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Molecular cloning, sequence characterization, and tissue expression analysis of three water buffalo (*Bubalus bubalis*) genes – *ST6GAL1*, *ST8SIA4*, and *SLC35C1*

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Table S1. Information of putative functional sites.

Gene	Putative functional sites	Position	Modified amino acids	Position	Modified amino acids	Position	Modified amino acids
ST6GAL1	protein kinase C phosphorylation	5-7	SlK	189-191	SlK	280-282	SyR
		98-100	SsK	192-194	SsR	343-345	SkR
		108-110	TiR	213-215	TvK	400-402	TiR
		122-124	TyK	225-227	TiR		
	N-myristoylation	80-85	GGpkAK	146-149	NISM	188-193	GSlkSS
		129-134	GVkfSA	158-161	NTSD	221-226	GTktTI
	casein kinase II phosphorylation	148-151	SmiE	330-333	SlcD		
		160-163	SdwE	383-386	TdeD		
	tyrosine kinase phosphorylation	283-291	KlhpDqpfY	344-352	KrktDvcyY		
	cAMP- and cGMP-dependent protein kinase phosphorylation	344-347	KRkT				
ST8SIA4	protein kinase C phosphorylation	3-5	SiR	101-103	SfK	257-259	SlR
		52-54	SdK	206-208	SdR	270-272	TgK
	cAMP- and cGMP-dependent protein kinase phosphorylation	6-9	KRwT	114-117	RRrT	276-279	KRpS
	N-glycosylation	50-53	NSSD	119-122	NISQ	204-207	NESD
		74-77	NSSL	200-205	GGfrNE	219-222	NDSV
	tyrosine kinase phosphorylation	103-110	HpgDvihY	290-298	RfcdEihlY		
	casein kinase II phosphorylation	183-186	TksD	206-209	SdrE		
SLC35C1	protein kinase C phosphorylation	5-7	SlK	216-218	TkK		
		67-69	SlR	301-303	Tak		
	N-myristoylation	188-194	GAegTL	273-278	GGlfGF	297-300	NVSG
		198-203	STlfGV	200-305	GTakAC		
		202-207	GVlaSL	332-337	GGssAY		
	Casein kinase II phosphorylation	348-351	TqeE	360-363	SnmE		

