This tutorial provides an introduction to EBI resources and the different sequence search methods available for doing prior art searches for patent and non-patent sequences. Exercises are provided to help you practice what you learn in this tutorial.

Exercise 1:

ENA Search

- **Open a browser to the EBI homepage http://www.ebi.ac.uk/.**
- **Under 'Data Resources and Tools', click on the link to 'ENA'.**
- **On the ENA homepage, type 'A39349' in the text search box.**
- **Click 'Search'.**

Using the A39349 entry page, answer the following questions:

- ? **What patent is the sequence from?**
- ? **What date was the entry first made public?**
- ? **What organism is the sequence from?**
- ? **What are the gene and gene product?**

Exercise 2:

UniProt Search

- **Open a browser to the UniProt homepage http://www.uniprot.org/.**
- **On the UniProt homepage, select 'Sequence Archive (UniParc)' from the drop-down menu under 'Search in'.**
- **Type 'UPI000002B7A2' in the text search box.**
- **Click 'Search'.**

Using the UPI000002B7A2 entry page, answer the following questions:

- ? **How many of the entries are from patents?**
- ? **Which entry is inactive?**
- ? **What is the first date this sequence was seen in a database?**

Exercise 3:

ENA Version Archive Search

- **Open a browser to the ENA version archive http://www.ebi.ac.uk/embl/sva/.**
- **Type 'AX429748' in the text search box.**
- **Click 'Go!'.**
- **From the listed matches, check the boxes (left-hand side) for releases 71 and 97.**
- **Click 'Compare Selected'.**
- ? **What has been removed from the version in release 97?**
- ? **What has been added to the version in release 97?**

Exercise 4:

Comparing the NR Patent Databases to a redundant database

- **Open a browser to the UniProt homepage http://www.uniprot.org/.**
- **Select 'Sequence Archive (UniParc)' from the drop-down menu under 'Search in'**
- **Type 'UPI00000389E3' in the text search box.**
- **Click 'Search'.**
- **In the UPI00000389E3 entry page, click on the orange 'fasta' button on the right.**
- **Keep this page!**
- **Now, open a new tab/window and go to the EBI sequence search page at http://www.ebi.ac.uk/Tools/services/ (or go to the EBI homepage → select 'Tools Index' from the drop-down menu under 'Tools' → select 'Nucleotide and Protein sequence searching').**
- **Under the FASTA section, select 'Protein'.**
- **STEP 1: Under 'Protein Databases' uncheck 'UniProt Knowledgebase', scroll down and expand 'Other Protein Databases' and check 'UniProt Archive' (=UniParc).**
- **STEP 2: Copy/paste the fasta sequence (UPI00000389E3) from the previous tab/window into the box 'Enter you input sequence' in the search tab/window.**
- **Click 'Submit'**
- **Keep this page!**
- **Now open 3 more tabs/windows and repeat the steps above, but for STEP 1:**

    1) **Expand 'Patents' and select 'EPO' + 'JPO' + 'KIPO' + 'USPTO'**
    2) **Expand 'Patents' and select 'NR Patent Proteins Level-1'**
    3) **Expand 'Patents' and select 'NR Patent Proteins Level-2'**

? **How do they compare?**

Exercise 5:

EBI Search

- **Open a browser to the EBI homepage http://www.ebi.ac.uk/.**
- **Type 'WO0146262' in the EBI search box.**
- **Click 'Find'.**

? **How many sequences are associated with this patent?**

Exercise 6:

SRS Search

- **Open a browser to the SRS homepage http://www.ebi.ac.uk/srs/.**
- **Select the 'Library Page' tab.**
- **Under 'Nucleotide sequence databases', check the box for 'Patent DNA'.**
- **Select the 'Query Form' tab.**
- **Leave the drop-down menu at 'All Text' and type 'WO0146262' in the first search box.**
- **Click 'Search'.**
- **Keep this page!**
- **Now open 2 more tabs/windows and repeat the steps above selecting the following databases on the Library Page:**

    1) **'Patent DNA NRL1'**
    2) **'Patent DNA NRL2'**

? **How do they compare?**