Brain, Biomedical Knowledge Manipulation

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ABSTRACT

Brain is a Java software library facilitating the manipulation and creation of ontologies and knowledge bases represented with the Web Ontology Language (OWL). The library focuses on the OWL2 EL profile, which enables the use of fast and parallel reasoner such as ELK. Brain aims at filling the gap between the OWL-API and Protege, and is particularly useful to perform biomedical analysis based on description logics.

The work has already been peer-reviewed and published (Bioinformatics. 2013 May 1;29(9):1238-9. doi: 10.1093/bioinformatics/btt109). The goal of this poster at ICBO is to publicize the library to the community and to receive important feedback from users.

The Functional Therapeutic Chemical Classification System

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ABSTRACT

Drug repurposing is the application of known drugs to new indications. Various computational methods have been recently developed in order to predict such opportunities, based on data coming from gene expression experiments to chemical structure analysis for example.

Description logics and their implementations by the Web Ontology Language offer an interesting novel framework to address the drug reprofiling issue. The Functional Therapeutic Chemical Classification System (FTC) is a resource built on the top of such semantic technologies. The FTC formally defines the mode of action of chemical compounds by integrating the data coming from various biomedical databases and ontologies. Following an automated classification, drug repurposing hypotheses are automatically generated, which can then be further validated in an experimental setting.

A web application has been developed around the FTC and is available online (https://www.ebi.ac.uk/chembl/ftc). This poster presents the preliminary work to the rest of the community.