

**Supplementary Table I.**

<b>Figure</b>	<b>Gene</b>	<b>Abbreviation</b>	<b>Accession #</b>	<b>Forward Primer (5' to 3')</b>	<b>Reverse Primer (5' to 3')</b>
All	Ribosomal Protein L4	RPL4	NM_024212	GACAGCCCTATGCCGTCAGTG	GCCACAGCTCTGCCAGTACC
2	Zinc finger protein 42	Zfp42 (Rex1)	NM_009556	TTCACGGAGAGCTCGAAACT	TTCGAACGTGCACTGATACG
2	Gastrulation brain homeobox 2	GBX2	NM_010262	AAACTCAGCGAGGTGCAAGT	GCCTTGACACGTTTCCACTT
2	Nanog homeobox	Nanog	NM_028016	GGACTTTCTGCAGCCTTACG	GCTTCCAAATTCACCTCCAA
2	SRY-box containing gene 17	Sox17	NM_011441	CGGAATTCGAACAGTATCTGC	AGTCGTGTCCCTGGTAGGG
2	Alpha fetoprotein	AFP	NM_007423	GAAGCAAGCCCTGTGAACTC	GGTGATGCATAGCCTCCTGT
2	Goosecoid	Gsc	NM_010351	ATCTTCACCGATGAGCAGCT	CCACGTCTGGGTACTTCGTCT
2	Zinc finger protein of the cerebellum 1	Zic1	NM_009573	TCTGCTTCTGGGAGGAGTGT	CGGATGTGGTTGACCAGTTT
2	GATA binding protein 6	GATA-6	NM_010258	CAGGTCAAGACGGCCTCTAC	CACGGAGGATGTGACTTCG
3	Sulfate Ion Transporter	Slc26a2	NM_007885	AAGAAGTTCGCCGGGATTAT	TCACAGAAGGATTGCACTGC
3	PAPS Synthase 1	Papss1	NM_011863	AATGCAGGATACCCACAAGC	AGAGGATGGAGGAGCAGGAC
3	PAPS Synthase 2	Papss2	NM_011864	CATGCAGCTGTACTGGAGGA	GGAGATGGAAAGATGGCAAC
3	PAPS Transporter	Slc35b2	NM_028662	GCTCTCCGCTTCTTGTGTA	CACCAGGAGGTAGCCAGGTA
3	Hexokinase 1	Hk1	NM_010438	ACTTCACCAAGAAAGGCTTCC	GATGCCTCGGGTCTTGAGT
3	Hexokinase 2	Hk2	NM_013820	CCCTGGAGTCTCTGAAGCTG	CTCAGACCCTGCTCCATTC
3	Hexokinase 3	Hk3	NM_001033245	TGCAGGACTTGGGTCTGAG	ACAGCCACGCACACATATTG
3	Glutamine fructose-6-PO <sub>4</sub> transaminase 2	Gfpt2	NM_013529	GACACCGAGAGCTCCAAGTT	AGGATACCCTGGAGACAGTCC
3	Glutamine fructose-6- PO <sub>4</sub> transaminase 1	Gfpt1	NM_013528	GATGATGTTGCAGCAGTGGT	CAGGATGGTCTCCTGCAGTT
3	Glucose phosphate isomerase 1	Gpi1	NM_008155	TCCATTGCTCTGCATGTAGG	GAAGTGCTGGTCCATCCAGT
3	Glucosamine- PO <sub>4</sub> N-acetyltransferase 1	Gpnat1	NM_019425	AGAGAGGGAGAGTAGAAGATGTGG	ACAGTTTGCCGAGTTGCTTC
3	N-acetylglucosamine kinase	Nagk	NM_019542	ATTCCATCGACAACCTGGAG	ATAGTCGAACATGGCCTGCT
3	Phosphoglucomutase 3	Pgm3	NM_028352	TTCGAATGGGATTGCTAGCT	GTGAGGCCGTAACCATGACT
3	UDP-GlcNAc pyrophosphorylase 1	Uap1	NM_133806	AAAGGCGAAGTTCAGATGGA	GGAACGGGACAGTGAAGAAG
