

Smith-Waterman Search Element

Searches regions in a sequence similar to a pattern sequence. Outputs a set of annotations.

Under the hood is the well-known Smith-Waterman algorithm for performing local sequence alignment.

Element type: ssearch

Parameters

Parameter	Description	Default value	Parameter in Workflow File	Type
Substitution Matrix	Describes the rate at which one character in a sequence changes to other character states over time.	Auto	matrix	<i>string</i> Available values are: <ul style="list-style-type: none">• Auto - for auto detecting matrix• blosum60• dna• rna• ...
Algorithm	Version of the Smith-Waterman algorithm. You can use the optimized versions of the algorithm (SSE, CUDA and OpenCL) if your hardware supports these capabilities.	OPENCL	algorithm	<i>string</i> Available values are: <ul style="list-style-type: none">• Classic 2• SSE2• OpenCL• CUDA
Filter Results	Specifies either to filter the intersected results or to return all the results.	filter-intersections	filter-strategy	<i>string</i> Available values are: <ul style="list-style-type: none">• filter-intersections• none
Min Score	Minimal percent similarity between a sequence and a pattern.	90%	min-score	<i>numeric</i>
Search in	Specifies which strands should be searched: direct, complementary or both.	both strands	strand	<i>numeric</i> Available values are: <ul style="list-style-type: none">• 0 - for searching in both strands• 1 - for searching in direct strand• 2 - for searching in complement strand
Search in Translation	Translates a supplied nucleotide sequence to protein and searches in the translated sequence.	False	amino	<i>boolean</i>
Gap Open Score	Penalty for opening a gap.	-10.0	gap-open-score	<i>numeric</i>
Gap Extension Score	Penalty for extending a gap.	-1.0	gap-ext-score	<i>numeric</i>
Use Pattern Names	Use a pattern name as an annotation name.	True	use-names	<i>boolean</i>
Annotate as	Name of the result annotations.	misc_feature	result-name	<i>string</i>
Qualifier name for pattern name	Name of qualifier in result annotations which is containing a pattern name.	pattern name	pattern-name-qual	<i>string</i>

Input/Output Ports

The element has 2 *input ports*. The first input port:

Name in GUI: *Input data*

Name in Workflow File: in-sequence

Slots:

Slot In GUI	Slot in Workflow File	Type
Sequence	sequence	<i>sequence</i>

The second input port:

Name in GUI: *Pattern data*

Name in Workflow File: pattern

Slots:

Slot In GUI	Slot in Workflow File	Type
Sequence	sequence	<i>sequence</i>

And 1 *output port*:

Name in GUI: *Pattern annotations*

Name in Workflow File: out-annotations

Slots:

Slot In GUI	Slot in Workflow File	Type
Set of annotations	annotations	<i>annotation-table</i>