

```
<html><head><style type="text/css"></style></head><body><pre style="word-wrap: break-word; white-space: pre-wrap;">CLUSTAL 2.1 multiple sequence alignment
```

humanNPC1	-----MTARGLALG-LLLLLLCPAQVFS-QSCVWYGECG---IAYGDKRYNCEYSGPPK	49
mouseNPC1	-----MGAHHPALGLLLLLLLCPAQVFS-QSCVWYGECG---IATGDKRYNCKYSGPPK	50
zebrafishNPC1	----MLLLGRNHIFRLLLATVLLSHWVHG-QHCIWYGECGNS-PNVPEKKLNCNYTGPAV	54
drosophilaNPC1	MSPRSPLRISPFGVHILIAAVLFITLIQSSKQDCVWYGVCN---TNDFSHSQNCPYNGTAK	57
yeastNPC1	-----MNVLWIIALVGQLMRLVQGTATCAMYGNCGK--KSVFGNELPCVPPRSFE	48
celegansNPC1	-----MKQLLIFCLLFGSIFHHGDAGCIMRGLCQKHTENAYGPCVTNDTNVEPT	49
	⋮ . * * *	

humanNPC1	P--LPKDG YDLVQELCPGFFFGN-VSLCCDVRQLQTLKDNLQLPLQFLSRCPSCFYNNLLN	106
mouseNPC1	P--LPKDG YDLVQELCPGLFFDN-VSLCCDIQQQLQTLKSNLQLPLQFLSRCPSCFYNNLMT	107
zebrafishNPC1	P--LPNEGQELLQELCPRLVYAD-NRVCCDTQQNLNTLKSNIQIPLQYLSRCPACFFNFMT	111
drosophilaNPC1	E--MATDGLELLKKRCGFLLENSENKFCCDKNQVELLNKNVELAGNILDRCPSCMENLVR	115
yeastNPC1	PPVLSDETSKLLVEVCG-EEWKEVRYACCTKDQVVALRDNLQKAQPLISSCPACLKNFNN	107
celegansNPC1	AFDKTHPAYEKMVEFCPHLLTGD-NKLCCTPSQAEGLTQKQIAQARHILGRCPSCFDNFAK	108
	. . : : * . ** * * . : : . : . ** : : * :	

humanNPC1	LFCELTCSPRQSQFLNVTATEDY-----VDPVTNQTKTNVKELQYYVGQSFANAMYNACR	161					
mouseNPC1	LFCELTCSPHQSQFLNVTATEDY-----FDPKTPENKTNVKELEYVGQSFANAMYNACR	162					
zebrafishNPC1	LFCELTCSPRQSQFISVK-----DFLKEKNLTSVGNVTTYITQTADAMFNACR	160					
drosophilaNPC1	HICQFTCSPKQAEFMHVVATQ-----KNKKGDEYISSVDLHISTEYINKTYKSCS	165					
yeastNPC1	LFCHFTCAADQGRFVNITKVE-----KSKEDKDIVAELDVMNSSWASEFYDSCK	157					
celegansNPC1	LWCEFTCSPNQODFVSISEMKPIEKKEGFTPEYQPAAEAYVNTVEYRLSTDFAEGMFSSCK	168					
	*.:**:. * *: :	:	:	:	:	.	:::*

humanNPC1	DVEAPSSNDKALGLLCGK-DADACNATNWIEYMFNKD--NGQAPFTITPVFSDFPVRG--	216
mouseNPC1	DVEAPSSNEKALGLLCGR-DARACNATNWIEYMFNKD--NGQAPFTIIPVFSDSLILG--	217
zebrafishNPC1	DVQAPSSNIKALGLLCGR-DASVCTPQIIWIQYMFSIS--NGQVPFGIEPIFTDVPVQG--	215
drosophilaNPC1	QVSVPQTGQLAFDLMCGAYSASRCNPTKWFNFMGDAT--NPYVPFQITYIQHEPKSNSNN	223
yeastNPC1	NIKFSA TNGYAMD LIGGG---AKNYSQFLKFLGDAKPMLGGSPFQIN YKYDLANEEKE-	212
celegansNPC1	DVTFG--GQPALRMCTS---TPCTL TNWLEFIGTQN-LDLNIP IHTKFLLYDP IKTPPS	222