3	UDP-GlcNAc Transporter	Slc35a3	NM_144902	GGGCCTCGTTATCTGTCTTCT	GATGCAGGCCATTATCTTCAA
3	Galactose-4-epimerase, UDP	Gale	NM_178389	GTACCTGCCTCTGGATGAGG	GAAGTTGGACTTGCCGTAGG
3	Phosphoglucomutase 2	Pgm2	NM_028132	TGGGACCGTACGTAAGAAGA	CAGTTCACAGCTGAGTTTGCA
3	UDP-glucose pyrophosphorylase 2	Ugp2	NM_139297	CTGAAGCTTGGTACCCTCCA	AGGTATCGAGCAAGCCAGAA
3	UDP-glucose dehydrogenase	Udgh	NM_009466	GATGTGGAAGAGGTGGCAAC	CAACGCTGGCCTTTAGAAAC
3	UDP-GalNAc/UDP-GlcA Transporter	Slc35d1	NM_177732	GCTGGAAGCCTGGTGTACTC	TACTGGCCTCTACTGCTTG
3	UDP-glucuronate decarboxylase 1	Uxs1	NM_026430	CCGAGCCTGCTATGATGAG	CCTGCTTCATGTAGGCATAGC
3	UDP-Xyl Transporter	Slc35b4	NM_021435	TCACGTTTGCGCAGTTCTTA	GGCTTCCTTCCCAAGTTAGC

Figure	Gene	Abbreviation	Accession #	Forward Primer (5' to 3')	Reverse Primer (5' to 3')
3	Galactose-1-phosphate uridyl transferase	Galt	NM_016658	GCTCCCACGGGATTAAGAC	GGGTAGTAGTGGCGTGGA
3	Galactokinase 1	Glk	NM_016905	GCTGGATCAATTGGTTGAGG	CAAAGCCACCACCTGTCAT
3	UDP-Gal Transporter	Slc35a2	NM_078484	CGGTGCCCTCTCTCATCTAT	AGCTGGCAGGTTGCTGAT
4	Hyaluronan synthase 1	Has1	NM_008215	TCTTGAGGGCCTGGTACAAC	GTTGGTGAGGTGCCTGTCAT
4	Hyaluronan synthase 2	Has2	NM_008216	ATACACGGCTCGGTCCAAGTG	TTGCTCCATCGGGTCTGCTG
4	Hyaluronan synthase 3	Has3	NM_008217	GGGCCTGCCAGTCTACTTTG	TGAAGGAGGCTGTTGCGGTAC
4	Hyaluronoglucosaminidase 1	Hyal1	NM_008317	TGCAGAGGTTCCGTGGTATCC	ACTCCGTCAGGCACCAATGAG
4	Hyaluronoglucosaminidase 2	Hyal2	NM_010489	GGAGACCTGCCAATACCTCA	GCCCAGGACACGTTGACTAT
4	Hyaluronoglucosaminidase 3	Hyal3	NM_178020	TGCAGGTTCTGAACATCCT	ATGGGCCTTACATCTTGCTG
4	Hyaluronoglucosaminidase 4	Hyal4	NM_029848	TGAGGATTTCCACCATGACA	CCTCTTTGTAGCCCAGCTGT
4	Sperm adhesion molecule 1	PH-20	NM_009241	AAGCACCGGCCTTTACCCATC	TTCCACAACCTCGGTAGCGGAC
4	Meningioma exp. antigen 5 (hyaluronidase)	Hyal5/Mgea5	NM_023799	ACTCCCTTAGTTGCTGCACCC	CCCTGGCTCATAATGGGCTCC
4	Hyaluronic acid binding protein 2	Habp2	NM_146101	AAGCCTTCTGGAGCCTGTG	GTTCAGTACCTCCGTCTTCC
4	Hyaluronic acid binding protein 4	Habp4	NM_019986	TGGTGAAGGAGGACTATGAGG	GCTGGGATGTGATGTCATTG
4,5	CD44 antigen (Epicam)	Cd44	NM_009851	CAGTATCTCCCGACTGAGG	ATTTGGTCCATGGTGGGTAA
