Supplemental Table S1

Notes:

P-OH = hydroxyproline
m = oxidation of M
K-OH.Gal.Glc = galactose.glucose on hydroxylysine
All product ions: ppm<10, S/N>=3

	# of sequence in bovine col1 domain						
Spectrum #	**start**	**end**	**sequence**	**total PTMs**	**localized sites**	**unlocalized sites**	**pseudolocalized**
1	1	36	GPAGPMGLTGRPGPMGPPGSGGLKGEPGDMGPQGPR	4OH+Gal.Glc	K24-OH.Gal.Glc, P27-OH	P18-OH?, P12-OH?,P14-OH?,m15?,P17-OH?	P12-OH, P18-OH (Gly-X-Hyp motif)
2	9	23	TGRPGPMGPPGSGGL	3OH	P12-OH, P17-OH, P18-OH		
3	37	50	GVQGPPGPAGKPGR	3OH	P41-OH, P42-OH, P48-OH		
4	61	72	GMPGQTGPKGDR	2OH+Gal.Glc	P63-OH, K69-OH.Gal.Glc		
5	73	87	GFDGLAGLPGEKGHR	2OH+Gal.Glc	P81-OH,K84-OH.Gal.Glc		
6	88	105	GDPGPSGPPGPPGEDGER	5OH	P90-OH, P95-OH, P96-OH, P98-OH, P99-OH		
7	115	123	GLPGEPGPR	2OH	P117-OH, P120-OH		
8	130	150	GPPGPPGPPGVTGMDGQPGPK	5OH	P132-OH, P135-OH, P137-OH, P138-OH, P147-OH		
9	151	186	GNVGPQGEPGPPGQQGNPGAQGLPGPQGAIGPPGEK	5OH	P159-OH, P162-OH, P168-OH, P174-OH	P183-OH?,P182-OH?, K186-OH?	P183-OH or K186-OH (Gly-X-Hyp motif or Hyl)
10	151	186	GNVGPQGEPGPPGQQGNPGAQGLPGPQGAIGPPGEK	5OH	P168-OH, P174-OH, P183-OH	P159-OH?, P161-OH?, P162-OH?	P159-OH, P162-OH (Gly-X-Hyp motif)
11	186	200	KGPLGKPGLPGMPGA	4OH	K186-OH, P192-OH, P198-OH	P195-OH?, m198?	
12	187	209	GPLGKPGLPGMPGADGPPGHPGK	4OH	P195-OH, P198-OH, P204-OH	P207-OH?, K209-OH?	P207-OH (Gly-X-Hyp motif)
13	187	209	GPLGKPGLPGMPGADGPPGHPGK	3OH	P198-OH, P204-OH, P207-OH		
14	210	234	EGPPGEKGGQGPPGPQGPIGYPGPR	5OH+Gal.Glc	P213-OH, K216-OH.Gal.Glc, P221-OH, P222-OH	P231-OH?, P233-OH?	P231-OH (Gly-X-Hyp motif)
15	210	234	EGPPGEKGGQGPPGPQGPIGYPGPR	4OH+Gal.Glc	P213-OH, K216-OH.Gal.Glc, P222-OH, P231-OH		
16	235	243	GVKGADGIR	OH+Gal.Glc	K237-OH.Gal.Glc		
17	240	254	DGIRGLKGTKGEKGE	3OH+3Gal.Glc	K246-OH.Gal.Glc, K249-OH.Gal.Glc, K252-OH.Gal.Glc		
18	253	270	GEDGFPGFKGDMGIKGDR	3OH+2Gal.Glc	P258-OH, K261-OH.Gal.Glc, K267-OH.Gal.Glc		
19	271	279	GEIGPPGPR	2OH	P275-OH, P276-OH		
20	280	290	GEDGPEGPKGR	OH+Gal.Glc	K288-OH.Gal.Glc		
21	291	308	GGPNGDPGPLGPPGEKGK	3OH+Gal.Glc	P297-OH, P303-OH, K306-OH.Gal.Glc		
22	309	320	LGVPGLPGYPGR	2OH	P312-OH, P315-OH, P318-OH		
23	321	342	QGPKGSIGFPGFPGANGEKGGR	4OH+Gal.Glc	K324-OH.Gal.Glc, P330-OH, P333-OH, K339-OH.Gal.Glc		
24	343	351	GTPGKPGPR	2OH	P345-OH, P348-OH		
25	367	390	GITGKPGPKGNSGGDGPAGPPGER	4OH+Gal.Glc	P372-OH, K375-OHGal.Glc, P386-OH, P387-OH		
26	391	405	GPNGPQGPTGFPGPK	2OH	P402-OH	P404-OH?, K405-OH?	K405-OH (Hyl)
27	406	423	GPPGPPGKDGLPGHPGQR	6OH	P407-OH, P408-OH,P410-OH, P411-OH, P417-OH, P420-OH		
28	432	456	TGPPGPPGVVGPQGPTGETGPMGER	4OH	P434-OH, P435-OH, P437-OH, P438-OH		
29	457	476	GHPGPPGPPGEQGLPGLAGK	6OH	P459-OH, P461-OH,P462-OH,P464-OH,P465-OH,P471-OH		
30	474	497	AGKEGTKGDPGPAGLPGKDGPPGL	4OH+Gal.Glc	P483-OH, P489-OH, P495-OH	K476-OHGal.Glc?, K480-OH.Gal.Glc?	K480-OH.Gal.Glc (Gly-X-Hyl.Gal.Glc motif)
31	477	491	EGTKGDPGPAGLPGK	3OH+Gal.Glc	K480-OH.Gal.Glc, P483-OH, P489-OH		
32	498	515	RGFPGDRGLPGPVGALGL	2OH	P501-OH, P507-OH		
