

# Example Using BLAST.cgi

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## Abstract

Shows how to use the BLAST.cgi on an example genetic sequence.

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## Protocol

### Step 1.

Go to the BLAST.cgi site.

<https://blast.ncbi.nlm.nih.gov/Blast.cgi>

### Step 2.

Click on Nucleotide BLAST found on the left of the page.

The screenshot shows the NCBI BLAST homepage. At the top, there are logos for NIH (U.S. National Library of Medicine) and NCBI (National Center for Biotechnology Information), along with a 'Sign In to NCBI' link. Below the logos is the 'BLAST' logo and a navigation bar with links: Home, Recent Results, Saved Strategies, and Help. The main heading is 'Basic Local Alignment Search Tool'. Below this, a brief description of BLAST is provided, followed by a 'Learn more' link. To the right, a 'NEWS' box announces 'BLAST+ 2.6.0 released' with the date 'Tue, 10 Jan 2017 12:00:00 EST' and a 'More BLAST news...' link. The 'Web BLAST' section features three main options: 'Nucleotide BLAST' (nucleotide to nucleotide), 'blastx' (translated nucleotide to protein), and 'tblastn' (protein to translated nucleotide). To the right of these is a 'Protein BLAST' option (protein to protein). At the bottom, there is a 'BLAST Genomes' section with a search bar labeled 'Enter organism common name, scientific name, or tax id' and a 'Search' button.

### Step 3.

Copy + Paste your FASTA sequence into the 'Enter Query Sequence' box found at the top.

NIH U.S. National Library of Medicine NCBI National Center for Biotechnology Information Sign in to NCBI

**BLAST** » blastn suite Home Recent Results Saved Strategies Help

Standard Nucleotide BLAST

blastn blastp blastx tblastn tblastx

Enter Query Sequence BLASTN programs search nucleotide databases using a nucleotide query. more... Reset page Bookmark

Enter accession number(s), gi(s), or FASTA sequence(s) Clear

Query subrange From To

Or, upload file Choose File No file chosen

Job Title Enter a descriptive title for your BLAST search

☐ Align two or more sequences

Choose Search Set

Database ☐ Human genomic + transcript ☐ Mouse genomic + transcript ☒ Others (nr etc.):  
Nucleotide collection (nr/nr)

Organism Optional Enter organism name or id—completions will be suggested ☐ Exclude  
Enter organism common name, binomial, or tax id. Only 20 top taxa will be shown

Exclude Optional ☐ Models (XM/XP) ☐ Uncultured/environmental sample sequences

Limit to Optional ☐ Sequences from type material

Entrez Query Optional Enter an Entrez query to limit search You [YouTube](#) [Create custom database](#)

Program Selection

Optimize for ☒ Highly similar sequences (megablast)

## NOTES

**James Thornton Jr** 02 Feb 2017

Example sequence:

>Example1

```
CCAAATCAGATGCCGCCGGTCGCCGCCGGTAGGCGGGACTTCCGGTACAAGATGGCGGAC
AATTACGTCATTTCTGTGACGTCATTTCTGTGACGTCATTTCCGGTGGGCGGGACTTC
CGGAATTAGGGTTGGCTCTGGGCCAGCTTGCTTGGGGTTGCCTTGACACTAAGACAAGCG
GCGCGCCGCTTGATCTTAGTGGCACGTCAACCCCAAGCGCTGGCCCAGAGCCAACCCTAA
TTCCGGAAGTCCCGCCACCGGAAGTGACGTCACAGGAAATGACGTCACAGGAAATGACG
TAATTGTCCGCCATCTTGTAACCGGAAGTCCCGCCTACCGGCGGCGACCGGCGGCATCTGA
TTTGGTGTCTTCTTTAAATTTTAGCGGGCTTTTTCCCGCCTTATGCAAATGGGCAGCC
ATTTTAAGTGTTTTACTATAATTTTATTGGTCAGTTTTGTAACGGTTAAAATGGGCGGAG
CGTAGGCGGGGACTACAGTATATATAGCACGGAAGTCCCGCAGCTCTTTCTTTCTGGGCT
GCTTTTTCTGGACTTTCTTGCTGTTTTTTGTGAGCTAACTAACAGGTATTTATACTACT
TGTTAACATACTAACATGGAGCTATTTAGAGGGGTGCTTCAAGTTTCTTCTAATGTTCTG
GACTGTGCTAACGATAACTGGTGGTGTCTTTACTGGATTTAGACACTTCTGACTGGGAA
CCACTAACTCATACTAACAGACTAATGGCAATATACTTAAGCAGTGTGGCTTCTAAGCTT
GACTTTACCGGGGGGCCACTAGCAGGGTGCTTGACTTTTTTCAAGTAGAATGTAACAAA
TTTGAAGAAGGCTATCATATTCATGTGGTTATTGGGGGGCCAGGGTTAAACCCAGAAAC
CTCACAGTGTGTGTAGAGGGGTATTTAATAATGTACTTTATCACCTTGTAAGTAAAAT
GTGAAGCTAAAATTTTTGCCAGGAATGACTACAAAAGGCAAATACTTTAGAGATGGAGAG
CAGTTTATAGAAAATATTTAATGAAAAAATACCTTTAATGTTGGGTGGTGTGTGACT
AATATTGATGGATATATAGACACCTGTATTTCTGCTACTTTTAGAAGGGGAGCTTGCCAT
GCCAAGAAACCCCGCATTACCACAGCCATAAATGATACTAGTAGGGATGCTGGGGAGGCT
AGCGGCACAGGGGCGAGAGTTGTGCCATTTAATGGAAAGGGAAGTAAAGGCTAGCATAAAG
TTTCAAATATGGTAAACTGGTTGTGTGAAAACAGAGTGTTCACAGAGGATAAGTGGAAA
CTAGTTGACTTTAACCAGTACACTTTACTAAGCAGTAGTCACAGTGAAGTTCTCAAATT
```

