

Table S2 Summary of dynein mislocalization phenotypes.

Mislocalization phenotype	Domain	Mutation
Class 1 (Distal - long linear tracks)	AAA1 (Turn p-loop)	G1946R
	AAA1 (H4)	R2056H
	AAA2 (PS1 Insert)	S2333R
	AAA2 (PS I Insert)	L2335P
	AAA3 (β 3/Walker B)	E2675Q
	AAA5 (Strut C1)	3739 6aa Δ (RRSNLI)
Class 2 (Apical - long linear tracks)	AAA1(Sensor 1 (β 4))	N2050S
	AAA3 (β 4 before sensor 1)	C2722R
	MT Stalk (H8 - CC1)	3268 9aa Δ (SLEIQAALE)
	AAA6 (H1)	V4049D
Class 3 (Comet tails)	Tail	Y110S
	Tail	W1308G
	Linker Subdomain 3 (H11)	R1672S
	MT Stalk (H8 - CC1)	D3224P
	MT-binding domain (H1) o)MTBD	T3323P
	MT-Stalk (CC2)	L3332P
	MT-binding domain (H7)	R3396G
	MT-stalk (H9 - CC2)	3446 9aa ins.
	C-terminus (H1)	L4333*
Class 4 (Aggregates)	AAA1 (H3)	S2009W
	MT-BS (H8 stalk CC1)	G3215D
	AAA5 (Strut C1)	3756 7aa Δ (QLEKLL)
Class 5 (Disperse)	AAA1 (H0)	L1933P
	AAA1 (AAA1 H1 and B2)	G1961R
	AAA1 (H4/ β 4 R finger)	K2065E
	AAA1 (H8)	T2166P
	AAA3 (β 4 before sensor 1)	V2719D
	AAA5 (H0)	I3591P
	AAA6 (H5)	G4146A
	AAA6 (H7)	E4168K
	AAA6 (between H8-H9)	I4232N
	AAA6 (between h11 and h12)	D4296E; 4297 3aa Δ (LVV)
	AAA6 (H12)	W4311*
	AAA6 (between H12-H13)	P4316S

AAA- AAA domains of dynein, MT – microtubule, H – helix, β – β strand, CC- coiled-coil, aa - amino acid, Δ - deletion, ins - insertion, * - nonsense mutation.