

HMGCL_CELEGANS 1 -----M-----
 HMGCL_RHODOBACT 1 -----
 HMGCL_DROSOPHIL 1 -----MIS-----
 HMGCL_ARABIDOPS 1 MQWNGVRRRAHSIWCKRLTNNTLHHPSPVSHFFTMSSLEELSFDKLPSMSTMDRIQRF
 HMGCLL1_ZEBRAFI 1 -----MGNVSSAVKHCLSYETF-----
 HMGCLL1_XENOPUS 1 -----MGNVPYAVKQCLSYQHL-----
 HMGCLL1_HUMAN 1 -----MGNVPSAVKHCLSYQQL-----
 HMGCLL1_MOUSE 1 -----MGNLPSAAKHCLNYQQL-----
 HMGCLL1_CHICKEN 1 -----MGTVPSALKHCLSYQHL-----
 HMGCLL1_LIZARD 1 -----MGNVPSALKHCLSYQHL-----
 HMGCL_XENOPUS 1 -----MSFRRL-----
 HMGCL_ZEBRAFISH 1 -----MAALMMRV-----
 HMGCL_LAMPREY 1 -----
 HMGCL_HUMAN 1 -----MAAMRKA-----
 HMGCL_MOUSE 1 -----MASVRKA-----
 HMGCL_CHICKEN 1 -----MAAVRRL-----
 HMGCL_LIZARD 1 -----MVVANRA-----

HMGCL_CELEGANS 2 -----LPNRL-----
 HMGCL_RHODOBACT 1 -----MP-----
 HMGCL_DROSOPHIL 4 -----APIRSIL-----
 HMGCL_ARABIDOPS 61 SSGACRPRDDVGMGHRWIEGRDCTTSNSCIDDDKSFakesFPWRRHTRKLSEGEHMFRNI
 HMGCLL1_ZEBRAFI 18 -----LRDYPWL-----
 HMGCLL1_XENOPUS 18 -----LKDQFWNA-----
 HMGCLL1_HUMAN 18 -----LREHLWIGD-----
 HMGCLL1_MOUSE 18 -----LREHLWISGD-----
 HMGCLL1_CHICKEN 18 -----LKEQLWIG-----
 HMGCLL1_LIZARD 18 -----LKEPLWVGD-----
 HMGCL_XENOPUS 7 -----VPVGWAGW-----
 HMGCL_ZEBRAFISH 9 -----AP-GPFAS-----
 HMGCL_LAMPREY 1 -----
 HMGCL_HUMAN 8 -----LP-RRLVG-----
 HMGCL_MOUSE 8 -----FP-RRLVG-----
 HMGCL_CHICKEN 8 -----LP-RWAV-----
 HMGCL_LIZARD 8 -----IP-RLVA-----

HMGCL_CELEGANS 8 -----ANRAYSTAINRFR-----
 HMGCL_RHODOBACT 3 -----SFPPAVK-----
 HMGCL_DROSOPHIL 11 -----ALTA-----KRTAVTSAANQVR-----
 HMGCL_ARABIDOPS 121 SFAGRTSTVSGTLRESKSFKEQKYSTFSNENGTSHI-----SNKISKGI PKFVK-----
 HMGCLL1_ZEBRAFI 25 -----PRLWEE-----KSELPKLPVYVK-----
 HMGCLL1_XENOPUS 26 -----ETTLQE-----QESPIGLPPHVK-----
 HMGCLL1_HUMAN 27 -----SVAGALDPAQTSLLTNLHCFQPDVSGFSVSLAGTVACIHWETSQLSGLPEFVK-----
 HMGCLL1_MOUSE 27 -----SVAGALDAAQ-----EASQLPGLPEYVK-----
 HMGCLL1_CHICKEN 26 -----EPTAPPHG-----QESQASGLPEYVK-----
 HMGCLL1_LIZARD 27 -----APPPPPSPPTEDPQPLG-----QELLTSGFPEFVK-----
 HMGCL_XENOPUS 16 -----TPLAIRQ-----I-----GSLPIQSFPKEVK-----
 HMGCL_ZEBRAFISH 16 -----VRVNRVPLHCAASALIRSVSV-----SAAASQALPERVK-----
 HMGCL_LAMPREY 1 -----LSVLFQ-----GAVAISGLPNRVK-----
 HMGCL_HUMAN 15 -----LASLRA-----V-----STSSMGTLPKRVK-----
 HMGCL_MOUSE 15 -----LTSLRA-----V-----STSSMGTLPKQVK-----
 HMGCL_CHICKEN 14 -----SLRP-----VSTAAFPQRVK-----
 HMGCL_LIZARD 14 -----SLRP-----L-----STAAATSLPKHVK-----