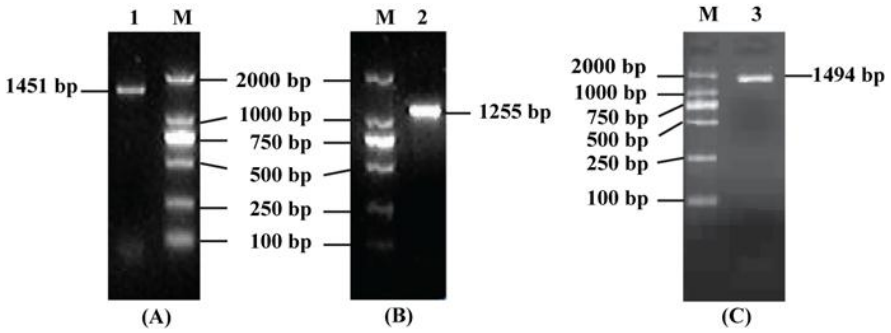
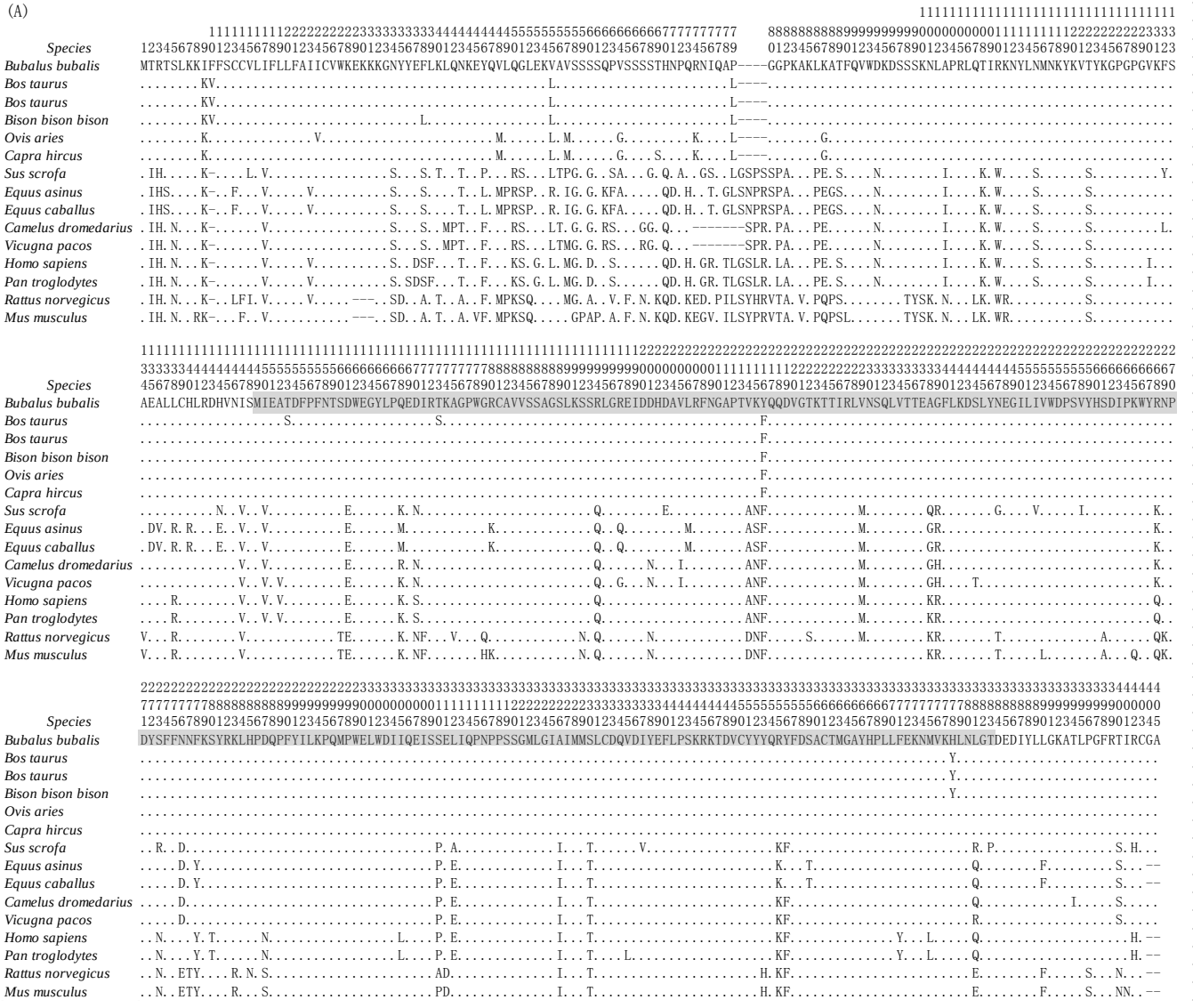
