**Gene 1**

Here is a partial DNA sequence from humans, pig, rabbit, and sheep for the Bone Morphogenetic Protein 7 gene (BMP7). Bone Morphogenetic Proteins represent signals found in the body that help induce bone growth.

There should be 196 bases/letters for each sequence.

>human\_BMP7

AGAACCGCTCCAAGACGCCCAAGAACCAGGAAGCCCTGCGGATGGCCAACGTGGCAGAG

AACAGCAGCAGCGACCAGAGGCAGGCCTGTAAGAAGCACGAGCTGTATGTCAGCTTCCG

AGACCTGGGCTGGCAGGACTGGATCATCGCGCCTGAAGGCTACGCCGCCTACTACTGTG

AGGGGGAGTGTGCCTTCCC

>pig\_BMP7

AGAACCGCTCCAAGACGCCCAAGAACCAGGAAGCCCTGCGGGTGGCCAACGTCGCAGAG

AACAGCAGCAGTGACCAGCGGCAGGCCTGTAAGAAGCATGAGCTCTACGTCAGCTTCCG

GGACCTGGGCTGGCAAGACTGGATCATCGCGCCCGAAGGCTATGCCGCCTACTACTGCG

AGGGGGAGTGCGCCTTCCC

>rabbit\_BMP7

AGAACCGCTCCAAGGCACCCAAGAACCAAGAGGCGCTGCGAGTGGCCAACGTGGCAGAA

AACAGCAGCAGTGACCAGCGGCAGGCGTGCAAGAAACACGAACTGTACGTCAGCTTCCG

CGACCTGGGCTGGCAGGATTGGATCATTGCCCCGGAAGGCTACGCCGCCTACTACTGCG

AGGGAGAGTGCGCCTTCCC

>sheep\_BMP7

AGAATCGCTCCAAGGCGCCCAAGAACCAAGAAGCCCTGCGGGTGGCCAACGTCGCAGAA

AACAGCAGCAGTGACCAGAGGCAGGCATGTAAGAAGCACGAGCTATACGTCAGCTTCCG

GGACCTGGGCTGGCAGGATTGGATCATCGCACCCGAAGGCTATGCCGCCTACTACTGCG

AGGGGGAGTGCGCCTTCCC

**Gene 2**

Here is a partial DNA sequence from humans, cow, dog, and horse for Leptin (LEP), a signal found in the body that tells your brain how much fat you have stored away. Leptin may help regulate how hungry you feel.

There should be 426 bases/letters for each sequence.

