

Rešitve

1. Naloga:

- V PDB išči 'Latrodectus tredecimguttatus'. Vrne 4 zadetke, vendar sta dva zadetka za isti protein - strukturo so torej odločili za 3 proteine. Vsi imajo ločljivost več kot 5 Å, zato je tudi končni odgovor **3**.

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RCSB PDB PROTEIN DATA BANK 236,060 Structures from the PDB 1,068,577 Computed Structure Models (CSM) Enter search term(s), Entry ID(s), Ligand ID or sequence Include CSM Help

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Search Query History Browse Annotations MyPDB

QUERY: Full Text = "Latrodectus tredecimguttatus" MyPDB Login Search API

Advanced Search Query Builder Help

Search Summary This query matches 4 Structures.

Refinements Structure Determination Methodology experimental (4) Scientific Name of Source Organism Latrodectus tredecimguttatus (4) Taxonomy Eukaryota (4) Experimental Method ELECTRON MICROSCOPY (4)

1 to 4 of 4 Structures Page 1 of 1 25 Sort by 1 Score

7PTX | pdb_00007ptx
Alpha-latrocrustotoxin monomer
Chen, M., Gatsogiannis, C.
(2021) Nat Commun 12: 6956-6956
Released 2021-12-08
Method ELECTRON MICROSCOPY 4.03 Å
Organisms Latrodectus tredecimguttatus
Macromolecule Alpha-latrocrustotoxin-Lt1a (protein)
Explore in 3D

9GO9 | pdb_00009go9
Prepore state of alpha-Latrotoxin
Klink, B.U., Gatsogiannis, C., Kalyankumar, K.S.
(2024) Nat Commun 15: 8551-8551
Released 2024-10-16
Method ELECTRON MICROSCOPY 2.7 Å
Organisms Latrodectus tredecimguttatus
Macromolecule Alpha-latrotoxin-Lt1a (protein)
Explore in 3D


9GOA | pdb_00009goa
Pore state of alpha-Latrotoxin
Klink, B.U., Gatsogiannis, C., Kalyankumar, K.S.
(2024) Nat Commun 15: 8551-8551
Released 2024-10-16
Method ELECTRON MICROSCOPY 3.2 Å
Organisms Latrodectus tredecimguttatus
Macromolecule Alpha-latrotoxin-Lt1a (protein)
Explore in 3D

- Za naslednjo nalogo izberes protein 9GO9 (tudi z 9GOA deluje enako, saj sta to dve različni strukturi za isti protein). Pod poglavjem 'Macromolecules' poiščeš link za UniProtKB. Pošlje te na vnos za Alpha-latrotoxin-Lt1a z UniProt kodo **P23631**. Do istega rezultata prideš, če v UniProtu iščeš 9go9.

Macromolecules

Find similar proteins by: Sequence (by identity cutoff) | 3D Structure

Entity ID: 1

Molecule	Chains	Sequence Length	Organism	Details	Image
Alpha-latrotoxin-Lt1a	A, B, C, D	1,401	Latrodectus tredecimguttatus	Mutation(s): 0	

UniProt

Find proteins for [P23631](#) (*Latrodectus tredecimguttatus*)

Explore [P23631](#) [Go to UniProtKB](#) [P23631](#)

Entity Groups

Sequence Clusters: [30% Identity](#) [50% Identity](#) [70% Identity](#) [90% Identity](#) [95% Identity](#) [100% Identity](#)

UniProt Group: [P23631](#)

Sequence Annotations [Expand](#)

Reference Sequence: ▼

Search ID mapping SPARQL UniProtKB 9go9 Advanced List Search   Help

UniProtKB 1 result

Tools Download (1) Add View: Cards Table Customize columns Share

Entry	Entry Name	Protein Names	Gene Names	Organism	Length
<input type="checkbox"/> P23631	 LATA_LATR	Alpha-latrotoxin-Lt1a[...]		Latrodectus tredecimguttatus (Mediterranean black widow spider) (<i>Latrodectus mactans tredecimguttatus</i>)	1,401 AA

P23631 · LATA_LATR

Protein ⁱ	Alpha-latrotoxin-Lt1a	Amino acids	1401 (go to sequence)
Status ¹	 UniProtKB reviewed (Swiss-Prot)	Protein existence ¹	Evidence at protein level
Organism ¹	<i>Latrodectus tredecimguttatus</i> (Mediterranean black widow spider) (<i>Latrodectus mactans tredecimguttatus</i>)	Annotation score ¹	 5/5

