**Julie Garcia, L13593, Mus Musculus Prlr Gene**

My protein is a nucleotide sequence, mRNA of the Prlr gene of the species Mus Musculus (house mouse). This gene is also known as Pr-1, Pr-3, AI987712 and Prlr-rs1. The ACC number for the mRNA is L13593.1. The ACC for the gene is NC\_000081.6 and for the protein encoded by this gene is AAC37641.1. This gene is located on Chromosome 15 at 10,177,238-10,349.

The sequence has two unique features noted in GeneBank, a signal peptide coding sequence at 59..115 bp, and a mature peptide coding sequence at 116..1882 bp whose product is a prolactin receptor. The Variant table in Ensembl shows 4380 total SNPs. After further investigation with the UCSC Genome browser, I found that most of the SNPs are in the intronic regions of the gene. Three of them are coding non-synonymous SNPs. The gene has 12 splice variants, 7 of them are protein coding variants. The gene has 35 spliced ESTs.

The main functional domain of the protein product of this gene, is the prolactin receptor for the anterior pituitary hormone prolactin. The hormone combines with prolactin and initiates a cell signal through phosphorylation of a transmembrane protein. This hormone is involved in many different biological pathways including, the JAK-STAT pathway, lactation, and various mammary gland processes.

There is one contig that makes up the entire gene at the gene level with ACC number AC163998.2, which is the complete sequence of Chromosome 15 of the Mus Musculus genome. The genomic sequence is 15,213 bp long. The mRNA is 1992 bp long. The protein product of the canonical transcript is 608 amino acids in length.

Mutations in the Prlr gene are associated with many diseases including obesity and diabetes, cardiac disease, kidney disease, breast and prostate cancer, and problems with the pituitary gland, to name a few. There were 305 related citations in PubMed. Most of the recent research shows upregulation of the prolactin receptor causing disease, such as breast and prostate cancer.

According to the ACC flat file, the most recent journal article related to the sequencing of this gene is:

Moore, R. C., & Takami, O. (1993). Cloning and sequencing of the cDNA encoding the murine mammary gland long-form prolactin receptor. *Gene*, *134*(2), 263–265. doi:10.1016/0378-1119(93)90104-B

References:

1. <https://www.ncbi.nlm.nih.gov/nuccore/347398>
2. <https://www.ncbi.nlm.nih.gov/gene/19116>
3. <http://uswest.ensembl.org/Mus_musculus/Gene/Summary?db=core;g=ENSMUSG00000005268;r=15:10177238-10349180>
4. <http://www.uniprot.org/uniprot/Q08501>
5. <https://genome.ucsc.edu/>
6. <https://www.ncbi.nlm.nih.gov/grc/mouse/regions/region75?asm=GRCm38.p4>
7. <http://www.ebi.ac.uk/QuickGO/GTerm?id=GO:0004925>