4	Hyaluronan mediated motility receptor	RHAMM	NM_013552	GCTCAGTTGAAAGTGTGCA	AGCACTGACGTCCCTCAGAC
5	Aggrecan	Acan/CSPG1	NM_007424	ACCTGGCGTGAGAACTGTCT	GTGCTTTGACAGTGGGTCAG
5	Versican	Vcan/CSPG2	NM_001081249	GTTGGGATGCTTGCTGGTAT	GCTCCATGTCGTCTGCAGTA
5	Neurocan	Ncan/CSPG3	NM_007789	ACTAGACCCTGGCTCCCAGT	GCCACTGTAGGTTCCATGCT
5	nerve/glia antigen 2	NG2 /CSPG4	NM_139001	AGAGGTGGAAGAGCAGCTGA	CAAAGGCGTCTGTCTGTGTC
5	Neuroglycan	Ngc /CSPG5	NM_013884	GGTCACCAGGAACCTCAGAA	TACAAATCAAGCAGGCTCCA
5	Bamacan	Smc3 /CSPG6	NM_007790	AGAGCGCCTGCACACTCTA	CGCCTCATCTTATCCCACTT
5	Brevican	Bcan /CSPG7	NM_007529	GCAGCCTGACAGCTACTTCC	ACTCCACTGTCCCTGGTCAT
5	Decorin	Dcn	NM_007833	TCCAGAGGCATTCAAACCTC	TCAGGCAGTTCCCTTAGTTGG
5	Biglycan	Bgn	NM_007542	TGTGGCTACTCACCTTGCTG	CCAGAAACCCTTCTGCTCAA
5	Procollagen 1Xa2	Col9a2	NM_007741	GGGCTACCAGGTTTCTGTGA	AGGCGAGCAGAGGTATAGGC
5	Thrombomodulin	Thbd	NM_009378	GAGGCTGCCACATCTCTAG	GTTTGAAAGTCCGCACCACT
5	CD74 antigen	Cd74	NM_010545	CTTCGAGAGCTGGATGAAGC	TCTGTGGGCTTCTTCTCCTC
5	RPTPbeta/ Phosphacan	Ptprz1	NM_001081306	ACACCACAGGCTTTCACTCC	GTCTGCGAATGGAGGATGTT
5	Tenascin-C	Tnc	NM_011607	CAATGCTCAGTGGATCTGGA	GAAGCTCCCACTGGACTCTG
5	Tenascin-R	Tnr	NM_022312	GAGCAGGACATGAGTGCTGA	AACCTGGCTTTCATGGTCTG
5	Asporin	Aspn	NM_025711	CTGGGAAATACAACCTGCAAC	ACATTCCAAGCTGAACACTC

Figure	Gene	Abbreviation	Accession #	Forward Primer (5' to 3')	Reverse Primer (5' to 3')
5	Epiphycan/DSPG	Epyc	NM_007884	AAGCTGCCTCACCTCCAAG	TTGGCAATTCTGGAAGCTG
5	Serglycin	Srgn	NM_011157	CGGAGAGCCAGGTACCAGT	CCTTCTCCTCGATGCAGTTC
5	Perlecan	Hspg2	XM_978879	GTGGTAGTCGGCCACTCTGT	TTTGCTCCATGTCACCTGAG
5	Agrin	Agri	NM_021604	GCCGACTGTCTGCCTCTTCTG	TTAGCGGTGCCGTAGTTCTGC
5	Syndecan 1	Sdc1	NM_011519	TAGTGGGCCTCATCTTTGCT	TGCCTTCGTCCTTCTTCTTC
5	Syndecan 2	Sdc2 /HSPG1	NM_008304	GGAAGCTACGACCTTGGAGA	TCCTTAGTGGGTGCCTTCTG
5	Syndecan 3	Sdc3	NM_011520	CCCTCACCACCCACTACTGT	CGAGGTAGCTGTGTTGACCA
5	Syndecan 4	Sdc4	NM_011521	GCCACTGGATAAACACATCC	CTTCCAGTTCCTTGGGCTCT
5	Glypican 1	Gpc1	NM_016696	GTGCCTTCCGGGACCTATAT	GTCTCCTCAAGGTGCAGGTT
5	Glypican 2	Gpc2	NM_172412	GACACCTTGGCGGATTTCT	ACTGTATTGTGGGTGCAGCA
5	Glypican 3	Gpc3	NM_016697	GCTCACCCGAATGTGGTATT	TAACCACCGCAAGGCTTAAC
