

**Supplementary file 5: Homologous mRNA sequences of ovine B4GALNT2 for phylogenetic tree construct**

>B4GALNT2\_Ovis aries, NM\_001318076.1

GGCTGGACAATCGGCTGGAGGCTGCCCGCTCCACCAGCCCAGGGCGTCCGAGGCG  
GCGGGATTCTGTATGACTTCGTCGGCTCTAGATATCTGTGGATCCTCAAGATGTCCGT  
CTTATTCTTGGCCCTGGCATTGTATTATTATGTTAGAAGTGTGTCCCTGTATTCAAGAA  
TTCAGCATCTACAAAGCACCACCTCCTCAGCCTAGTGTGGCTGCCGAATGCTGAAGC  
TTCTCCCTGAGAACACATCAAGAGCCTCTTACCCACGATGGAATCTGGCTTCCCG  
AAAAAACAGTCAAATGTGAAGCCTGGAAACTTCAGCAAAGCTATTACTTGAAAATG  
CTTATGCCAGACTGAACCTCGGTGAAAATGAGGAGACAAGCTGAATTGAACA  
CTTCAGAGAACAGAACGGCTGCCCGCCACCAGGGCTGCTGGCTCAGGCCAACCT  
CCCCCTTGGGTACCCATCCACGGGTGGAAGTGAATGCCCTGCACACAATTCCCATCC  
CAGGTCTCCAGTTGAAGGACCAGACGCTCCCATCTATAAGGTCAACCTGAAAGCTTC  
TCTGGGGACACTGAACACCCCTCGCTGACACCCAGACACTGTGGTGCAGGGCAGAGG  
CCAGAAGGAGCTGACCATTGACCAGTAGCCGGACGGTTTGAATTTCATCCTCCAG  
CACGTGACATACACCAGCACAGAGTACCAAGCACCCAGGGTGGATGTGGTAGTCTG  
GAGTCCAACCTCCTCAGTGGCAAGTTCCAGTGACCATCCGCTTCTGTTATGCCTAA  
GTTATATGACCTGGACCAGAGAGGAAGCTCAGAAACCTGGTGTCCATTGCCACCAA  
ACTTTCCCTCGTCCCCACAAGCTCAAGACCAGTCCAGAGCATTGTGTATTACCC  
AGACTTGACCGTGATCGTCGCTGATGACAGCAAGGAGCCCTGGAAATTAAATGACAGC  
TACGTGGAGTATTACCATGCCCTACGGCAAGGGTGGCTGGTAGAACCTGG  
CCATATCTCAGGTTACCACCAAATACGTTCTCTGGGTGGACGATGACTTCTTCAATG  
ACAAGACCAAGATTGAGGTGCTGGTGGATGTCCTAGAGAACCGAACGGATGTGG  
TAGGTGGCAGTGTGCTTGGAAATGTGTTCCAGTTAAGCTGTTCTGGAGCACAGCAA  
GAATGGGGACTGTCTCATCGCGGACAGGATCTTCGGGCCCTGGACGGCTCCCC  
AACTGCGTGGTGACCAGCGCGCTCGTTAACCTTCTGGGCCACACAGAGCGGCTCC  
AAAGAGTTGGCTTGACCCCGCCTGCATCGAGTGGCTCACTCAGAGTTCTTATTGAT  
GGGCTCGGGAGTCTGCTCGTGGCTGCTCAGATGTGATTAGGTCAACCAGCCCC  
ATTCTCAGTGGCGGACCCAGAGCTGGCAGCCCTGGAGAACACCTACCGCAGATACCG  
GGCCAACACCAATGATAAGGTCCAGTTCAAGCTAGCTCTCCACTACTTCAAGAACCA  
CTCCAATGTACCACATAAAGATGCTGGACTTGGCAGAGTGTAGGTCTGGCTCAGTT  
ACTGTAGGTCAATTAGAAATGGACCAATCACTGATCAGGGCAATGGCGATTGTATTAAATA  
ATAATTATTGTTGGTGTCTTACCATTTGGGAATCACTGTACACACCTGATATGAAGAGC  
TGACCCATTAGAAAAGACCTAACGCTGGAAAGATGGAAGGCAGGGAGGAAGGG  
GACGACAGAGGATGAGATGGTTAGATGGCATCACCGACTCGATGGACATGAGTTGGG  
TAAACTCCGGGAGTTGCTCGGGTTATGGGTCAAAGAGCTGGACACGACAGAG  
TGACTGAACGTACAAGTAACGTACATAATGGTGGTGGTGGTTAGGCAATA  
AGTCGTGTCCAACCTTCGTCACATCATCTCATGCAAAAGAGCACATGATGGACTGGT  
ATCCTGATCAAAAGGATCAAAAGGATCGGTACCTCTGGGTCTTGAGAGTTATTGG  
TGGGTGTTACATCACAGATCATCTCTAGCATCAACT

>B4GALNT2\_Capra hircus, NM\_001314262.1

ATGACTTCGTTGGCTCTAGATATCTGTGGATCCTCAAGATGTCCGTCTTATTCTGGCC  
CTGGGCATTGTATTATTATGTTAGAAGTGTGTCCCTGTATTCAAGAATTCAAGCATCTAC  
AAAGCACCACCTCCTCAGCCTAGTGTGGCTGCCGAATGCTGAAGCTTCTCCCTGAGA

AACACATCAAGAGCCTTTACCCACGATGGAATCTGGCTTCCCAGAAAACCAGTG  
CAAATGTGAAGCCTGGAAACTTCAGCAAAGCTACTACTTGAAAATGCTTATGCCAA  
ACTGAACCTCCCGGGTGAAGTACAGCTGAATTGAAACACTTCAGAGA  
AGAGAAGGGCTGCCTGCCAACGCCCTGCTGGCTCAGGCCAACCTCCCCTGGGT  
ACCCATCCACGGGGTGAAGTATGCCCTGAACACAATTCCATCCAGGTGTCCA  
GTTGAAGGACCAGACGCTCCATCTAAAGGTACCCCTGAAAGCTCTGGGACA  
CTGAACACCCCTCGCTGACACCCAGACACTGTGGTCAGGGCAGAGGCCAGAAGGAG  
CTGACCATTGACCAGTAGCCGGACGGTTGAATTCACTCCAGCACGTGTATA  
CACCAAGCACAGAGTACCAAGCACCCAGGGTGGATGTGGTAGTCTGGAGTCAA  
CTCAGTGGCAAGTTCCAGTGACCATCCGTTATGCCATAAGTTATGACCC  
TGGACCAGAGAGGAAGCTCAGAAACCTGGTGTCCATTGCCACCAAAACTTCCTCCGT  
CCCCACAAGCTCAAGACCAGCTCCGGAGCATTGTGAGTATTACCCAGACTGACTG  
TGATCGTGGCTGATGACAGCAAGGAGCCCTGGAAATTAAATGACAGCCATGTGGAGTA  
TTACACCATGCCCTACGGCAAGGGTTGGTTGCCGGTAGAACCTGCCATATCTCAGG  
TCACCACCAAAACGTTCTCTGGTGGACGATGACTTCTCTCAATGAGAACCAA  
GATTGAGGTGCTGGTGGATGTCCTAGAGAACCGAACTGGATGTGGTAGGTGGAGT  
GTGCTGGAAATACGTTCCAGTTAACGCTGTTAGCTGAGCACA  
CTAACAGAGTGGAGCAGCTGGCAGCCCTGGAGAACGACCTACGGCAGAACCGGG  
GATGATAAGGTCCAGTTCAAGCTAGCTCCACTACTCAAGAACCATCTCAATGTAC  
CACATAA

