

RxBatch – Batch Operations for RxNorm and NDF-RT APIs

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*RxBatch*¹ is a web interface for doing batch operations with the *RxNorm* and *NDF-RT* APIs. Notable features include:

- **Functional Composition.** Instead of a single API function, a pipeline of functions to be executed in sequence can be specified. Any combination of interoperable functions from the *RxNorm* and *NDF-RT* APIs^{2,3} is permitted. *RxBatch* automatically ensures the interoperability of functions in the sequence.
- **Batch processing.** Rather than a single value, the pipeline of selected functions can operate on a list of input values, specified by a file or entered interactively. Submitted jobs are distributed on multiple servers, and users can track the progress of their job. Users are informed via email of the location of the results.
- **Interactive mode.** *RxBatch* allows users to interactively test and display results for small data sets.

RxBatch allows users to create complex queries without *ad hoc* programming. With the capability of using two APIs together, a greater domain of problems can be easily solved. Complex operations can be run with a single submission, freeing up the resources of the user for other operations.

The *RxNorm* and *NDF-RT* APIs are part of the *RxNav* suite of APIs. The *RxNorm* API provides functionality to access the *RxNorm* data set, including mapping from identifiers of other drug vocabularies and identification of clinical and branded drug concepts through a set of named relationships. The *NDF-RT* API contains functionality to access the hierarchy of data associated with ingredients and clinical drugs of *NDF-RT* data set.

¹ <http://rxbatch.nlm.nih.gov>

² <http://rxnav.nlm.nih.gov/RxNormAPI.html>

³ <http://rxnav.nlm.nih.gov/NdfrtAPI.html>

The screenshot displays the 'RxNorm/NDF-RT API Batch (Beta)' web interface. At the top, the 'Pipeline Operations' section contains a list of functions: '(NDF-RT API) findConceptsByID(idType.idString)', 'findRxcuiByString(term, sources, allSourcesFlag, matchType)', and 'getRelatedByType(rxcui, termTypeList)'. To the right, an 'Identifier Type Names' dropdown menu is open, showing options like MeSH_DUI, NUI, RxCUI (selected), UMLS_CUI, UNII, and VUID. Below this is the 'Workflow' section with a 'Browse...' button and a text area containing 'ivermectin', 'simvastatin', and 'ibuprofen oral tablet'. The 'Input Data' section has a 'Get Data' button and an 'E-Mail' field. At the bottom, there are radio buttons for 'JSON', 'TEXT', and 'XML' (selected), and a 'Control Panel' with 'Config', 'Browse...', 'Load', 'Save', 'Reset', and 'Submit' buttons.

Figure 1 — Sample Screen Shot of RxBatch Application