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Project Part 1: Find A Gene

- 1) Name: Calcium/calmodulin dependant protein kinase type 1 (CAMK1)
Accession: Q14012
Species: Human
- 2) Method: TBLASTN search against Cephalopoda ESTs
Database: Expressed Sequence Tags (est)
Organism: Cephalopoda (taxid: 6605)

blastn blastp blastx **tblastn** tblastx

translated BLAST

TBLASTN search translated nucleotide databases

Enter Query Sequence

Enter accession number(s), gi(s), or FASTA sequence(s) [?](#) [Clear](#)

Q14012

Query subrange [?](#)

From

To

Or, upload file No file chosen [?](#)

Job Title

Enter a descriptive title for your BLAST search [?](#)

☐ Align two or more sequences [?](#)

Choose Search Set

Database [?](#)

Organism ☐ exclude [?](#)

Descriptions

Graphic Summary

Alignments

Taxonomy

Sequences producing significant alignments

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?

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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"/>	cy92e09.y1 Woods Hole Squid Stellate Ganglia cDNA Library Doryteuthis pealeii cDNA_mRNA sequence	Doryteuthis pealeii	88.2	88.2	69%	2e-19	26.30%	883	JK332248.1
<input checked="" type="checkbox"/>	FQ162856 Sepia officinalis whole embryos embryonic stages 16 to 28 Sepia officinalis cDNA clone ADY0AAA103...	Sepia officinalis	102	102	67%	5e-25	29.64%	756	FQ162856.1
<input checked="" type="checkbox"/>	DB919027 Northern pygmy squid cDNA library Idiosepius paradoxus cDNA clone Ip_aB_033_P16 5', mRNA sequ...	Idiosepius parad...	213	213	67%	6e-67	43.60%	796	DB919027.1
<input checked="" type="checkbox"/>	cy136a04.y1 Woods Hole Squid Stellate Ganglia cDNA Library Doryteuthis pealeii cDNA_mRNA sequence	Doryteuthis pealeii	110	110	63%	1e-27	31.22%	831	JK322328.1
<input checked="" type="checkbox"/>	cy118g05.y1 Woods Hole Squid Stellate Ganglia cDNA Library Doryteuthis pealeii cDNA_mRNA sequence	Doryteuthis pealeii	140	140	63%	7e-39	35.32%	797	JK320773.1
<input checked="" type="checkbox"/>	FQ187735 Sepia officinalis whole embryos embryonic stages 16 to 28 Sepia officinalis cDNA clone ADY0AAA59Y...	Sepia officinalis	188	188	62%	8e-58	42.74%	706	FQ187735.1
<input checked="" type="checkbox"/>	FQ201827 Sepia officinalis whole embryos embryonic stages 16 to 28 Sepia officinalis cDNA clone ADY0AAA92Y...	Sepia officinalis	194	194	62%	8e-60	44.21%	741	FQ201827.1
<input checked="" type="checkbox"/>	FQ171709 Sepia officinalis whole embryos embryonic stages 16 to 28 Sepia officinalis cDNA clone ADY0AAA128...	Sepia officinalis	76.6	76.6	59%	1e-15	25.49%	755	FQ171709.1

Chosen match: Accession JK511422.1, a 883 base pair clone from Doryteuthis pealeii.

oy92e09.y1 Woods Hole Squid Stellate Ganglia cDNA Library Doryteuthis pealeii cDNA, mRNA sequence

Sequence ID: [JK332248.1](#) Length: 883 Number of Matches: 1

Range 1: 26 to 877 [GenBank](#) [Graphics](#)

[Next Match](#) [Previous Match](#)