>B4GALNT2\_Bos taurus, XM\_010816190.2

CTACCCGGGTGGTGCCTAGGGCTGGACAATCGGCTGGAGGCTGCCGGCTCCACC  
AGCCCAGGGCGTCCGAGGCAGGGGGATTCAATGATGACTTCGTTGGCTCTAGATATCTG  
TGGATCCTCAAGATGTCCGTCTTATTCTTGGCCCTGGGATTGTGTTATTATGTTCA  
AGTGTGTACCTGTATTCAAGATTCACTGAGCTACAAAGCACCACACTCCTCAGCCTAGTCC  
GGCTGCCGAATGTTGAAGCTCTCCCTGAGGAACATATCAAGACCCCTTTACCCAC  
GATGGAATCTGGCTCTTCCGAAAAACCAAGTGCAAATGTGAAGCCTGGATACATCGGC  
AAAGATATAACTTTGAAAATGCCTATGACCAAGACTGACCTCCCTGCGGTGAAAATGAG  
GAGACAAGCTGAATTGAACACTTCAGAGGAGAGAACGGCTGCCACC  
CCTGCTGGCTCAGGCCAACCTCCCTTGGGTACCCGGCACGGAGTGGAGGTGATG  
CCCCTGCACACAATTCCATCCGGTCTCCAGTTGAAGGACCAGACGCTCCATCTA  
TAAGGTACCCCTGAAAGCTCTGGGGACACTGAACACCCCTCGCTGACACCCAGAC  
AGTGTGGTGCAGGGCCAGGCCAGAACAGCTGACCATTTGACCAGTAGCCGGAAAG  
GTTTGAAATTCACTCCAGCACGTGACATACACCAGCACAGACTACGACCC  
GGGTGGATGTGGTAGTCTGGAGTCCAACCTCAGTGGCCAAGTTCCAGTGACCAT  
CCGCTTCCCTGTTATGCCATAAGTTACGACCCCTGGACCAGAGAGGAAGCTCAGAAAC  
CTGGTGTCCATTGCCACCAAAACTTCCTCCGCCCCACAAGCTCATGACCATGCTCCA  
GAGCACTCGTGAAGTATTACCCAGACTGACCGTGATCGTGGCTGATGACAGCAAGGAG  
CCCCTGAAAATTAAATGACAGCCAGTGGAGTATTACACCAGGCCCTACGGCAAGGGTTG  
GTTTGCTGGTAGGAACCTGCCATATCTCAGGTACCCAAATACGTTCTCTGGGTGG

ACGATGACTTCTCTCAATGACAAGACCAAGATTGAGGTGCTGGTGGATGTCCTAGA  
GAAGACCGAACTGGATGTGGTAGGTGGCAGTGTGCTGGAAATATGTTCCAGTTAAG  
CTGTTCTGGAGCACAGTAAGAACGGGGACTGTCTCCATCGGCGGACAGGATCTTCG  
GGCCCTGGACGGCTCCCCAACTGCGTGGTGACCAGCGCGTTGTTAACTCTCCT  
GGCCCACACAGAGCGGCTCCAAGAGTTGGCTTGACCCCCGCCTGCAGCGAGTGGC  
TCACTCAGAGTTTATTGATGGGCTCGGGAGTCTGCTCGTGGGTCCTGCTCAGATG  
TGATTATAGGTACCAGCCGATTCTCAGTGGAGGACCCAGAGCTGGCAGCCCTGGA  
GAAGACCTACCGCATATACCGGCCAACACCAATGATAAGATCCAGTTCAAGCTAGCTC  
TCCACTACTCAAGAACCAACCTCCAATGTGCCACATAAAGATGCCTGGACTTCGGCAA  
AGTGCTAGGTCTGGCTAGTTACTGTAGGTCAATTAGAAATGGACCAACTACTGATCAGA  
ACAATGGCAACTATATAATAATTATTGTTGATGTCTTACCAATTGTGAATCACTGT  
ACACACCTGATGTGAAGAGCTGACTCGTTGAAAAGGCCAAAGCTGGGAAAGATT  
GAAGGCAGGAAGAGAACGGGACGACAGAGGATGAGATGGTTAGATGGCACCACCAA  
CTCAATGGACATGAGTTGGTAAACTGTGGAAGTCGGTATGGACTGGAGGCCTGG  
TGTGCTCGGTTCTGTTGCTGCAAAGAGTTGGACACAACACTGAGTGAUTGAA  
CTGAACACTGTACATATAATGGTGGTGGTGGTTAGGCAATAAGTCGTGTCCAGCTT  
TGAATCACATTATCTCATGCAAAAGAGCACATGATGGATTGGTATCCTGATCAAAAGG  
ATCAAAAGGATTGGTATCCTCTGGGCCTTGAGGGTTATTGGTGGTATTACATCACA  
GATCATCTAGCGTCAACTGTCATCCACAAATTTTATTGGTCATACTTGTGGACTC  
AAATAATGTGAATAACCCAGAGTCCTACCTTGAGGAAGTGGCAGTCTGGTTAGTTCA  
TTCCACTAGTAGCATTGGCAGCCAGGCTCAGAGGATCAGAGTGGGAGAACCTACAA  
GGGCCATGCAGGTGAGGAGGGCTCTGTGGAGTCAGCTTACCTGCAGTCCAGCACATG  
GATGGGATCCAGGAAAGTGGAGGGCAGAGATCAGGGTAGTCCACTCACTGCTGG  
ATAAAGCTTCCCTGGCATTAGATACTTACCATAAAGACACATCCAGAATGCTGGGAT  
TGAACCTGGACCTGTACTTGTAAAGCGCTGTGGCAAGCCACTAAATTCCAGTTGCTT  
ACTACTCAAGACTGCCATTGTCAGAACGGGAGCCATGGTGAACGCGGGTTTCTC  
TGTACCTTGGAGTCAGTGGATTCTCCCAGTGTGCGCTGCCTTTGTTCCACTCT  
TTCCTACTGAAGACAGCCACGGTAGTTCAAAATCTCTGAAAAATGTGTGAGATGTTAAT  
TCATGAAAAACGTTTGGTCTCAAATAATTAAAAACTGCATGCTCTATCTCCCT  
CTTGACAATACAATTCAATTAGTATATTCAAGGCTCTGAGAACGACTCCGTGTAAG  
AAATTGACTTAACGTCAATTCACTGAGTATTCTCAGATATGGATACAGACTGCCATCA  
TTTGTCTCCTGAACACAAATAAGCACATACCTCATTCCATTGTA

>B4GALNT2\_Homo\_sapiens transcript variant 1, NM\_153446.2

ATAGGTGGCTGCAGAGCGAGGTGACGGCGCGTGGAAACGAACACTCTGCACCCCCAG  
GAATGGGGAGCGCTGGCTTCCGTGGAAAATTCCACGTGGAAGTGGCCTCTCGCGG  
CCGGGAATGTGTCTCGGGACGCCGAGTGTGGAAATCGGCTGGAGTGCAGGGCTT  
CGGGGCTCTGCTGGAACTCAGAGCGCTGACCCAGCCTGGGGCCGTTGCTGCC  
CACGGGAGGAGCCGCCGTAGGGCTCGAGATTCTGTGGCTCTCAAGATATTGGTCA  
TAATCCTGGTACTTGGCATTGGATTGTTAGTCAGAACGATGTCCTCAAGCAGTGT  
TCAGCAGCCCCAAGCCAGAACCTCAAGTCCGCCCCGGGTGTCAGAACGACTGAAGC  
TTCTGCCTGAGGAACGTCTCAGGAACCTCTTCCACGATGGAATCTGGCTGTTCCG  
AAAAATCAGTGCAGAACGCAAGCCAAACAAAGAGCAGGGAGGTTACAACCTTCAGGAT  
GCCTATGCCAGAGCGACCTCCCAGCGGTAAAGCGAGGAGACAGGCTGAATTGAA  
CACTTCAGAGGAGAGAACGGCTGCCCGCCACTGCCCCGCTGGTCCAGCCAAAC