Entry Variant viewer Feature viewer Genomic coordinates Publications External links History

Tools Download Add Add a publication Entry feedback

Function¹

Presynaptic neurotoxin that causes massive release of neurotransmitters from vertebrate (but not invertebrate) nerve terminals and endocrine cells via a complex mechanism involving activation of receptor(s) and toxin insertion into the plasma membrane with subsequent pore formation. Binds to neuroligin-1-alpha (NRXN1) in a calcium dependent manner, adhesion G protein-coupled receptor L1 (ADGRL1, also termed latrophilin-1 and calcium-independent receptor of latrotoxin (CIRL)), and receptor-type tyrosine-protein phosphatase S (PTPRS), also termed PTP sigma (PubMed:12110683, PubMed:7592578, PubMed:8798521).

- V zapisu pod 'Structure' (čisto na koncu poglavja, torej tik pred naslednjim) so 'Sequence databases'. Linka do GenBank za nukleotidno zaporedje sta dva (X55009.1 in AF069521.1). Pri obeh fasta format nukleotidnega zaporedja dobimo s klikom na CDS, potem pa FASTA v spodnjem desnem kotu. Fasta zaporedji in narediš lokalno ali globalno poravnavo na EMBL-EBI spletni strani (Needle, Water). Prešteješ zamenjane nukleotide. Pomagaš si lahko z iskanjem znakov na spletni strani - tako se obarvajo pike in dvopičja, ki označujejo razlike med obema zaporedji. Zamenjanih nukleotidov je **19**.
- V anotaciji kodirajočega zaporedja je prevod v aminokislinsko zaporedje. Tudi ti zaporedji poravnaš enako kot pri prejšnji nalogi. Zamenjanih aminokislin je **9**, procent je 47%.

PTM/Processing

Expression

Interaction

Structure

Family & Domains

Sequence

Similar Proteins

Keywordsⁱ

Technical term

#3D-structure

#Direct protein sequencing

Sequence databases

NUCLEOTIDE SEQUENCE	PROTEIN SEQUENCE	MOLECULE TYPE
X55009 EMBL ↗ · GenBank ↗ · DDBJ ↗	CAA38753.1 EMBL ↗ · GenBank ↗ · DDBJ ↗	mRNA
AF069521 EMBL ↗ · GenBank ↗ · DDBJ ↗	AAC78471.1 EMBL ↗ · GenBank ↗ · DDBJ ↗	mRNA

Similar Proteinsⁱ

100% identity	90% identity	50% identity
---------------	--------------	--------------

TITLE

JOURNAL

REMARK

COMMENT

FEATURES

source

CDS

mat_peptide

Direct Submission

Submitted (19-NOV-1998) Basic Neuroscience Center, Department of Molecular Genetics and Howard Hughes Medical Institute, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75235-9050, USA

Sequence update by submitter

On Nov 20, 1998 this sequence version replaced gi:3219512.

Location/Qualifiers

1..3531

/organism="Latrodectus tredecimguttatus"

/mol_type="mRNA"

/db_xref="taxon:6925"

<1..>3531

/note="neurotoxin"

/codon_start=1

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/protein_id="AAC78471.1"

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1..3531

PREDICTED: Manihot esculenta alpha-latrotoxin-Lt1a (LOC110613708), mF

Nucleotide

See more...

<1..>3531

/note="neurotoxin"

/codon_start=1

/product="alpha-latrotoxin precursor"

/protein_id=" AAC78471.1 "

