

***Symbiodinium* on-line network established**

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Dinoflagellates are an important group of unicellular protists common to aquatic environments. They are major photosynthetic and heterotrophic members of the plankton as well as the causative agents of "red tides" and fish kills. In addition, dinoflagellates exhibit a diversity of lifestyles, ranging from free-living to symbioses. Associations between invertebrates and symbiotic dinoflagellates, which belong to the genus *Symbiodinium*, are a common feature in tropical marine environments. Collectively known as "zooxanthellae," these mutualistic dinoflagellates play an important role in their host's nutrition and physiology. Research on *Symbiodinium* and the symbioses that they establish with invertebrate hosts have important implications in areas ranging from understanding the evolution of symbiotic relationships to predicting how coral reefs will respond to forecasted global warming trends.

Over the last 30 years, laboratories from around the world have extensively studied the biology of *Symbiodinium*. The World Wide Web offers an unprecedented opportunity for these researchers to be kept abreast of new developments and to rapidly share information from different regions of the world. In an effort to create a dynamic environment for the exchange of ideas, provide an easily accessible repository for this information, and to aid in data analyses, graduate student Yu Xiang and I have constructed a web site that is available as a resource to the *Symbiodinium* and symbiosis research communities. This resource, The *Symbiodinium* Network, can be accessed via our lab web site at: <http://www.auburn.edu/~santosr/>

Some of the content that researchers interested in *Symbiodinium* might find useful include:

1) Access to The *Symbiodinium* Bulletin Board. This is a bulletin board to which information can be posted and viewed by the community. Current forums include discussions on *Symbiodinium* diversity and genomics as well as announcements of "in press" papers and upcoming scientific meetings. For example, in the "Genomics" forum, Dr. Tom Doak (Princeton University) has posted a summary on the state of the *Symbiodinium* genome-sequencing project (along with a link to the whitepaper as a PDF). Information can be viewed without creating an account, but to post information requires creating a unique user account (blocks are in place to prevent spam emails and posts). If you would like to see the creation of additional forums, please let us know. We can rapidly create new forums such that information can be posted in a timely fashion. We feel that this is a valuable resource which will help principle investigators and students keep current on projects, papers and conferences related to *Symbiodinium* and symbiosis biology. Thus, we encourage all PIs (and their students) to participate and take advantage of this resource.

2) A *Symbiodinium* and dinoflagellate-specific Basic Local Alignment Search Tool (BLAST) service. The databases for these searches are automatically updated from NCBI on a monthly basis. In addition, dynamic links to the original NCBI entry can also be accessed. These BLAST searches are being run at Auburn University's Department of Biological Sciences on an Apple G5 14-processor computer cluster affectionately known as GUMP (Genomics Using Multiple Processors), so search results are returned almost immediately.

3) A searchable literature database related to *Symbiodinium* and other dinoflagellates. The information in this database comes from The Santos Lab's *Symbiodinium* and dinoflagellate EndNote libraries and currently contains >6000 entries. The interface is very similar to databases such as ISI's Web of Science and is extremely fast. Like the BLAST databases, it is updated on a monthly basis.

4) The ability to search for and request *Symbiodinium* cultures (<100 isolates) from the collection housed at Auburn University. The search is done using a robust database program that features a series of drop down lists. These lists contain information such as host name, geographic location of the isolate, 18S-rDNA clade, etc., that can be used in various combinations to locate specific *Symbiodinium* cultures of interest. A downloadable Excel spreadsheet of these *Symbiodinium* cultures is also available on the site.

5) A downloadable PDF file containing a comprehensive list of polymerase chain reaction (PCR) primers (and other information) utilized in *Symbiodinium* diversity and phylogenetic studies.

6) Downloadable sequence alignments in NEXUS format for molecules commonly used in *Symbiodinium* diversity and phylogenetic studies. These can be used as a scaffold for the inclusion of novel sequences and future additions will include secondary structures for various ribosomal (rDNA) genes.

7) A photo gallery of *Symbiodinium* images. Many of these images have appeared in print, including the cover of *The Biological Bulletin*, *Ranger Rick* magazine and on the website of PBS's "Evolution" series. If you would like to add images to this gallery, please let us know. We will watermark them with your information and upload them to the site within 24 hours.

The *Symbiodinium* Network also provides access to a variety of tools for the manipulation and analyses of DNA and protein sequences. Researchers utilizing these types of data in the study of various symbioses can take advantage of:

1) A full implementation of the EMBOSS suite of programs (over 100 in total), including software for sequence format conversion and alignment; virtual restriction enzyme digestion; sequence translations and open reading frame (ORFs) identification; protein motif identification; and presentation tools for publication. These programs are typically accessible only from the command-line; we have made them available using a simple, but powerful, web interface. In cases of time-consuming analyses, you may enter your email address and a link to your results will be sent to you.

2) Web accessible software for the design of PCR primers using either DNA or amino acid sequence alignments as a starting point.

We are also creating a bookmark list that is accessible from The *Symbiodinium* Network. We would like to populate this list with links to other labs and projects related to symbioses. To meet this objective, we are soliciting web addresses that we may add to the list. Please send your link to the email address below, and they will be added to the listing in a timely fashion.

We hope that the *Symbiodinium* community and other researchers find The *Symbiodinium* Network useful in their work. Comments, as well as requests for the addition of new features (many more will be in the upcoming months), can be sent to santos@auburn.edu.