CTCCCCTTGGGTACCCAGTCCACGGAGTGGAGGTGATGCCCTGCACACGGTCCCCA  
TCCCAGGCCTCAGTTGAAGGACCGATGCCCGTCTATGAGGTACCCGACAGC  
TTCTCTGGGGACACTGAACACCCTGCTGATGTCCAGACAGTGTGGTCAGGGCAGA  
GGCCAGAAGCAGCTGATCATTTCTACCAGTGACCGGAAGCTGTTGAAGTTCATTCTC  
AGCACGTGACATACACCAGCACGGGTACCAGCACCAGAAGGTAGACATAGTGAGTC  
TGGAGTCCAGGTCTCAGTGGCAAGTTCAGTGACCATCCGCCATCCTGTCATACCC  
AAGCTATACGACCCTGGACCAGAGAGGAAGCTCAGAAACCTGGTACCATGCTACCA  
AGACTTCTCCGCCCCACAAGCTCATGATCATGCTCCGGAGTATCGAGAGTATTAC  
CCAGACTTGAACGTAATAGTGGCTGATGACAGCCAGAAGCCCCTGGAAATTAAAGACA  
ATCACGTGGAGTATTACACTATGCCCTTGGGAAGGGTGGTTGCTGGTAGAACCTG  
GCCATATCTCAGGTACCACCAAATACGTTCTCTGGGTGGACGATGATTTCTCTCAA  
CGAGGAGACCAAGATTGAGGTGCTGGTGGATGTCCTGGAGAAAACAGAACTGGACGT  
GGTAGGCGGCAGTGTGCTGGAAATGTGTTCCAGTTAAGTGTGCTGGAACAGAGT  
GAGAATGGGGCCTGCCTCACAAAGAGGATGGGATTTTCAACCCCTGGATGGCTCC  
CCAGCTCGTGGTACCAGTGGCTGGTCAACTTCTCCTGGCCCACACGGAGCGACT  
CCAAAGAGTGGCTTGTACCCCCCCTGCAACGAGTGGCTCACTCAGAAATTCTCATT  
GATGGGCTAGGGACCCTACTCGTGGGTCATGCCAGAAGTGAATTAGGTACCAAGT  
CTCGGTCTCCAGTGGGACTCAGAACTGGCTGCCCTAGAGAAGACCTACAATA  
CCGGTCCAACACCCCTACCCGGTCCAGTTCAAGCTGGCCCTCCACTACTCAAGAAC  
CATCTCCAATGTGCCGCATAAAGGTGTGAGGGCATAGGAGAACACTAGGCTGGCTGG  
TTATGGTATCTATAGCAGGCCACCAAAACTGGACTCCTGATAGGTGAACGTTGTACCA  
AACCAAGCTGGTGGTAGGGAAAAGGGAAATGGCTCAGTTACTGGAAGTACCAATCAA  
AGGTGAAGGGTCACTGGAAATGAACCAGTCAGTGACCCAGGGCAATGGAGACTGTATT  
AATAGCAATGATGATTGTACAAATGCCCTGCCTTTTGAAAGCATTGCAT

>B4GALNT2\_Mus musculus, NM\_008081.3

CTGCGGTAGGCAGTCTGCAGAAGTGGCTGGAGCGAGCTGCGATGACTTCCAGCGTGT  
CTTTGCCAGCTCAGGTTCCATGGCTCCTCAAGACATTGCTCTCATGGTAGGACTT  
GCCACTGTTGCGTTATGGTGAGAAAGGTGTCCCTACAAACAGACTTCAGCACCTCA  
AGCCAAAGTTCCAGGCCTGCAAGGGTTGACCCAGTGCTGAAGCTCTACCAGAGG  
AGCATCTGAGGAAACTCTTACCTACAGTGACATCTGGCTCTCCCCAAAAATCAGTGT  
GACTGTAACTCTGGCAAAC TGCGAATGAAATAAGTTCAGGATGCCTATAACCAGAA  
GGACCTTCCAGCTGTGAATGCCAGAAGACAGGCAGAATTGAGCAGTTCAGAGGAG  
AGAAGGGCTGCCTCGCCCACCACCTCTGCTGGCTCCACCCAACTCCCCCTCGGATAC  
CCAGTCCATGGTGTGGAGGTGATGCCCTGCATACAATTCTCATCCAGGCCTCCAGTA  
TGAAGGGCCAGATGCTCCAGTCTATGAGGTCACTCTGAAAGCTCTGGGGACACTG  
AACACCCCTGCTGATGTGCCAGATGATGAGGTTAGGGCAGAGGCCAGAGGCAGCTG  
ACCATTCCACCAAGACATCGGAAGGTCTGAATTCTCATCCTCAGCATGTACGTACAC  
CAGCACAGAGTACTATCTCCACAAGGTGGACACAGTAAGTATGGAATACGAGTCGTCA  
GTGGCCAAGTTCCAGTGACTATCAAACAAACAGACTGTACCCAAAGTTGTATGACCC  
GACCTGAGAGGAAGATCAGAAACCTGGTGANCCATTGCCACGAAGACTTTCTCCGTCC  
CCACAAGCTTAAGATCCTGCTTCAGAGTATTGAAAATATTACCCAGACATCACCGTGA  
TTGTAGCTGATGACAGCAAGGAGCCCCTGGAAATTAAATGATGACTACGTGGAGTACTA  
CACCATGCCCTTGGGAAGGGCTGGTTGCTGGGAGGAACCTGGCCTCAGCGACAAGACCAAGAT  
ACTACTAAATATGTCCTCTGGGTGGACGATGACTTTCTCTCAGCGACAAGACCAAGAT

TGAGGTACTGGTGGATGTCCTGGAGAAAACCGAACCTGGATGTGGTGGGTGGCAGCGTGCAGGGGAATACTTACCAAGTCAGGCTGCTGTATGAAACAGACCAAGAACGGAGCTGTCTTCACCAGAGGTGGGGATCATTCCAGGCCCTGACGGCTTCCCGATGCACGTTGACAGCGCGTGGTAACCTCTTCTGGCTCACACGGAACAACCTCCGAAGAGTTGGTTTGATCCCATCTGCAACAGAGTGGCCACGGAGAGTTCTTATTGATGGGCTGGGGAGACTGTTGGTGGCTCTGCCCGGGTGTAAATTAAACCAAGTAAGAACACCACCAAAGGATCCAAAGCTGGCTGCCTGGAGAAGACTTATGACAAATACCAGGGCAACACCAAATTCTGTGATCCAATTCAAGGTTGCACTCCAGTACTTCAGAACCATCTCTACTGCTCCAATTTAAAAAGTACCAAGACCAGGAATCGCAATAAACAGATTAGCGGCGGGCAACAAAAAAAATAGTAGGATTGGACATTGGAGGGTACCAAAAGCAGACTCCTAACAAAGGGAACAGGGAAACAAAGAACGACTGGAGCTGGAGCTAGGGTAGGACCCCTGAAGTCGGCTCAGGACCCCCAAGACCAAATTCTCAGCACAGAGATTATCTGCCCTAGAGAGAGAAAGGGAGGGAAATGAGACAAAGACAAGGGCTGGAAGGTGGTGGGGCACACCTTAATCACAGCACTCCGGGGCAGAAGCAGGTGGATCTCTGCGCATTGAGGACAGCCTGGTCTACAGAGAGAGTCCAGGACAGCCAGGGCTACAGAGAAACTCTTATCTAAAGGCAATAAGTTGATCTAAATAAATGTTATTAAAGCCAGATGATAAGGTTGGTAGTGTGTGATCCAAAGCCCAGTAACGTAGTAGGAGGATTGAGTTCAAGGCCAGCCTGGCTATGTAACAGCCCACCTTAAATGAGTGAAGGGCTGGAGAGAGCTCAGTGCTTAAGAGCGATTAAGCACAGGACCTAGATTGGCTCCAGGACCCACATGATGAGTCACAACCTCATACCTGCAGTTCAAGGAATTGGAAGCAGTCTGCTTACCTCAAAGGCTCTGCATATGAGTGGTGCATACATACACACACACATGCACACACACATGCACACACACTGTAGCTGTCTCAGACACATCAGAAAGGGCATCAGATCCCATTACAGATGGTTGTGAGGCCACCATGTGGTTGCTGGGAATTGAACTCAGAACCTCTGGAAAAGCAGTCAGTGCTCTTAACGTGATAAGCCATCTCTAGTCTAGCTTGAATTTTAAACTTGTACTTTAAATATACCTATTCAATTATAATTTTTTCTTTTGAGACAGGGTTCTGTGAGCCCTGGCTGCCTGGAAACTCACTCTGTAGACCAGGCTGGCCTCGAACTCAGAAATCCGCCTGCCTCTGCCTCCCGAGGGCTGGATTAAAGGCATGCACCACCATGCCGGCTATTGGTATTAAATGGGATTAAAGATGGATGTTAAGATTGTGAGCTTCAGCCTCATGTGGTTGTGGGATAGAAATCTCCACTCACTCCAGTCACCCCTGCTAAGTCCGGCCAAAGATTATTATTATTATAATTATTACGTAAAGTACACTGTAGCTGACTTCAGACACACTAGAAGAGTGTCAAGATCTCATTACCGGTAATTGAGTCACCAGTAGTTGCCGGGACTTGAACCTCAGGATCTTGGAAAGAGCAGTCCATCCTCTTACCTGAGCCATCTGCCAGCCCATTCAACACTCTGAACACATACCTACATTATTTTTACTCCTGAGGTAAATATTGCTCTGAGCTAGACCATAGAAAGCCAAACACCAAGTGGTAAGGAGGGAGGAATGACATGCCAGCTAGTTGTGGTGTGGCCTTAAATCCAGCCTGAATTCAAGAGATCCTCTAGCCAGGGCTAGGCAGTGTAGCTCTGTTTGTGTTTGTGTTCTGTTTCAAGAACAAACAAATCAGGGCTGAGGAAATGGCTAAAGGTGAAGTGTGTTACCAAGCATGAGGACTTGAACCTCAGACAGCAAATTAAACATCCTCCATTGACTGGGTGTCGTTAGCAGTCTGCAAACACAGTCTTCTACTTCAAGATCTAGAAC

