Trouble Shooting GENI-ACT

The GENI-ACT site is down. What can I do?

Unfortunately the GENI-ACT site goes offline at times without warning. We know that you are often restricted in the timing you can work with your students and we have developed the following "work around" to help you salvage your work session with your students.

If you have not done so already, it is a good idea to have your students keep a copy of the FASTA formatted amino acid sequence of the gene on which you are working in a Word or text file saved on their computer or a flash drive. Teachers can access the basic information page of all their student's genes to keep a master list as well. At the very least the locus tag of genes students are working on should be available. The procedure below provides directions for you to retrieve an amino acid sequence on which to work. If you already have your FASTA formatted sequence available to you, skip to step 6 below.

Procedures

1. Log into IMG/edu using the following link:

   http://img.jgi.doe.gov/cgi-bin/edu/main.cgi.

2. Click on the Find Genes tab at the top of the page as indicated by the arrow in Figure 1 below and select the Gene Search option from the pull down menu.

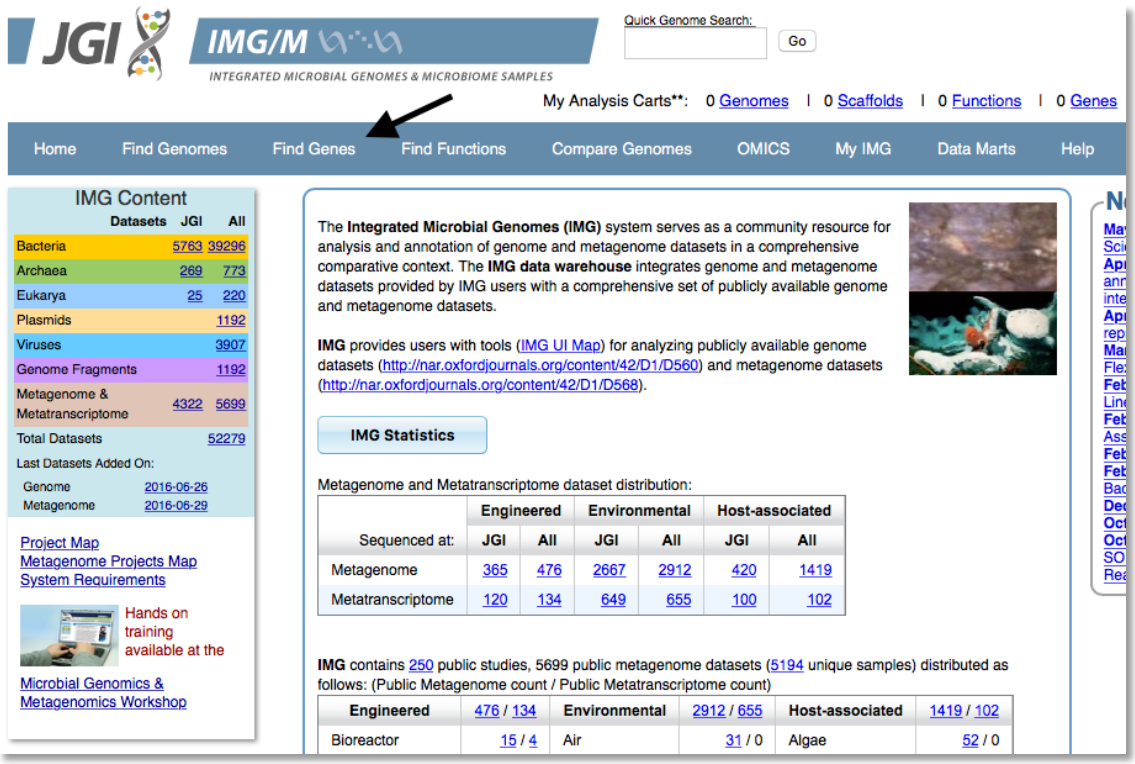


Figure 1. The IMG/M Home page. The Find Genes tab is indicated by the arrow.

3. In the Gene Search window paste the locus tag for your gene in the keyword box, select Locus Tag (list) from the filters pull down menu (Figure 2) and click Go.
   - 3.1. The locus tags for all of our student's genes are on the set-up document sent to you by way of email when your gene assignments were set up.
   - 3.2. It is a good idea to keep the document at hand when working with your students.
   - 3.3. For those of you with group assignments, you should also keep a master list of which gene locus tag was assigned by you to each student in your group.
   - 3.4. If you have misplaced the document please notify Dr. Koury and he will resend it to you.