5	Glypican 4	Gpc4	NM_008150	TGGAGAGGGAAGTGAAGC	GAATGGTCAGTGGCGTGGTA
5	Glypican 5	Gpc5	NM_175500	AGTCCATTTGGCAACATTCC	AGATTAAGCGCCTGCAAGAA
5	Glypican 6	Gpc6	NM_011821	GGGTAACGTCAACCTGGAAG	CTGGAACATCCTCTCCAGGA
5	Collagen XVIII	Col18a1	NM_009929	TTTCGCTGCTGTTTCATGTC	CAGCATCTGTGATGGCAAT
6	Xylosyltransferase 1	Xylt1	NM_175645	GTGGCATTCTCCACAGATGA	CAGCAGGGAGAAGGGTGTA
6	Xylosyltransferase 2	Xylt2	NM_145828	GAGCCTGGACTGTCCGCTTG	ACGTCAACGGCAGCACGAG
6	Xylosylprotein $\beta$ 1,4-galactosyltransferase 7	$\beta$ 4galt7	NM_146045	CGGGCAGCACTCATCAATGTG	GAGGGAGCAGGTCCACATCG
6	$\beta$ 1,3-galactosyltransferase 6	$\beta$ 3galt6	NM_080445	TGGTGACACACAAGCAAAGCC	TGCACAACCGGCCCTCATG
6	$\beta$ 1,3-glucuronyltransferase 1	$\beta$ 3gat1	NM_029792	ACCGTGACATCGTGGAAGTGG	GGATGGTGGGCAGCGTGTG
6	$\beta$ -1,3-glucuronyltransferase 2	$\beta$ 3gat2	NM_172124	CACACTCGGACAGAGAAGGTC	CCTCAATGTTCACTGTGTCCA
6	$\beta$ -1,3-glucuronyltransferase 3	$\beta$ 3gat3	NM_024256	GGACTCGCGGTGTCTCAG	CCCATGCTGTGTGGAAACC
6	Exotoses (multiple)-like 2	Extl2	NM_021388	GCCACATCTGCAAACCTCCGG	ACACAAGGATGACCACCAGGG
6	Exotoses (multiple) 1	Ext1	NM_010162	TGGAGTCCTGCTTCGATTTT	CTTCTGCTGCGGGTACAC
6	Exotoses (multiple) 2	Ext2	NM_010163	ACGTCACCCGTCTCTCCATC	CAATGGAGTGAGGCCAGAAC
6	Exotoses (multiple)-like 1	Extl1	NM_019578	ACCCAGAAGATGTGCGACA	CACCTGGAGGTGTCAAAGCA
6	Exotoses (multiple)-like 3	Extl3	NM_018788	CCACCCTATGCCTCACCTAA	GTTCCAGCCACGGTAACAGT
7	N-deacetylase/N-sulfotransferase 1	Ndst1	NM_008306	GGAATCCAGTCGCTTCAAAT	GTCTGTGAGTGTGGGCATGT
7	N-deacetylase/N-sulfotransferase 2	Ndst2	NM_010811	GGGATTCTACGGATCTGG	TAGAGCTGCCAGTGGATGG
7	N-deacetylase/N-sulfotransferase 3	Ndst3	NM_031186	GGTGTGTTGTGGAGAGCCAGT	GAACCGGATGGATTCTAGCA
7	N-deacetylase/N-sulfotransferase 4	Ndst4	NM_022565	TCAGGTCACCAGCACTGAAG	GAATGAAGCCCTTCTGTACC
7	Glucuronyl C5-epimerase	Glce	NM_033320	TCTCAACCACAGCCCACATGG	GGCCAGCCACCTTCTCATCC

Figure	Gene	Abbreviation	Accession #	Forward Primer (5' to 3')	Reverse Primer (5' to 3')
7	Heparan sulfate 2-O-sulfotransferase 1	Hs2st1	NM_011828	GACTTCATCATGCTGCTCGA	TGTACGGTAGAGGTCGGTAGC