ATCTCTCCAGAAGAGAGAGAGAGACAGAGAGTGANAGTTAGTTCCATGATCCAGTA  
ACACCTCTCCCCAGGAACACAGGATGTTCTAAAGGACATCCATTCAACTCAAAGGG  
TTCAGGGACTCCCTGAAACCCACCAGACAGACTAGGCCCTCTTCCAAGTATATTA  
GCTGTGAAGACTGCTGAGAGGCACTCTCAGACAAGTGAGCTGCCTGAAACAGACAT  
TCTCTAACCTGTTGAGCTGCTGCAAGTTGACAGAGGGCTCAAGTTACAGCTTTG  
TGACATGGTAGCTTCATGGTGGCGCTGCTTCAGTCATTGTGATCCTGCGTAA  
CCCCTCACCCACTTCTGCTGTAACCCAAATAAAACTCATCAGTCTGCTACTGG  
>B4GALNT2\_Rattus norvegicus, XM\_008768250.2

ATGATCTACACACTAAATCCCCAACCCCGAGACCGAACTCTTATCTCCCCAGCTCTGA  
GATCAAAAATTCTAATGCCCTTGCTTTCCCTGTGTCTTGCCAGCTCCAGGTTCCC  
ATGGCTCCTCAAGACGTTAGTCATGATCCTAGGACTTGCCACTGTTGTTATGTTCA  
GAAGTTGGCCCTTACAGCAGAGTTGGCACCTCAAGCCAGCGTCCAAAGCCTGG  
GCCGGTTGACCCAGTGTGAAACTCTATCCGAGGAGCACCTGAGGACACTCTTACC  
TACAGTGACATCTGGCTCTCCCCAAAAATCAATGCGACTGTGAGTCTGGCAAACAGC  
AAATGAAATACAAGTATCAGAACGCCTATAACCAGAAGGACCTCCGGCTGTGAAACGC  
CAGAAGACAGGCAGAATTGAGCACTCCAGAGGAGGGCAGGCCGGAAAACGACT  
TTCGTCTCCGTCTCCTAAACGGAAAGGACAAACAGGGAGCTTGCCTGTCAGCTGGCA  
TTCACTTCTACATTTCTCTAGAGAGGAAGCTCAGAACCTGGTGACCCTGCCACG  
AAGACTTTCTCCGTCCCCACAAGTTAAGATCCTGCTCAAAGTATTCGAAAGTATTA  
CCCAGACTAACCGTATTGTGACTGATGACAGCAAGGAGGCCCTGGAAATTAAAGAT  
GAECTACGTGGAGTATTACCCCATGCCCTGGAAAGGGCTGGTTGCTGGTAGGAACC  
TGGCCATCTCACAGGTGACTACTAAATACGTCCCTGGGTGGACGATGACTTCTCTC  
AGCAACAAGACCAAGATTGAGGACTGGTGGATGCTCTGGAGAAAACGAACTGGAT  
GTGGTGGGCGGCAGCGTGCAGGGAAACACTTCCAGTTCAAGGCTGCTGTTGGAACGG  
AGCGAGAATGGGGACTGTCTCACCAGAGGTGGGGATCATTCCAGGCCCTGATGGCT  
TCCCCGGATGACGCTGGCCAGTGGCGTCACGAACCTCTTCTGGCTCACACAGAAC  
GCTCCGAAGAGTCGGTTTGATCCGGCCCTGCAAAGAGTTGCTCACCGAGAATTTTTA  
TTGATGGCTGGGGAGCCTGTTGGCTCGTCCGGGGGTGACTGTAGACCACCA  
AACACGAACACCATCGAAGGATCAAAGCTGGCTGCCTGGAGATGCTTACGCCAAA  
TACCGGACCAACACCAATTCTCAGGTCCAGTTCAAGTTAGCGCTCCACTACTCAAGA  
ACCATCTACTGCGCCACTAAAAGGAAAGAGCCGGAAAGTGAATACGCAGATTAG  
CTGTGGACAACAAAAAAATAGTAGGACTGGACATTAGGTGTGCTAAAGCAGACTCCT  
AACAAAGGGAACAGAGAGCGAAGTAGCTGGAGTTGGAGCCAGTGTAGGGACCCTG  
AAGTCGGCTCAAGATGCCCAAAGACTAAGTCTCAGAACAGAGATTCTGCCCG  
AGGGGTAAAGGGCACAGAATAAGAGACAAAGACAGGGCTGCCAGTGGTGGTTAC  
ACCTTAATTCCAGCACTCCGGAGGGCAGAA

>B4GALNT2\_Sus scrofa, NM\_001244330.1

TCCCGGGAGTGGCACCACCGCCAGAACATGTTCCAGGCCGGGGATTAAGGATGAC  
TTCGTACAGCCCTAGATGTCTGTCGATCCTCAAGATATTGATGGTGCTTTGGCTGAG  
CGTTGGACTCTTATGTTCAAAGCGTGTCCCTCGATACAGACTCAGTCTCCTCAACT  
CACCCATCCCGTCCCCACCTGGATGCCAGACGCTGAAGCTTACCTGAGAAACC  
CGATTCTACGGTAAAACGGGCTGTTCCGAAAAACCAAGTGCCTAGTGACGCCCTC  
GGGCATCAGGAAAGCTAACTGGAGGATGCCTACGACCCGAAGACCTCCCGCAG  
TGAACCTGAGGAGACAGGCTGAGCTGAACACTTCAGAGGAGAGAAGGGCTCCCTC

