na] ⁺	1	1	2	0	152/154	483.2329	PTSTP
1283.5432	2.5	4.6	[M+H] ⁺	0	1	1	0	152/154	770.3446	GEPTSTPT
1449.5704	2.4	2.3	[M+H] ⁺	1	1	2	0	152/154	483.2329	PTSTP
1876.6876	2.2	3.8	[M+2Na-H] ⁺	2	2	2	1	152 & 154	483.2329	PTSTP
1519.6326	2.2	3.8	[M+H] ⁺	2	2	0	0	152 & 154	770.3446	GEPTSTPT
1006.4094	2.1	1.9	[M+Na] ⁺	1	1	0	0	154	600.2755	TPTTEA
1355.5522	1.8	5.5	[M+Na] ⁺	2	2	0	0	152 & 154	584.2806	PTSTPT
2123.8323	1.8	9.6	[M+H] ⁺	2	2	3	1	152 & 154	483.2329	PTSTP
1220.4442	1.8	7.0	[M+2Na-H] ⁺	1	1	1	1	152/154	483.2329	PTSTP
1202.4937	1.7	8.2	[M+Na] ⁺	0	1	0	0	152/154	958.4244	SGEPTSTPTT
1401.5450	1.7	5.1	[M+2Na-H] ⁺	1	2	0	0	152 & 154	770.3446	GEPTSTPT
1401.5450	1.7	3.7	[M+Na] ⁺	1	2	1	1	152 & 154	483.2329	PTSTP
1401.5450	1.7	3.7	[M+Na] ⁺	2	2	0	1	152 & 154	612.2755	EPTSTP
1357.5823	1.6	7.8	[M+Na] ⁺	1	1	1	1	186	642.3337	NTVQVT
1357.5823	1.6	6.1	[M+H] ⁺	1	2	0	0	152 & 154	770.3446	GEPTSTPT
1405.5775	1.5	3.8	[M+Na] ⁺	0	2	0	0	152 & 154	958.4244	SGEPTSTPTT
898.3399	1.5	1.3	[M+Na] ⁺	1	2	0	0	152 & 152	289.1274	TST
898.3399	1.5	1.3	[M+Na] ⁺	1	2	0	0	186	289.1274	TST
786.2977	1.5	1.9	[M+2Na-H] ⁺	1	1	0	0	163	358.1852	STVA
1158.4722	1.4	5.3	[M+H] ⁺	1	1	1	0	152/154	483.2329	PTSTP
1045.4917	1.3	0.5	[M+Na] ⁺	1	1	0	0	142	639.3592	IPTINT
1045.4917	1.3	0.5	[M+Na] ⁺	1	1	0	0	142	639.3592	PTINTI

792.3109	1.3	1.6	[M+Na] ⁺	1	1	0	0	152/154	386.1802	PTST
792.3109	1.3	1.6	[M+Na] ⁺	1	1	0	0	154	386.1802	STPT
792.3109	1.3	1.6	[M+Na] ⁺	1	1	0	0	152/154	386.1802	TSTP
1075.4321	1.3	3.0	[M+Na] ⁺	1	1	0	0	152/154	669.2970	GEPTSTP
1075.4321	1.3	8.5	[M+H] ⁺	1	1	1	0	154	400.1958	TPTT
1744.6987	1.2	7.4	[M+2Na-H] ⁺	1	1	2	1	186	716.3705	TVQVTST
1585.5865	1.2	1.0	[M+2Na-H] ⁺	2	2	1	1	152 & 152	483.2329	PTSTP
1780.6626	1.2	7.4	[M+2Na-H] ⁺	1	1	2	0	152/154	770.3446	GEPTSTPT
1136.4214	1.2	9.1	[M+2Na-H] ⁺	1	2	0	1	152 & 154	487.2278	TSTPT
1836.6917	1.2	2.0	[M+Na] ⁺	2	2	2	0	152 & 154	483.2329	PTSTP
1297.5052	1.1	1.8	[M+Na] ⁺	1	1	1	0	154	600.2755	TPTTEA
1114.4803	1.1	5.9	[M+2Na-H] ⁺	0	1	0	1	163	830.4022	ESTVATLE
1114.4803	1.1	4.2	[M+2Na-H] ⁺	0	1	0	1	186	830.4134	NTVQVTST
1114.4803	1.1	5.8	[M+2Na-H] ⁺	1	1	0	0	186	686.3599	QVTSTAV
1114.4803	1.1	5.8	[M+2Na-H] ⁺	1	1	0	0	186	686.3599	VQVTSTA
880.3273	1.0	1.0	[M+Na] ⁺	0	1	1	1	152/154	327.1430	EPT
769.3586	1.0	2.6	[M+2Na-H] ⁺	0	1	0	1	163	485.2849	TVATL
727.2634	1.0	1.8	[M+2Na-H] ⁺	1	1	0	0	154	299.1481	TPT
1670.6725	1.0	5.3	[M+H] ⁺	1	2	2	1	152 & 154	483.2329	PTSTP
1670.6725	1.0	5.3	[M+H] ⁺	2	2	1	1	152 & 154	612.2755	EPTSTP
947.4065	0.9	0.3	[M+Na] ⁺	1	1	0	0	142	541.2748	TEIPT
1119.4574	0.9	8.0	[M+Na] ⁺	0	1	0	1	152/154	857.3767	SGEPTSTPT
1119.4574	0.9	2.0	[M+Na] ⁺	0	1	1	0	152/154	584.2806	PTSTPT
1119.4574	0.9	2.0	[M+Na] ⁺	1	1	0	0	152/154	713.3232	EPTSTPT
1395.5325	0.9	3.4	[M+2Na-H] ⁺	2	2	0	1	152 & 154	584.2806	PTSTPT
1093.4398	0.9	0.3	[M+Na] ⁺	1	1	0	1	152/154	669.2970	GEPTSTP
1384.5392	0.9	3.1	[M+Na] ⁺	1	1	1	1	152/154	669.2970	GEPTSTP

1384.5392	0.9	3.1	[M+Na] ⁺	1	1	1	0	152/154	687.3075	STPTTEA
1384.5392	0.9	5.8	[M+H] ⁺	1	1	2	1	154	400.1958	TPTT
1770.7118	0.9	8.8	[M+H] ⁺	1	1	2	1	163	786.3759	EAVESTVA
1770.7118	0.9	1.9	[M+Na] ⁺	0	2	1	1	152 & 154	1014.4506	EPTSTPTTEA
1305.4961	0.9	7.3	[M+2Na-H] ⁺	1	1	1	0	163	586.2962	AVESTV
1305.4961	0.9	7.3	[M+2Na-H] ⁺	1	1	1	0	163	586.2962	VESTVA
1458.5797	0.8	5.5	[M+Na] ⁺	2	2	0	1	152 & 154	669.2970	GEPTSTP
1275.5291	0.8	6.4	[M+H] ⁺	1	1	1	0	154	600.2755	TPTTEA
814.2950	0.8	1.2	[M+2Na-H] ⁺	1	1	0	0	152/154	386.1802	TSTP
814.2950	0.8	1.2	[M+2Na-H] ⁺	1	1	0	0	152/154	386.1802	PTST
814.2950	0.8	1.2	[M+2Na-H] ⁺	1	1	0	0	154	386.1802	STPT
1156.4436	0.8	3.8	[M+2Na-H] ⁺	0	2	0	1	152 & 154	669.2970	GEPTSTP
1280.4789	0.8	3.9	[M+2Na-H] ⁺	2	2	0	0	152 & 154	487.2278	TSTPT
1493.5267	0.7	7.3	[M+2Na-H] ⁺	1	1	2	0	152/154	483.2329	PTSTP
1677.6372	0.7	2.1	[M+2Na-H] ⁺	1	1	1	0	152/154	958.4244	SGEPTSTPTT
1083.4088	0.7	1.2	[M+Na] ⁺	1	1	1	0	152/154	386.1802	PTST
1083.4088	0.7	1.2	[M+Na] ⁺	1	1	1	0	152/154	386.1802	TSTP
1083.4088	0.7	1.2	[M+Na] ⁺	1	1	1	0	154	386.1802	STPT
1193.4933	0.7	1.1	[M+Na] ⁺	1	2	0	0	152 & 154	584.2806	PTSTPT
1626.6748	0.7	6.3	[M+H] ⁺	1	1	2	1	186	642.3337	NTVQVT
2025.8635	0.7	1.9	[M+2Na-H] ⁺	1	1	2	1	142	997.5444	KTEIPTINT
962.3828	0.7	4.1	[M+2Na-H] ⁺	1	1	0	1	186	516.2544	QVTST
962.3828	0.7	1.6	[M+Na] ⁺	0	2	0	0	152 & 154	515.2227	EPTST
1221.4479	0.3	0.1	[M+2Na-H] ⁺	1	2	0	1	152 & 154	572.2442	GEPTST
1115.4861	0.3	2.1	[M+H] ⁺	0	1	1	1	152/154	584.2806	PTSTPT
1115.4861	0.3	7.3	[M+2Na-H] ⁺	1	1	0	1	142	669.3697	KTEIPT
1115.4861	0.3	2.1	[M+H] ⁺	1	1	0	1	152/154	713.3232	EPTSTPT

1402.5461	0.3	0.5	$[M+Na]^+$	1	1	1	1	154	687.3075	STPTTEA
1105.3940	0.2	4.1	$[M+2Na-H]^+$	1	1	1	0	152/154	386.1802	TSTP
1105.3940	0.2	4.1	$[M+2Na-H]^+$	1	1	1	0	152/154	386.1802	PTST
1105.3940	0.2	4.1	$[M+2Na-H]^+$	1	1	1	0	154	386.1802	STPT
1671.6729	0.2	8.3	$[M+H]^+$	1	1	2	1	154	687.3075	STPTTEA