	: : . * : : : . : : : : * :	

humanNPC1	--MEPMNNATKGCDESVDDEVTA	PCSCQDCS-IVCGPKPQPPPP	PAPWTILGLDAMYVIMW	273
mouseNPC1	--MEPMRNATKGCNESVDDEV	TGPCSCQDCS-IVCGPKPQPPPP	PMPWRIWGLDAMYVIMW	274
zebrafishNPC1	--MTPMNNRTFNCSQSLDDG	SEPCSCQDCS-EVCGPTPVPPP	IPPPWIILGLDAMSFIMW	272
drosophilaNPC1	--FTPLNVTTVPCNQAVSSKL	PACSCSDCD-LSCPQGPPEPP	RPEPFKIVGLDAYFVIMA	280
yeastNPC1	--WQEFNDEVYACDDAQYK---	CACSDCQ-ESCPHLKPLKDG	VCKVGPLPCFSLSVLIF	265
celegansNPC1	DRSTYMNVNFTGCDKSARV	GWPA	CTSECNKEEYANLIDLDGK	TS
			SGQTCNVHGIACLN	282
	:.	*.:.	*: .:*	.
	:	:	:	:

humanNPC1	ITYMAFLLVFFGAFFAVWCYRKRYFVSEYTP-IDSNIAFSVNASDK---GEASCCDPVSA	329			
mouseNPC1	VTYVAFLFVFFGALLAVWCHRRRYFVSEYTP-IDSNIAFSVNSSDK---GEASCCDPLGA	330			
zebrafishNPC1	CSYIAFLLIFFGVVLGAWCYRRSVVTXEYGPILDSNQPHSLNSDGTDLIDEASCCE TVGE	332			
drosophilaNPC1	AVFLVGVLVFL---MGSFLTQGGSMDDNFQVDGNDVSDEMPYSEN-----DSYFEKLGA	332			
yeastNPC1	YTICALFAFMWYYLCKRKKNGAMIVDDDIPESGSLDESETNVFES-----FNNETN	317			
celegansNPC1	FVMLAFIGSLAVLLCVGFVF TS--YDEDYTNLRQTQS GEESP KRN R-----IKRTGA	332			
	. . :	:	.	.	.

humanNPC1	AFEGCLRRLFTRWGSFCVRNPGCVIFFSLVFITACSSG-LV FVRVT TNPVDLWSAPSSQA	388
mouseNPC1	AFDDCLRRMFTKWGAFCVRNPTCI IFFSLAFITVCSSG-LV FVQVT TNPVELWSAPHSQA	389
zebrafishNPC1	RFENSLRLVFSRWGSLCVRQPLTI ILSLVLICICSAG-LSYMRIT TNPVELWSAPSSRA	391
drosophilaNPC1	HTETFLETFFTKWGTYFASNPGLT LIAGASLVVILGYG-INFIEIT TDPVKLWASPNSKS	391
yeastNPC1	FFNGKLANLFTKVGQFSVENPYKILITTVFSIFVFSFI IFQYATLETDPINLWVSKNSEK	377
celegansNPC1	WIHNFMENNARDIGMMAGRNP KSHFFIGCAVLIFCLPG-MIYHKESTNVVDMWSSPRSRA	391
	. : * :* :: :	
	: : * : . : * :	

humanNPC1	RLEKEYFDQHF	GPPFFRTEQLII	IRAPLTDKHIYQ	PYPSPGADV	PFPGPPLDIQ	ILHQVLDLQI	448
mouseNPC1	RLEKEYFDKH	F	GPPFFRTEQLII	QAPNTSVHI	YEPYPAGADV	PFPGPPLNKEILHQV	449
zebrafishNPC1	RQEKNCFDQ	H	F	GPPFFRTEQLII	ITTPWTEEG	FS-TITGDIIPFSPILNLSLLHQVLDLQ	450
drosophilaNPC1	RLEREFFD	TKFSPFYRLEQII	IKAVNLPQIVHN	--TSNGPYTF	GPVFDREFLTKVLDLQ	E	449
yeastNPC1	FKEKEYFDD	NFGPFYRTEQIF	VVN-----	ETGPVLSY	ETLHWWFD	VEN	420
celegansNPC1	RQEEMVFN	ANFGRPQRYQQ	IMLLSHRDFQ	SSGK-----	LYGPVFHKDIFEEL	FDILN	443
	*	.	*	:	.*	:	...
