



Sequence database analysis made efficient

What's new in the 2.5 release of KoriBlast

Summary:

1. Organize your search jobs with a Project Manager (Search Module)
2. A brand new dynamic viewer to create and analyse Distance Trees (Analyse Module)
3. New and more compact display of query-anchored alignments (Analyse Module)
4. New export formats for images, alignments and trees. Creation of PDF reports.
5. Analyse search results produced by ScanPS (Analyse Module)

The following sections give more details about all the novelties of KoriBlast 2.5

A. Search Module

- new presentation of the left side of the Search Module that integrates a Project Manager Viewer. It enables a hierarchical organization of the search jobs like using a File Manager.
- when preparing a new search job, it is now possible to create and select a filter without using the Filter Manager Module. For that purpose a new [Apply Filter] button has been added in the Configure Tasks section of the Search Form.
- To facilitate the creation of personal Blast databanks, a new dialogue box has been setup. Easier to use, it also integrates more controls during the creation of such databanks.
- The "Job Results" table now displays the new following parameters: Score, Bits Score, Query Coverage and Hit Coverage. These values are only displayed for jobs created with the 2.5 release of KoriBlast
- The "Job Information" dialogue box (available from the "Job History" table toolbar) now displays a general summary of the search results. Among others, it reports the number of sequences with matches vs. those that do not produce any matches.

B. Analyse Module

Hit List View

- "Edit Colours" dialogue box: smileys and colours can be set using new parameters, i.e. Score, Bits Score, Hit Coverage and Query Coverage.
- Three new columns have been added: Hit Coverage, Query Coverage and Organism.

'Multiple Alignment' View

- renamed Query-anchored alignment to avoid the confusion with a real MSA
- the view is more compact and displays a Sequence Logo on top of the alignment.
- new export formats (see below)

'Position Specific Matrix' View

- a Sequence Logo replace the LogoBar.

'Results List' View (left side of the Analyse Module)

- it is now possible to download directly NCBI search jobs, if you have produced them using the NCBI blast interface.
- the [Open Result] button provides the possibility to open a ScanPS result file.

C. Filter Manager Module

- Two new parameters are available to create powerful filters: Query Coverage and Hit Coverage. These two fields are associated with the effective aligned regions of the query and the hit sequences. Combined together in a same filter, along with a constraint on the alignment length, it is now very easy to select highly conserved sequence alignments. Use cases of such filters target genome comparisons, for example.

D. A brand new viewer available in the Analyse Module

'Distance Tree' View

- KoriBlast is now capable of creating distance trees from Blast search results
- Distance Tree viewer is integrated within a dynamic graphical user interface
- trees can be quickly created with subsets of hits
- tree node selections interact with the other Analyse Module viewers and *vice versa*
- trees can be coloured, displayed with various layouts and exported (see below)

E. Other improvements:

- the KoriBlast EBI Wu-Blast service now uses the new EBI web service protocol
- new file formats export:
 - images: JPEG
 - Sequence Alignments: Phylip and FASTA (aligned, non-aligned)
 - Distance Trees: Nexus and Newick
 - Data tables: PDF reports
- data copy operations are available for all data tables. Copy to the clipboard any (set of) cells as easily as using Ctrl+C (Windows/Linux) or Cmd+C (Mac). As an example, it is possible to retrieve by copy/paste a complex Entrez query used with the NCBI Blast search system: just open the Job Information dialogue box (available from the "Job History" table toolbar) and get the query from the table displaying the search parameters.
- new main frame interface: the main menu bar has been removed and the associated commands are available as buttons on the left side of the KoriBlast frame.