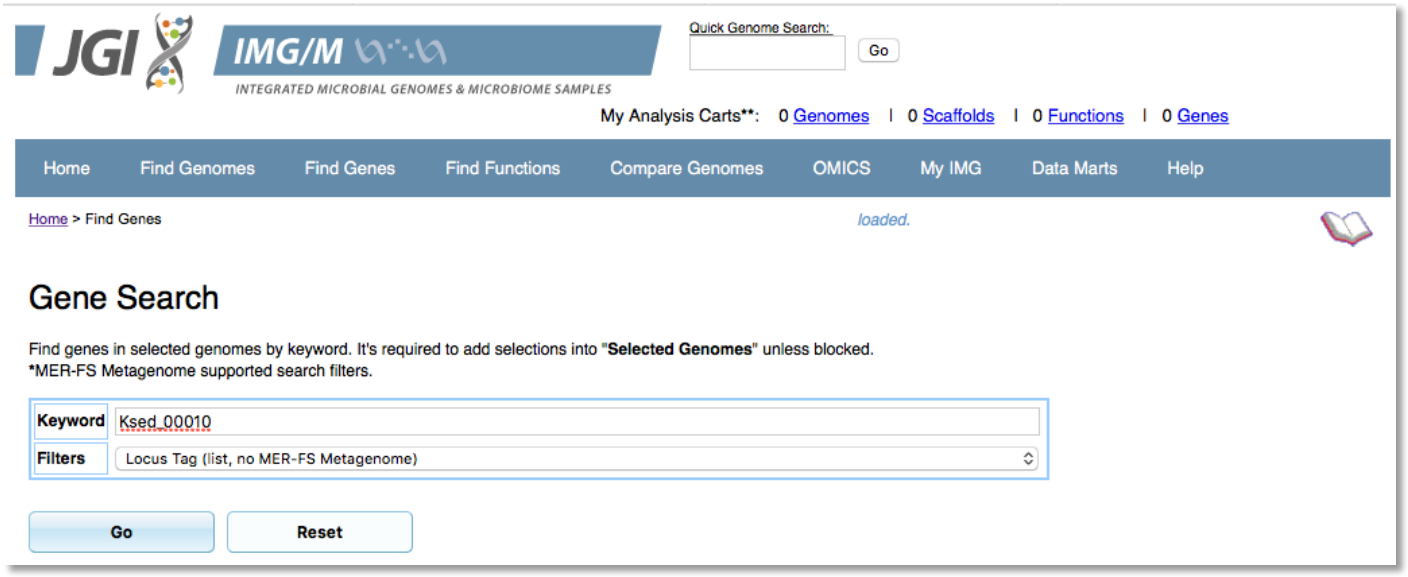


Figure 2. The Gene Search window at IMG/M.

4. The page that will appear is called the Gene Detail page in the IMG/edu database (Figure 3). It contains a wealth of information known about the gene.

