



## Tracking the West Nile Virus Bioinformatics Exercise<sup>1</sup> To determine the origin of the West Nile Virus isolated in New York City in 1999

Data and Background Material provided by  
Microbes Count! Problem Posing, Problem Solving, and Peer Persuasion in Microbiology  
John R. Jungck, Marion Field Fass, and Ethel D. Stanley, Editors  
BioQUEST Curriculum Consortium

Read through the SDSC<sup>2</sup> tutorial and informational pages provided. Click on the “How to” link before you continue with this exercise.

After you have completed the tutorial, enter into the site:

<http://workbench.sdsc.edu/>

Sign in or register.

Save your password here: \_\_\_\_\_

Read through the *Tracking the West Nile Virus* section by Erica Suchmann and Mark Gallo on pages 203-206 of the Microbes Count! text.

Open the Microbes Count! Site according to the instructions provided in the text and locate the Chapter 6.3 Section. Open the “West\_Nile\_Sequences” to view the sequences used in this exercise.

Now you are ready to import the sequences (provided by the site) and analyze the sequences using the tools provided by the San Diego Super Computer site.

### Session Tools

Click Start New Session → Run → Type in the name of your session. Click Start New Session.

### Nucleic Tools

Add New Nucleic Sequences → Run

Browse to Microbes Count! Site

Chapter 6.3

West\_Nile\_Sequences

Upload File (Select All → Edit Copy → Edit Paste)

Scan the entire page to see that all 25 sequences are uploaded.

Save (found at bottom of page)

### Nucleic Tools

Select All Sequences

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<sup>1</sup> Jungck, J., Fass, M., Stanley, E. Stanley, ed. Microbes Count! Problem Posing, Problem Solving, and Peer Persuasion in Microbiology. BioQUEST Curriculum Consortium with The Microbial Literacy Collaborative, 2003.

<sup>2</sup> <http://workbench.sdsc.edu/>

## Run

### Nucleic Tools

Clustal W Multiple Sequence Alignment (be sure all sequences are selected) → Run → Submit

Check that the sequences are aligned in an unrooted tree.

The results of the analysis can be copied onto a word document.

Also, you can print the page of the results to have a copy of the dendrogram.

#### West Nile

#### Sequence

Tajikistan-99	282bp
Russia-63	281bp
Azerbaijan-67	282bp
Azerbaijan-70	282bp
India-55	227bp
Israael-98	227bp
Italy-98	227bp
Morocco-96	227bp
Romania-96	227bp
South_Africa-99	227bp
Israel-52	227bp
NY-99flamingo	227bp
NY-99equine	227bp
Romania-96	227bp
Connecticut-99	227bp
Uganda-59	255bp
C.Afr.Rep-72	255bp
Madagascar-88	255bp
C.Afr.Rep.-72	255bp
Algeria-68	255bp
Egypt-51	255bp
Senegal-79	255bp
Kenya-?	255bp
Kunjin-1994	255bp
Madagascar-58	255bp