

Bioso! RESTful Interfaces – A Programming Framework (API) for Data Annotation

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Abstract

As a data integration framework, Bioso! manages rich set of biological datasets that are instrumental for our understanding of various facets of biological molecules in experimental omics profiles. In order to take full advantage of this data resource, we developed RESTful data access framework at Bioso! integration data layer that allow programmatic- and customized-access of the rich annotation information by third-party client applications. The API framework is built by using Java technology, configurable and easy to use. UniProt is the first dataset that has been implemented in the framework for it is the well-received annotation resource for proteins. Data types to describe a protein or a peptide can be flexibly accessed and retrieved include General Information (protein name/ID, review status and organism etc.), Protein Features (biological function, catalytic activity and disease information etc.) and Sequence Features (site-specific information such as domain/motif, structure and variation etc.). Full implementation with Bioso! full-datasets is under active development. A meta-ontology of data types will be developed to strengthen the semantic relationships between these data types.

Keywords: RESTful API framework, data annotation, biological database, meta-ontology, semantic integration