humanNPC1	AIENITAS	YD-NETVTLQ	DICLAPLSPYN	-----	TNCTILSVLNYFQ	NSHVSVDHKKGDD	502
mouseNPC1	AIESITAS	YN-NETVTLQ	DICVAPLSPYN	-----	KNCTIMSVLNYFQ	NSHAVLDSQVGDD	503
zebrafishNPC1	EIENLIAE	YK-GENVTLK	DICVSP	LSPYN-----	DNCTILSVLNYFQ	NSHEVLDHEFQDE	504
drosophilaNPC1	GIKEINANG	-----	TQLKDICYAPL	SDDGSEIDVSQ	CVVQSIWGYFG	DDRERLDDHDEDN	504
yeastNPC1	FITEELQSS	---ENIGYQ	DLCFRPTEDST	-----	CVIESFTQYFQ	GALPNKDS-----	465
celegansNPC1	AIKNISTQ	DS	GR	TITLDDVCYRPMGPGY	-----	DCLIMSPTNYFQGNKEHLD	497
	**	:	...
humanNPC1	FFVY-----	ADYH	THFLYCVRAPASL	NDTSLLHDPCLGT	FGGPVFPWLVL		547
mouseNPC1	FYIY-----	ADYH	THFLYCVRAPASL	NDTSLLHGPCLGT	FGGPVFPWLVL		548
zebrafishNPC1	FFLY-----	NDYH	THLLYCASSPTSL	DDTSRLHDP	CMGTFGGPVFPWLVL		549
drosophilaNPC1	GFN-----	VTYLDALYDCIS	NPY-----	LCLAPYGGP	VDPAIAL		538
yeastNPC1	-----	WKRELQ	ECGKFPVN-----	CLPTFQ	QPLKTNLLF		494
celegansNPC1	ETVSEDDDA	FDYFSSEAT	TDEWMNHMAACIDQ	PMSQKTKSG--	LSCMGTYGGPS	APNMVF	555
		:	:	*	*	.*	...
humanNPC1	GGYD-----	DQNYNNATALVIT	FPVNNYYNDTEKLQ	RAQAWKEKEFINFV	KNYKNPNL		599
mouseNPC1	GGYD-----	DQNYNNATALVIT	FPVNNYYNDTERLQ	RAWAWKEKEFISFV	KNYKNPNL		600
zebrafishNPC1	GGYE-----	DSAYNNATALFF	TFPVTNCLNDTEKL	GKALAWKEKEFIRF	MKNYENPNL		601
drosophilaNPC1	GGFLPPGD	QLTGSTKFELANAI	ILTFLVKNH	HNKTD-LENALTWE	KKFVEFMTNYTKNM		597
yeastNPC1	SDDD-----	ILNAHAFV	VTLLLTNHTQSAN	-----	RWEERLEEYLLDLK	VPEG	537
celegansNPC1	GKNS-----	TNHQAANSIM	TILVT--QRTEPEI	QKAELWEKEFLK	FCKEYREKSP		604
	.	*	:*	:	...