CAAAGTGCCTAAAAGTAGCAATTTATAAAGCACTAATTTAGTGCCTACTAGCACATTT  
TTATTGCATACAGACTTTGAGCAGGTTATGTGTATTAAGACAATAAAATTGTTAAATTG  
TTACTTTGTCAAACTATGACCCCCTATTGGTGGGGCAGCATGTGTTAAAGTGGATTGAT  
AAAAAATGTGGCAAGAAAAATACACTGTGGTTTTATGGGCCGCCAAGTACAGGAAAAACA  
AAGTTGGCAATGGCCATTGCTAAAAGTGTTCAGTATATGGCATGGTTAACTGGAATAAT  
GAAAACTTTCCATTTAATGATGTAGCAGGAAAAAGCTTGGTGGTCTGGGATGAAGGTATT  
ATTAAGTCTACAATTGTAGAAGCTGCAAAAGCCATTTTAGGCGGGCAACCCACCAGGGTA  
GATCAAAAAATGCGTGGAAGTGTAGCTGTGCCTGGAGTACCTGTGGTTATAACCAGCAAT  
GGTGACATTACTTTTGTGTAAGCGGGAACACTACAACAACTGTACATGCTAAAGCCTTA  
AAAGAGCGCATGGTAAAGTTAACTTTACTGTAAGATGCAGCCCTGACATGGGGTTACTA  
ACAGAGGCTGATGTACAACAGTGGCTTACATGGTGTAAATGCACAAAGCTGGGACCACTAT  
GAAAACTGGGCAATAAACTACACTTTTGATTTCCCTGGAATTAATGCAGATGCCCTCCAC  
CCAGACCTCCAAACCACCCCAATTGTCACAGACACCAGTATCAGCAGCAGTGGTGGTGAA  
AGCTCTGAAGAACTCAGTGAAAGCAGCTTTTTAACCTCATCACCCAGGCGCCTGGAAC  
ACTGAAACCCCGCGCTCTAGTACGCCCATCCCCGGGACCAGTTCAGGAGAATCATTTGTC  
GGAAGCCAGTTTCTCCGAAGTTGTAGCTGCATCGTGGGAAGAAGCCTTCTACACACCT  
TTGGCAGACCAGTTTCGTGAACTGTTAGTTGGGGTTGATTATGTGTGGGACGGTGTAAAG  
GGCTTACCTGTGTGTTGTGTGCAACATATTAACAATAGTGGGGGAGGCTTGGGACTTTGT  
CCCCATTGCATTAATGTAGGGGCTTGGTATAATGGATGGAAATTCGAGAATTTACCCCA  
GATTTGGTGCATGTAGCTGCCATGTGGGAGCTTCTAATCCCTTTTCTGTGCTAACCTGC  
AAAAAATGTGCTTACCTGTCTGGATTGCAAAGCTTTGTAGATTATGAGTAAAGAAAGTGG  
CAAATGGTGGGAAAGTGATGATAAATTTGCTAAAGCTGTGTATCAGCAATTTGTGGAATT  
TTATGAAAAAGTTACTGGAACAGCCTTAGAGCTTATTCAAATATTAAGATCATTATAA  
TATTTCTCTAGATAATCCCCTAGAAAACCCATCCTCTCTGTTTGACTTAGTTGCTCGTAT  
TAAAAATAACCTTAAAACTCTCCAGACTTATATAGTCATCATTTTCAAAGTCATGGACA  
GTTATCTGACCACCCCATGCCTTATCATCCAGTAGCAGTCATGCAGAACCTAGAGGAGA  
AAATGCAGTATTATCTAGTGAAGACTTACACAAGCCTGGGCAAGTTAGCGTACAACCTACC  
CGGTACTAACTATGTTGGGCCTGGCAATGAGCTACAAGCTGGGCCCCCGCAAAGTGCTGT  
TGACAGTGCTGCAAGGATTCATGACTTTAGGTATAGCCAACTGGCTAAGTTGGGAATAAA  
TCCATATACTCATTGGACTGTAGCAGATGAAGAGCTTTTAAAAAATATAAAAAATGAAAC  
TGGGTTTCAAGCACAAGTAGTAAAGACTACTTTACTTTAAAGGTGCAGCTGCCCTGT  
GGCCCATTTTCAAGGAAGTTGCCGGAAGTTCCCGCTTACAACGCCTCAGAAAAATACCC  
AAGCATGACTTCAGTTAATTCTGCAGAAGCCAGCACTGGTGCAGGAGGGGGGGCAGTAA  
TCCTGTCAAAAGCATGTGGAGTGAGGGGGGCCACTTTTAGTGCCAACTCTGTAACCTGTAC  
ATTTTACAAACAGTTTTTAATTCCATATGACCCAGAGCACCATTATAAGGTGTTTTCTCC  
CGCAGCAAGTAGCTGCCACAATGCCAGTGGAAGAGAGGCAAAGGTTTGCACCATTAGTCC  
CATAATGGGATACTCAACCCCATGGAGATATTTAGATTTTAAATGCTTTAAATTTATTTT  
TTCACCTTTAGAGTTTCAGCACTTAATTGAAAATTATGGAAGTATAGCTCCTGATGCTTT  
AACTGTAACCATATCAGAAATTGCTGTTAAGGATGTTACAGACAAAAGTGGAGGGGGGGT  
ACAGGTTACTGACAGCACTACAGGGCGCCTATGCATGTTAGTAGACCATGAATACAAGTA  
CCCATATGTGTTAGGGCAAGGTCAAGATACTTTAGCCCCAGAACTTCCTATTTGGGTATA  
CTTTCCCCCTCAATATGCTTACTTAACAGTAGGAGATGTTAACACACAAGGAATTTCTGG  
AGACAGCAAAAAATTAGCAAGTGAAGAATCAGCATTTTATGTTTTGGAACACAGTTCTTT  
CCAGCTTTTAGGTACAGGAGGTACAGCAACTATGTCTTATAAGTTTCTCCAGTGCCCCC  
AGAAAATTTAGAGGGCTGCAGTCAACACTTTTATGAAATGTACAATCCCTTATACGGATC  
CCGCTTAGGGGTTCTGACACATTAGGAGGTGACCCAAAATTTAGATCTTTAACACATGA  
AGACCATGCAATTCAGCCCCAAAATTCATGCCAGGGCCACTAGTAACTCAGTGTCTAC  
AAAGGAGGGAGACAGCTCTAATACTGGAGCTGGAAAAGCCTTAACAGGCCTTAGCACAGG  
TACCTCTCAAAACACTAGAATATCCTTACGCCCTGGGCCAGTGTCTCAGCCATACCACCA