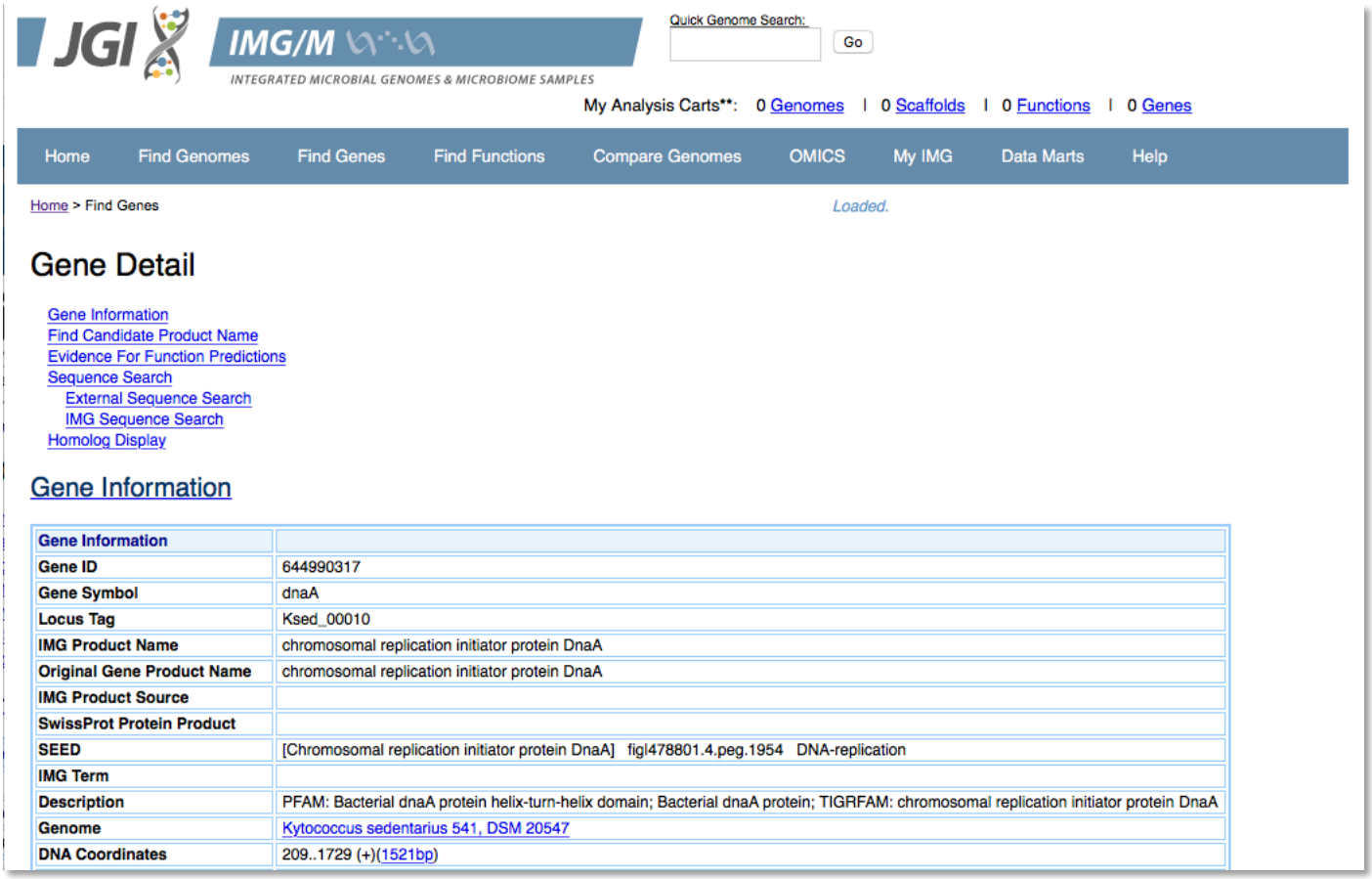
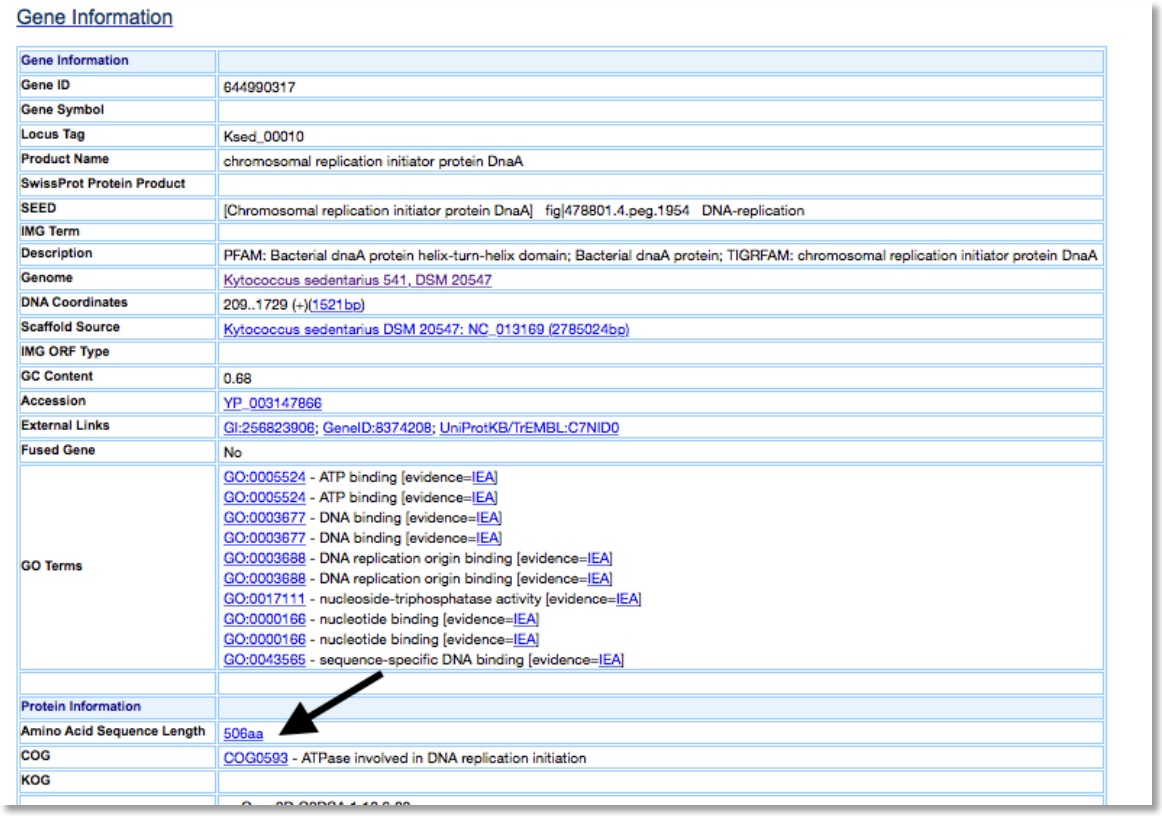