GCCCACCGCCCCCTGCTGGCTCAGCCCAACCTCCCCTTGGGTACCCGGTCCACGGGGT  
GGAAGTGATGCCTCTACACACCACCCCATCCCAGGCCTCCGGTTGAAGGACCTGAT  
GCTCCCATCTATGAGGTACCCCTGACAGCTTCTGGGGACACTGAACACCCCTGCTG  
ACGTCCCAGACAATGTGGTGAAGGGCAGAGGCCAGAACAGCTGAACATTGACCA  
GTAGCCGGAGCTTTGAATTTCATCCTCCAGCATGTGACATACACGAGCACAGAGTAC  
CACCTCCACAGAGTGGATGTGGTAGTCTGGAGTCCAAGTCCTCAGTGGCAAGTTTC  
CAGTGACCATCCGCTATCCTGTCATGCCAAGTTATGACCCCTGGACCAGAGAGGAAG  
CTCCGAGACCTGGTAGCCATTGCCACCAAAACCTCCTCCGCCCCACAAGCTCATGA  
CCATGCTCCGGAGTGGTAGTACTACCCAGACCTGACGGTAGTGGAGTGGCCAGTGA  
CAGCAAGGAGCCCCCTGAAAATCACTGACAGCCACGTGGAGTATTACACCATGCCATT  
GGGAAGGGCTGGTTGCTGGCAGGAACCTGGCCATCTCAGGTACCCAGAACAGTCA  
TGCTCTGGGTGGACGATGACTTCATCTTCAACAGCAAGACCAGGATCGAGGGCTGGT  
GGACGTCTAGAGAAAACGGAACCTGGACGTGGTAGGTGGCAGCGTATTGAAAACAC  
ATTCCAGTTCAAGCTGTTGCTGGAGCAGGGGAAGAATGGCAGTGTCTCCACCAGCA  
GCCAGGATTTCCGGCCGTGGATGGCTCCCCGACTGCGTGGTAGCAGTGGTGT  
GTCAACTTCTCCTGGCTCACACAGCGACTCCAAGAAATTGGCTCGACCCCCGGC  
TGCAGCGAGTGGCTCACTCAGAGTTATTGATGGCTCGGAGCCTGCTCGTGG  
GTCCTGCCACACGTGATCATGGTACCAAGCCCCATTACCAAGTGA  
CTGGCCACCTGGAGGGAACTACACCAGTTATGGCCAACACCGAAGCCAGATC  
AAATTCAAGTTGGCTCTCCACTACTTCAAGAACTATCTCAAATGTGTACCTAAGGTAT  
CCGGGCATTGGAAAAGCGCTGAGCTGCCTGGTAGTCAAGTATCTAAGACAGCGGATGCG  
GTGGCTGGATACCAATATTGAACCTCTCATAAGATAAGCACTGTAATGCCAGGGAG  
CAGGGTAGGCAGGTGGCTGACTCCGTACTGGAAAGTACCAATAAAAGTACAGGGC  
ATTAGAAATGGACCAGTCAGTGGTAGGCAATGGAGACTTCATTCTAACGATTACG  
GCGGTGTTCCATCATGGCTCAGAGGTAGCAATCCAGACTGCTATCCACGAAGATGCG  
AGTTGGATCCCTGGCCTGCTCAGTGGCTAAGGATCTGGCATTGCTGTGGCTGTGGCA  
TAGGCTGGCAGCTGCAGCTCTGATGCGCCCCCTAGCCTGGAACTTCCAGATGCTAAG  
TGTGTGGCCATAAAAAAAAAAAAAAAA

>B4GALNT2\_Xenopus tropicalis, XM\_002935708.4

ATATGTTATTGACTGAGCAATTCAATTCTCCAGGCTCTGGCTCTGATTATCCTCTCCTG  
CACTGCGAGTGGATTCATACAAACTGACAAACATGTTCTGAAGGGAAAACGCACTT  
GTTCAAGGGTTGGGCCCGGATATGGCTGTTATTGATTGTGATTGTAGCAGGTT  
TCGCTTTCTGCAGCACAGGAAAAATGGCTTATTGGCTTGACCGCCATTCACTACCCCC  
AAGAGACAACGCCACCTTGTATTCTGATGAAGAACCTATGTCAGTTCAAGTCATCTACAA  
TGATGTCACCTCTACCAAAATAGACAATGTTTGCCCCACTGAGCCACAGAGGATTG  
AAGTTTATCATCTTAAGAAAAATCTGAATCCAAATGATGCAGACGCTATGAAAGCCAGA  
AGAAAGAAGGAGTATGAGCATTACAGCAAGAGGAAACATCCCATGATATTCTCATAG  
CTACTCCAAACTCCCTCTGGCTATCCAGCCCAGGTATCCAGGTTAACGCTCTCCATA  
CTATCCAGCTACCAGGGTACAAGTAAATGCCGATCTCAGAACATTGCGGTAAACATTG  
GAAGCTTCCCTGGGGACTTTGACACCCTAGTGAATACATTGGATATAAGCAACAAATGT  
AGTTTTGGTAGAGGGAGAAAAACAGTTGTTATAAGGACATCTGACCAGAACATTACTAA  
ACCACATCCTGCGCCACATCACGTACACGAGTACAGTTACGATATCGACAGTTGGAT  
ATCATTAAATTACTATGGATCAACATGAAGCTAAGATTCCAGTATCGATCCGGCAGCCA  
CCAATGATACATTATATGACCCAGGGCAGAGCAGAACAGATTGAGTCCTGGTTACAAT

AACCACCAAGACTTCCCTGCGCTATGACAAGCTGAAAATCTCATAAAGTAGCATTGCG  
CAGTAACCCCCGACATCAAGATCATTGTAGCAGATGACAATAACGTCACTGAGAAGA  
TCGAGGATAAGAACGTTGAGCAGTATTCATGCCGTTGGAAAGGGATGGTCGCTGG  
AAGGAATCTTGCCTGATCTCAGGTGACCACCAAATATTCCTTGGGTGGATGACGATT  
TCCTTTCACTGCAGACACCAAGATAGAAAAGTGGTAAATGTGTTGGAGTCAACCAA  
CTTAGATGTGGTTGGGGCAATGTGAATGGCAATCATTAGCTTAGACTCCTGCTAC  
AAGATGGCGGTGAGGAGGGAGACTGTCTGCACTGGAGAGGGAGCTACCGAGGTA  
TTGAAGGCTTCCAAAATGTGTGCTAACCGGAGGAGTTGTCAACTTTCTGGCGCA  
CACAGACCGCGTCTTAAGTGTGGTTGACCAAAGCTCAGAGAGTGGCACATACT  
GAGTTTTGTTGATGCGCTGGGCCACTACCGTAGGATCTGCACTGACGTCGTTGT  
TGGACACCAAAAAAAGGACCAATCAGTTCTGGAGCCATGGCTAACAGGCCAAAAA  
ATATAATTCTTTAGAACAGATACTAAAGAACAAAGTAAAATGAAACTCACACTTATT  
TTTCAAGAACCGATTAAGCTGCTTACAAAACATTAAAATGTGGAATCAGGAATGG  
AAATATATTATCTCAGGGGGCGGATGTTCAAGCCTAGGTGAATAGATGTAGGGTTGT  
CCGTCACTGTGGTTCAAGTTAATTAAATGTGTTCAAGGTTCTAACAGAGAGATTCACTGAT  
ACTTACCAAATGTGATTCCGAGCTAAATACATAGAACAGCTAGGATGGACTGAGTGT  
GGGAAGAAAGTCACTCTGTTCAAGGAACACTGGATAATGTAAAAGAATTATCTTCC  
TTTTGTGCATGGAGAACATGGACATTCCCTGTGAATTTCACCTGGCGGCAGGTATT  
TACATAACAGAAAAAAAGTGCTTCTTACCATGGTGTCAAGAACATTAAACAGGGCAATATA  
TCGGCCACCAATGGGAAGATGTCTGCCACATGGAACCTGTTGAGTCAACAGGCAACT  
GAACCTGTTAAGTCGAGCAATAAGCAACTCCAGCTCATAGATGAATACAAATAGGC  
AGAAGGAATATTCTGTGCACACAAGATAACTAATTAAATGCTATTAAATGTATTTTAT  
TGTTGGAGAAAAATCTAAATCAAAATGTAAGGGCATAATATTCTACATGTAATTA  
ATAGATAATTATATCCTATAATGTGACCTATCAAAGAGTCAAATTGACGTACATGTCAAT  
AAATATTGTTATCACTTGA

