



# BIO-INFORMATICA

BACHELOR IN  
DE BIOMEDISCHE LABORATORIUMTECHNOLOGIE

BRUGGE

UNIEK IN VLAANDEREN



**howest**  
De Hogeschool West-Vlaanderen  
LID VAN DE ASSOCIATIE UNIVERSITEITEN GENT

## Workshop Bio-informatics

- Databases
  - Genome Browser
  - SNP database
- Linux introduction

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# Sequence retrieval

MDLSALRVEEVQNVINAM  
 QKILECPICLELIKEPVSTKCD  
 HIFCKFCMLKLLNQKKGPSQ  
 CPLCKNDITKRSLQESTRFSQ  
 LVEELLKIICAFQLDTGLEYAN  
 SYNFAKKENNSPEHLKDEVS  
 IIQSMGYRNRKRLLQSEPE  
 NPSLQETSLSVQLSNLGTVR  
 TLRTKQRIQPQKTSVYIELGS  
 DSSEDTVNKATYCSVGDQE  
 LLQITPQGTRDEISLDSAKKA  
 ACEFSETDVTNTEHHQ

- Protein name:  
 .....
- uniprotID:.....
- refseqID:.....

Find its homolog in *M. musculus* by using sequence databases



# Genome browsers

- UCSC
- NCBI

The UCSC Genome Browser was created by the [Genome Bioinformatics Group of UC Santa Cruz](#).  
 Software Copyright (c) The Regents of the University of California. All rights reserved.

group	genome	assembly	position	search term
Mammal	Human	Feb. 2009 (GRCh37/hg19)	chr21:33,031,597-33,041,570	enter position, gene symbol or search terms

[Click here to reset](#) the browser user interface settings to their defaults.  
[track search](#) [add custom tracks](#) [track hubs](#) [configure tracks and display](#)

**Human Genome Browser – hg19 assembly (sequences)**

The February 2009 human reference sequence (GRCh37) was produced by the [Genome Reference Consortium](#). For more information about this assembly, see [GRCh37](#) in the NCBI Assembly database.

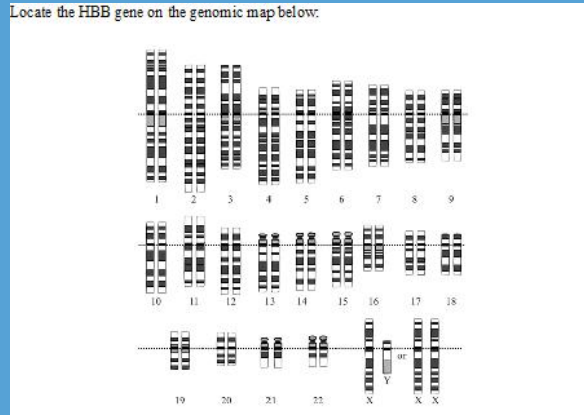
**Sample position queries**

A genome position can be specified by the accession number of a sequenced genomic clone, an mRNA or EST or STS marker, a chromosomal coordinate range, or keywords from the GenBank description of an mRNA. The following list shows examples of valid position queries for the human genome. See the [UCSC's Guide](#) for more information.

Request:	Genome Browser Response:
chr7	Displays all of chromosome 7
chrUn_g000212	Displays all of the unplaced contig g000212
20p13	Displays region for band p13 on chr 20
chr3:1-1000000	Displays first million bases of chr 3, counting from p-arm telomere



# Genome Browsers



# SNP – disease databases

- NCBI
  - FISH – CGH
  - SNPdb
  - OMIM

Link to HapMap data or Entrez Gene record

Number and type of SNPs in this record

Link to genome, mRNA or protein records

Table showing the type and effect of each SNP, with links

GeneView of SNPs with their locations

Example: Sickle Cell Anemia – rs334