humanNPC1	T----ISFTA	ERSIEDELNRES	SDSVFTVVISYAIM	FLYISLALG---	HIKSCRRL	LVD	651
mouseNPC1	T----ISFTA	ERSIEDELNRES	NSDVFTVIISYV	VMFLYISLALG---	HIQSCSR	LVD	652
zebrafishNPC1	T----VSFSS	ERSIEDEIDRES	NSDVSTIVISYI	IMFVYISVALG---	RINSCRT	LVD	653
drosophilaNPC1	SQYMDIA	FTSERSIEDEL	TRESQSDVLTILV	SYLIMFYIAISLG---	HVKEFKR	V	653
yeastNPC1	LR---ISFNT	EISLEKELN--	NNNDISTVAISY	LMFLYATWALR---	RKD	GK-----	582
celegansNPC1	K--VIFS	FMAERSITDEI	ENDAKDEIVTVV	IALAFLIGYVTF	SLGRYFVCENQ	LWSILVH	662
	.	.*	:*	:	...
humanNPC1	SKVSLGI	AGILIVLSSVACSL	GVFSYIGLPLTL	LIVIEVIPFLVL	AVGVDNIFILVQ	AYQR	711
mouseNPC1	SKISLGI	AGILIVLSSVACSL	GIFSYMGMPLTL	LIVIEVIPFLVL	AVGVDNIFILVQ	TYQR	712
zebrafishNPC1	SKISLGI	AGILIVLSSVACSL	GIFSYIGIPLTL	LIVIEVIPFLVL	AVGVDNIFIIVQ	TYQR	713
drosophilaNPC1	SKITLG	GIGVVIIVLASV	VSSVGVFGYIGL	PATLIIVEVIPFL	VLAVGVDNIFILVQ	THQR	713
yeastNPC1	TRLLLGI	SGLLIVLASIVCA	AGFLTLFGLKST	LIIEVIPFLILA	IGIDNIFLITHE	YDR	642
celegansNPC1	SRICLGM	LSVIINLLSSFC	SWGIFSMFGIHP	VKNALVVQFFV	VTLLGVCRTFM	VVKYYAQ	722
	:	:	.*	:*	...
humanNPC1	----DERLQ	GETLDQQLGR	VLGEVAPSMFL	SSFSETVAFFL	GALSVMPAVHTF	S	767
mouseNPC1	----DERLQ	EETLDQQLGR	ILGEVAPTMFL	SSFSETSAFFF	GALSSMPAVHTF	S	768
zebrafishNPC1	----DERMP	EEELHQQIGR	ILGDVAPSMFL	SSFSETVAFFL	GALSTMPAVRTF	S	769
drosophilaNPC1	----DQRKP	NETLEQQVGR	ILGKVGPSML	LTSLSESF	CFFLGGLSDMP	AVRAFALYAGVA	769
yeastNPC1	N---CEQK	PEYSIDQKII	SAIGRMSPSIL	MSLLCQTGCFL	IAAFVTMPAVH	NFAIYSTVS	699
celegansNPC1	QRVSM	PYMSPDQCPEI	VGVMAGTMPAM	FSSSLGCAFS	FFIGGFTDLP	AIRTFCLYAGLA	782
	:	:	:	.*	:
humanNPC1	VFIDFLLQ	ITCFVSLLGLD	IKRQEKNR	L	DIFC-----	CVRGAEDGTSVQASE	822
mouseNPC1	VLIDFLLQ	ITCFVSLLGLD	IKRQEKNH	L	DILC-----	CVRGADDGQGSHASE	823
zebrafishNPC1	IFIDFLLQ	ISCFVSLLGLD	IKRQEANR	M	DILC-----	CVKLS-DGQE-EK	822
drosophilaNPC1	LIIDFLLQ	ITCFVSLFTL	DTKRREENR	M	DICC-----	FIK GK-KPDSITS	823
yeastNPC1	VIFNGVL	QLTAYVSILS	LYEKRS-----	NYKQITGNEET	KESFLK		739

