

Bioinformatics: Life Sciences On Your Computer due July 15, 2014
Week 5 Assignment (auto-graded)

1. Go to Ensembl and find angiotensin converting enzyme genes in zebrafish.
 - a. Give the chromosome number for both the ace2 and ace genes.
 - b. How many transcripts are listed for ace2?
 - c. Click splice variants. This is a reverse strand gene so read right to left. Which transcript has the more upstream stop codon?
 - d. Access the longer transcript of the ace2 gene. How many coding exons?
 - e. Looking at the Variation Table, how many SNPs are shown?
 - f. How many of those SNPs affect the protein sequence?

2. Use the following table to answer paternity questions.

CODIS Locus	Mother	Child	Male #1	Male #2	Male #3	Male #4	Male #5
D8S1179	12, 13	13, 15	14, 15	14, 15	15	13	10, 13
D21S11	31, 31.2	28, 31.2	28, 30	28, 29	28	30, 36	29, 31
D7S820	8, 11	10, 11	10, 11	10, 12	8, 11	8, 11	9, 10
CSF1PO	11, 12	11, 12	11, 12	11	8, 11	10, 12	9, 11
TH01	6	6, 7	6, 7	7, 9	6, 9	6, 7	7, 9
D13S317	8	8, 11	11, 12	11, 12	11, 12	12	13

- a. Which males are eliminated from paternity consideration based on the D8S1179 locus only?
 - b. Which are the potential father(s) based on the entire results?
3. Access the annotation at https://d396qusza40orc.cloudfront.net/bioinform/assignments/week_5.txt. Examine the mRNA and CDS regions.
 - a. How many exons are in the transcript?
 - b. What is the numerical location of an intron that lies completely within an untranslated region?