

## Bioinformatician Postdoc Position in the IBRI Integrated Data Sciences Innovation Area

We are the Indiana Biosciences Research Institute (IBRI). We are a leading translational research institute that advances academic and industry science through collaboration to improve patient health outcomes. Building your career at the IBRI in Indianapolis' 16 Tech Innovation District, means being part of a team of renowned scientists, creative thinkers and innovative leaders.

Today's research is being driven by significant advances in our abilities to study complex disease processes and propose new ways to improve patients' lives. To reflect the evolving nature of life sciences research and encourage synergies through collaboration, we're enhancing our integrated capabilities, adding depth to how we approach patient-informed translational science and pursuing four foundational areas of scientific focus. These four areas will provide us the core talent and capability to pursue translational science in this new patient-centric framework:

- **Disease, Systems, Pathways** – We're working to better understand diabetes and identify new ways to combat the disease. We're applying this learning to other diseases that share common systems and pathways.
- **Molecular Innovation** – We're developing new capabilities for molecular design and drug discovery to investigate disease processes and pursue new therapeutic approaches.
- **Integrated Data Sciences** – We're pursuing advanced data sciences to create novel end-user inspired solutions that address complex analysis, simulation and prediction across the translational sciences.
- **Enabling Technologies** – We're building a rich platform of enabling technologies that give our scientists, partners and collaborators access to the best tools to solve complex scientific problems.

The IBRI's vision is to build a world-class organization of researchers, innovators and business professionals that catalyze activities across the Indiana (and beyond) life sciences community. To achieve that vision, we look for curious and collaborative team members who are energized by innovation, guided by integrity and inspired by diversity.

### The Opportunity:

The Integrated Data Sciences Innovation scientific area has a post-doctoral position available for a talented individual with training and experience in bioinformatics, computational biology, and hands-on experience with commonly used bioinformatics methods and pipelines. Ideally this individual will also be a strong scientific communicator with subject matter expertise in one of the following: diabetes, immunology, or complementary biological areas.

This position will be an integral part of the team as it empowers science and the IBRI strategy through applied bioinformatics analysis, implementation of bioinformatics pipelines, novel bioinformatics tool development to understand disease mechanisms and accelerate novel biomarker and therapeutic discovery. The ideal candidate for this role is one who can work directly with diabetes researchers to understand their scientific goals and work to access and integrate the necessary multi-omics data, perform the necessary analysis, and interpret these analyses to the team to drive new understanding and hypothesis. The ideal candidate will also be one who can instantiate these analyses into validated

informatics workflows that can be re-used in the future. These workflows will be delivered in a validated form that can be integrated into systems and platforms for broader use by partners or collaborators within the regional or national life sciences ecosystem.

Success in this role will be measured by the ability to drive scientific excellence in a team setting through participation in applied research projects leading to publications, grants, patents, tools, and innovation. This position will directly assist the IBRI's applied research mission to deliver innovation in disease understanding, target or biomarker identification, and new therapeutics.

This position is ideal for you if you want to work in an innovative institute in the middle of a technology district with opportunities to interact with other life sciences organizations in the region.

### **Responsibilities:**

- Provide bioinformatics and computational biology support to multi-disciplinary research teams comprised of biologists, chemists, immunologists, biostatisticians and/or clinicians.
- Develop innovative and robust pipelines for the extraction, interpretation and analyses of diverse data sources to inform disease team decision making.
- Support efforts delivering these workflows into tools or platforms for effective use of data searching, integration, sharing, analysis and visualization by research teams.
- Effectively communicate to collaborating researchers in other centers so that they understand their data, analysis workflow and the results of the analysis.
- Participate in the IBRI's collaborative efforts with colleagues at Indiana University and Purdue University.

### **Qualifications:**

- PhD in bioinformatics, computational biology, mathematics, statistics, computer science or related scientific discipline with at least two (2) years of experience in applied biomedical informatics.
- Demonstrated ability to formulate and test hypotheses by designing and implementing novel computational biology or bioinformatics tools.
- Experience applying analyses to problems in diabetes, immunology or related biological areas.
- Understanding how to elucidate unknown biology by working across multi-omics data sets.
- Proven skills in communication of complex analytic approaches, results and visualizations to peers and scientists in other disciplines.
- Proficiency accessing, mining and applying statistical analyses of public biological data sets such as Pubchem, ChEMBL,TCGA, Synapse, EMBL, GEO and GTEX.
- Experience with commonly used bioinformatics tools such as Limma, EdgeR, DESeq2, WGCNA, Seurat, BWA, STAR, Trimmomatic, fastQC, IGV, RSEM, HTseq, GATK, VCFtools, SAMtools, BEDtools, VarScan, IR Finder and ANNOVAR.
- Ability to rapidly prototype new algorithms and script re-usable bioinformatics workflows.
- Demonstrated technical skills working across multiple operating systems including PC/Windows, MacOS, and variants of linux in a cluster-computing and/or cloud-based environment.
- Experience scripting or programming in languages such as Python, R and BASH.
- Experience identifying and applying correct statistical tests for hypothesis testing.

- General knowledge of biology, molecular biology and chemistry techniques such as immunohistochemistry, polymerase chain reaction, CRISPR-Cas9, gel electrophoresis, plasmids/vectors, knockdown/knockout experimental design and confocal microscopy.

**Additional Preferred Qualifications:**

- Strong publication record.
- Hands on experience implementing and applying WES and WGS pipelines.
- Expertise in large scale data handling and integration (e.g., extraction, manipulation, cleaning, merging across multiple data sources).
- Experience working in a team setting using open-source tools, source version control repositories and test-driven development.
- Experience working with structured (mySQL/ORACLE-SQ) or unstructured databases (noSQL, MongoDB, etc.).
- Experience with low level programming languages like C, C++ or Java.
- Experience working with APIs (e.g., WebServices, REST, XML, JSON).
- Experience with bioinformatics pathway applications (e.g., MetaCore, IPA).
- Experience with cloud computing environments (e.g., AWS, Azure, GCE).

**Compensation:**

NIH salary scale plus benefits.

**Equal Employment Opportunity:**

The IBRI provides equal employment opportunities to all employees and applicants and does not discriminate on the basis of age, race, color, religion, gender, sexual orientation, gender identity, gender expression, national origin, protected veteran status, disability or any other legally protected status.

**Apply:**

Please visit us at <https://www.indianabiosciences.org/careers/> to learn more and/or apply for this opportunity. Interested individuals are encouraged to provide their CV/resume and a brief cover letter with their application.