Université Dr Taher Moulay Saida
جامعة د.الطاهر مولاي سعيدة

Molecular and Cellular Physiology

Relation, Membrane Structure & Function of the Cell

Dr. Abdelkrim Rachedi,

Course Outlines

. Membrane structure (revision).

. Intracelluar compartments and their mutual relations.

. Cytoskeleton: Structure, synthesis and function.

. Mechanism of the cell division and differenciation.

. Biochemical energetics.

. Cellular principals of the defense immunity.

. Cellular bases for the nervous conduction and the synaptic transmission.

.Receptors and reception.

.Muscular fibre and contraction.

Course Outlines

. Structure Membranaire (revision)

. Compartiments intracellulaire et leurs relations mutuelles.

. Cytosquelette: structure, la synthèse et la fonction.

. Mécanisme de la division cellulaire et la différenciation.

. Energétique biochimique.

. Principes de l'immunité cellulaire de la défense.

. Bases cellulaires de la conduction nerveuse et la transmission synaptique.

. Récepteurs et réception.

. La fibre musculaire et la contraction.

Course Information

Information at: http://www.bioinformaticstools.co.za/ForStd/

Université Dr Taher Moulay Saida
جامعة د.الطاهر مولاي سعيدة

Department of Biology, Faculty of Science, Saida University, Algeria
Year 2011-2012

Course: Molecular & Celular Physiology
(Physiologie Cellulaire et Moleculaire)

- **Course material**
- **Submit Assignments** [Submit Assignments in PDF or DOC] (Students only)

Dr. Abdelkrim Rachedi

Course Material - examples

Université Dr Taher Moulay Saida
جامعة د.الطاهر مولاي سعيدة

ForStd/

Introduction

[Assignments]
[Labs]
[Lectures]
[Other_Material]
[Tools]
[plagiarism]

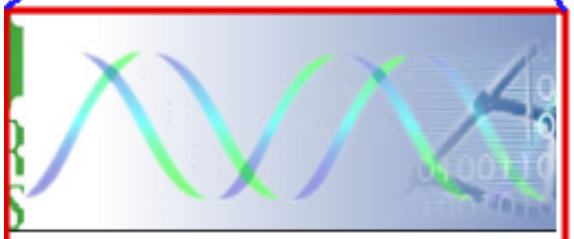
Back to **Main Page**

Teaching Tools

Université Dr Taher Moulay Saida
جامعة د.الطاهر مولاي سعيدة

sumuniv_2011/Tools/

[E-Teach_Soft]
[Online_Services]



sumuniv_2011/Tools/E-Teach_S

[Support_Lib_Files]
MtS.exe
Visual Biochemistry.exe

sumuniv_2011/Tools/Online Services/

http://www.bioinf.wits.ac.za/services.html

Online Services:

- STAD: Structural Targets Annotation Database
  - All Targets Status Page
  - Targets Stats Board
  - Targets Structural Gallery
  - Targets News
  - Download Targets
- NALD: Nucleic Acids and Ligands Database, Ligand Biniding Motifs, Classes & Disease Links outcome of Honours Project-2010 by student: Khuphukile Madida)
- LSE: Ligands Sites Explorer
- SSFS: Sequence, Structure and Function Server (**under development**)
- NCTPR: Nucleic Acid Codes Translation to Proteins and Reverse
- Rapid Building of Protein/DNA Motifs in Standard 3D-Conformations

Université Dr Taher Moulay Saida
جامعة د.الطاهر مولاي سعيدة

SSFS http://www.bioinformaticstools.co.za/ssfs

Ligands Sites Explorer ...v.Beta

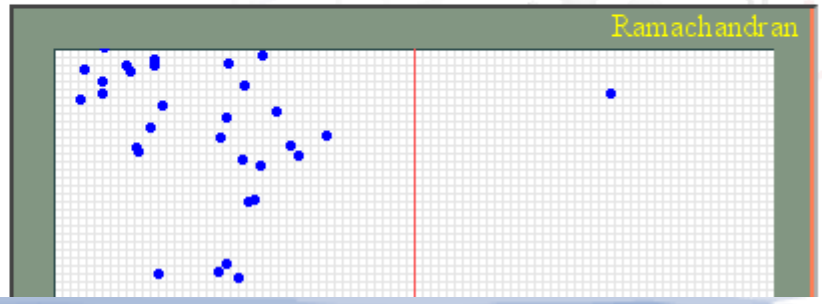
Query: hydrolase Go

(type in a PDB id, keyword, protein name, ligand name/id or author)

Ligands Sites Explorer	1221 Bound Ligands				
Ligands	ID:Chain	Res.No.	Full Name	Explore Site	Ligand Chemistry
	CL:A	173	CHLORIDE ION	• Environment • 3D-View	CL:A
	CL:A	178	CHLORIDE ION	• Environment • 3D-View	CL:A
	BME:A	901	BETA-MERCAPTOETHANOL	• Environment • 3D-View	BME:A
	BME:A	902	BETA-MERCAPTOETHANOL	• Environment • 3D-View	BME:A

Entry Summary

Entry	1221 (3D-view the whole entry)
Header	HYDROLASE(O-GLYCOSYL)
Title	THE ENERGETIC COST AND THE STRUCTURAL CONSEQUENCES OF BURYING A HYDROXYL GROUP WITHIN THE CORE OF A PROTEIN DETERMINED FROM ALA TO SER AND VAL TO THR SUBSTITUTIONS IN T4 LYSOZYME



SSFS http://www.bioinformaticstools.co.za/ssfs

Ligands Sites Explorer ...v.Beta

Query: hydrolase Go

(type in a PDB id, keyword, protein name, ligand name/id or author)

Ligands Sites Structural Environment

PDB Entry: 1221

Scene Rendering:

- (•) Cartoons ( ) Spacefill ( ) Backbone
- ( ) Ribbons ( ) Trace ( ) Strands
- ( ) Wireframe ( ) Meshribbon ( ) Rockets

[ ] H Bonds (only on Trace mode)

( ) Reset scene

Scene Colour:

structure

Background:

Black

[ ] spin

NACP: http://www.bioinformaticstools.co.za/n2p

BIO INFORMATICS

Nucleic Acid Codes to Proteins .. v.1.0

Enter nucleic acid sequence: (DNA or RNA) NACP How2

Frames: F1

Genetic Codes: Standard Code

Show Genetic Code (select Genetic Code from above list to show)

Submit Reset

Nucleic Acid Codes to Proteins (NACP) is a tool for translating nucleic acid sequences (DNA or RNA) following any of the known genetic codes (e.g. Standard, Mitochondrial, bacteria .. etc) into the six reading frames of protein product.

Input of Nucliec Acids Sequence:

- A nucleic acids sequence, DNA or RNA, can typed or pasted into the text window. Sequence can be in **Free text** or **Fasta** format.

Genetic Codes:

- Translations can be done based on Standard genetic code which is a default selection.
- Other known non-standard genetic codes are also available from **Genetic Codes** list.
- The Genetic Codes used in the translation can be shown by clicking the button Show Genetic Code

NACP: http://www.bioinformaticstools.co.za/n2p

BIO INFORMATICS

Nucleic Acid

Enter nucleic acid sequence: (DNA or RNA) NACP How2

```
>eg. nucleic acid sequences
AGCATTTACGATGAAAGCATTTACGATGAAAGTGTGCATAGTAGTAGATGATCCCATACAT
CAGATGACAGTCAGGGAAAAAATCAGTGAGAGCATTTACGATGAAAGTGTTCAGTGAGTGT
GCATAGTAGTAGATGATCCCATACATCAGATGACAGTCAGGGAAATCAGTGAGAGCATTTA
CGATGAAAGTGTGCATAGTAGTAGATGATCCCATACATCAGATGACAGTCAGGGAAATCAG
TGCATTTAAATCAGTGAGAGCATTTACGATGAAAGTGTACGAGCATTTACGATGAAAGTGT
GCATAGTAGTAGATGATCCAGCATTTACGATGAAAGTGTGCATAGTAGTAGATGATCCCAT
ACATCAGATGACAGTCAGGGAAATCAGTGCATACATCAGATGACAGTCAGGGAAATCAGTG
ATGAAAGTGTGCATAGTAGTAGATGATCCCATACATCAGATGACAGTCAGGGAAATCAGTG
```

Frames: All 5'-3'

Genetic Codes: Standard Code

Show Genetic Code (select Gene

Submit Reset

```
>Frame_1 EG. NUCLEIC ACID SEQUENCES
SIYDESIYDESVHSSR*SHTSDDSQGKNQ*EHLR*KCSVSVHSSR*SHTSDDSQGNQ*EHLR*KCA***M
IPYIR*QSGKSVHLNQ*EHLR*KCTSIYDESVHSSR*SSIYDESVHSSR*SHTSDDSQGNQCIHQMTVRE
ISDESVHSSR*SHTSDDSQGNQ

>Frame_2 EG. NUCLEIC ACID SEQUENCES
AFTMKAFTMKVCIVVDDPIHQMTVREKISESIYDESVQ*VCIVVDDPIHQMTVREISESIYDESVHSSR*
SHTSDDSQGNQCI*ISESIYDESVRAFTMKVCIVVDDPAFTMKVCIVVDDPIHQMTVREISAYIR*QSGK
SVMKVCIVVDDPIHQMTVREIS

>Frame_3 EG. NUCLEIC ACID SEQUENCES
HLR*KHLR*KCA***MIPYIR*QSGKKSVRAFTMKVFSECA***MIPYIR*QSGKSVRAFTMKVCIVVDD
PIHQMTVREISAFKSVRAFTMKVYEHLR*KCA***MIQHLR*KCA***MIPYIR*QSGKSVHTSDDSQGN
Q**KCA***MIPYIR*QSGKSV
```

Université Dr Taher Moulay Saida
جامعة د.الطاهر مولاي سعيدة

NACP: http://www.bioinformaticstools.co.za/n2p

BIO INFORMATICS

Nucleic Acid Codes

Enter nucleic acid sequence: (DNA or RNA) NACP How2

Frames: F1

Genetic Codes: Trematode Mitochondrial

Show Genetic Code (select Genetic Code from above list

Submit Reset

Genetic code: Trematode Mitochondrial

Codon	AA	Codon	AA	Codon	AA	Codon	AA
TTT	F	CTT	L	ATT	I	GTT	V
TTC	F	CTC	L	ATC	I	GTC	V
TTA	L	CTA	L	ATA	M	GTA	V
TTG	L	CTG	L	ATG	M	GTG	V
TCT	S	CCT	P	ACT	T	GCT	A
TCC	S	CCC	P	ACC	T	GCC	A
TCA	S	CCA	P	ACA	T	GCA	A
TCG	S	CCG	P	ACG	T	GCG	A
TAT	Y	CAT	H	AAT	N	GAT	D
TAC	Y	CAC	H	AAC	N	GAC	D
TAA	*	CAA	Q	AAA	N	GAA	E
TAG	*	CAG	Q	AAG	K	GAG	E
TGT	C	CGT	R	AGT	S	GGT	G
TGC	C	CGC	R	AGC	S	GGC	G