CTGGGACACAGATAAATATGTCACAGGAATAAATGCCATTTCTCATGGTCAGACCACTTA  
TGGTAACGCTGAAGACAAAGAGTATCAGCAAGGAGTGGGTAGATTTCCAAATGAAAAAGA  
ACAGCTAAAACAGTTACAGGGTTTAAACATGCACACCTACTTTCCCAATAAAGGAACCCA  
GCAATATACAGATCAAATTGAGCGCCCCCTAATGGTGGGTTCTGTATGGAACAGAAGAGC  
CCTTCACTATGAAAGCCAGCTGTGGAGTAAATTCCAAATTTAGATGACAGTTTTAAAC  
TCAGTTTGCAGCCTTAGGAGGATGGGGTTTGCATCAGCCACCTCCTCAAATATTTTTGAA  
AATATTACCACAAAGTGGGCCAATTGGAGGTATTAAATCAATGGGAATTACTACCTTAGT  
TCAGTATGCTGTGGGAATTATGACAGTAACTATGACATTTAAATTGGGGCCCCGTAAAGC  
TACGGGACGGTGAATCCTCAACCTGGAGTATATCCCCGCACGCAGCAGGTCATTTACC  
ATATGTACTATATGACCCACAGCTACAGATGCAAAACAGCACCACAGACATGGATATGA  
AAAGCCTGAAGAATTGTGGACAGCCAAAAGCCGTGTGCACCCATTGTAAACACTCCCCAC  
CGTGCCCTCAGCCAGGATGCGTAACTAAACGCCCACCAGTACCACCCAGACTGTACCTGC  
CCCCTCCTGTACCTATAAGACAGCCTAACACAAAAGATATAGACAATGTAGAATTTAAGT  
ACTTAACCAGATATGAACAACATGTTATTAGAATGTTAAGATTGTGTAATATGTATCAAA  
ATTTAGAAAAATAAACATTTGTTGTGGTTAAAAAATTATGTTGTTGCGCTTTAAAAATTT  
AAAAGAAGACACCAAATCAGATGCCGCCGGTCGCCGCCGGTAGGCGGGACTTCCGGTACA  
AGATGGCGGACAATTACGTCATTTCTGTGACGTCATTTCTGTGACGTCATTCCGGTG  
GGCGGGACTTCCGGAATTAGGGTTGGCTCTGGGCCAGCGCTTGGGGTTGACGTGCCACTA  
AGATCAAGCGGCGCGCCGCTTGTCTTAGTGTCAAGGCAACCCCAAGCAAGCTGGCCCAGA  
GCCAACCCCTAATCCCGGAAGTCCCGCCCACCGGAAGTGACGTCACAGGAAATGACGTCAC  
AGGAAATGACGTAATTGTCCGCCATCTTGTACCGGAAGTCCCGCCTACCGGCGGCGACCG  
GCGGCATCTGATTTGG

#### **Step 4.**

Click "BLAST" at the bottom of the page.

#### **Step 5.**

The sequence will now be queried. The time required depends on the sequence length. If you use the example sequence given, it should be relatively quick.

#### **Step 6.**

Once complete the following graphical display is shown:

