muscle_rest

MUSCLE (REST)

Description
MUSCLE (MUltiple Sequence Comparison by Log-Expectation) is claimed to achieve both better average accuracy and better speed than ClustalW or T-Coffee, depending on the chosen options. Multiple alignments of protein sequences are important in many applications, including phylogenetic tree estimation, secondary structure prediction and critical residue identification.

For more information see:

- Web form: http://www.ebi.ac.uk/Tools/msa/muscle/
- Document/literal SOAP service
- MUSCLE website

Web service registry entries:
- ProgrammableWeb.com

Important
There is currently a limit of 500 sequences and 1MB of data.

We kindly ask all users of EMBL-EBI Web Services to submit tool jobs in batches of no more than 30 at a time and not to submit more until the results and processing is complete. Please ensure that a valid email address is provided. Excessive usage of a particular resource will be dealt with in accordance with EMBL-EBI's Terms of Use. Please contact us if you need further information.

Clients
Sample clients are provided for a number of programming languages. For details of how to use these clients, download the client and run the program without any arguments.

<table>
<thead>
<tr>
<th>Language</th>
<th>Download</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perl</td>
<td>muscle_lwp.pl</td>
<td>LWP and XML::Simple</td>
</tr>
</tbody>
</table>

For an introduction on how to run these clients and use them in workflows please see the 'EMBL-EBI, programmatically: take a REST from manual searches' webinar series.

WADL
The WADL for the MUSCLE (REST) service: http://www.ebi.ac.uk/Tools/services/rest/muscle?wadl

Resources

parameters
List parameter names.

Request

<table>
<thead>
<tr>
<th>URL</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.ebi.ac.uk/Tools/services/rest/muscle/parameters/">http://www.ebi.ac.uk/Tools/services/rest/muscle/parameters/</a></td>
<td>none</td>
</tr>
</tbody>
</table>

Response
An XML document containing a list of parameter names.

For example: http://www.ebi.ac.uk/Tools/services/rest/muscle/parameters/
parameterdetails
Get detailed information about a parameter.

Request

<table>
<thead>
<tr>
<th>URL</th>
<th><a href="http://www.ebi.ac.uk/Tools/services/rest/muscle/parameterdetails/$parameterId">http://www.ebi.ac.uk/Tools/services/rest/muscle/parameterdetails/$parameterId</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameters</td>
<td>$parameterId: the name of the parameter</td>
</tr>
</tbody>
</table>

Response
An XML document providing details about the parameter.
For example: http://www.ebi.ac.uk/Tools/services/rest/muscle/parameterdetails/format

run
Submit a job with the specified parameters.

Request

| URL | http://www.ebi.ac.uk/Tools/services/rest/muscle/run/ |
| POST | email | User e-mail address. See Why do you need my e-mail address? |
| title | An optional title for the job. |
| format | Alignment format. |
| tree | Tree type. |
| order | Order of sequences in the alignment. |
| sequence | Sequences to align. |

More detailed information about each parameter, including valid values can be obtained using the getParameterDetails($parameterId) operation.

Response
A plain text document containing the job identifier.

status
Get the status of a submitted job.

Request

| URL | http://www.ebi.ac.uk/Tools/services/rest/muscle/status/$jobId |
| Parameters | $jobId: job identifier |

Response
A plain text document containing the job status.
The values for the status are:

- **RUNNING**: the job is currently being processed.
- **FINISHED**: job has finished, and the results can then be retrieved.
- **ERROR**: an error occurred attempting to get the job status.
- **FAILURE**: the job failed.
- **NOT_FOUND**: the job cannot be found.

resulttypes
Get available result types for a finished job.

Request
URL | http://www.ebi.ac.uk/Tools/services/rest/muscle/resulttypes/$jobId
---|---
Parameters | $jobId: job identifier

Response
An XML document detailing the available result types.

**result**
Get the job result of the specified type.

**Request**

| URL | http://www.ebi.ac.uk/Tools/services/rest/muscle/result/$jobId/$resultType |
| Parameters | $jobId: job identifier |
| | $resultType: type of result to retrieve. See resulttypes. |

Response
A document containing the result in the requested format. The MIME type of the returned document is set according to the format.

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**MUSCLE: multiple sequence alignment with high accuracy and high throughput.**
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