>B4GALNT1\_Ovis aries transcript variant X1, XM\_012176064.1

ATGTGGGAGAGGGCGAGAAGAAAGGAGGCCAGGAGACCCAGGCCGGGGAGTGAG  
GGGAGGGGGACGAGGGTACCTGGGCTCCTGTACGCGAGCACCCGGGCGCGCCGG  
GCCTCCGGGACCTCTGCGCTGTGGACGCCCTACAGGGCAACCCAGGCCAAC  
TGCTAGGTCTTCCCCCTGAGGCCAGATACGCACACATCCCAGGTTAGGATCAAGGAGCA  
AGTGGTGGGCTGCTGCGAACAAATGCAGTTGTGAGTCCAGTGAGGGACGCCT  
CCACCTCCCTCCAGAGGCAGGTCCAAGCCTTGACTTCACCAAGGCCTTGACCC  
GAGGAGCTGAGCACTGTGCTGCCCTGAGGGAGCAGGAGTTCCAGGCCTTCA  
AGGAGCCAGTCTGCTGCTGACCAGCTGCTCATAGCCCTGCCAACTCCCCGCTACAGT  
ACCCCTGCAGGGTGTGGAGGTCCAGGCCCTCAGAAGTATCTGGTACCAAGGACTGG  
CCTGCAAGCCACTTCTGGTCAGGAGGTATACCAGGTGAACCTGACTGCCCTGG  
ACCTGGGACGTGGCAGGGGAAGTAACGGAGTGACTCTCACCGAGAAGGGCAGCC  
AGATCTCACCCCTACCAGGCCAGGGCTGGACCAACTCAATGGCAGCTGCAACTGGTC  
ACTTATAGCAGCCGAAGCTACCAGGAAATACAGCAGACACAGTCCGGTCCGGACTG  
AGGGACACGAAGCTGCCCTCACCATCCGATAAGACACCCACCAACCCCTGGCTGTA  
CCCACCTGGGCTGTACCCAGGGAGCCAGTACAACATAGCGCTCTGGTCACTT  
GCCACTAAGACCTCCTCGTTAACCGGCTACGGGCACTCATGCCAGCATCCGCC  
CTTCTACCCAACGGTCACAGTGGTAATGCCGATGACAGCGACAAGCCAGAGAGCGTT  
AGAGGTCCCCACATCGAGCACTATCTCATGCCCTTGGCAAGGGCTGGTCGAGGCC

GGAACCTGGCCATATCCAAGTAACCACCAAGTACGTGCTGTGGGTGGACGATGACTT  
CGTCTTCACGGCGCGGACTCGACTAGAGAGGCTTGTGGACGTGTTGGAGCGGACGCC  
GCTGGACCTGGTGGGGGCGCGTGCAGCGAAATCTCCGGCTCGCCACCACCTACCG  
GCAGGCGCTGAGCGTGGAGCCTGGTGCAGGCCAGGCCGGGAACTGCCTCCGGCAGA  
AGCGCGGCTTCCACCACGAGCTCGTCGGCTCCGGGTGCGTGGTACCGACGGCG  
TGGTCAACTTCTCCTGGCGCGACTGACAAGGTGCGAGGTGGCTTGACCCGCG  
CCTCAGCCGCGTGGCGCACCTGGAATTCTCCTGGATGGACTTGGTCTCTCAAGTG  
GGCTCCTGCTCAGACGTGGTTGGATACGCATCCAAGTTGAAGTTGCCTGGACCT  
CAAGGGATGCGAAGGCAGAGACTTATGCTCGGTACCGTACCCGGGATCACTGGACGA  
GAGTCAGGTGGCCAAACATCGTCTGCTCTTCAAACACCGGCTCAGTGCATGACC  
TCAGAGTGATGGCCACTTGGGGCCTTCAGTTGTCACTGGGCTGCCTCCTGTCC  
CTGCCAGGAATTCTAGCAAACCCCCACCAGCCAGTGACCACTCCACTGACTGTCCCAG  
TCTCCTCAGAACTGATCCAAACAGGGGCTTGTCCCTGGTCACTCCTCCTTCTGC  
AAAGTGCCAGGGCATGATGGAGCCATAACTTGTCCCACAGCCAGTGCCAAGTCCTCC  
CCCCAACCCCTCCCTAGGGCAGGAAGTGGGGGGTGTCTTCAAGTGCCAAAGAG  
CCCATAGGGGGACTCTAAAACCTAAAGCAGAAATACTCTCATCTCCTGGTACTAAGG  
GGTGGGGAAAGCCCCAGTATATAGTCCCAGGGCTGTGCCCTATCTCTGGATCCAGGA  
CTCTGTGCAGTGGCTGCAGCCTCACCCCCATGGAGAGAATGGAGTTGAATGGGGCT  
GGTGAACATACAGGGAAAGCCGTTTAGCTGTCTTGCAGTGCTTGGAGTGG  
AGGAAGGGGCAC

>B4GALNT1\_Ovis aries transcript variant X2, XM\_012159415.2

ACCTGCATCTCTAACCTCTCCGCCTCTGCAGGCAGGTCTTACCAACTAGTGCCACC  
TGGGAAGCTCCTCAATTCCCTACTTCCACTTTCTTCTCAAAGGACGTGAGCCT  
TCTACTAATATGCTCTCAATATCTTCAGTCTTCACTAACACTCCTAGATTCTCCTG  
GTTCTACCCAAAGACCCAGTTCAAATCCATTCCCACATTAGTTAGGTTTATTATGGCAG  
CACTTCATTCTAGTATTTGACAATCCTAGAAGCTAAAACCTACACTCAGGAGCTGAC  
TATATATGCTATTGTTATTGCTTAACAGCTTGGATATCATTCACTAGTACAGTAGATATA  
GATTAATCCAGTGTCCCATTGTCTGACTGAATCATATTAAAAATTAACTTTCTAATAT  
TTAAGATTAAATGATTAATATTATTGATTAATATTAAATTGTTAATAGATTGGC  
CAATTGCTCTAAGCTGGGTCCATTAAACACTCACAAACACGTATGGTAGTGACTATTCC  
TCAAATACTTGATCACTGTGTTAGCAAACCTTTGACCTTACTAAATTGCTAAACAA  
AAACCATTCACTGTTACTCTAATTGGATTAACTTTACTTATTATGAATAGGGTCAAGTGTACA  
TTCATTGTTGAAAAGCCATTTCCTATTGATGTTTATAGCTCTTAAGAAAAATA  
GGCCTGATCTGTCTACATTGCACATTTCACAGTTGTCTTCAAGTT  
GTTTATAGAAATTCTTACCCAAAGCTTATTATAGGCAAATCTATTAAATACGTCTT  
ATCTTACTTAGAGATATCTTCCCCACTCCAAGATCATAAAAAAGAACAAAACAAACTCC  
ATGAATTATTGACTACTCTTGTGGTTACATTAAATAAGATATTGATACATCTG  
GAATTATTGGTGTAAAGAGGGTGAGAATCTCAGTTCTCCAGCCGATTAGTCATT  
TCTTGTACACAGTTCACTTAAATCCAACCGTCCCTCTCCAGCCCCACATTTC  
TTATGTTTACATTCTATTATCTTTCCATTAAATTGTGACATCTTTATTAGAA  
CCATGGGACCACAGGACATAGGGCAGCAGCAAGAACCTACAGCTACAGCTAAGGTAGTAC  
AGGTCTGCAGCTGCACGCCCTAAGTACAACCAACTAGGCAGTGTTGGGTTCTTC  
CTTCCGCAAGTCTGCAACAAAGGAGCAGTCAGAAGAACGAGGCCCTGAATTACTGAG

