**Supplementary File 2: Disease mutations in dynein and LIS1 shown in Video 2.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Protein** | **Mutation** | **Reference** |
| Lissencephaly | LIS1 | Arg20Ser | (Uyanik et al., 2007) |
|  |  | Ala210Pro | (González-Morón et al., 2017) |
|  |  | His277Pro | (Torres et al., 2004) |
|  |  | Arg342Pro | (Jamuar et al., 2014) |
|  |  | Asp387Asn | (Saillour et al., 2009) |
|  |  | His389Tyr | (Mineyko et al., 2010) |
| Charcot-Marie-Tooth | Dynein | Val1750Met | (Amabile et al., 2020) |
|  |  | Gln1860Lys | (Amabile et al., 2020) |
|  |  | Arg1887His | (Amabile et al., 2020) |
|  |  | Tyr2641Cys | (Antoniadi et al., 2015) |
|  |  | Glu2814Asp | (Amabile et al., 2020) |
|  |  | Val3065Met | (Amabile et al., 2020) |
|  |  | Arg3989Cys | (Amabile et al., 2020) |
|  |  | Thr4450Met | (Amabile et al., 2020) |
|  |  | Leu4577Pro | (Amabile et al., 2020) |
| Spinal Muscular Atrophy | Dynein | Glu2616Lys | (Scoto et al., 2015) |
|  |  | Glu3048Lys | (Fiorillo et al., 2014) |
| Autism Spectrum Disorders | Dynein | Ala2233Val | (Amabile et al., 2020) |
|  |  | Asp2573Gly | (Amabile et al., 2020) |
|  |  | Glu3025Lys | (C Yuen et al., 2017) |
|  |  | Gly4072Ser | (Iossifov et al., 2014) |
|  |  | Asn4266Ile | (Amabile et al., 2020) |
| Malformations of cortical development | Dynein | Arg1962Cys | (Poirier et al., 2013) |
| Intellectual disability |  | Arg1962Leu | (Zhu et al., 2015) |
|  |  | Arg2025Gln | (Meng et al., 2017) |
|  |  | Arg2332Cys | (Zhu et al., 2015) |
|  |  | Asp2573Gly | (Amabile et al., 2020) |
|  |  | Arg2720Lys | (Zillhardt et al., 2016) |
|  |  | Glu3048Lys | (C Yuen et al., 2017) |
|  |  | Ala3084Thr | (Trujillano et al., 2017) |
|  |  | Arg3474Trp | (Amabile et al., 2020) |
|  |  | Arg3525Cys | (Bowling et al., 2017) |
|  |  | Gly3630Ser | (Amabile et al., 2020) |
|  |  | Gly3658Glu | (Al-Shamsi et al., 2016) |
|  |  | Arg3728Pro | (Amabile et al., 2020) |
|  |  | Glu3771Lys | (Amabile et al., 2020) |
|  |  | His3822Pro | (Vissers et al., 2010) |
|  |  | Pro3942Ser | (Hayashi et al., 2017) |
|  |  | Val3951Ala | (Laquerriere et al., 2017) |

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