HMGCL_CELEGANS 21 IVEVGARDGLQAEKKFVPTETIKVELIDRLSECCGFQTVETTSFVSPKWVQPLADHNEIVKK
 HMGCL_RHODOBACT 10 IVEVGPRDGLQNEPRDIPVAERIALIEGLADAGLRVIEAGSFVSPRWVPQMACTTEVLG
 HMGCL_DROSOPHIL 28 IVEVGPRDGLQNEPKLI PAATKIELINQLSETGLRTIEATSFVSAKWVPQMGDNAEVLKG
 HMGCL_ARABIDOPS 170 IVEVGPRDGLQNEKNIVPTSVKVELIQRLVSSGLPVVEATSFVSPKWVQPLADAKDVMDA
 HMGCLL1_ZEBRAFI 45 IVEVGPRDGLQNEKEIVPTVKIQLDLSDTGLPVIEATSFVSSKWVAQMDHTAVLKG
 HMGCLL1_XENOPUS 45 IVEVGPRDGLQNEKEIVPTDKIEFIDQLSDTGLPAIEVTSFVSSKWVQPLSDHTEVMQG
 HMGCLL1_HUMAN 80 IVEVGPRDGLQNEKVIPTDKIEFINRLSOTGLSVIEVTSFVSSRWVPQMDHTEVMKG
 HMGCLL1_MOUSE 50 IVEVGPRDGLQNEKVIPTDKIELINQLSOTGLSVIEVTSFVSSRWVPQMDHAEVMRG
 HMGCLL1_CHICKEN 48 IVEVGPRDGLQNEKVIPTDKIELINRLSKTGLPAIEVTSFVSSKWVQMDHKEVMRG

HMGCLL1_LIZARD 58 IVEVGPRDGLQNEKAIIVPTDVKIEFINRLSKTGLPVEVTSFVSSKWVWPQADHTEVMGR
HMGCL_XENOPUS 38 IVEVGPRDGLQNEKTVVPTDVKIHLINMLSEAGLQAI EATSFVSPKWVWPQADHKNVMQG
HMGCL_ZEBRAFISH 50 IVEVGPRDGLQNEKTIIVPTVEVKIRLIDMLSEAGLPVIEATSFVSPKWVWPQADQEEVMRG
HMGCL_LAMPREY 20 IVEVGPRDGLQNEKTVVPTAVKIELIERLAEAGCPVVEATSFVSPKWVWPQADQVEVMAG
HMGCL_HUMAN 35 IVEVGPRDGLQNEKNIVSTPVKIKLIDMLSEAGLSVIETTSFVSPKWVWPQMGDHTTEVLKG
HMGCL_MOUSE 35 IVEVGPRDGLQNEKSIVPTPVKIRLIDMLSEAGLPVIEATSFVSPKWVWPQADHSDVLKG
HMGCL_CHICKEN 29 IVEVGPRDGLQNEKSIVPTPVKIRLIDMLSETGLPVEIATSFVSPRWVWPQADHAEVMQG
HMGCL_LIZARD 32 IVEVGPRDGLQNEKNIVPTQVKIDFINRLSETGLSVIEATSFVSPKWVWPQADHAEVMQG