33	505	534	GLPGPVGALGLKGSEGPPGPPGPAGSPGER	7OH+Gal.Glc	K516-OH.Gal.Glc, P521-OH, P522-OH, P524-OH, P525-OH, P531-OH	P507-OH?, P509-OH?	P507-OH (Gly-X-Hyp motif)
34	505	534	GLPGPVGALGLKGSEGPPGPPGPAGSPGER	7OH+Gal.Glc	P507-OH, P509-OH, K516-OH.Gal.Glc, P522-OH, P524-OH, P525-OH, P531-OH		
35	535	567	GPAGAAGPIGIPGRPGPQGPPGPAGEKGAPGEK	4OH+Gal.Glc	P546-OH, K561-OH.Gal.Glc	P549-OH?, P551-OH?, P554-OH?, P555-OH?	P549-OH, P555-OH (Gly-X-Hyp motif)
36	561	575	KGAPGEKGPQGPAGR	3OH+Gal.Glc	K561-OH, P564-OH, K567-OH	K561-OH.Gal.Glc, K567-OH.Gal.Glc	
37	576	600	DGLQGPVGLPGPAGPVGPPGEDGDK	3OH	P585-OH,P587-OH,P594-OH		
38	597	604	DGDKGEIG	OH+Gal.Glc	K600-OH.Gal.Glc		
39	603	617	IGEPGQKGSKGDKGE	4OH+3Gal.Glc	P606-OH, K609-OHGal.Glc, K612-OH.Gal.Glc, K615-OH.Gal.Glc		
40	613	645	GDKGEQGPPGPTGPQGPIGQPGPSGADGEPGPR	4OH+Gal.Glc	K615-OH.Gal.Glc, P621-OH,P633-OH	P642-OH?,P644-OH?	P642-OH (Gly-X-Hyp motif)
41	652	671	GQKGDEGPRGFPGPPGPVGL	4OH+Gal.Glc	K654-OH.Gal.Glc, P663-OH, P665-OH, P666-OH		
42	657	685	EGPRGFPGPPGPVGLQGLPGPPGEKGETG	5OH+Gal.Glc	P663-OH, P666-OH, P675-OH, P678-OH, K681-OH.Gal.Glc		
43	686	707	DVGQMGPPGPPGPRGPSGAPGA	3OH	P693-OH, P696-OH, P705-OH		
44	686	707	DVGQMGPPGPPGPRGPSGAPGA	5OH	P692-OH, P693-OH, P695-OH, P696-OH, P705-OH		
45	708	725	DGPQGPPGGIGNPGAVGE	2OH	P720-OH	P713-OH?, P714-OH?	P714-OH (Gly-X-Hyp motif)
46	726	740	KGEPGEAGEPGLPGE	4OH+Gal.Glc	K726-OH.Gal.Glc, P729-OH, P735-OH, P738-OH		
47	727	750	GEPGEAGEPGLPGEGGPPGPKGER	5OH+Gal.Glc	P729-OH, P735-OH, P738-OH, K747-OH.Gal.Glc	P744-OH?, P746-OH?	P744-OH (Gly-X-Hyp motif)
48	732	749	AGEPGLPGEGGPPGPKGE	4OH+Gal.Glc	P735-OH, P738-OH, P744-OH, K747-OH.Gal.Glc		
49	751	768	GEKGESGPSGAAGPPGPK	2OH+Gal.Glc	K753-OH.Gal.Glc, P765-OH		
50	756	772	SGPSGAAGPPGPKGPPG	3OH	P771-OH	P765-OH?, P767-OH?,K768-OH?	P765-OH, K-768 (Gly-X-Hyp motif)
51	773	787	DDGPKGSPGPVGFPG	3OH+Gal.Glc	K777-OH.Gal.Glc, P780-OH, P786-OH		
52	788	800	DPGPPGEPGPAGQ	3OH	P789-OH, P792-OH, P795-OH		
53	808	833	GDDGEPGQTGSPGPTGEPGPSGPPGK	4OH	P813-OH, P819-OH, P825-OH	P831-OH?,K833-OH?	P831-OH (Gly-X-Hyp motif)
54	825	843	PGPSGPPGKRGPPGPAGPE	3OH	P825-OH, P831-OH, P837-OH		
55	846	863	QGEKGAKGEAGLEGPPGK	3OH+Gal.Glc	K849-OH.Gal.Glc, K852-OH.Gal.Glc, P861-OH		
56	864	882	TGPIGPQGAPGKPGPDGLR	2OH	P873-OH, P876-OH		
57	880	890	GLRGIPGPVGE	OH	P885-OH		
58	882	914	RGIPGPVGEQGLPGAPGPDGPPGPMGPPGLPGL	5OH	P894-OH, P897-OH, P912-OH	P885-OH?, P887-OH?, P902-OH?, P903-OH?, P905-OH?	P885-OH, P903-OH (Gly-X-Hyp motif)
59	915	932	KGDSGPKGEKGHPGLIGL	4OH+2Gal.Glc	K915-OH, K924-OH, P927-OH	K915-OH.Gal.Glc?, P920-OH?, K921-OH.Gal.Glc?, K924-OH.Gal.Glc?	K915-OH.Gal.Glc or K921-OH.Gal.Glc or K924-OH.Gal.Glc
60	917	938	DSGPKGEKGHPGLIGLIGPPGE	4OH+2Gal.Glc	K921-OH.Gal.Glc, K924-OH.Gal.Glc, P927-OH, P936-OH		
61	942	959	KGDRGVPGPQGSSGPKGE	3OH+2Gal.Glc	K942-OH.Gal.Glc, P948-OH, K957-OH.Gal.Glc		
62	999	1013	AGQPGPPGPPGPPGEV	7OH	P1002-OH, P1004-OH, P1005-OH, P1007-OH, P1008-OH, P1010-OH, P1011-OH		

