PatSearch: a program for the detection of patterns and structural motifs in nucleotide sequences - (session: Novel Algorithms for Bioinformatics)

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Regulation of gene expression at transcriptional and post-transcriptional level involves the interaction between short DNA or RNA tracts and the corresponding trans-acting protein factors. Detection of such cis-acting elements in genome-wide screenings may significantly contribute to genome annotation and comparative analysis as well as to target functional characterization experiments.

We present here PatSearch, a flexible and fast pattern matcher able to search specific combinations of oligonucleotide consensi, secondary structure elements and position-weight matrices also allowing for mismatches/mispairings below a user fixed threshold.

We report three different applications of the program in the search of complex patterns as those of the Iron Responsive Element hairpin-loop structure, the p53 Responsive Element, and a promoter module containing CAAT-, TATA- and cap-boxes.

PatSearch is available on the web at http://bighost.area.ba.cnr.it/BIG/PatSearch/