HMGCL_CELEGANS 81 HRRFEGVSYPLVLPNAAGLKNALATGVVEEIAVFGAASDAFSLKNVNSNVEDSLKKLMEV
HMGCL_RHODOBACT 70 LRRDAGVSYPLVLPNMGKLDAAARAEGVEEIAVFAAASEAFSMRNINCSITESLARFSPV
HMGCL_DROSOPHIL 88 IRKVTGISYPLVTPNLKGFESALEA-GAEEVAVFGAASDAFSLKNVNCIAAEATERFKPV
HMGCL_ARABIDOPS 230 VNTLDGARLPVLPNLKGFQA AVSA-GAKEVALFASASESFLSNINCTIEESLLRYRVV
HMGCLL1_ZEBRAFI 105 IKRSPDVRYPVLPNLQGFQA AVAA-GANEVAVFGSASETFSRKNINCSIEESLQRFQV
HMGCLL1_XENOPUS 105 IKKHPGVRYPLVLPNIRGFHSAIAA-GATEVSVFGAASETFSRMNINCSIEESMTRFEDI
HMGCLL1_HUMAN 140 IHQYPGVRYPLVLPNLQGFHHAVAA-GATEISVFGAASESFSKKNINCSIEESMGKFEV
HMGCLL1_MOUSE 110 IRQYPGVRYPLVLPNLQGFQHAVAA-GATEIAVFGAASESFSKKNINCSIEESMGRFQEV
HMGCLL1_CHICKEN 108 IERHPGVQYPVLPNLKGFHSAIAA-GATEVSVFGAASESFSKKNINCSIEESIEKFEV
HMGCLL1_LIZARD 118 IQRYPGVQYPVLPNLHGFHSAIAA-GANEVSVFGAASEAFS KKNINCSIEESMERFENV
HMGCL_XENOPUS 98 IKKYPNISYPLVTPNLTFQA AVEC-GAKEVALFGAASELFSKKNINCSIDESLQRFKAV
HMGCL_ZEBRAFISH 110 LHKKPGVNYPLVLPNLKGFQA AVKA-GAKEVALFGAASELFSKKNINCSVEESLVRFEV
HMGCL_LAMPREY 80 IRKLPGVSYPLVLPNLKGFQA AVKA-GATEVALFGAASESFSQKNINCSIAESLQRFQV
HMGCL_HUMAN 95 IQKFPGINYPVLPNLKGFQA AVAA-GAKEVIFGAASELFTKKNINCSIEESFORFDAL
HMGCL_MOUSE 95 IQKFPGINYPVLPNLKGFQA AVAA-GAKEVSVFGAVSELFTKKNINCSIEESFORFAGV
HMGCL_CHICKEN 89 INKLPGVSYPLVLPNLKGFQA AVAA-GAKEVSVFGAASELFTKKNINCSIEESLERFSEV
HMGCL_LIZARD 92 IQKVPGISYPLVLPNLKGFQA AVAA-GAKEVSVFGAASELFTKKNINCSIDESLERFSDV

HMGCL_CELEGANS 141 TRIALENNIRVRGYVSVVGCPCYQAVQPEMVARVAEKLLSEGCYEVS LGDTIGVGTVKI
HMGCL_RHODOBACT 130 VAAARARGWRVRGYVSCVLGCPYEGEVDPARVAEVAEALALGCYEIS LGDTIGVGTPLQ
HMGCL_DROSOPHIL 147 LKAAQKHGVRVRGYVSTVGCPCYEGAVAPS AVVKVVEALYQMGCYEIS LGDTIGVGTPTG
HMGCL_ARABIDOPS 289 ATAAKEHSVPVRGYVSCVGCPCYEGVPVLP SKVAVVVKELYDMGCFEIS LGDTIGITPGS
HMGCLL1_ZEBRAFI 164 VSAAQEGIPVRGYVSCALGCPYEGQVKPSQVTKVAKRLFELGCYEVS LGDTIGVGTAGS
HMGCLL1_XENOPUS 164 IKAAGNLNVPVRGYVSCALGCPYEGNIATSKVSEVSKRRLYSMGCYEVS LGDTIGVGTPTS
HMGCLL1_HUMAN 199 VKSARHMNIIPARGYVSCALGCPYEGSITTPQKVTEVSKRRLYGMGCYEIS LGDTIGVGTPTS
HMGCLL1_MOUSE 169 ISSARHMDIPVRGYVSCALGCPYEGSITTPQKVTEVSKRRLYGMGCYEIS LGDTIGVGTPTS
HMGCLL1_CHICKEN 167 AKSARNMDIPVRGYVSCALGCPYEGDITPAKVAEVSKRRLYSMGCYEIS LGDTIGVGTPTS
HMGCLL1_LIZARD 177 VKSARNMDIPVRGYVSCALGCPYEGSIAPAKVAQVSKRRLYSMGCYEIS LGDTIGVGTPTS
HMGCL_XENOPUS 157 ITEAKEANIIPVRGYVSCVLGCPYEGKVAPSKVAEVAYKMF SMGCYEIS LGDTIGVGTPTGG
HMGCL_ZEBRAFISH 169 MTAAQEGVSVRGYVSCVLGCPYEGKVSPSKVAEVAKRRLYSMGCYEVS LGDTIGVGTPTGG
HMGCL_LAMPREY 139 ARAAQDANIIPVRGYVSCVGCPCYEGKINPAKVAEVAKRRLYGMGCYEIS LGDTIGVGTPTGN
HMGCL_HUMAN 154 LKAAQSANISVRGYVSCALGCPYEGKISPAKVAEVTKKFYSMGCYEIS LGDTIGVGTPTGI
HMGCL_MOUSE 154 MQAAQAASISVRGYVSCALGCPYEGKVSPAKVAEVAKKRLYSMGCYEIS LGDTIGVGTPTGL
HMGCL_CHICKEN 148 MNAARAASIPVRGYVSCVLGCPYEGNISAAPKVAEVSKKMYSMGCYEIS LGDTIGITPGS
HMGCL_LIZARD 151 LRAAKEANIIPVRGYVSCVLGCPYEGKIAPAKVAEVSKKMYAMGCYEIS LGDTIGVGTPTGN

HMGCL_CELEGANS 201 VSKMLDTV LKSVPAEKLAVHFHD TYGQALANVLISIEKGRSADSS IAGLGGCPYAKGAT
HMGCL_RHODOBACT 190 ARAMVGAVARQVPADRLAVHFHD TRGQALANVLAVLDQGIATVDA SVAGLGGCPYAAAGAS
HMGCL_DROSOPHIL 207 MRRMLDEVTKVVPKDLAVHCHD TYGQALSNI LVS LDYGRVVDSSV SGLGGCPYAKGAS
HMGCL_ARABIDOPS 349 VVPMLEAVMAVVPADKLAVHFHD TYGQALANILVSLQMGIS IIVDSSIAGLGGCPYAKGAS
HMGCLL1_ZEBRAFI 224 MAEMLSDV LTEVPAGALAVHCHD TYGQALPNILIALQMGVSVVDA SVAGLGGCPYAKGAS
HMGCLL1_XENOPUS 224 MKRMLESVMKEV PPSALAVHCHD TYGQALANILTAIQMGVSVVDC SVAGLGGCPYAKGAT
HMGCLL1_HUMAN 259 MKRMLESVMKEI PPGALAVHCHD TYGQALANILTAIQMG INVVDSAVS SGLGGCPYAKGAS
HMGCLL1_MOUSE 229 MKRMLESVMKEI PPGALAVHCHD TYGQALANILTAIQMG INVVDSAVS SGLGGCPYAKGAS
HMGCLL1_CHICKEN 227 MKRMLEAVMKEI PLSALAVHCHD TYGQALANILTAIQMGVAVVDS SVAGLGGCPYAKGAT
HMGCLL1_LIZARD 237 MRRMLESVMKEI PVTA LAVHCHD TYGQALANILTAIQMGVHVVS LQCC-LGGCPYAKGAT
HMGCL_XENOPUS 217 MRDMLSAVLDVVPKALAVHCHD TYGQALANILVALQMGVQVVDASVAGLGGCPYAAQ GAS
HMGCL_ZEBRAFISH 229 MTEMLNAVKKEI PVEALAVHCHD TYGQALANILVALQMGVSVVDS SVAGLGGCPYAAQ GAS
HMGCL_LAMPREY 199 MREMLRAVSHVEPI SALAVHCHD TYGQALANILTAIQMGVSVVDS SVAGLGGCPYARGAS
HMGCL_HUMAN 214 MKDMLSAVMQEVPIAALAVHCHD TYGQALANTLVALQMGVSVVDS SVAGLGGCPYAAQ GAS
HMGCL_MOUSE 214 MKDMLTAVMHEVPI TALAVHCHD TYGQALANTLVALQMGVSVVDS SVAGLGGCPYAKGAS
HMGCL_CHICKEN 208 MKEMLAAVMKEVPI GALAVHCHD TYGQALANILVALQMGVSVVDA SVAGLGGCPYAAQ GAS
HMGCL_LIZARD 211 MREMLSAVMKEVPI GALAVHCHD TYGQALANTLVALQMGVSVVDS SVAGLGGCPYAAQ GAS