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        10         20         30         40         50         60
GPAGPMGLTG RPGPMGPPGS GGLKGEPGDM GPQGPRGVQG PPGPAGKPGR RGRAGSDGAR

         70         80         90        100        110        120
GMPGQTGPKG DRGFDGLAGL PGEKGHRGDP GPSGPPGPPG EDGERGDDGE VGPRGLPGEP

        130        140        150        160        170        180
GPRGLLGPKG PPGPPGPPGV TGMDGQPGPK GNVGPQGEPG PPGQQGNPGA QGLPGPQGAI

        190        200        210        220        230        240
GPPGEKGPLG KPGLPGMPGA DGPPGHPGKE GPPGEKGGQG PPGPQGPIGY PGPRGVKGAD

        250        260        270        280        290        300
GIRGLKGTKG EKGEDGFPGF KGDMGIKGDR GEIGPPGPRG EDGPEGPKGR GGPNGDPGPL

        310        320        330        340        350        360
GPPGEKGKLG VPGLPGYPGR QGPKGSIGFP GFPGANGEKG GRGTPGKPGP RGQRGPTGPR

        370        380        390        400        410        420
GERGPRGITG KPGPKGNSGG DGPAGPPGER GPNGPQGPTG FPGPKGPPGP PGKDGLPGHP

        430        440        450        460        470        480
GQRGETGFQG KTGPPGPPGV VGPQGPTGET GPMGERGHPG PPGPPGEQGL PGLAGKEGTK

        490        500        510        520        530        540
GDPGPAGLPG KDGPPGLRGF PGDRGLPGPV GALGLKGSEG PPGPPGPAGS PGERGPAGAA

        550        560        570        580        590        600
GPIGIPGRPG PQGPPGPAGE KGAPGEKGPQ GPAGRDGLQG PVGLPGPAGP VGPPGEDGDK

        610        620        630        640        650        660
GEIGEPGQKG SKGDKGEQGP PGPTGPQGPI GQPGPSGADG EPGPRGQQGL FGQKGDEGPR

        670        680        690        700        710        720
GFPGPPGPVG LQGLPGPPGE KGETGDVGQM GPPGPPGPRG PSGAPGADGP QGPPGGIGNP

        730        740        750        760        770        780
GAVGEKGEPG EAGEPGLPGE GGPPGPKGER GEKGESGPSG AAGPPGPKGP PGDDGPKGSP

        790        800        810        820        830        840
GPVGFPGDPG PPGEPGPAGQ DGPPGDKGDD GEPGQTGSPG PTGEPGPSGP PGKRGPPGPA

        850        860        870        880        890        900
GPEGRQGEKG AKGEAGLEGP PGKTGPIGPQ GAPGKPGPDG LRGIPGPVGE QGLPGAPGPD

        910        920        930        940        950        960
GPPGPMGPPG LPGLKGDSGP KGEKGHPGLI GLIGPPGEQG EKGDRGVPGP QGSSGPKGEQ

        970        980        990       1000       1010
GITGPSGPIG PPGPPGLPGP PGPKGAKGSS GPTGPKGEAG QPGPPGPPGP PGEV
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P,K: hydroxylation

Red sequence: observed in MS

K: gal.glc hydroxylysine

Black sequence: not observed in MS