Score	Expect	Method	Identities	Positives	Gaps	Frame
88.2 bits(217)	2e-19	Compositional matrix adjust.	76/289(26%)	131/289(45%)	36/289(12%)	+2
Query 20	YDFRDVLGTGAFSEVILAEDKRTQKLVAIKCIA-KEALEGKEGSMENEIAVLHKIKHPNI					78
Sbjct 26	YEKLENLGEGTYGTVYKAKNRDSHEIVALKRLRLDDDDDEGVPSSALREICLLKELKHKNI					205
Query 79	VALDDIYESGGHLYLIMQLVSGG--ELFDRIVEKGFYTERDASRLIFQVLDAVKYLHDLG					136
Sbjct 206	V L D+ S L L+ + + FD G ++Q+L + + H					379
Query 137	IVHRDLKPENLLYSLDEDSKIMISDFGLSK-MEDPGSVLSTACGTPGVVAPEVL-AQKP					194
Sbjct 380	++HRDLKP+NLL ++++ ++ ++DFGL++ P S T Y P+VL K					550
Query 195	YSKAVDCWSIGVIAYILLCGYPPFYDENDA----KLFEQILKAEYEFD-----SP					240
Sbjct 551	YS ++D WS G I L P + ND K ++L E P					730
Query 241	Y-----WDDI-----SDSAKDFIRHLMKEDPEKRFCEQALQHPWIA					277
Sbjct 731	YPIYHVSTAWPQVVPKLNKSGRELLQRLLCNPSQRLCSEEGMQHSYFA					877

3) >26-877_1 oy92e09.y1 Woods Hole Squid Stellate Ganglia cDNA Library Doryteuthis pealeii cDNA, mRNA sequence (result taken from EMBOSSE Transeq EBI)

YEKLENLGEGTYGTVYKAKNRDSHEIVALKRLRLDDDDDEGVPSSALREICLLKEL
KHKNIVRLHDVLHSEKKLTLVFEYCDQDLKKYFDSCNGEIDPDTVKSFMYYQLLR
GLAFCHSNVNLHRDLKPQNLLINKNGELKLADFGGLARAFGIPVRCYSAEVVTLW
YRPPDVLFGAKLYSTSIDMWSAGCIFAELANAGRPLFPNGNDVDDQLKRIFKLLGT
PTEDTWPVGVTQLPDYKPYPIYHVSTAWPQVVPKLNKSGRELLQRLLCNPSQRLC
SEEGMQHSYFA

Name: Woods Hole Squid Stellate Ganglia

Species: Doryteuthis pealeii

4) As seen in the below, none of the results match my sequence above, making this protein novel.

Descriptions

Graphic Summary

Alignments

Taxonomy

Sequences producing significant alignments

Download

Select columns

Show

100

☒

select all

100 sequences selected

GenPept

Graphics

Distance tree of results

Multiple alignment

MSA Viewer

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
<input checked="" type="checkbox"/> cyclin-dependent-like kinase 5 isoform X2 [Octopus bimaculoides]	Octopus bimaculoides	555	555	96%	0.0	96.73%	289	XP_014785734.1
<input checked="" type="checkbox"/> cyclin-dependent kinase 5 isoform X1 [Octopus bimaculoides]	Octopus bimaculoides	571	571	100%	0.0	96.48%	296	XP_014785733.1
<input checked="" type="checkbox"/> CDK5 [Sepia pharaonis]	Sepia pharaonis	570	570	92%	0.0	92.83%	683	CAE1236217.1
<input checked="" type="checkbox"/> cyclin-dependent kinase 5 [Lineus longissimus]	Lineus longissimus	546	546	100%	0.0	90.14%	296	XP_064647269.1
<input checked="" type="checkbox"/> cyclin-dependent-like kinase 5 [Gigantopelta aegis]	Gigantopelta aegis	545	545	100%	0.0	90.14%	296	XP_041347581.1
<input checked="" type="checkbox"/> spatiotemporal phototransduction pathway protein [Argopecten irradians]	Argopecten irradians	546	546	100%	0.0	89.79%	306	WVR21500.1
<input checked="" type="checkbox"/> cyclin-dependent kinase 5-like [Ylistrum balloti]	Ylistrum balloti	545	545	100%	0.0	89.79%	306	XP_060086181.1