/translation="EGEDLTLEEKAEICSELELQKQYVDIASNIIGDLSLPIVGKIA GTIAAAAMTATHVASGRLDIEQTLGCSDL PFDQIKEVLNRFNEIDRKLDHSAALE EITKLVEKSISVVEKTRKQMNKRFDKVMKSIQDAKVSPIVSKINNFARYFDEKERIR GLKLN DYILKLEEPNGILLHLKESRTPDDSLQAPLFSIIIEGYAVPKSIDDELAFKVL YALLYGTQTVYSVMFFLLEQYSFLANHYEKGYLEYDEYFNSLNNVFLDFKSSLVG TGTSNNEGLLDRVLQVLMTVKNSEFLGLEKNGVDEMLNEKINL FNKIKEEIEGKQKMT LSETPENFAQISFDKDIITPIGDWRDGREVRVAVQYASETLFSKISHWSDPVSVREKA CPTLRMPVDQTRNNVLVFRKFDSSKPQLVGEITPYLSNFIDIDRDL YNAASNPDAAVG FKEFTKLN YDGANIRATFDHGRTVFHAAAKSGNDKIMFGLTF LAKSTELNQPKKGYT PIHVAADSGNAGIVNLLIQRGVINSKTYHFLQTPLHLAAQRGFVTTFQRLMESPEIN INERDKDGFTP LHYAIRGGERILEAFLNQISIDVNAKSNITGLTPFHLAIKNDWPVAS TLLGSKKVDINAVDENNITALHYAAILGYLETTKQLINLKEITANLVSSPLL SALHY AILYKHDDVASFLMRSSNVNVLKALGGITPLHLAVIQGRKQILSLMFDIGVNI EQKT DEKYTPHLAAMSKYPELIQILIDQGSNFEAKTNSGATPLHLATFKGKSQAAILLNN EVNWRD TDENGQMPIHGAAMTGLDVAQAIISIDATVVDIEDKNSDTPNLNAAQNSHI DVVKYFIDQGADINTRNKKGLAPLLAFSKKGNLDMVKYLFDKNANVYIADNGMNFY YAVQNGHLNIVKYAMSEKDFEWSNTDNNRRDECPNEECAISHFAVCDAVQFDRIEIV KYFVGT LGMFAICGPLHQAARYGHLDIVKYLVEEEFLSVDGSKTDTPLCYASENGHFT VVQYLSNGAKVNHDCGNGMTAIDKAITKNHLQVQFLAANGVDFRRKNSRGTTPFLT AVAENALDIAEYLR EKRQDININEQNVDKDTALHLAVYYKNLQMIKLLIKYGIDVTI RNAYDKTALDIAIDAKFSNIVEY LKTKSGKF"

Details

Display: [FASTA](#) [GenBank](#) [Help](#)

- # Gap_penalty: 10.0
Extend_penalty: 0.5

Length: 1378
Identity: 1168/1378 (84.8%)
Similarity: 1174/1378 (85.2%)
Gaps: 201/1378 (14.6%)
Score: 5998.0

#=====
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EMBOSS_001 1 -----EGEDLTLEEKAEICSELELQKQYVDIASNI 30
EMBOSS_001 51 IGDLSSLPTAGKIAGTIAAAMTATHVASGRDIEQTLGCSDLPFQDIK 100
EMBOSS_001 31 IGDLSSLPIVQKIAGTIAAAMTATHVASGRDIEQTLGCSDLPFQDIK 80
EMBOSS_001 101 EVLENRFNEIDRKLDSHASALEETKLVEKISVVEKTRQ(MNKRFDVM 150
EMBOSS_001 81 EVLENRFNEIDRKLDSHASALEETKLVEKISVVEKTRQ(MNKRFDVM 130
EMBOSS_001 151 KSIQDAKVSPISKINNFARYFDTEKERIRGLKNDYILKLEEPNGILLH 200
EMBOSS_001 131 KSIQDAKVSPISKINNFARYFDTEKERIRGLKNDYILKLEEPNGILLH 180
EMBOSS_001 201 FKESRTPTDOSLQAPLFSIIIEEGYAVPKSIDELAFKVLVYLLYGQTQYV 250
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EMBOSS_001 251 SVMFLLQYQSFLANHYEKGYLEKYDEYFNSLNNWFLDFKSSLVGTGTS 300
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EMBOSS_001 501 SGNOKIMFGLTFLAKSTELNQPKKGYPPIHVAADSGNAGIVNLLIQRGV 550
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EMBOSS_001 531 SINSKTYHFLQTPHLAAQRGVVTFQRLMESPEINERKDGFTPLHY 580
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EMBOSS_001 581 AIRGGERILEAFLNQSIDVNAKNTGLTPFHLAIKNDMPVASTLLGSK 630
EMBOSS_001 651 KVDINAVDENNITALHYAAILGYLETTQILNKLKEINANVSSPGLLSAL 700
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EMBOSS_001 1201 YKSSYGERSLQTQNSNFIDRKNIEHDPHLINADNESSELSKTSASNI 1250
EMBOSS_001 1178 ----- 1177
- V PDB so na desni zgoraj gumbi ‘Display Files’ in ‘Download Files’. Od tam dobiš FASTA zaporedje proteina z določeno strukturo. To daš v tblastn in isces po nr databases. Protein je bolj podoben zapisu **X55009**.

