
CRISPR/CAS9 GENE EDITING TO STUDY MAMMALIAN IRON TRANSPORT AND IRON HOMEOSTASIS (POSTER)

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The CRISPR-Cas9 gene editing system is a 2 component system that utilizes the Cas9 protein and a sgRNA to target and knock-out a desired gene. The target gene is physically mutated by creating a double strand break in the DNA sequence of the targeted portion of DNA. Subsequent repair of the double strand break by cellular machinery typically leads to insertions or deletions (indels) that disrupt the gene, such that the gene is rendered nonfunctional. We are using CRISPR-Cas9 to knock-out genes involved in mammalian iron transport, specifically those of the transferrin cycle. Our first target is Steap3, a transmembrane ferric-reductase that reduces Fe(III) to Fe(II) for subsequent transport across the membrane into the cell by DMT1 (Divalent Metal Iron Transporter 1). Our specific strategy for the CRISPR/Cas9 knock-out of Steap3 and our progress towards this goal will be presented.