

Specification Sheet

Computational Outsourcing: Phylogenomics, bioinformatics, high performance computing, and other data analysis.

1) Details of work

A. Phylogenomic analyses of NGS RADSeq data generated by the OKEON Ecological Genomics Pipeline.

1. Update and maintain records of sequenced specimens and specimen analysis sets as requested by Economo unit members.
2. Examine and curate raw RADseq data by de-multiplexing, sorting, trimming and checking for quality issues.
3. Implement SNP discovery pipelines tailored to high performance computing to produce processed sequence data using ipyrad and/or stacks.
4. Develop and implement standardized, reproducible methods to diagnose and filter processed SNP and nucleotide sequence data.
5. Generate preliminary and/or publication-quality phylogenies, time trees, population-level metrics, and relevant statistics using standard applications (including ExaML, RAxML, ExaBayes, MEGACC reltime) agreed upon by Economo unit members.
6. The quantity will be data from sequencing fewer than 8000 specimens.

B. Maintenance and management of computational resources

1. Database Management - maintain backups and restoration, manage server updates, initiate design extensions and changes, maintain ACID (Atomicity, Consistency, Isolation, Durability) compliance of data in OKEON, GABI and specimen databases.
2. Antmaps Web Application - maintain data synchronization with GABI database, manage web server updates, and user support.

2) **Term of Work:** From contract date to March 31, 2019

3) Delivery Items

- Monthly work reports summarizing activities and analyses performed for items in section A, including a list of all computational analyses run with specifics on datasets included.
- Deposit project files to Economo Unit network storage for items in section A. This includes alignment files, tree files, configuration files, other files, and report path information.
- Monthly maintenance reports for items in section B, including status of all databases/websites, a summary of problems encountered and solutions implemented.

4) **Delivery place:** Biodiversity and Biocomplexity Unit (Economo Unit), Lab 2 building, OIST (1919-1, Tancha, Onna village, Okinawa, Japan).

5) Acceptance inspection at delivery

Report will be inspected by the Faculty Member (Economista) and additionally checked for administrative accuracy by the Research Unit Administrator.

5) Payment: Monthly, by the end of the next month following submission of work report and invoice.

6) Remarks:

- Equipment and consumables for off-site work will be provided by the vendor, and any costs included in the quotation.
- Main computations will be performed within the OIST computer systems. Sequencing and database data should not be transferred off-site. Economista unit will procure vendor account from OIST IT section, which will provide vendor access to appropriate HPC resources and lab databases.
- OIST computational resources should only be used for activities described above, resource use will be monitored by the Economista unit at all times.
- All expenses required for delivery of items will be included in the initial quotation.
- All travel, accommodation, transportation expenses should be paid by the vendor and costs included in the quotation.
- Additional funds will not be available even if actual costs are higher than estimated.