>human\_LEPTIN

TGTGGCTTTGGCCCTATCTTTTCTATGTCCAAGCTGTGCCCATCCAAAAAGTCCAAGAT

GACACCAAAACCCTCATCAAGACAATTGTCACCAGGATCAATGACATTTCACACACGCA

GTCAGTCTCCTCCAAACAGAAAGTCACCGGTTTGGACTTCATTCCTGGGCTCCACCCCA

TCCTGACCTTATCCAAGATGGACCAGACACTGGCAGTCTACCAACAGATCCTCACCAGT

ATGCCTTCCAGAAACGTGATCCAAATATCCAACGACCTGGAGAACCTCCGGGATCTTCT

TCACGTGCTGGCCTTCTCTAAGAGCTGCCACTTGCCCTGGGCCAGTGGCCTGGAGACCT

TGGACAGCCTGGGGGGTGTCCTGGAAGCTTCAGGCTACTCCACAGAGGTGGTGGCCCTG

AGCAGGCTGCAGG

>cow\_LEPTIN

TGTGGCTTTGGCCCTATCTGTCTTACGTGGAGGCTGTGCCCATCCGCAAGGTCCAGGAT

GACACCAAAACCCTCATTAAGACAATTGTCACCAGGATCAATGACATCTCACACACGCA

GTCCGTCTCCTCCAAACAGAGGGTCACTGGTTTGGACTTCATCCCTGGGCTCCACCCTC

TCCTGAGTTTGTCCAAGATGGACCAGACATTGGCGATCTACCAACAGATCCTCACCAGT

CTGCCTTCCAGAAATGTGGTCCAAATATCCAATGACCTGGAGAACCTCCGGGACCTTCT

CCACCTGCTGGCCGCCTCCAAGAGCTGCCCCTTGCCGCAGGTCAGGGCCCTGGAGAGCT

TGGAGAGCTTGGGCGTTGTCCTGGAAGCTTCCCTCTACTCCACCGAGGTGGTGGCCCTG

AGCCGGCTGCAGG

>dog\_LEPTIN

TGTGGCTCTGGCCCTATCTGTCCTGTGTTGAAGCTGTGCCAATCCGAAAAGTCCAGGAC

GACACCAAACCCCTCATCAAGACGATTGTCGCCAGGATCAATGACATTTCACACACTCA

GTCTGTCTCCTCCCAACAGAGGGTCGCTGGTCTGGACTTCATTCCTGGGCTCCAACCAG

TCCTGAGTTTGTCCAGGATGGGCCAGACGTTGGCCATATACCAACAGATCCTCAACAGT

CTGCATTCCAGAAATGTGGTCCAAATATCTAATGACCTGGAGAACCTCCGGGACCTTCT

CCACCTGCTGGCCTCCTCCAAGAGCTGCCCCTTGCCCCGGGCCAGGGGCCTGGAGACCT

TTGAGAGCGTGGGCGGCGTCCTGGAAGCCTCACTCTACTCCACAGAAGTGGTGGCTCTG

AACAGACTGCAGG

>horse\_LEPTIN

TGTGGCTTTGGCCCTATCTGTTCTTCATTGAAGCTGTGCCCATCCGAAAAGTCCAGGAT

GACACCAAAACCCTCATCAAGACGATTGTCACCAGGATCAATGACATTTCACACACGCA

GTCAGTCTCCTCCAAACAGAGGGTCACTGGTTTGGACTTCATTCCTGGGCTTCACCCTG

TCCTGAGTTTGTCCAAGATGGACCAGACATTGGCAATCTACCAACAGATCCTTACAAGT

CTGCCTTCCAGAAATGTGATCCAGATATCTAATGACCTGGAGAACCTCCGGGACCTTCT

CCACCTGCTGGCCTCCTCCAAGAGTTGCCCCTTGCCCCAGGCCAGGGGTCTGGAGACCT

TGGCGAGCCTGGGCGGTGTCCTGGAAGCTTCACTCTACTCCACAGAGGTGGTAGCCCTG

AGCAGGCTGCAGG

**Gene 3**

Here is a partial DNA sequence from humans, mouse, and rat for Opsin1 (OPS1MW) Opsins are involved in providing color vision in the eye. Changes in the function of an opsin protein can lead to color-blindness.

There should be 776 bases/letters for each sequence.

>human\_OPSIN

CCCTTCGAAGGCCCGAATTACCACATCGCTCCCAGATGGGTGTACCACCTCACCAGTGT

CTGGATGATCTTTGTGGTCATTGCATCCGTTTTCACAAATGGGCTTGTGCTGGCGGCCA

CCATGAAGTTCAAGAAGCTGCGCCACCCGCTGAACTGGATCCTGGTGAACCTGGCGGTC

GCTGACCTGGCAGAGACCGTCATCGCCAGCACTATCAGCGTTGTGAACCAGGTCTATGG

CTACTTCGTGCTGGGCCACCCTATGTGTGTCCTGGAGGGCTACACCGTCTCCCTGTGTG

GGATCACAGGTCTCTGGTCTCTGGCCATCATTTCCTGGGAGAGATGGATGGTGGTCTGC

AAGCCCTTTGGCAATGTGAGATTTGATGCCAAGCTGGCCATCGTGGGCATTGCCTTCTC

CTGGATCTGGGCTGCTGTGTGGACAGCCCCGCCCATCTTTGGTTGGAGCAGGTACTGGC

CCCACGGCCTGAAGACTTCATGCGGCCCAGACGTGTTCAGCGGCAGCTCGTACCCCGGG

GTGCAGTCTTACATGATTGTCCTCATGGTCACCTGCTGCATCACCCCACTCAGCATCAT

CGTGCTCTGCTACCTCCAAGTGTGGCTGGCCATCCGAGCGGTGGCAAAGCAGCAGAAAG

AGTCTGAATCCACCCAGAAGGCAGAGAAGGAAGTGACGCGCATGGTGGTGGTGATGGTC

CTGGCATTCTGCTTCTGCTGGGGACCATACGCCTTCTTCGCATGCTTTGCTGCTGCCAA

CCCTGGCTA

>mouse\_OPSIN

CCCTTTGAAGGCCCCAATTATCACATTGCTCCCAGGTGGGTGTACCACCTCACCAGCAC

CTGGATGATTCTTGTGGTCGTTGCATCTGTCTTCACTAATGGACTTGTGCTGGCAGCCA

CCATGAGATTCAAGAAGCTGCGCCATCCACTGAACTGGATTCTGGTGAACTTGGCAGTT

GCTGACCTAGCAGAGACCATTATTGCCAGCACTATCAGTGTTGTGAACCAAATCTATGG

CTACTTCGTTCTGGGACACCCTCTGTGTGTCATTGAAGGCTACATTGTCTCATTGTGTG

GAATCACAGGCCTCTGGTCCCTGGCCATCATTTCCTGGGAGAGATGGCTGGTGGTCTGC

AAGCCCTTTGGCAATGTGAGATTTGATGCTAAGCTGGCCACTGTGGGAATCGTCTTCTC

CTGGGTCTGGGCTGCTATATGGACGGCCCCACCAATCTTTGGTTGGAGCAGGTACTGGC

CTTATGGCCTGAAGACATCCTGTGGCCCAGACGTGTTCAGCGGTACCTCGTACCCCGGG

GTTCAGTCTTATATGATGGTCCTCATGGTCACGTGCTGCATCTTCCCACTCAGCATCAT

CGTGCTCTGCTACCTCCAAGTGTGGCTGGCCATCCGAGCAGTGGCAAAGCAACAGAAAG

AATCTGAGTCCACTCAGAAGGCCGAGAAGGAGGTGACACGCATGGTGGTGGTGATGGTC

TTCGCATACTGCCTCTGCTGGGGACCCTATACTTTCTTTGCATGCTTTGCTACTGCCCA

CCCTGGCTA

>rat\_OPSIN

CCCTTTGAAGGTCCCAATTATCACATTGCTCCAAGGTGGGTGTACCACCTCACCAGCAC

CTGGATGATTCTTGTGGTCATTGCATCTGTCTTCACAAATGGACTCGTGCTGGCAGCCA

CCATGAGGTTCAAGAAGCTGCGTCATCCTCTGAACTGGATTCTAGTGAACTTGGCAGTT

GCTGACCTAGCAGAGACCATTATTGCCAGCACTATCAGTGTTGTGAACCAAATCTATGG

CTACTTTGTGCTGGGCCACCCTCTGTGTGTCATAGAAGGCTACATTGTCTCACTATGTG

GGATCACAGGCCTCTGGTCCTTGGCCATCATTTCCTGGGAGAGATGGCTGGTGGTCTGC

AAGCCCTTTGGCAATGTGAGATTTGATGCTAAACTGGCCACTGTGGGAATCGTCTTCTC

CTGGGTCTGGGCTGCTGTATGGACGGCCCCACCAATCTTTGGTTGGAGCAGGTACTGGC

CTTATGGCCTGAAGACATCGTGTGGTCCAGACGTGTTCAGCGGTACCTCGTATCCTGGG

GTTCAGTCTTATATGATGGTCCTCATGGTCACGTGCTGCATCTTCCCACTCAGCATCAT

CGTGCTCTGCTACCTCCAAGTGTGGCTGGCCATCCGAGCAGTGGCAAAGCAACAGAAAG

AATCTGAGTCCACCCAGAAGGCTGAGAAGGAGGTGACACGCATGGTGGTGGTGATGGTC

TTCGCATACTGCCTCTGCTGGGGGCCCTATACTTTCTTTGCATGCTTTGCTACTGCCCA

TCCTGGCTA