

**Supplementary table 1: Zebrafish homologs of TorsinA-interacting proteins**

Human proteins known to interact with TorsinA are shown in the first column and details of their genes shown in the second column. The third column shows details of the proposed zebrafish homologues of these genes (references where available are shown; otherwise, Sager et al this publication). The final column shows the degree of homology between the human and zebrafish proteins as % amino acid residues that are identical or homologous between human and zebrafish.

TorsinA interacting Protein	Human Gene	Zebrafish Homolog	Protein Homology (% identity/% homologous)
Kinesin Light Chain 1 [1]	<i>KLC1</i> Gene ID: 3831 Locus: 14q32.3 Protein Length: 560-618	<i>klc1a</i> Gene ID: 393928 Chromosome: 13 Protein length: 538	71/77
		<i>klc1b</i> Gene ID: 335499 Chromosome: 13 Protein length: 631	74/82
Lamina-associated protein 1 (LAP1) [2]	<i>TOR1AIP1</i> Gene ID: 26092 Locus: 1q24.2 Protein Length: 583-584	<i>zgc:112962</i> Gene ID: 548348 Chromosome: 8 Protein length: 324	LAP1 compared with: <i>zgc:112962</i> 24/33 <i>si:dkeyp-82a1.6</i> 25/35
	<i>TOR1AIP2</i> Gene ID: 163590 Locus: 1q25.2 Protein Length: 131, 470	<i>si:dkeyp-82a1.6</i> Gene ID: 100005391 Chromosome: 8 Protein length: 548 (predicted gene only)	LULL1 compared with: <i>zgc:112962</i> 19/26 <i>si:dkeyp-82a1.6</i> 21/31
Snapin [3]	<i>SNAPIN</i> Gene ID: 23557 Locus: 1q21.3 Protein Length: 136	<i>snapin</i> Gene ID: 567959 Chromosome: 19 Protein length: 129	72/79
Tau [4]	<i>MAPT</i> Gene ID: 4137 Locus: 17q21.1 Protein Length: 381-776	<i>mapta</i> [5] Gene ID: 567833 Chromosome: 3 Protein length: 784	33/43
		<i>maptb</i> [5] Gene ID: 100000342 Chromosome: 12 Protein length: 337	41/51
Vimentin [6]	<i>VIM</i> Gene ID: 7431 Locus: 10p13 Protein Length: 466	<i>vim</i> (1 of 2) Gene ID: 140599 Chromosome: 24 Protein length: 455	69/85
		<i>vim</i> (2 of 2) Gene ID: 393746 Chromosome: 2 Protein length: 447	66/82

<b>Nesprin-3</b> [7]	<i>SYNE3</i>	<i>zgc:158327</i> [8]	36/49
	Gene ID: 161176	Gene ID: 100009645	
	Locus: 14q32.13	Chromosome: 17	
	Protein Length: 975	Protein length: 1093 or 1100	
<b>Printor</b> [9]	<i>KLHL14</i>	<i>klhl14</i>	88/92
	Gene ID: 57565	Gene ID: 794722	
	Locus: 18q12.1	Chromosome: 24	
	Protein Length: 628	Protein length: 607	
<b>Tyrosine Hydroxylase</b> [10]	<i>TH</i>	<i>th1</i> [11]	68/80
	Gene ID: 7054	Gene ID: 30384	
	Locus: 11p15.5	Chromosome: 25	
	Protein Length: 497- 528	Protein length: 489	
		<i>th2</i> [11]	58/70
		Gene ID: 414844	
		Chromosome: 4	
		Protein length: 471	
<b>CSN4</b> [12]	<i>COPS4</i>	<i>cops4</i>	95/98
	Gene ID: 51138	Gene ID: 325592	
	Locus: 4q21.22	Chromosome: 10	
	Protein Length: 352-406	Protein length: 406	
<b>Stonin 2</b> [12]	<i>STON2</i>	<i>zgc:113338</i>	46/56
	Gene ID: 85439	Gene ID: 619262	
	Locus: 14q31.1	Chromosome: 17	
	Protein Length: 905-920	Protein length: 854	

#### References:

1. Kamm C, Boston H, Hewett J, Wilbur J, Corey DP, et al. (2004) The early onset dystonia protein torsinA interacts with kinesin light chain 1. *J Biol Chem* 279: 19882-19892.
2. Goodchild RE, Dauer WT (2005) The AAA+ protein torsinA interacts with a conserved domain present in LAP1 and a novel ER protein. *J Cell Biol* 168: 855-862.
3. Granata A, Watson R, Collinson LM, Schiavo G, Warner TT (2008) The dystonia-associated protein torsinA modulates synaptic vesicle recycling. *J Biol Chem* 283: 7568-7579.
4. Ferrari-Toninelli G, Paccioretti S, Francisconi S, Uberti D, Memo M (2004) TorsinA negatively controls neurite outgrowth of SH-SY5Y human neuronal cell line. *Brain Res* 1012: 75-81.
5. Chen M, Martins RN, Lardelli M (2009) Complex splicing and neural expression of duplicated tau genes in zebrafish embryos. *J Alzheimers Dis* 18: 305-317.
6. Hewett JW, Zeng J, Niland BP, Bragg DC, Breakefield XO (2006) Dystonia-causing mutant torsinA inhibits cell adhesion and neurite extension through interference with cytoskeletal dynamics. *Neurobiol Dis* 22: 98-111.
7. Nery FC, Zeng J, Niland BP, Hewett J, Farley J, et al. (2008) TorsinA binds the KASH domain of nesprins and participates in linkage between nuclear envelope and cytoskeleton. *J Cell Sci* 121: 3476-3486.
8. Postel R, Ketema M, Kuikman I, de Pereda JM, Sonnenberg A (2011) Nesprin-3 augments peripheral nuclear localization of intermediate filaments in zebrafish. *J Cell Sci* 124: 755-764.
9. Giles LM, Li L, Chin LS (2009) Printor, a novel torsinA-interacting protein implicated in dystonia pathogenesis. *J Biol Chem* 284: 21765-21775.
10. O'Farrell CA, Martin KL, Hutton M, Delatycki MB, Cookson MR, et al. (2009) Mutant torsinA interacts with tyrosine hydroxylase in cultured cells. *Neuroscience* 164: 1127-1137.
11. Candy J, Collet C (2005) Two tyrosine hydroxylase genes in teleosts. *Biochim Biophys Acta* 1727: 35-44.
12. Granata A, Koo SJ, Haucke V, Schiavo G, Warner TT (2011) CSN complex controls the stability of selected synaptic proteins via a torsinA-dependent process. *EMBO J* 30: 181-193.