

Table S1. Strages and primers for *OfHEX2* cloning

PCR fragment	Size (bp)	Number	Primer
			Sequence (5' - 3')
Of2-1	245	Of2F1	TGGGGNATHYTNMGNGGNYTNGA
		Of2R1	TGRTCRTCACDATRTGCCA
Of2-2	179	Of2F2	CAYTGGCAYATHGTNGAYGAYCA
		Of2R2	TGNCCNNGNACRTCRAAYTCNGG
Of2-3	899	Of2F3	CGGGTCGGCATTTCATATCG
		Of2R3	GCNACNGCNSWNGCNCKNGGCCA
		Of2F4	GGATGGGTGGAGGAAATGGT
		3' RACE outer primer	TACCGTCGTTCCACTAGTGATT
Of2-4	1026	Of2F5	GCCACCGCCTTATCTTCTCC
		3' RACE inner primer	CGCGGATCCTCCACTAGTGATTTCACTATAGG
		5' RACE outer primer	GCTGATGGCGATGAATGAACACTG
Of2-5	806	Of2R4	CACCACCCTCGCTATGTCATCCTT
		5' RACE inner primer	CGCGGATCCGAATTAATACGACTCACTATAGG
		Of2R5	ATCTGGGAACTTCTCGCTCTGGTA

Table S2. Purification efficiency of recombinant OfHex2

Purification Steps	Total protein (mg/L)	Total activity (units/L) ^a	Specific activity (units/mg)	Overall yield (%)	Overall Purification (fold)
Culture media	54.79	16.06	0.303	100	1
Ammonium sulfate	32.61	13.73	0.421	85.50	1.390
IMAC Sepharose HP	1.203	10.46	8.695	65.11	28.72

Figure S1

1

XP003248256_Ap2-1 M
XP001943356_Ap2-3
XP001945979_Ap2-2 MHYNNLITNSFVVCISILFVSVQSFNQNVGPTVKM
AAA52645_HsA MELCGLGLPRPPMLLA LLLATLLAAMLAL
AAB00965_HsB MTSSR LWFSLLLAAFA
XP001600369_Nv2-1 MTSGKI LVLGLLALLSTQV
XP001600338_Nv2-2 M FYLSKLLYCTQC
EFA05960_Tc2-1 MTKLV LYLLPLIISCA
EFA07069_Tc2-2 M.RLF IFLSFFFVYTF
EDS44384_Cq2-1 MKYVL LLLNTWFLYNG
EDS44385_Cq2-2 MKLVT SLVTFWLVLNCV
EFA05959_Tc2-3 MFKLF FLLLIISFCS
BAF52532_Bm2-1 MFRLF LYLNILGAFV
AAT99455_Bm2-2 MFRLF VYLNILGAFV
ABO65045_Of2 ML LYSLICGFCVY
ABB76925_Sf2-3 MLRHV ILLFAVY.LT
ABY57947_Sf2-2 MLKRLQMGLRAFMLLASKVWSCFCYMFKKQYRALAQYQSVKYEYPLSPVSRHRLSLV
ABB76924_Sf2-1 MFRL IFIFNVVICIFLV

10 20

XP003248256_Ap2-1 TNGQVWPVKPVLQHIYDEYLT
XP001943356_Ap2-3
XP001945979_Ap2-2 TNGQVWPVKPVLQHIYDEYLT
AAA52645_HsA LTQVALVVQVAEAAARAPSVSA KPGPALWPLPLSVKMTPNLLH
AAB00965_HsB GRATALWPPWPNFQTSQYRV
XP001600369_Nv2-1 TGAW HDGSGPWVI ATQGEFPWPLPNQREVNNVNYH
XP001600338_Nv2-2
EFA05960_Tc2-1 IHPGPVVR ATKGEVWPVKPQVEEKEQYYT
EFA07069_Tc2-2 IRPFPVVIQ ASKGAVWPVKPQQEVSEYTL
EDS44384_Cq2-1 AYSY IVDPPVVK ATKGEIWPVKPKSQTNAKFA
EDS44385_Cq2-2 SCSF VVPPGPAVK ATRGEIWPVKPKVQSSTENYFG
EFA05959_Tc2-3 AFDF IFQGPLVP ASKGEIWPVKPKHENKLDGDF
BAF52532_Bm2-1 TGLH IVEPGEYP ASKGAIWPRPQMQSIEIPYYK
AAT99455_Bm2-2 TGLH IVEPGEYP ASKGAIWPRPQMQSIEIPYYK
ABO65045_Of2 SSAIY NNNPGPKYP PTKGEVWPVKPQYQKLERYYFT
ABB76925_Sf2-3 ESLS IVNPGQYP PTKGSIWPRPHQQTQTSYYK
ABY57947_Sf2-2 RPTVKPPTDFVLKVTIDKHPVRFVHKRPHV
ABB76924_Sf2-1 DSFI IVNPGPRYP PTKGEVWPVKPQQIKEQTYFK

