

A

D.m. Endos	MS SAEENSNS PATT PQDTET TE QANL T D LEKIEE EKLKSKYPSGMRV PGG -H S A F L Q K R L Q	60
C.e. Endos	-----MRGE AGELAVSSGEIATGAL S PEK Q Q EQELMGKLAATGKLP AR P ASS F L Q K K L Q	54
X.l. Endos	MS DKYLGDSH LEET G EE KQDS Q E KEAV T PE K A EE Q LK SKYP N LGG K PGG--SD F L M K R L Q	59
H.s. Endos	MS Q K Q EEEN PA EE T G E E KQDT Q E KE G L PE K A EE A K L K A K Y P S L G Q K P GG--SD F L M K R L Q	59
X.l. Arpp19	MS RD N Q E IK AP E ES SA EE Q K EM DD K V T S PE K A EE I K L K S R Y P N I G P K P GG--SD F L R K R L Q	59
H.s. Arpp19	MS - AEV -----PE AA S AE E Q K EM ED K V T S PE K A EE A K L K A R Y P H L G Q K P GG--SD F L R K R L Q	54
C.e. G1b30	MS FA E IDS A IL W RE V L R ----- E D K V T S PE K A EE A K L K A R Y P H L G Q K P GG--SD F L R K R L Q ----- F I I D R M K	25
D.m. Endos	K G Q K F F D S G D Y Q M A K Q K G G G-----	80
C.e. Endos	Q - R K F F D S G D Y A M D K S K A G T G L G S K P H P L A G G P P P A A P P V V A Q R S P A P A A T T P S P S A S P I	113
X.l. Endos	K G G K Y F D S G D Y N M A K A K M K N-----	79
H.s. Endos	K G Q K Y F D S G D Y N M A K A K M K N-----	79
X.l. Arpp19	K G Q K Y F D S G D Y N M A K A K M K N-----	79
H.s. Arpp19	K G Q K Y F D S G D Y N M A K A K M K N-----	74
C.e. G1b30	V G-- Y S E S G A I R K S N K Q A I N-----	43
D.m. Endos	--V K Q V F A --- N K V T T G E A I P T P E T V P A R K T S I I O P C N K F P A T S	119
C.e. Endos	S Q T N R P S--S D R N S D D D N L Q I P R D T V P Q R K A S I I N P S V H C K L S P A P H V Q H H D A A P N A T S E	174
X.l. Endos	--- K Q L P C A G P D K N L V T G D H I P T P Q D L P Q R K S S L V T S K L A G H V E D L H H V	125
H.s. Endos	--- K Q L P S A G A D K N L V T G D H I P T P Q D L P Q R K S S L V T S K L A G G Q V E	121
X.l. Arpp19	--- K Q L P T A A P D K T E V T G D H I P T P Q D L P Q R K P S L V A S K L A G	117
H.s. Arpp19	--- K Q L P T A A P D K T E V T G D H I P T P Q D L P Q R K P S L V A S K L A G	112
C.e. G1b30	--- G Q H S I S G D D S G L S S G L S V E T K Q D L T Q V K I S A F S G R	78
C.e. Endos	MR GE AGELAVSSGEIATG -- AL S PE K Q Q E Q E L M G K L A A T G K L P A R P A S S F L O K K L -Q Q	55
C.b1. Endos	MR GE AGELAVSSGEIATG -- AL S PE K Q Q E Q E L M G K L A A T G K L P A R P A S S F L O K K L -Q Q	55
C.b2. Endos	MR GE AGELAVSSGEIATG -- AL S PE K Q Q E Q E L M G K L A A T G K L P A R P A S S F L O K K L -Q Q	55
B.m. Endos	M --- L G G V Q N L D E A K K L N E E N F N F E K Q E D L L M S K L A A N G K L P V K P Q S T F L O K K L Q Q	55
L.l. Endos	M E A M L G G V Q N L E G A E K L A D E D F T F E K Q E H L L M S K L A S N G K L P V K P Q S T F L O K K L Q Q	58
T.s. Endos	M Y Q Q----- S V E K L E A K L F A K Y P Q V A K-- N M Q M S Q F L O K R L -Q Q	37
