Expert Discovery

ExpertDiscovery system applies an original knowledge discovery approach (Relational Data Mining) [Scientific Discovery Web Site; Vityaev, 2006; Vityaev, Kovalerchuk, 2008; Vityaev, Kovalerchuk, 2004; Kovalerchuk, Vityaev, 2000]. The approach was used in Discovery system which has been successfully applied for solution some particular problems in the fields of psychophysics, cancer diagnostics and securities rates prediction. The heart of the system is semantic probabilistic inference. [Vityaev, 2006].

The idea of new knowledge discovery is to sequentially increase accuracy of hypotheses so that on each step the hypotheses have the higher probability and definition level. Also the level of significance of the results is tested by statistical criterions.

Discovery system implements semantic probabilistic inference with knowledge discovery as a set of probability laws, the strongest probability laws and maximally specific laws.

ExpertDiscovery is an adaptation of the Discovery system which is configured to knowledge discovery in sets of nucleotide sequences, according to semantic probabilistic inference, as complex signals with specified parameters.

ExpertDiscovery plugin in UGENE has the following advantages:

1. Crossplatforming
2. The unite system
    a. Many algorithms within the bounds of one project, apparently, give more possibilities than many different individual narrow applications. Such an approach simplifies user's work: that is needed is to launch UGENE which gives the access to the wide range of the algorithms instead of launching different unrelated programs.
    b. UGENE plugins have unified interface and work logic. Also, user who is already familiar with UGENE could cope with a new module faster. Thus, ExpertDiscovery uses reliable interface and visualization solutions (sequence view, annotation view, task manager, etc.) of UGENE.
    c. Extension and combination of results possibilities appear. For example, ExpertDiscovery markups can be UGENE algorithms' results (SITECON, Weight Matrix, Query Designer, etc.)
    d. Data formats. ExpertDiscovery can read sequences in any format which is supported by UGENE (FASTA, FASTAQ, Genbank, GFF, EMBL, etc.).

To open the ExpertDixcovery go to the *Tools->Expert Discovery* main menu item. More detailed information about ExpertDiscovery you can find below: