How to: Find a homolog for a gene in another organism

Starting with...

A GENE NAME

1. Search the HomoloGene database with the gene name. If you know both the gene symbol and organism, use a query such as this: tpo[gene name] AND human[orgn].
2. If your search finds multiple records, click on the desired record. The homologous genes are listed in the top of the report.
3. If your search in HomoloGene returns no records, search the Gene database with the gene name.
4. Click on the desired record, and then click on the HomoloGene link in the list on the right side of the page.
5. If there is no link to HomoloGene, locate a protein Reference Sequence (e.g. NP_005537) in the NCBI Reference Sequences section of the Gene record and follow the instructions under "a protein accession number" below.
6. If there are no Reference Sequences in the Gene record, search the Protein database with the gene name and select the desired record. Then follow the instructions under "a protein accession number" below.

A PROTEIN ACCESSION NUMBER (e.g. NP_005537)

1. Search the Protein database with the accession number.
2. On the right side of the report, click on the "More about the xxx gene" link. Then continue at step 4 under "a gene name" above.
3. If there is no "More about the xxx gene" link, then it is likely that NCBI does not have any pre-computed homologs for your gene. You can find a list of sequence-similar proteins that are potential homologs by clicking the blue Links menu in the top right of the page and following the link to Blink.

A NUCLEOTIDE ACCESSION NUMBER (e.g. NM_001126)

1. Search the Nucleotide database with the accession number.
2. On the right side of the report, click on the "More about the xxx gene" link. Then continue at step 4 under "a gene name" above.
3. If there is no link to Gene, follow the link to Protein, and then continue at step 2 under "a protein accession number" above.

A NUCLEOTIDE SEQUENCE

1. Go to the BLAST home page and click "nucleotide blast" under Basic BLAST.
2. Paste the sequence in the query box.
3. Enter the name of the organism of interest in the "Organism" box. Click the BLAST button.
4. Click on the desired record and continue at step 2 under "a nucleotide accession number" above.

A PROTEIN SEQUENCE

1. Go to the BLAST home page and click "protein blast" under Basic BLAST.
2. Paste the sequence in the query box.
3. Enter the name of the organism of interest in the "Organism" box. Click the BLAST button.
4. Click on the desired record and continue at step 2 under "a protein accession number" above.