C.e. Endos	R K F F D S G D Y A M D K S K A G T G L G S K P H P L A G G P P P A A P P V- V A- Q R S P A P A A T T P S P S A S	111
C.b1. Endos	R K F F D S G D Y A M D K S K A G T G L G S K P H P L A G G P P P A P P P - A A I Q K S P A P A- T S P S P S A S	111
C.b2. Endos	R K F F D S G D Y A M D K S K A G T G L G S K P H P L A G G G P P A A P P P A A V Q K S P A P A- T S P S P S A S	112
B.m. Endos	R K F F D S G D Y A M N K Q K T N P ----- S A N L P V A N L Q N I M H-- R S A S V S S A Q E E V D V	104
L.l. Endos	R K F F D S G D Y A M N K Q K T S N----- L S A N L P A D L Q N I M H-- R P A S V S S V P Q E - V D V	105
T.s. Endos	R K Y F D S G D Y N M A K A K ----- G L K L N T L ----- P A T P S S V E I --- R T P R L S I I V -----	77
C.e. Endos	P I S Q Q T N R P S S D R N S D D D N L-Q I P R P D T V P Q R K A S I I N P S V H-C K L S P A P H V Q H--- H	164
C.b1. Endos	P I S Q Q T N R P S S E R N S D D D N L-Q I P R P D T V P Q R K A S I I N P S V H-C K L S P A P H V Q H--- H	164
C.b2. Endos	P I S Q Q T N R P S A E R N S D D D N L-Q I P R P D T V P Q R K A S I I N P S V H-C K L S P A P H V Q H--- H	165
B.m. Endos	PL N-- I D V S T A V R--- D E S L L Q I P R P D T V P Q R K S S I I Y P S V H-S K L S P Q P Y I H H S T H	153
L.l. Endos	PL --- K I D I P R I R--- D E S L L I P R P D T V P Q R K S S I I Y P S V H-S K L S P Q P Y I H H S A - H	156
T.s. Endos	-- D E R D G S T P T G M C ----- I P T P D S I P H R K S S I V S E L V V G T A P S P I -- V Q H Q Q H	124
C.e. Endos	D A A S P N A T S E	174
C.b1. Endos	D A A S P S A T N E	174
C.b2. Endos	D A A S P T A N T E	175
B.m. Endos	D S-D P L T G P	161
L.l. Endos	N -- D P L P G P	163
T.s. Endos		

Figure S2 Endosulfine-family proteins. **(A)** Endosulfine in *Drosophila melanogaster* (D.m.) and *Caenorhabditis elegans* (C.e.) are compared with Endosulfine and its paralog Arpp19 in *Xenopus laevis* (X.l.) and humans (H.s.). G1b30 is a *C. elegans* globin family protein with limited homology to Endosulfine around the site targeted by Greatwall (*pink* shading). Amino acids that are identical between fly Endosulfine and other proteins are shaded in yellow, amino acids shared by other proteins but not fly Endosulfine are shaded in grey. Green shading indicates proline-directed S/T P sites potentially targeted by CDKs. The Ser illuminated by aqua shading is a site apparently phosphorylated by PKA and of unknown function. The underlined sequence in *C. elegans* Endosulfine is removed by the deletion allele *ensa-1(tm2810)*. **(B)** Comparisons of nematode Endosulfine sequences. Species: *Caenorhabditis elegans* (C.e.), *Caenorhabditis briggsae* (C.b1.), *Caenorhabditis brenneri* (C.b2.), *Brugia malayi* (B.m.), *Loa loa* (L.l.), and *Trichinella spiralis* (T.s.). Colored shading as in part (A).