BLAST® » tblastn » results for RID-2FCEJR2R013 [Home](#) [Recent Results](#) [Saved Strategies](#) [Help](#)

[< Edit Search](#) [Save Search](#) [Search Summary](#) [How to read this report?](#) [BLAST Help Videos](#) [Back to Traditional Results Page](#)

Job Title	9G09_1 Chains A, B, C, D Alpha-latrotoxin-Lt1a Latrodectus...
RID	2FCEJR2R013 Search expires on 05-18 05:44 am Download All
Program	TBLASTN Citation
Database	core_nt See details
Query ID	lcl Query_49551
Description	9G09_1 Chains A, B, C, D Alpha-latrotoxin-Lt1a Latrodectus...
Molecule type	amino acid
Query Length	1401
Other reports	

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Percent Identity to **E value** to **Query Coverage** to
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Descriptions	Graphic Summary	Alignments	Taxonomy						
Sequences producing significant alignments Download Select columns Show 100 ?									
<input checked="" type="checkbox"/> select all 100 sequences selected GenBank Graphics									
	Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per Ident	Acc. Len	Accession
<input checked="" type="checkbox"/>	Latrodectus tredecimguttatus mRNA for alpha-latrotoxin	Latrodectus tre...	2837	2837	100%	0.0	98.43%	5408	X55009.1
<input checked="" type="checkbox"/>	Latrodectus tredecimguttatus voucher Ltire2 alpha-latrotoxin gene, partial cds	Latrodectus tre...	2760	2760	98%	0.0	97.81%	4111	KC414034.1
<input checked="" type="checkbox"/>	Latrodectus hesperus clone 119 P5 alpha-latrotoxin and latrotoxin-like protein genes, complete cds	Latrodectus hes...	2661	3728	100%	0.0	91.58%	33342	KM382064.1

2. Naloga

- V uniprotu išči Sonic Hedgehog protein. V pomoč ti je lahko da proteine razvrstiš po naraščajoči dolžini, omejiš dolžino prikazanih proteinov na 401-600 in pa nastaviš prikazovanje samo pregledanih člankov. Pravilna je koda Q91035

uniportal.org/uniprotkb?dir=ascend&facets=reviewed%3Atrue%2Clength%3A%5B401+TO+600%5D&query=Sonic+hedgehog+protein&sort=length

UniProt BLAST Align Peptide search ID mapping SPARQL UniProtKB Sonic hedgehog protein Advanced | List Search

Status
Reviewed (Swiss-Prot) (58)X

Popular organisms
Mouse (26)
Human (16)
Zebrafish (3)
Rat (3)
Bovine (1)

Taxonomy
Filter by taxonomy

Group by
Taxonomy
Keywords
Gene Ontology
Enzyme Class

Proteins with
3D structure (11)

Tools Download (58) Add View: Cards Table Customize columns Share

Entry	Entry Name	Protein Names	Gene Names	Organism	Length
Q90419	TWHH_DANRE	Tiggy-winkle hedgehog protein[...]	shhb, twhh	Danio rerio (Zebrafish) (Brachydanio rerio)	416 AA
P15151	PVR_HUMAN	Poliovirus receptor[...]	PVR, PVS	Homo sapiens (Human)	417 AA
P79691	SHH_CARAU	Sonic hedgehog protein[...]	shha	Carassius auratus (Goldfish)	418 AA
Q92008	SHH_DANRE	Sonic hedgehog protein[...]	shha, shh, vhh1	Danio rerio (Zebrafish) (Brachydanio rerio)	418 AA
Q91035	SHH_CHICK	Sonic hedgehog protein[...]	SHH	Gallus gallus (Chicken)	425 AA
Q640N2	AR13B_MOUSE	ADP-ribosylation factor-like protein 13B[...]	Arl13b, Arl2i1	Mus musculus (Mouse)	427 AA
Q5EA95	IFT57_BOVIN	Intraflagellar transport protein 57 homolog	IFT57	Bos taurus (Bovine)	429 AA
Q8BXG3	IFT57_MOUSE	Intraflagellar transport protein 57 homolog[...]	IFT57, Hipp1	Mus musculus (Mouse)	429 AA
Q9NWB7	IFT57_HUMAN	Intraflagellar transport protein 57 homolog[...]	IFT57, DERP8, ESRRBL1, HIPPI	Homo sapiens (Human)	429 AA
Q90385	SHH_CYNPY	Sonic hedgehog protein[...]	SHH	Cynops pyrrhogaster (Japanese fire-bellied newt) (Molge pyrrhogaster)	432 AA
Q62226	SHH_MOUSE	Sonic hedgehog protein[...]	Shh, Hhg1	Mus musculus (Mouse)	437 AA