Figure 3. The IMG Gene Detail Page. Only the uppermost portion of the page is shown.

5. Scrolling further down the page you will lead you to a section entitled "amino acid sequence length" with a hyperlink in the form of the number of amino acids in the sequence (arrow, Figure 4).



Gene Information

Gene Information	
Gene ID	644990317
Gene Symbol	
Locus Tag	Ksed_00010
Product Name	chromosomal replication initiator protein DnaA
SwissProt Protein Product	
SEED	[Chromosomal replication initiator protein DnaA] fig|478801.4.peg.1954 DNA-replication
IMG Term	
Description	PFAM: Bacterial dnaA protein helix-turn-helix domain; Bacterial dnaA protein; TIGRFAM: chromosomal replication initiator protein DnaA
Genome	Kytococcus sedentarius 541, DSM 20547
DNA Coordinates	209..1729 (+)(1521 bp)
Scaffold Source	Kytococcus sedentarius DSM 20547: NC_013169 (2785024bp)
IMG ORF Type	
GC Content	0.68
Accession	YP_003147866
External Links	GI:256823906; GeneID:8374208; UniProtKB/TrEMBL:C7NID0
Fused Gene	No
GO Terms	GO:0005524 - ATP binding [evidence=IEA] GO:0005524 - ATP binding [evidence=IEA] GO:0003677 - DNA binding [evidence=IEA] GO:0003677 - DNA binding [evidence=IEA] GO:0003688 - DNA replication origin binding [evidence=IEA] GO:0003688 - DNA replication origin binding [evidence=IEA] GO:0017111 - nucleoside-triphosphatase activity [evidence=IEA] GO:0000166 - nucleotide binding [evidence=IEA] GO:0000166 - nucleotide binding [evidence=IEA] GO:0043565 - sequence-specific DNA binding [evidence=IEA]
Protein Information	
Amino Acid Sequence Length	506aa
COG	COG0593 - ATPase involved in DNA replication initiation
KOG	

Figure 4. The Gene Detail Page at IMG/edu showing where the amino acid sequence of the protein can be found. The arrow indicates a hyperlink that will lead you to the amino acid sequence.

6. Clicking on the Amino Acid Sequence Length hyperlink indicated by the arrow in figure 4 will open a FASTA formatted sequence, as shown in Figure 5. The sequence plus the FASTA header should be copied and pasted into a Word document or text editor. The FASTA header has a gene identifier number from the IMG database that is different from the locus tag we normally use. For consistency, replace the FASTA header from IMG/edu with the locus tag of your gene as described in the Basic Information Module Instructions and in the caption of figure 5.

Figure 5. The FASTA formatted sequence of Ksed_00010 as obtained from the IMG gene details page. The FASTA header in blue in the image above should be replace with the locus tag of your gene. In this case the edited header would read >Ksed_00010 amino acid sequence, as is described in the Basic Information Module instructions

7. Once you have the FASTA formatted sequence of your protein, from either a saved file or from IMG/edu as described above, you can use the online module instructions to perform the annotation exercises.
8. You can access the online module instructions at:

   http://ubwp.buffalo.edu/wnygirahcp/educational-resources/
9. Select the instructions for whichever module on which you are planning to work to see what happens in that module. Your students will then be able to find the bioinformatics tools on the Web and know how to use them. The module instructions will tell your students what data to save.
10. Your students can save their work in a Word or PowerPoint document and then upload it to the GENI-ACT notebook when it becomes available. Below is a link to a webpage that will have the Word document (blank_GENIACT_notebook_template.doc) that has all the GENI-ACT notebook sections in it, active links to the GENI-ACT tools and active links to instructions for each module.

    The link is:

    https://sites.google.com/site/ubbclsgenomeannotation/educational-resources