

## Job Description

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<b>Job Title:</b>	<b>Senior Scientist, Bioinformatics</b>		
<b>Department:</b>		<b>Location:</b>	Madison, WI
<b>Reports To:</b>	Chief Scientific Officer	<b>FLSA Status:</b>	Exempt
<b>Entities Served:</b>	Stemina Biomarker Discovery, UW	<b>Direct Reports:</b>	N/A

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### **Company Description**

Stemina Biomarker Discovery's pioneering cell based assays arise from the strategic convergence of two groundbreaking technologies: human embryonic stem cells and metabolomics. As a result of the research of University of Wisconsin stem cell scientist Dr. Gabriela Cezar, Stemina discovers and validates biomarkers for high throughput diagnostics and drug screening in a human system. Metabolomics enables the discovery of small molecules that can be used as therapeutic agents or candidate biomarkers of pharmacological efficacy or toxicity. The human embryonic stem cell metabolome provides a source of candidate biomarkers to predict, diagnose or measure the progress of disease or toxic response. Stemina provides drug screening, drug discovery and diagnostic development services for pharmaceutical and biotechnology companies under service contracts or joint discovery agreements using its proprietary metabolomics platform. In addition, Stemina uses mass spectrometry based metabolomics to identify biomarkers for cancer diagnostics and personalized medicine.

### **Job Purpose**

To develop novel tools for bioinformatic analysis of metabolomic data generated by mass spectrometry and to analyze and manage the data in useful biomarker profiles for drug screening, diagnostic tools and potential therapeutic targets. The candidate should have a track record demonstrating the ability to be self-motivated and self-directing, to develop realistic project plans with timelines, and to solve problems using application of scientific theory.

### **Essential Job Duties and Responsibilities**

- Design and implement small molecule and metabolomic analysis.
- Assist in design and execution of scientific experiments in collaboration with analytical chemistry and cell biology staff.
- Lead the construction, population, and maintenance of databases in support of Stemina's proprietary efforts.
- Evaluate and develop new and advanced bioinformatics tools and software, making them accessible to internal users.
- Perform comparative analyses of mass spectrometer derived metabolomic data.
- Develop integrated metabolomic database including the development and maintenance of bioinformatics tools for metabolomic annotation and analysis.
- Experience in integrating large data sets from multiple analyses into metabolic sense.
- Experience in developing and utilizing data-mining techniques, algorithm development and statistical analysis.
- Work closely with biologists and analytical chemists in updating and utilizing multiple sources of biological data.
- Contribute to the development of visualization tools for complex biological data and novel algorithms to solve bioinformatics problems.

- Write grant applications at the direction of the Chief Scientific Officer in collaboration with other scientific staff.
- Keep and maintain accurate and detailed records of all research and experiments performed.
- Maintain current technical procedures and quality assurance.
- Attend staff and lab meetings.

**Qualifications:**

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

**Education and Experience:**

- Ph.D in molecular biology, biochemistry, bioinformatics, computational biology, molecular biotechnology or related discipline
- 2-3 years of post-doctoral training experience as well as other relevant work experience
- A good knowledge of programming languages such as R, C/C++ or scripting languages  
Proficiency with C and Perl in Unix environment; prior experience in handling data acquired from Excel, Unix flat files, Oracle and/or MySQL database.
- At least five years of experience in bioinformatics research and development, preferably in metabolomic, genomic and metagenomic analysis.
- Strong background in biochemistry, specifically understanding of the metabolic pathways is required.
- Broad understanding of bioinformatics tools used for metabolomic, genomic and metagenomic analysis (i.e., assembly, binning, gene calling) and gene function prediction.

**Knowledge, Skills and Abilities Required:**

- Effective interpersonal, verbal and written communication skills, including public-speaking and presentation skills.
- Ability to maintain high level of confidentiality.
- Ability to effectively communicate with all levels of the organization.
- Demonstrated ability to work well independently as well as a part of a diverse team.
- Ability to maintain experimental consistency.
- Demonstrated ability to work well under pressure and manage multiple tasks with constantly changing priorities.
- Demonstrated ability to troubleshoot problems and recommend actions.
- Knowledge of implementation and design of state-of-the-art algorithms for metabolomic, genomic and metagenomic analysis
- Advanced analytical, organizational, and record-keeping skills
- Proficient computer skills: knowledge of multiple platforms and operating systems, including MS Office and research software programs.

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