V spletni iskalnik vpiši Sonic the hedgehog, nato pa odpreš wikipedia. Leto izida 1. igre je zapisano na Wikipediji. Leto izida 1. igre je 1991.

en.wikipedia.org/wiki/Sonic_the_Hedgehog_(1991_video_game)

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Sonic the Hedgehog (1991 video game)

Article Talk

From Wikipedia, the free encyclopedia

This article is about the Sega Genesis game. For other games of the same name, see Sonic the Hedgehog (video game).

Sonic the Hedgehog^[d] is a 1991 platform game developed and published by Sega for the Sega Genesis. It was released in PAL regions on June 21, North America two days later on June 23 and in Japan the following month. Players control **Sonic the Hedgehog**, who can run at supersonic speeds. Sonic sets out on a quest to defeat **Dr. Robotnik**, a scientist who has imprisoned animals in robots and seeks the powerful **Chaos Emeralds**. The gameplay involves collecting rings as a form of **health**, and a simple control scheme, with jumping and attacking controlled by a single button.

Development began in 1990 when Sega ordered **its developers** to create a game featuring a mascot for the company. The developers chose a blue hedgehog designed by **Naoto Ohshima** after he won an internal character design contest, and named themselves Sonic Team to match their character. It uses a novel technique that allows Sonic's **sprite** to roll along curved scenery which was based on a concept by Ohshima from 1989.^[2] *Sonic the Hedgehog*, designed for fast gameplay, was influenced by games by the **Mario** creator, **Shigeru Miyamoto**. The music was composed by **Masato Nakamura**, bassist of the J-pop band **Dreams Come True**.

Sonic the Hedgehog received positive reviews for its design, audio, and gameplay, and



- V uniprotu se pri proteinu q91035 spustiš do Subcellular Location in prepišeš lokacije. Pravilen odgovor so: membrana endoplazemskega retikla, membrana golgijevega aparata in celična membrana. (lahko tudi v angleščini)

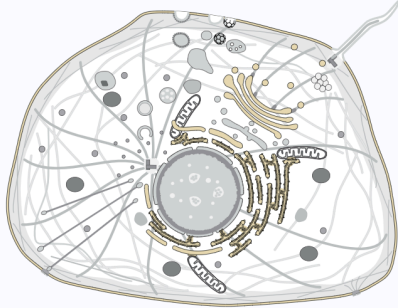
uniportal.org/uniportal/Q91035/entry#structure

UniProtKB

Function
Names & Taxonomy
Subcellular Location
Phenotypes & Variants
PTM/Processing
Expression
Interaction
Structure
Family & Domains
Sequence
Similar Proteins

Entry Variant viewer Feature viewer Genomic coordinates Publications External links History

UniProt Annotation GO Annotation



Sonic hedgehog protein

- Endoplasmic reticulum membrane
- Golgi apparatus membrane

Note: Co-localizes with HHAT in the ER and Golgi membrane.

Sonic hedgehog protein N-product

- Cell membrane
- Lipid-anchor

Note: The dual-lipidated sonic hedgehog protein N-product (ShhNp) is firmly tethered to the cell membrane where it forms multimers. Further solubilization and release from the cell surface seem to be achieved through different mechanisms, including the interaction with DISP1 and SCUBE2, movement by lipoprotein particles, transport by cellular extensions called cytonemes or by the proteolytic removal of both terminal lipidated peptides.

Keywords

3. Naloga

- V Pubmedu išči Bubonic plague, nato pa razberi letnico nastanka 1. članka. Letnica je 1797

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bubonic plague

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2 Account of Some Cases of the **Plague**, Which Occurred on Board of a British Ship of War, on the Coast of Syria.

- V naslovu tega Članka se nahaja ime človeka, ki je v egiptu zdravil okužene. Pravilen odgovor je Mr Baldwin.

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