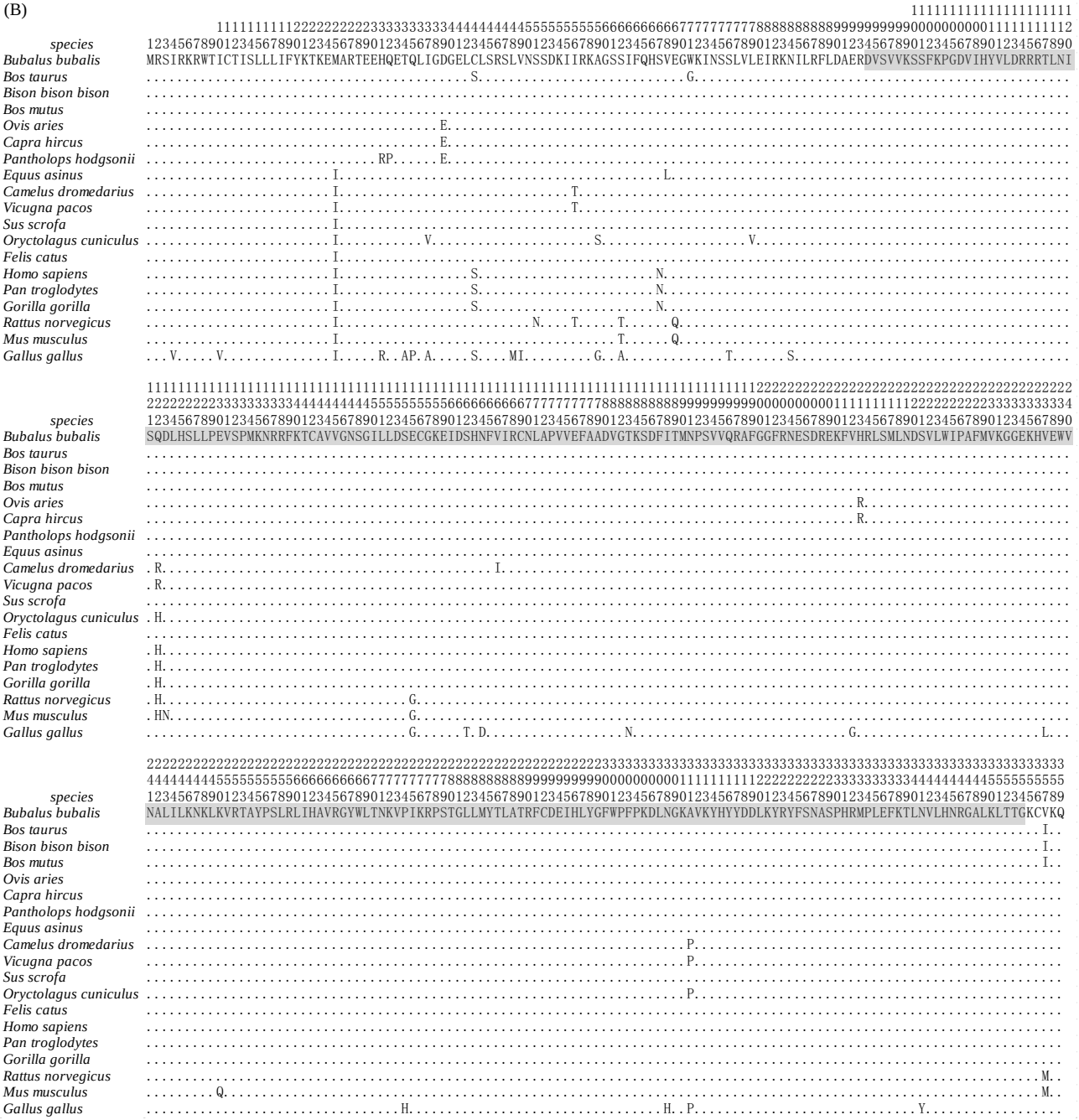


