# BIOINFORMATICS: FOOD DETECTIVE INSTRUCTIONS

## Set-up: Sausage DNA sequences

* Open a Web browser. Type this in the address bar: **4273pi.org**
* Click on the **STUDENTS** tab.
* Under **Bioinformatics: Food Detective**, click **The DNA sequences are here**.
* Keep this page open.

## Set-up: Searching the sequence database

* Open a new tab in your Web browser and search for **NCBI BLAST**. *This is the DNA search engine we will use.*
* Click the link **BLAST: Basic Local Alignment Search Tool**.
* Click **Nucleotide BLAST**.

## Discovering the animal that DNA Sequence A comes from

* Paste Sequence A into the **Enter Query sequence** box at the top of the BLAST page. Include the header line (**>Sequence\_A**) as well as the DNA sequence.
* Scroll down to **Optimize for** and choose **somewhat similar sequences**. *This causes BLAST to do a slow and careful search.*
* Scroll to the bottom of the page and click **BLAST**.
* Wait for results to appear.
* Scroll down a little to see which DNA sequences are similar to Sequence A.
* The best-matching sequence is listed first. Write its scientific name in your **Results** table.
* Convert the scientific name to a common name using the **Key to scientific names**.

## Other sausage sequences

* Repeat the procedure for Sequences B to H.
* Write your results in your results table.
* Let us check your results before you go.
* Take your results table home.

## If you have spare time

* Why not take a look at Sequence I, J, K, L or M? (*Please let us know first*.)

# BIOINFORMATICS: FOOD DETECTIVE RESULTS

## Key to scientific names

|  |  |
| --- | --- |
| **Scientific name** | **Common name** |
| *Bos taurus* | Cattle |
| *Gallus gallus* | Chicken |
| *Hollandichthys multifasciatus* | Characin |
| *Homo sapiens* | Human |
| *Balaenoptera musculus* | Blue whale |
| *Epinephelus guttatus* | Red hind |
| *Ovis aries* | Sheep |
| *Scinax* sp. | Snouted treefrog |
| *Sus scrofa* | Pig |
| *Viola odorata* | Sweet violet |

## Results

|  |  |  |
| --- | --- | --- |
| **Sequence** | **Species – scientific name** | **Species – common name** |
| A | *Sus scrofa* | Pig |
| B |  |  |
| C |  |  |
| D |  |  |
| E |  |  |
| F |  |  |
| G |  |  |
| H |  |  |

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| Version 2.1 (short)  Stevie A Bain, Daniel Barker and Richard Fitzpatrick |
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