

BIOL312 Spring 19-20

Practical 1

Write down the answers of the questions (in a word document) and submit it via **Turnitin latest by 3 March 2020, @09.00**

Questions

1. Find the accession number of a lipocalin protein. First use Entrez, then UniGene, then OMIM.
 - a. Provide the accession numbers for each database.
 - b. Which approach is the most effective?
 - c. What is the function of this protein?
2. You are interested in learning about genes involved in breast cancer.
 - a. Which genes have been implicated? Give 3 examples
 - b. Which database is used to answer 2a?
 - c. What are the DNA and protein accession numbers for those three genes? Try all of these approaches: PubMed, OMIM and Entrez and provide the accession numbers separately for each of them.
3. Search for *Homo sapiens* `Lipocalin 2 (LCN2), mRNA` and answer the following question;
 - a. How long is the nucleotide sequence?
 - b. How many exons are there in this sequence? Write each exon`s starting and ending nucleotide numbers.
 - c. Provide a screenshot of the nucleotide sequence in FASTA format.
 - d. What is the protein id of lipocalin 2?
 - e. Provide a screenshot for the protein sequence in FASTA format.
4. What is the `cDNA library`? Explain your answer in detail.
5. What does the term `ESTs` refer to?