7	Heparan sulfate 6-O-sulfotransferase 1	Hs6st1	NM_015818	GTGTGGAGGTGGATGAGGAC	TACAGCTGCATGTCCAGGTC
7	Heparan sulfate 6-O-sulfotransferase 2	Hs6st2	NM_015819	AGAGTTCGCCAGGTTTGTG	GAAGTCTACCTTGCCGAGGA
7	Heparan sulfate 6-O-sulfotransferase 3	Hs6st3	NM_015820	GTTCTGTCCTCGATTCAACT	GCCCTTTGATGTTGAAGTCC
7	Heparan sulfate 3-O-sulfotransferase 1	Hs3st1	NM_010474	GCTCAAACAGCAGGAGCTTC	ATTGGATGCTGTGCCTTCTC
7	Heparan sulfate 3-O-sulfotransferase 2	Hs3st2	XM_112440	GGAATTGGTGTGCCTACAGC	TTGTTGGACTTGATGGCTGA
7	Heparan sulfate 3-O-sulfotransferase 3A1	Hs3st3a1	NM_178870	CGCAGCATCTTCAGGAAGT	GCCAGGCAGTAGAAGACGTAG
7	Heparan sulfate 3-O-sulfotransferase 3B1	Hs3st3b1	NM_018805	GAGCCAGGAGGAGCAGAGT	CGCTGAAGAAGCTGGAGATG
7	Heparan sulfate 3-O-sulfotransferase 5	Hs3st5	XM_356462	GTGGTCAAAGCTTCCAAGA	TGTACCACTCAATGCCCTTG
7	Heparan sulfate 3-O-sulfotransferase 6	Hs3st6	NM_001012402	GCATTGGCCTCTATGCTCAG	CAGGAAGTGGGACAGAGGAA
7	Chondroitin sulfate GalNAcT-2	Galnact2	NM_030165	CACCTCTGGCATGAGAAACA	CCTCATTTCATGGCTTTGGAT
7	Carbohydrate (chondroitin) synthase 1	Chsy1	XM_194358	CACAAGAGCTGGCAGACAGA	CGAGCTTCTTCAGGGAATTG
7	Chondroitin polymerizing factor	Chsy2	NM_001001565	TCTTGCTCTCTCGCACACTG	GAGCACTGACGATGTCGTTG
7	Putative Chondroitin GalNAc Transferase	Chsy3-like	NM_001081328	GCCTGGGCAATACTGAAGAA	GTCCTCCCATGCAGAAGTTC
7	Dermatan sulfate epimerase	Dse	NM_172508	GGAGAAGGCGTAGGAGCATA	GGAGGATGAGATTCCGTTGA
7	Dermatan sulfate epimerase-like	Dsel	XM_986398	CATGGATCGGATGGTTAGCT	AATGGCCAACTGGAACCTC
7	Dermatan 4 sulfotransferase 1	D4st1	NM_028117	GAACGCCTCCTGTCTGCTT	CCCATATCGCTGCTGGTACT
7	Uronyl-2-sulfotransferase	Ust	NM_177387	CAAGCTGAACGTGAACGAAA	AGCAGCACATCTTCCAGCTC
7	Carbohydrate sulfotransferase 3	Chst3	NM_016803	GCCTTGGTCTACCGTGATGT	AAGGGCTCCAGCACATACAG
7	Carbohydrate GlcNAc sulfotransferase 7	Chst7	NM_021715	TCTGTGGCAGGCACTGTATC	CGCAGCATGTCTCTTAGTGC
7	Carbohydrate sulfotransferase 11	Chst11	NM_021439	AAGTACAGCGATCCCATGGA	GGTTAAGGGTCTTCAGGTTGG
7	Carbohydrate sulfotransferase 12	Chst12	NM_021528	AGACTGGTTTGCCAACATCC	AACAAAGTCGGCCTCGTAGA
7	GalNAc 4-sulfate 6-O-sulfotransferase	GalNAc4S-6ST	NM_029935	GAGGACTGAGGGCAATGAAA	AGACCAGGCTACATCGCTTC