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XP001943356_Ap2-3 .FEPENFHFNITGY...SCDDLQDAFKRYSMLFLKATK...AFKQNTSLSTD.....L
XP001945979_Ap2-2 .LAPENFYISHSPNSTAGPSCTLLEAFRRYHYGIFGFYKW...HHEPAEFQA.....K
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XP001600369_Nv2-1 .LEPSSFNQIAGQ...TCDILVDVAVKRYKNILVKEFEV...AQKLAHKPD.....NENT.I
XP001600338_Nv2-2 .VRPHGFNFKGPTNIG...CPNLLNDAFTRYWTIIATASSL...ERRGRLEHVGRKPKTKFWKADSNY.L
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EDS44385_Cq2-2 .SLLPTFFFHFNPIGN...ICNTLTEALDRYKLIIFNNRR...IKEYYKARS...CYEGGDQNF.L
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ABO65045_Of2 .LNPSTFVITEKGG...TCDILKDAIDRYMVKVLRNTYLI...VEKYSRKLRSRHS...DAD.NFDD.N
ABB76925_Sf2-3 .DYFLDIEKGG...TCDILKDAIDRYMVKVLRNTYLI...VEKYSRKLRSRHS...DAD.NFDD.N
ABY57947_Sf2-2 .LSPSVFKFTETGK...SCEILKNAIERYTAVLRSTHHI...VWRHSKKTWKNAE...PRQV.DTNP.D
ABB76924_Sf2-1

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XP001945979_Ap2-2 IIGKMEVLN.VQMTNPCENYPSLNMD**EKYE**EIKINNS...SGLLLASS**IWGLLR**GL**ETFS**QLIYLETDGS
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XP001600338_Nv2-2 YEGLLGLLE.IHLKQPCEMY**PR**LSN**ET**YTLVSPGKTNKKIAILSADS**IWGLLR**GL**ETFS**QLVTHSENEP
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AAT99455_Bm2-2 YDGPLKLSL.IYLTSPCEEY**PH**FGMI**ESY**NLTIAD...STLRSS**IWGLLR**GL**ESWTHL**FHLSDNRD
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XP001945979_Ap2-2 TFVI...RRTSIVDYPKFRHRGFLLDTSRHYFPPIESITKTLDA MSYSKMNVFHHWIVDDQSFPYQS SAF
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XP001943356_Ap2-3 PNLSE.RGAFGK.SAITYTKDDVKKRVIEHAKLRGIRVIPFEFDTPGHSLSWGLGGIPGLLTECSDP...N
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ABO65045_of2 CVGPMNPTVNTTYKLFQELMEVQEWFPDKYFHLGGDEVQDFCWESNPDQRYMKDHNMT..ATQLHALF
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ABY57947_sf2-2 GLGPMNPKKNVYKLLIGDLFRVQDRFPDKYFHLGGDEVDFDCWISNSEIRDFMKDHNMT.DASELHSYF
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XP001943356_Ap2-3 FANIFNITRSLKTVPIVVEEIVFDDNIHLDPNAVHVWVKDSY...DYSILSKIMESGHPALFSSCWYLN YI
XP001945979_Ap2-2 FANIFNITRSLKTVPIVVEEIVFDDNIHLDPNAVHVWVKDYY...DYSILSKIMESGHPALFSSCWYLN YI
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ABY57947_sf2-2 MANVIPLLGDRS.KPIVYVQEVFDEGVSLPSTIVQVWKN...EAREMQNILNGGKVIYSSSWYLDHNM
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ABB76925_Sf2-3 NGGGDWAKYVGVDPREIVKGSVPEDKEVDVILGGEACMNGEFVYDNTNLLPRLWPRASAVAGERLW..SGHKY
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460      470      480      490
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XP001943356_Ap2-3 .....NETEAKY...RIEEHVCRMRRCGLPAQFANGPSYCHY....
XP001945979_Ap2-2 .....NETEAKY...RIEEHVCRMRRCGLPAQFANGPSYCHY....
AAA52645_HsA R.....DMDDAYD...RLTRHRCRMVREGIAAQPPLYAGYCNHENM..
AAB00965_HsB S.....DLTFAYE...RLSHFRCELLRGGVQAQPLN.VGFCQEFEQPT
XP001600369_Nv2-1 .....DDDTAAQ...RLEEHA CRMNR RNIPAAPNGSGFCVT.....
XP001600338_Nv2-2 .....DDETAAG...RLEEHA CRMNR RNIPAAPNGSGFCIS.....
EFA05960_Tc2-1 N.....DTQAAKG...RLEEHT CRMNN RGI AAPNGPGVCL.....
EFA07069_Tc2-2 V.....DISDAQI...RLEEHA CRMNK RGI AAPNGPGMCF.....
EDS44384_Cq2-1 K.....NADQAAA...RLEEHT CRMNL RNIPAAPNGPGFCV.....
EDS44385_Cq2-2 N.....DTVEAAA...RLEEHV CRMNR RGI AAPNGPGPYCL.....
EFA05959_Tc2-3 PK.....SAQNLGELWTIAS...RLQEQT CRMNR GVAAQPPSGPSVCF.....
BAF52532_Bm2-1 A.....AYQVYS...RLEEHT CRMNARGIRAAPPSGPGFCVCLGA....
AAT99455_Bm2-2 A.....TYQVHC...RLEEHT CRMNARGIRAAPPSGPGFCVCLGV....
ABO65045_Of2 SLE.....RNVRLSILDKARH...RIEEHA CRMRR RAINAAPNGPGFCVCGAKLF.
ABB76925_Sf2-3 ETMPYLRHWYQFREDSAHVSS...RLEEHA CRMNR RGI AAPNGPGFCVGTGNVF.
ABY57947_Sf2-2 ETMPYLRHWYQFREDSAHVSS...RLEEHA CRMNR RGI AAPNGPGFCVGTGN...
ABB76924_Sf2-1 RY.....NKSSPKAVSSVQR...RLEEHA CRMNR RGI AAPNGPGFCVCGAM...

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