HMGCL_CELEGANS	261	GNL	A	T	E	D	L	I	F	L	K	N	G	F	E	T	G	V	N	L	D	K	V	V	E	T	A	K	W	F	N	E	A	A	G	Y	D	K	S	R	V	G	A	A	M	A	K	K	S	K	S	C	C	--				
HMGCL_RHODOBACT	250	GNL	A	T	E	D	L	V	Y	M	L	D	G	M	G	V	E	T	G	V	D	L	A	R	L	A	Q	V	G	W	R	I	S	D	L	L	G	R	P	P	A	S	R	T	S	Q	A	-----	L	R	A							
HMGCL_DROSOPHIL	267	GNL	A	T	E	D	V	Y	L	L	H	G	M	L	D	T	G	V	N	L	D	K	L	I	Q	V	G	R	I	C	T	E	L	G	R	T	S	E	S	K	V	N	R	A	----	W	K	G	P	Q	A	R	V					
HMGCL_ARABIDOPS	409	GNV	A	T	E	D	V	Y	M	L	N	G	L	G	V	H	T	N	V	D	L	G	K	L	I	A	A	G	D	F	I	S	K	H	L	G	R	P	N	G	S	K	A	A	V	A	L	N	R	R	I	T	A	D	A	S	K	I
HMGCLL1_ZEBRAFI	284	GNV	S	T	E	D	L	I	Y	M	L	H	G	L	G	I	E	T	G	V	D	L	K	V	M	E	A	G	D	F	I	C	K	A	L	N	R	K	T	N	S	K	V	S	Q	A	-----	T	R	N								
HMGCLL1_XENOPUS	284	GNV	A	T	E	D	V	I	Y	M	L	N	G	L	G	I	Q	T	G	V	N	L	S	K	V	M	E	V	G	H	F	I	C	S	A	L	D	R	K	T	N	S	K	V	A	Q	A	-----	S	F	Q							
HMGCLL1_HUMAN	319	GNV	A	T	E	D	L	I	Y	M	L	N	G	L	G	I	N	T	G	V	N	L	Y	K	V	M	E	A	G	D	F	I	C	K	A	V	N	K	T	N	S	K	V	A	Q	A	-----	S	F	N								
HMGCLL1_MOUSE	289	GNV	A	T	E	D	L	I	Y	M	L	N	G	L	G	I	N	T	G	V	D	L	Y	K	V	M	E	A	G	E	F	I	C	K	A	V	N	K	T	N	S	K	V	A	Q	A	-----	S	F	N								
HMGCLL1_CHICKEN	287	GNV	A	T	E	D	V	I	Y	M	L	N	G	L	G	I	N	T	G	V	N	L	Y	T	V	M	E	A	G	N	F	I	C	T	A	L	N	K	K	T	N	S	K	V	A	Q	A	-----	S	F	N							
HMGCLL1_LIZARD	296	GNV	A	T	E	D	V	I	Y	M	L	N	G	L	G	I	N	T	G	V	N	L	Y	K	V	M	E	A	G	N	F	I	C	T	A	L	N	K	N	T	N	S	K	V	A	Q	A	-----	S	F	C							
HMGCL_XENOPUS	277	GNV	A	T	E	D	V	Y	M	L	H	G	L	G	I	Q	T	G	I	D	L	K	K	L	T	E	A	G	A	F	I	C	K	A	L	G	K	K	S	H	S	K	V	S	Q	A	-----	I	C	K								