celegansNPC1	VLIDVVLHCTIFLALFVWDTQRELNGKPEFFFPYQIKDLLGAYLIGRQRATDTFMTQFFH	842
	::: :*: : :::: :*	:: :*
humanNPC1	NSYSPLLLKDWMRPIVIAIFVGVLSFSIAVLNKVDVGLDQSLSMPDDSYMVDYFKSISQY	882
mouseNPC1	NYFAPLLLKDWLRPVVAVFVGVLSFSVAVVNKVDIGLDQSLSMPNDSYVIANFKSLAQY	883
zebrafishNPC1	KIYAPFILKDWVRPLVVAVFVGMLSFSIAVVNKVEIGLEQTLSPDDSYVLNYFGNLSKY	882
drosophilaNPC1	SVYVPFLMKKIVRASVMVIFFAWLCFSIAIAPRIDIGLDQELAMPQDSFVLHYFQSLNEN	883
yeastNPC1	TFYFKMLTQKRL---IIIIFSAWFFTSLVFLPEIQFGLDQTLAVPQDSYLVDFKDVYSF	796
celegansNPC1	FQVAPFLMHRMTRIITGIIFIASFITTVILSSKISVGFDQSMAFTEKSYISTHFRYLDKF	902
	:: : :* . : ::*:* :::.*:: * : .	
humanNPC1	LHAGPPVYFVLEEGHDYTSSKGQNMVCGMGCNNDSLVQQIFNAAQLDNYTRIGFAPSSW	942
mouseNPC1	LHSGPPVYFVLEEGYNYSSRKGQNMVCGMGCDNDSLVQQIFNAAELDTYTRVGFAPSSW	943
zebrafishNPC1	LHTGPPVYFVVEDGHDYKTFEGQNAVCGGVGCNNDSLVQQIYTASLMSNYTRISNVPSSW	942
drosophilaNPC1	LNIGPPVYFVLKGDLAYTNSSDQNLVCAGQYCNDDSVLTQIYLASRHSNQTYIARPASSW	943
yeastNPC1	LNVGPPVYMVVKN-LDLTKRQNQQKICGKFTTCERDSLANSVLEQERHR--STITEPLANW	853
celegansNPC1	FDVGPPVFFTVDGELDWHRPDVQNKFCTFPGCSDTSFGNIMNYAVGHTEQTYLSGEMYNW	962
	:: ****::: . * : .* : . : : : *	
humanNPC1	IDDYFDWVKPQSS-CCRVDNITDQFCNA-----SVVDPACVRCRPLTPEGKQR-----	989
mouseNPC1	IDDYFDWVSPQSS-CCRLYNVTHQFCNA-----SMDPTCVRCRPLTPEGKQR-----	990
zebrafishNPC1	LDDYFDWVKPQST-CCRYYNSTGAFCNA-----SVVDKSCVHCRPMTSSGKQR-----	989
drosophilaNPC1	IDDYFDWAAAASS-CCKYRKDSGDFC-----PHQDTSCLRCN-ITKNSLLR-----	987
yeastNPC1	LDDYFMFLNPQNDQCCRLKKGTDDEVCP-----SFPSRRCETCFQQGSWNYNMSGF----	904
celegansNPC1	IDNYLEWISRKSPCKKVYVHDPNTFCSTNRNKSALDDKACRTCMDFDYVANSYPKSSIMY	1022
	:*: : . * : . .* . . * *	
humanNPC1	--PQGGDFMRFLPMFLSDNPNPKCGKGGHAAAYSSAVNILLG-HGTRVGATYFMTYHTVLQ	1046
mouseNPC1	--PQKKEFMKFLPMFLSDNPNPKCGKGGHAAYGSAVNIVG--DDTYIGATYFMTYHTILK	1046
zebrafishNPC1	--PNGTEFMHFLPMFLSDNPNIKCGKGGHAAYGTAVDLKD--NNTDVGATYFMSYHTILK	1045
drosophilaNPC1	--PEEKEFVKYLPFFLKDNPDCTAKAGHAAYGGAVRYSNSHERLNIEASYFMAYHTILK	1045