TGTTTGTACATCATTGAGTATTGTTAGATAACTGGGGTAGCGGGGGCTGGAGGGCG  
GGAGAGGCGAGGCTAGGAGGGAGGCTGCAACTTGTCTTGTTAGCTAGGCAGTCTT  
ATTTCCAGTCTGTCTGGGTCCTTATCTCACCCCTAAGTATCCAATCTTCCTGAA  
TGGGGTTACAGGGCGTCCCCACCCCATCACTGCCAAACCTTATGCCCTGTCCTGGCC  
TACAGTCTCGATGGAAAGACGGAAAATAGGAAAAGAGTATTGGATCGCGGTGGGC  
GGGGGAGACGCCAGGGTCGGAGGCAAAGGGCTGGCGGGAGGGAGGAGGAGCGTG  
AAGAGGACCTTACTGCTTCGCTGGCTCGCCCGCAGTGTCTCCCGCGCCCACCA  
GAAGGCAGCCCAGCGCTCTCATCTCGCGCGTAGCCTGACGCTCCTCCGAACCGGC  
ACCCGAGCCGAGCCGCCGGACTGAAAAGCCGGCGGCCGGACTTCCCGC  
CCGGCAAGTGGGACAGGGTCCCAGGGAACCCGGATTGTTCTGGGATTGGCGTGC  
GGCGGTTCTCGACTCCGATCCCCAACCCCGCAGGAAACGCCAGAACCCAG  
CGCGGTGGTCTACAAAGCCGGAGAGTCAAAGGCCGGGGGTCTGCGCGCTCGG  
GAGGCAGGAGGACTCCCCCTACTCAGATTACGCCGGCTCCCAATCAGGACGCC  
CCAGCCCCATGAGGACTCTCAGGCCAGGGCTGAGAGCCTGGCACAGCCCTGACCGAA  
ATCTGCAGCGCCTTAAAGCGTTAAGACAGGATGCCGCTGGGCCGCCGGCCCTCGG  
TGTGCTCGTCTGCTGCTCGCTGCCCTCGCTGGGCTCTGTACGCGAGCACCCGG  
GGCGCGCCGGGCGTCCGGCACCTCTGCGCTGTGGACGCCCTACAGGGAACCCC  
AGGCCGGAACTGCTAGGTCTTGGCCCTGAGCCCAGATACGCACACATCCGGTTAGGA  
TCAAGGAGCAAGTGGTGGGCTGCTGCGAACAAATTGCAAGTTGAGTCCAGTG  
AGGGACGCCCTCACCTCCCTCCAGAGGCAGGTCCAAGCCTTGACTTCACCAAGGC  
CTTGACCCCTGAGGAGCTGAGCACTGTGCTGCCCTGAGGGAGCAGGAGTTCCAGGC  
CTTCCTTCAAGGAGCCAGTCTGCTGCTGCCAGCTGCTCATAGCCCTGCCAACTCCC  
CGCTACAGTACCCCTGCAGGGTGTGGAGGTCCAGGCCCTCAGAACAGTATCTGGTACC  
AGGACTGGGCCTGCAAGCCACTCTGGTCAGGAGGTATACCAGGTGAAACCTGACTGCC  
TCCTTGGGCACCTGGGACGTGGCAGGGAAAGTAACTGGAGTGAECTCACCAGGAGAA  
GGGCAGCCAGATCTCACCCCTACCAGCCCAGGGCTGGACCAACTCAATCGCAGCTG  
CAACTGGTCACTTAGCAGCCGAAAGCTACCAGGCAAATACAGCAGACACAGTCCGGT  
TCGCCACTGAGGGACACGAAGCTGCCCTCACCATCCGCATAAGACACCCACCAACCC  
TCGGCTGTACCCACCTGGGCTGTACCCAGGGAGGTGAGACTGCCAGTACAACATC  
AGCGCTCTGGTCACCATTGCCACTAAGACCTCCTCGTTACAATGGCTACGGGACT  
CATGCCAGCATCGCCGCTTCTACCAACGGTCACAGTGGTAATGCCGATGACAGC  
GACAAGCCAGAGAGCGTTAGAGGTCCCCACATCAGCAGACTATCTCATGCCCTTGGCA  
AGGGCTGGTTCGCAGGCCGGAACCTGGCATATCCAAAGTAACCACCAAGTACGTGCT  
GTGGGTGGACGATGACTCGTCTTCAGGGCGGACTCGACTAGAGAGGCTTGTGGAC  
GTGTTGGAGCGGACGCCGCTGGACCTGGTGGGGGGCGCGTGCACGAAATCTCCGGC  
TTCGCCACCACTACCAGGCACTGCTGAGCGTGGAGCCTGGTGCACGCCAGGCGGGGG  
AACTGCCCTCCGGCAGAAGCGCGCTTCCACCACGAGCTCGTGGCTTCCGGGGTGC  
GTGGTCACCGACGGCGTGGTCAACTCTTCCCTGGCGCGACTGACAAGGTGCAG  
GTTGGCTTGACCCCGCGCCTCAGCCGCGTGGCGCACCTGGAATTCTTCCGGATGGAC  
TTGGTTCTCTCAAGTGGGCTCTGCTCAGACGTGGTGTGGATCACGCATCCAAGTTG  
AAGTTGCCTGGACCTCAAGGGATGCGAAGGCAGAGACTTATGCTCGGTACCGTTACC  
CGGGATCAGTGGACGAGAGTCAGGTGGCCAAACATCGTCTGCTTCTCAAACACCG  
GCTCCAGTGCATGACCTCAGAGTGAAGGCCACTGGGGCCTTCAGTTGTCAGACTGG  
GCCTGCCCTTGTCCCTGCCAGGAATTCTAGCAAACCCACCAGCCAGTGCACACT

CCACTGACTGTCCCAGTCTCCTTCAGAACATTGATCCAAACAGGGGCTTGTCCCTGGTG  
TCACTCCTCCTTCTGCAAGTGCCCAGGGCATGATGGAGCCAATAACTGTCCCACAGC  
CAGTGCCAAAGTCCCTCCCCAACCCCTCCCTAGGGCAGGAAGTGGGGGTTGCTTT  
TCAAGTGCCAAAGAGCCCATAGGGGACTCTAAAAACCTAAGCAGAAATACTCTCCT  
CTCATCTCCTGGTACTAAGGGGTTGGGAAGCCCCAGTATATAGTCCAGGGCTGTG  
CCCCCTATCTCTGGATCCAGGACTCTGTGCAGGCTCACCCCCATGGAGAG  
AATGGAGTTGGAATGGGGCTGGTAACATACAGGGAAAGCCGTT

