Mining Biomedical Literature to Extract Pharmacokinetic Drug-Drug Interactions

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Abstract:

Polypharmacy is a general clinical practice, there is a high chance that multiple administered drugs will interfere with each other, such phenomenon is called drug-drug interaction (DDI). DDI occurs when drugs administered change each other's pharmacokinetic (PK) or pharmacodynamic (PD) response. DDIs in many ways affect the overall effectiveness of the drug or

at some times pose a risk of serious side effects to the patients thus, it becomes very challenging to for the successful drug development and clinical patient care. Biomedical literature is rich source for in-vitro and in-vivo DDI reports and there is growing need to automated methods to extract the DDI related information from unstructured text. In this work we present an ontology (PK ontology), which defines annotation guidelines for annotation of PK DDI studies. Using the ontology we have put together a corpora of PK DDI studies, which serves as excellent resource for training machine learning, based DDI extraction algorithms. Finally we demonstrate the use of PK ontology and corpora for extracting PK DDIs from biomedical literature using machine learning algorithms.

Description:

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