

## Assignment 2 (14 marks total)

Download the data associated with this assignment using:

```
$ cd ~  
$ wget \  
[DATA_DOWNLOAD_LINK] \  
-O assignment_2.zip  
$ unzip assignment_2.zip
```

### Question 1

10 marks

Question text goes here

#### Answer

Information for marking

```
Can have text in texinfo blocks
```

```
echo "Or code in bash blocks"
```

### Question 2

2 marks

Another question

#### Answer

Answer info

## Assignment 2

### Question 3

2 marks

A question with an image:

NCBI Resources How To Sign in to NCBI

Gene Gene Search Advanced Help

### Gene

Gene integrates information from a wide range of species. A record may include nomenclature, Reference Sequences (RefSeqs), maps, pathways, variations, phenotypes, and links to genome-, phenotype-, and locus-specific resources worldwide.

Using Gene	Gene Tools	Other Resources
<a href="#">Gene Quick Start</a>	<a href="#">Submit GeneRIFs</a>	<a href="#">OMIM</a>
<a href="#">FAQ</a>	<a href="#">Submit Correction</a>	<a href="#">RefSeq</a>
<a href="#">Download/FTP</a>	<a href="#">Statistics</a>	<a href="#">RefSeqGene</a>
<a href="#">RefSeq Mailing List</a>	<a href="#">BLAST</a>	<a href="#">Protein Clusters</a>
<a href="#">Gene News</a>	<a href="#">Genome Workbench</a>	
<a href="#">Factsheet</a>	<a href="#">Splign</a>	

### Representative queries

Find genes by...	Search text
free text	<a href="#">human muscular dystrophy</a>
chromosome and symbol	<a href="#">(ll[chr] OR 2[chr]).AND adh*[sym]</a>
partial name and multiple species	<a href="#">alive[prop] AND transporter[title] AND ("Drosophila melanogaster"[orgn] OR "Mus musculus"[orgn])</a>
associated sequence accession	<a href="#">M11313[accn]</a>
gene name (symbol)	<a href="#">BRCA1[sym]</a>
publication (PubMed ID)	<a href="#">11331580[PMID]</a>
Gene Ontology (GO) terms or identifiers	<a href="#">"cell adhesion"[GO]</a> <a href="#">10030[GO]</a>
genes with short variants of medical interest	<a href="#">"clinvar_gene_specific"[Filter]</a>
chromosome and species	<a href="#">Y[CHR] AND human[ORGN]</a>
Enzyme Commission (EC) numbers	<a href="#">1.9.3.1[EC]</a>

Figure 1: An image

### Answer

Information for marking

Can have text in texinfo blocks

## Assignment 2

```
echo "Or code in bash blocks"
```

The screenshot displays the NCBI Gene database entry for PRNP (prion protein) in *Bos taurus* (cattle). The search bar at the top shows the query: ((Bos taurus[Organism]) AND 13[Chromosome]) AND 47039937:47060168[Base Position]. The gene ID is 281427, updated on 12-Feb-2021.

**Summary**

- Official Symbol:** PRNP (provided by VGNC)
- Official Full Name:** prion protein (provided by VGNC)
- Primary source:** VGNC:VGNC:33356
- See related:** BGD:BT10271
- Gene type:** protein coding
- RefSeq status:** VALIDATED
- Organism:** *Bos taurus*
- Lineage:** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Laurasiatheria; Artiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bos
- Also known as:** PrP; prn; AltPrP
- Orthologs:** human mouse all

**Genomic context**

Location: chromosome: 13

Exon count: 3

Annotation release	Status	Assembly	Chr	Location
106	current	ARS-UCD1.2 (GCF_002263795.1)	13	NC_037340.1 (47039937..47060168)
105	previous assembly	Bos_taurus_UMD_3.1.1 (GCF_000003055.6)	13	AC_000170.1 (47400392..47418507)

**Chromosome 13 - NC\_037340.1**

Diagram showing the gene structure on chromosome 13. The gene is located between coordinates 46527492 and 47198189. The gene structure includes exons and introns, with the PRNP gene and its transcript PRNP (PRND) shown.

**Table of contents**

- Summary
- Genomic context
- Genomic regions, transcripts, and products
- Bibliography
- Interactions
- General gene information
- Markers, Clone Names, Homology, Gene Ontology
- General protein information
- NCBI Reference Sequences (RefSeq)
- Related sequences
- Additional links

**Genome Browsers**

- Genome Data Viewer
- UCSC

**Related information**

- 3D structures
- BioProjects
- BioSystems
- Conserved Domains
- Full text in PMC
- Full text in PMC\_nucleotide
- Functional Class
- Gene neighbors
- Genome
- GEO Profiles

Figure 2: An image