yeastNPC1	--PEGKDFMEYLSIWIN-APSDPCPLGGRAPYSTALVYNET---SVSASVFRTAHHPLR	957
celegansNPC1	HRPSIEVFYRHLRHFLLEDTPNSECVFGGRASFKDAISFTSR---GRIQASQFMTFHKKLS	1079
	*. * ..* ::. *. * .*:*: *: :*: * : * *	
humanNPC1	TS--ADFIDALKKARLIASNVTETMG-----INGSAYRVFPYSVFYVFYEQYLTI	1094
mouseNPC1	TS--ADYTDAMKKARLIASNITETMR-----SKGSDYRVFPYSVFYVFYEQYLTI	1094
zebrafishNPC1	NS--SDFINAMKMARELTDNITQTLS-----THDKSYKVFPYSVFYVFYEQYLTI	1093
drosophilaNPC1	SS--ADYFLALESARKISANITQMLQGRLMSNGVPMASALTVEVFPYSVFYVFYEQYLTM	1103
yeastNPC1	SQ--KDFIQAYS DGVRIS-----SFPELDMFAYSFPFYIFFVQYQTL	997
celegansNPC1	ISNSSDFIKAMDTARMVSRRLERSID-----DTAHVFAYSKIFPFYEQYSTI	1126
	. *: * . . :: :*.** :: *: ** *:	
humanNPC1	IDDTIFNLGVSLGAIFLVTMVLLGCELWSAVIMCATIAMVLVNMFGVMWLWGISLNAVSL	1154
mouseNPC1	IDDTIFNLSVSLGSIFLVTLVVLGCELWSAVIMCITIAMILVNMFGVMWLWGISLNAVSL	1154
zebrafishNPC1	VDDTALNLGVSLSAIFIVTAVLLGFELWSAVLVCFTIAMILINMFGVMWLWSISLNAVSL	1153
drosophilaNPC1	WSDTLQSMGISVLSIFVVTFVLMGFDVHSALVVVITITMIVVNLGGLMYYWNISLNAVSL	1163
yeastNPC1	GPLTLKLIGSAIILIFFISSVFL-QNIRSSFLALVVTMIIVDIGALMALLGISLNAVSL	1056
celegansNPC1	MPILTTQLFITVVGVFGIICVTLGIDVKGAACAVICQVSNYFHIVAFMYIFNIPVNALSA	1186
	: :: :* : * : :: . . .: .* .*:***:	
humanNPC1	VNLVMSCGISVEFCSHITRAFTVS---MKGSRVERAEALAHMGSSVFSGITLTKFGGIV	1211
mouseNPC1	VNLVMSCGISVEFCSHITRAFTMS---TKGSRVSRAEEALAHMGSSVFSGITLTKFGGIV	1211
zebrafishNPC1	VNLVMSCGISVEFCSHIVRAFSIS---TRSSRVERAEALAHMGSSVFSGITLTKFGGIL	1210
drosophilaNPC1	VNLVMAVGISVEFCSHLVHSFATS---KSVSQIDRAADSLSKMGSSIFSGITLTKFAGIL	1220
yeastNPC1	VNLIICVGLGVEFCVHIVRSFTVVPSETKKDANSRVLYSLNTIGESVIKGITLTKFIGVC	1116
celegansNPC1	TNLVMSSGILIEFSVNVLKGYACS---LRQRAKDRAESTVGSIGPIILSGPVVTMAGSTM	1243
	.***:. *: **. :: ::: .*. :: :* ::.* .:* .	
humanNPC1	VLAFAKSQIFQIFYFRMYLAMVLLGATHGLIFLPVLLSYIGPSVNKAKSCATEERYKGTE	1271
mouseNPC1	VLAFAKSQIFEIFYFRMYLAMVLLGATHGLIFLPVLLSYIGPSVNKAKRHTTYERYRGTE	1271

</pre></body></html>