

Tutorial on Biological Databases (454)

1. Provide information of the following biological databases

Databases	Data types stored in the database	Database structure	Advantages of the database
1.1 ENA			
1.2 NCBI			
1.3 Uniprot			
1.4 UCSC Genome Browser			

2. Human Papillomavirus (HPV) is the most common sexually transmitted infection.

2.1 Give an example of one gene of the HPV virus. The gene is

Describe how have you found it (which tools you used and how to use it)

2.2 Which gene of the HPV virus produces the largest protein? Which database do you use and how do you obtain the answer?

2.2 Are there any genome data of this virus? How many of them? What are their genome sizes?

3. What is the *sdiC* gene and its function? Does human have this gene?

Describe how have you found it (which tools you used and how to use it)

4. How many organisms that you can find having violaxanthin de-epoxidase gene? What does the gene do? Can you find this enzyme EC number? Where is this gene in the *Arabidopsis* genome? **Describe how have you found it (which tools you used and how to use it)**

5. *BRCA1* and *BRCA2* gene mutations increase a woman's risk of breast and ovarian cancer. Can you find where are these genes in the human genome (which and where on the chromosome)? Do other organisms have these genes? Which locations of these genes that tend to have mutations? **Describe how have you found it (which tools you used and how to use it)**

6. Is there a chance that searching with the same term against different databases and will obtain different results? Explain why and give examples.