HMGCL_ZEBRAFISH	289	GNV	A	T	E	D	V	Y	M	L	H	G	L	G	I	H	T	G	V	D	L	P	R	L	D	A	G	S	F	I	C	H	S	I	N	R	R	T	N	S	K	V	A	Q	A	-----	S	C	K									
HMGCL_LAMPREY	259	GNV	A	T	E	D	V	Y	M	L	N	G	L	G	I	Q	T	G	V	D	L	Q	K	L	E	A	G	D	F	I	C	K	A	L	N	R	R	S	G	S	K	V	S	Q	A	-----	T	S	K									
HMGCL_HUMAN	274	GNL	A	T	E	D	L	V	Y	M	L	E	G	L	G	I	H	T	G	V	N	L	Q	K	L	E	A	G	N	F	I	C	Q	A	L	N	R	K	T	S	S	K	V	A	Q	A	-----	T	C	K								
HMGCL_MOUSE	274	GNL	A	T	E	D	L	V	Y	M	L	N	G	L	G	I	H	T	G	V	N	L	Q	K	L	E	A	G	D	F	I	C	Q	A	L	N	R	K	T	S	S	K	V	A	Q	A	-----	T	C	K								
HMGCL_CHICKEN	268	GNV	A	T	E	D	L	V	Y	M	L	N	G	L	G	I	H	T	G	V	D	L	Q	K	L	M	D	T	G	T	F	I	C	N	A	L	N	R	R	T	N	S	K	V	S	Q	A	-----	A	C	R							
HMGCL_LIZARD	271	GNV	A	T	E	D	V	Y	M	L	H	G	L	G	I	H	T	G	V	D	L	S	K	L	E	A	G	A	F	I	C	K	A	L	N	R	R	T	N	S	K	V	A	Q	A	-----	S	C	K									

HMGCL_CELEGANS	----
HMGCL_RHODOBACT	301 AQAG
HMGCL_DROSOPHIL	323 K---
HMGCL_ARABIDOPS	469 ----
HMGCLL1_ZEBRAFI	336 ----
HMGCLL1_XENOPUS	336 ----
HMGCLL1_HUMAN	371 ----
HMGCLL1_MOUSE	341 RLE-
HMGCLL1_CHICKEN	339 GAVK
HMGCLL1_LIZARD	348 ----
HMGCL_XENOPUS	329 ----
HMGCL_ZEBRAFISH	341 ----
HMGCL_LAMPREY	311 ----
HMGCL_HUMAN	326 ----
HMGCL_MOUSE	326 ----
HMGCL_CHICKEN	320 ----
HMGCL_LIZARD	323 ----

Supplementary Figure 1. Multiple sequence alignment of representative sequences from the HMGCL (mHL) and HMGCLL1 (er-cHL) family of proteins. Sequences were obtained from Uniprot (www.uniprot.org) and correspond to organisms: *Human*, *Mouse*, *Chicken*, *Anole lizard*, *Xenopus*, *Zebra fish*, *Sea lamprey*, *Drosophila*, *C. elegans*, *Arabidopsis* and *Rhodobacter*.