Figure S1. RT-PCR results for buffalo *ST6GAL1* (A), *ST8SIA4* (B) and *SLC35C1* (C) genes. Lane 1, 2 and 3 are PCR products for buffalo *ST6GAL1*, *ST8SIA4 and SLC35C1 genes*, respectively. Lane M, DL2000 DNA marker (TaKaRa, Dalian, China).


(A)
Species
Bubalus bubalis
Bos taurus
Bos taurus
Bison bison bison
Ovis aries
Capra hircus
Sus scrofa
Equus asinus
Equus caballus
Camelus dromedarius
Vicugna pacos
Homo sapiens
Pan troglodytes
Rattus norvegicus
Mus musculus

(B)


species
Bubalus bubalis
Bos taurus
Bison bison bison
Bos mutus
Ovis aries
Capra hircus
Pantholops hodgsonii
Equus asinus
Camelus dromedarius
Vicugna pacos
Sus scrofa
Oryctolagus cuniculus
Felis catus
Homo sapiens
Pan troglodytes
Gorilla gorilla
Rattus norvegicus
Mus musculus
Gallus gallus

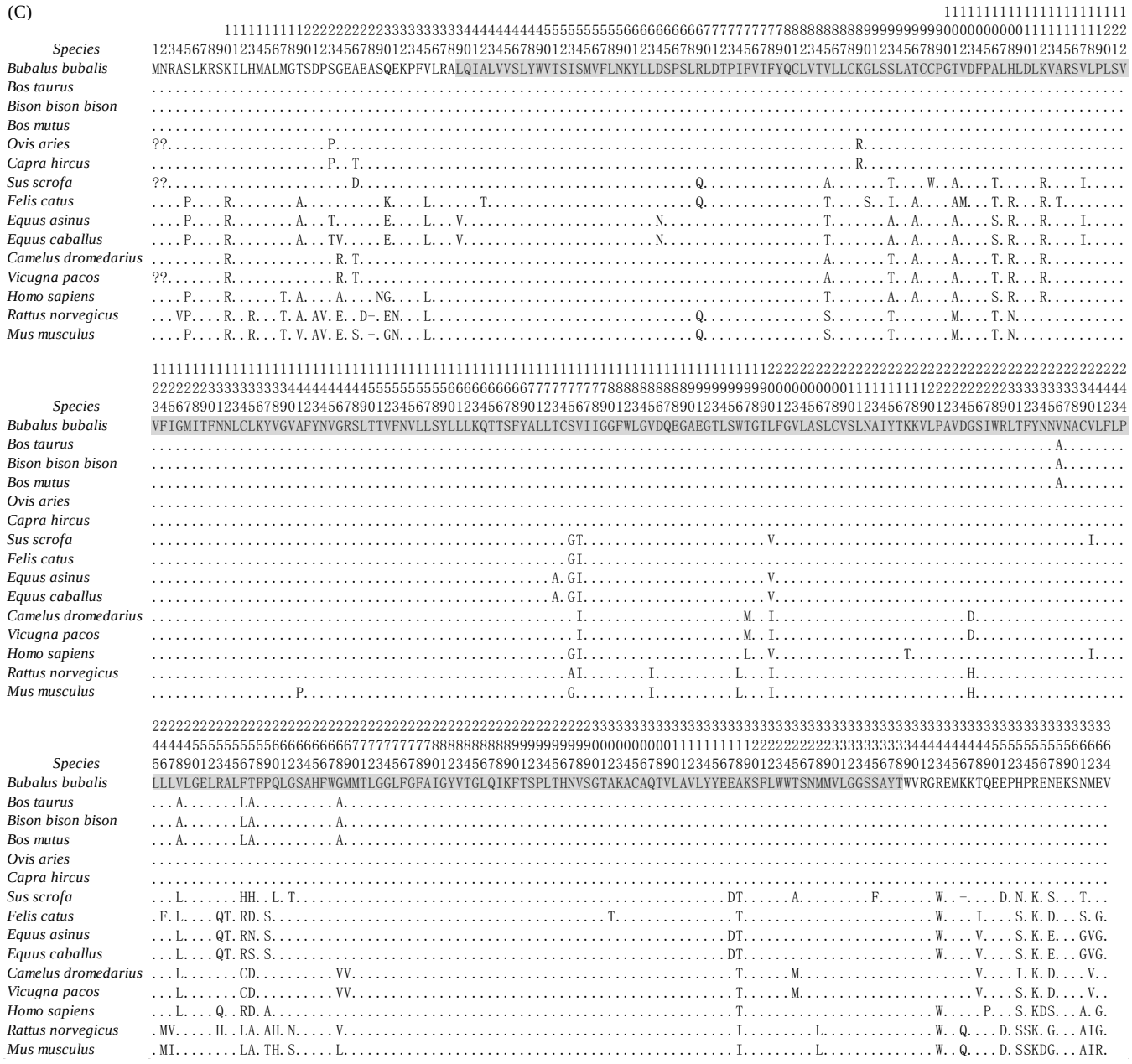


Figure S2. Multiple alignment of the amino acid sequences of buffalo ST6GAL1 (A), ST8SIA4 (B) and SLC35C1 (C) among different species. Dots (•) denote identical with the reference sequence. Missing and Indel information is demonstrated by question marks (?) and dashes (-), respectively. The numbering of the amino acid sequences was based on water buffalo. The conserved domains in the ST6GAL1, ST8SIA4 and SLC35C1 proteins found in this study are shaded. The cited sequences are **(A)** XM_010801212 (*Bos taurus*), NM_177517 (*Bos taurus*), XM_010853911 (*Bison bison bison*), NM_001267880 (*Ovis aries*), NM_001285660 (*Capra hircus*), JF836158 (*Sus scrofa*), XM_014843357 (*Equus asinus*), XM_005601877 (*Equus caballus*), XM_0109761 (*Camelus dromedarius*), XM_006200981 (*Vicugna pacos*), BC031476 (*Homo sapiens*), NM_001037291 (*Pan troglodytes*), NM_001113344 (*Rattus norvegicus*), NM_145933 (*Mus musculus*). **(B)** NM_001001163 (*Bos taurus*), XM_010831966 (*Bison bison bison*), XM_005904635 (*Bos mutus*) XM_004009095 (*Ovis aries*),

XM_005683461 (*Capra hircus*), XM_005966 (*Pantholops_hodgsonii*), XM_014838815 (*Equus asinus*), XM_0109967 (*Camelus dromedarius*), XM_006207971 (*Vicugna pacos*), EU643702 (*Sus_scrofa*), XM_00271 (*Oryctolagus cuniculus*), XM_003981165 (*Felis_catus*), NM_005668 (*Homo sapiens*), NM_001037302 (*Pan troglodytes*), XM_004042314 (*Gorilla gorilla*), NM_053914 (*Rattus norvegicus*), NM_009183 (*Mus musculus*), NM_204283 (*Gallus_gallus*). **(C)** XM_006042355 (*Bubalus bubalis*), BC148149 (*Bos taurus*), XM_010842330 (*Bison bison bison*), XM_005907598 (*Bos mutus*), XM_012096308 (*Ovis aries*), XM_005690145 (*Capra hircus*), XM_005660968 (*Sus_scrofa*), XM_003993198 (*Felis catus*), XM_014861265 (*Equus asinus*), XM_001489118 (*Equus caballus*), XM_0110006 (*Camelus dromedarius*), XM_015246122 (*Vicugna pacos*), NM_018389 (*Homo sapiens*), NM_001107748 (*Rattus norvegicus*), NM_211358 (*Mus musculus*).

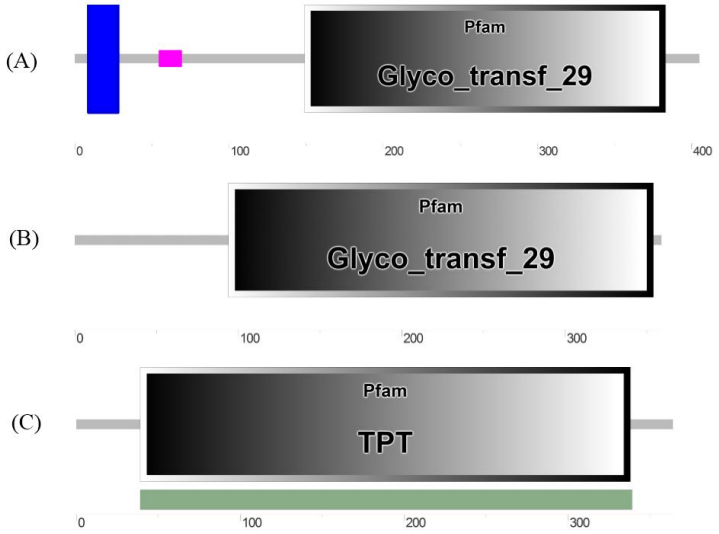


Figure S3. Putative conserved domains of the ST6GAL1 (A), ST8SIA4 (B) and SLC35C1 (C).