>B4GALNT1\_Ovis aries transcript variant X3, XM\_012159413.2

ACCTGCATCTCTTAACCTCTCCGCCTCTGCAGGCAGGTTCTTACCACTAGTGCCACC  
TGGGAAGCTCCTCAATTCCCTACTTCCTCACTTTCTTCTCAAAGGACGTGAGCCT  
TCTACTAATATGCTCTTCAATATCTTCAGTCTTCACTAACACTCCTAGATTCTTCTG  
GTTCTACCCAAAGACCCAGTCCAAATCCATTCCCACATTAGTTAGGTTTATTATGGCAG  
CACTTCATTCTAGTATTGACAATCCTAGAACGCTAAACACTCAGGAGCTGAC  
TATATATGCTATTGTTATTGCTTAACAGCTTGGATATCATTCACTAGTACAGTAGATA  
GATTAATCCAGTGTCCCATTGTCTGACTGAATCATATTAAAAATTAACTTCTAATAT  
TTAAGATTAAATGATTAATATTATTGATTAATATTAAATTGTTAATAGATTGGC  
CAATTGCTCTAACAGCTGGGTCCATTAAACACTCACAAACACGTATGGTAGTACTATTCC  
TCAAATACTTGATCACTTGTGTTAGCAAACCTTTGACCTTACTAAATTGCTAAACAA  
AAACCATTTCATTGTTACTCTAACATTGGATTAACTTATTATGAAATAGGGTCAAGTGTACA  
TTCATTGTTAAAAGCCATTAACTTCTCAACTGTCTAACATACAATTTC  
CCATTGGGGGTGACTGATAATTTCCTATTGATGTTAGCTCTAACAGTTGTCATTCTCAAGTT  
GGCCTGATCTGTCTTACATGTTGCACATATTTCACAGTTGTCATTCTCAAGTT  
GTTTATAAGAAATTCTTACCCAAAGCTTATTATAGGCAAATCTATTAAACGTCTTT  
ATCTTACTTAGAGATATCTTCCCCACTCCAAGATCATAAAAAAAGAACAAAACAAACTCC  
ATGAATTATTGACTACTCTTGTGGTTACATTAAATAAGATATTGATACATCTG  
GAATTATTGGTGTAAAGAGGGTGAAGAATCTCACCTCTCCAGCCGATTAGTCATT  
TCTTGTACACAGTTCACTAACATCCAAACCGTCCCTCTCCATTGCCAACATTTC  
TTATGTTTACATTCTATTATCTTTCTCTATTAAATTGTGACATCTTTATTAGAA  
CCATGGGACCACAGGACATAGGGCAGCAGCAAGAACCTACAGCTAACGGTAGTAC  
AGGTCTGCAGCTTGCACGCCAACAGTACAACCAATCTAGGCAGTGTGGGGTTCTTC  
CTTCCGCAAGTCTGCAACAAGGAGCAGTCAGAAGAACAGGCCCTGAATTACTGAG  
TGTGTTACATCATTGAGTATTGTTAGATAACTGGGTATGCGGGGCTGGAGGGCG  
GGAGAGGCGAGGCTAGGAGGGAGGCTGCAACTTGTCTTGTAGCTAGGCAGTCTT  
ATTTCAGTCTGTCTGGGCTTATCTCACCCCTAACGAAACCTTATGCCGTCTGGCC  
TACAGTCTCGATGGAAAGACGGAAAATAGGAAAAGAGTGAATTGGATCGCGGTGGGC  
GGGGGAGACGCCAGGGTGGAGGCAAAGGGCTGGGGAGGGAGGAGGAGGCGTG  
AAGAGGACCTTAGTGCTCGCTGGCTCGCGCCCCGCAGTGTCTCCCGCAGC  
GAAGGGCGCCCCAGCGCTCTCATTCTCGCGCGTAGCCTGACGCTCCCGCAACCGGC  
ACCCGAGCCGAGGCCGGGATCTGAAAAGCCGGCGGCCGGACTTCCCGGC  
CCGGCAAGTGGACAGGGTCCCAGGGAACCCGGATTGTTCTGGGATGGCGTGC  
GGCGGTTCTCGACTCGATCCCCAACCCCGCAGGAAACGCCAGAACCAACCCAG  
CGCGGTGGTCTACAAAGCCGGAGAGTCAAAGGCCGGGGCTGTGCGCGCTCGG  
GAGGCAGGAGGACTCCCCCTACTCAGATTCACGCCGGCTCCCCAATCAGGACGCC

CCAGCCCCATGAGGACTCTCAGGCCAGGGCTGAGAGCCTGGCACAGCCCTGACCGAA  
ATCTTGCAGCGGCCTAAAGCGTTAAGACAGGATCGGGCTGGGCCCGGGCCCTCGG  
TGTGCTCGTCCTGCTGCTCGCCTGCGCTGGGGCTCTGTACCGAGCACCCGG  
GGCGCGCCGGGCCTCCGGCACCTCTTGCCTGAGCCCAGATACGCACACATCCCAGGTTAGGA  
AGGCCGGAACTGCTAGGTCTTGCCTGAGCCCAGATACGCACACATCCCAGGTTAGGA  
TCAAGGAGCAAGTGGTGGGCTGCTGTGCGAACAAATTGCAGTTGTGAGTCCAGTG  
AGGGACGCCTCACCTCCCTCCAGAGGCAGGTCCAAGCCTTGACTTCACCAAGGC  
CTTGACCTGAGGAGCTGAGCACTGTCTGCCTCGAGGGAGCAGGAGTTCCAGGC  
CTTCCTTCAGGAGCCAGTCTGCTGACCAGCTGCTCATAGCCCCTGCCAACTCCC  
CGCTACAGTACCCCTGCAGGGTGTGGAGGTCCAGCCCTCAGAAGTATCTTGGTACC  
AGGACTGGCCTGCAAGCCACTCTGGTCAGGAGGTATACCAGGTAAACCTGACTGCC  
TCCTGGGCACCTGGGACGTGGCAGGGAAAGTAACGGAGTACTGGAGTACTCTCACCGGAGAA  
GGGCAGCCAGATCTCACCTCACCAGCCCAGGGCTGGACCAACTCAATCGGAGCTG  
CAACTGGTCACTTAGCAGCCAAAGCTACCAGGCAAATACAGCAGACACAGTCCGGT  
TCGCCACTGAGGGACACGAAGCTGCCTCACCATCCGCATAAGACACCCACCCACCC  
TCGGCTGTACCCACCTGGGCTGTACCCAGGGAGCCCAGTACAACATCAGCGCTCTG  
GTCACCATTGCCACTAAGACCTCCTCGTTACAATCGGCTACGGGACTCATGCCAG  
CATCCGCGCTTCTACCCAACGGTCACAGTGGTAATCGCCGATGACAGCGACAAGCCA  
GAGAGCGTTAGAGGTCCCCACATCGAGCACTATCTCATGCCCTTGCAAGGGCTGGT  
TCGCAGGCCGGAACCTGGCCATATCCAAGTAACCACCAAGTACGTGCTGTGGTGGGA  
CGATGACTTCGTCTTCACGGCGCGACTCGACTAGAGAGGCTTGTGGACGTGTTGGAG  
CGGACGCCGCTGGACCTGGTGGGGGGCGCGGTGCGCGAAATCTCCGGCTCGCCACC  
ACCTACCGGCAGCTGCTGAGCGTGGAGCCTGGTGCCTGCCAGGCCGGGAACTGCCTC  
CGGCAGAAGCGCGCTCCACCACGAGCTCGTCGGCTCCGGTGCCTGGTGCCTGGT  
GACGGCGTGGTCAACTTCTCCTGGCGCGACTGACAAGGTGCGAGGTTGGCTTTG  
ACCCCGCCTCAGCCGCGTGGCCACCTGGAATTCTCCTGGATGGACTTGGTCTCTT  
CAAGTGGGCTCCTGCTCAGACGTGGTTGTGGATCACGCATCCAAGTTGAAGTTGCCTT  
GGACCTCAAGGGATGCGAAGGCAGAGAGACTTATGCTCGGTACCGTTACCCGGGATCACT  
GGACGAGAGTCAGGTGCCAACATCGTCTGCTCTTCAAACACCGCCTCCAGTGC  
ATGACCTCAGAGTGAAGGCCACTTGGGGCTTTCAGTTGTCAAGACTGGCCTGCCTCC  
TTGTCCCTGCCAGGAATTCTCTAGCAAACCCACCAGCCAGTGACCAACTCCACTGACTG  
TCCCAGTCTCCTCAGAACTGATCCAAACAGGGCTTGTCCCTGGTGCCTACTCCTCCT  
TTCTGCAAGTGCCAGGGCATGATGGAGCCATAACTGTCCCACAGCCAGTGCAAG  
TCCTCCCCCAACCCCTCCCTAGGGCAGGAAGTGGGGGTTGCTTTCAAGTGCAAG  
AAGAGCCCATAAGGGGACTCTAAAAACCTAAAGCAGAAATACTCTCCTCATCTCCT  
TGGTACTAAGGGGTTGGGAAGCCCCCAGTATATAGTCCCAGGGCTGTGCCCTATCTC  
TGGATCCAGGACTCTGTGCAGTGGCTGCAGCCTCACCCCCATGGAGAGAATGGAGTTG  
GAATGGGGCTGGTGAACATACAGGGAAAGCCGTT