



## Call for Postdoctoral Fellowship in Bioinformatics

The Center of Research and Advanced Studies (CINVESTAV) is a decentralized research center that has as its main objectives to promote the constant improvement of education at the graduate level, and generating original scientific research in different areas to increase the life styles and contribute with the development of Mexico. Under a National Project "Implementation of oceanographic observations networks (physical, geochemical, ecological) for generating scenarios for possible contingencies related with the exploitation and production of hydrocarbons in the deepwater Gulf of Mexico", the Marine Resources Department of CINVESTAV Merida is seeking for 1 postdoctoral investigator in the area of Bioinformatics.

The Postdoctoral researcher will be inserted in a group of interdisciplinary and interagency work. The postdoctoral fellowship will begin from August 1, 2016 for a period of 12 months and may be renewed for an additional 24 months. The salary provided will depend on the skills and experience of the candidate.

Candidates should submit electronically:

- Detailed CV
- Proof of academic degree
- Name and contact details of two references
- Intention letter
- Work proposal (maximum 5 pages)
- Extensive experience in publishing results in peer-reviewed journals (Indispensable requirement).

Documents must be sent by email to Dr. Leopoldina Aguirre ([leo@mda.cinvestav.mx](mailto:leo@mda.cinvestav.mx)) with Cc: Dr. José Q. García Maldonado ([jose.garcia@cinvestav.mx](mailto:jose.garcia@cinvestav.mx)) and Dr. Rossana Rodríguez Canul ([Rossana@mda.cinvestav.mx](mailto:Rossana@mda.cinvestav.mx))

**Deadline for the reception of documents: August 30, 2016.**

The position requires the analysis of massive sequencing data for characterization of microbial communities in oil polluted sediment and water samples from the Gulf of Mexico. The candidate will collaborate with different research groups in the Department of Marine Resources in CINVESTAV, Merida, Mexico.

The fellowship is offered for Biologists or Microbial Ecologists with previous experience in bioinformatics projects related with the analysis of massive sequencing data for the exploration of the microbial communities. An advanced knowledge on microbial diversity and detection of microorganisms with importance in Biotechnology is required. The aim of the position is to develop new bioinformatic tools for metagenomics analysis in order to understand the potential participation of microorganisms for the functioning of the marine ecosystem and to evaluate different metabolic pathways involved in the degradation of hydrocarbons. We are looking for a highly qualified candidate. A record of at least 2 publications in refereed journals related to the topic is needed.

### **Selection requirements:**

- Possess a doctoral degree in Bioinformatics, Molecular Microbial Ecology or related discipline
- Possess experience in the analysis of data from massive sequencing and with publication of results in peer reviewed journals.
- Having wide willingness to work as part of the research team of the project and actively help strengthen interdisciplinary research lines.

### **Tasks to do:**

- The candidate must transform the extensive databases on scientific knowledge, using different bioinformatic tools for the analysis of massive sequencing information.
- Analysis of gene prediction, translations and functional annotation of metagenomics reconstructed from massive sequencing.
- Taxonomic analysis using 16S rRNA sequences obtained from massive sequencing data.
- To assembly metagenomic fragments from massive sequencing data
- To develop new bioinformatics tools and to keep updated the available tools in order to solve the academic questions.
- Document all the processes and results of their research to be communicated via scientific publications.
- To support the activities of other laboratories in the use of programs and algorithms related to genomic analysis.
- To prepare and submit reports for the evaluation committee.

### **Additional duties:**

- The candidate will be in constant contact with questions related to the field of microbiology.
- Interact with other researchers from the institute working in another research projects.
- To design different strategies for the characterization of new functions related with the degradation of hydrocarbons.
- To relate the information obtained *in silico* with experimentally obtained data that lead to the transformation of bioinformatic data into new biological discoveries.

**Knowledge and skills required:**

- Proficiency in one or more programming languages or "scripting" (Perl, Python, R, Java, etc).
- Proficiency to working with operating systems based on UNIX (Linux).
- Experience in DNA/RNA sequence databases.
- Previous experience with gene prediction programs.

**Desired skills:**

- Previous experience in metagenomic data analysis.
- Previous experience in reconstruction of metabolic pathways.
- Management of high performance computing.