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| Mouse Model | Model Type | Predominant Phenotype | Quantified Motor Behavior | Anatomy |
| *Pcp2Cre;Slc32a1fl/fl* | Cre-loxP constitutive genetic knockout | Ataxia | **Impaired**  **↓ Hind stride:**  Footprint analysis  **↓ Latency to fall:**  Rotarod  **↓ Tremor amplitude:**  Tremor monitor  (Brown et al., 2020; White et al., 2014) | **↓ PC SLC32A1:** IHC and in situ  **Abnormal cerebellar zones:** IHC and WGA tracing  **↑ Ectopic TH expression:** IHC  (White et al., 2014) |
| *Ptf1aCre;Slc17a6fl/fl* | Cre-loxP constitutive genetic knockout | Dystonia | **Impaired**  **↓ Distance traveled:**  Open field  **↓ Latency to fall:**  Rotarod  **↑ Tremor amplitude:**  Tremor monitor  **↑ Dystonia rating:**  Dystonia rating scale  **↑ EMG power:**  EMG  **↑ Antagonist muscle co-contraction and over-contraction:** EMG  (Brown et al., 2022, 2023; Salazar Leon & Sillitoe, 2023; White & Sillitoe, 2017) | **↓ IO SLC17A6:** IHC and in situ  **Transiently thinner molecular layer:** IHC  (Salazar Leon & Sillitoe, 2023; White & Sillitoe, 2017) |
| Harmaline injection (control genotype) | Intraperitoneal injection  (pharmacological) | Tremor | **Impaired**  **↑ Tremor amplitude:**  Tremor monitor  **↑ EMG power:**  EMG  (Brown et al., 2020, 2023) | **↑ CN and IO cFos expression:** IHC  (Brown et al., 2020) |
| *Atxn1154Q/+* | SCA1 genetic knockin | Ataxia | **Impaired**  **↓ Latency to fall:**  Rotarod  **↓ Distance traveled:**  Open field  **↑ Slips**  Dowel Assay  (Coffin et al., 2023; Fryer et al., 2011; Watase et al., 2002) | **↓ Brain weight**  **↑ Nuclear inclusions:** IHC  **↓ Calbindin immunofluorescence:** IHC  **Thinner molecular layer:** IHC  **↓ PC count:** IHC  **↑ Abnormal morphology and degeneration of motor neurons:** H&E  **↑ Reactive astrocytosis:** IHC  (Coffin et al., 2023; Fryer et al., 2011; Orengo et al., 2018; Watase et al., 2002) |
| *Pdx1Cre;Slc17a6fl/fl* | Cre-loxP constitutive genetic knockout | Dystonia | **Impaired**  **↑ Hind sway:**  Footprint analysis  **↓ Latency to fall:**  Rotarod  **↑ Dystonia rating:**  Dystonia rating scale  **↑ High stepping gait:**  Horizontal ladder  (Lackey, 2021) | **↓ CF and MF SLC17A6:** IHC  **↓ LH *Slc17a6*:** in situ  (Lackey, 2021)  (Mangieri et al., 2018) |
| *Pcp2Cre;Ank1fl/fl* | Cre-loxP constitutive genetic knockout | Ataxia | **Impaired**  **↓ Hind stride,**  **↓ Hind stance,**  **↑ Hind sway:**  Footprint analysis  (Stevens et al., 2021) | **↓ PC Ank1:** IHC  **PC progressive abnormal morphology and degeneration in anterior and central zones:** IHC  **Thinner molecular layer in anterior and central zones:** IHC  (Stevens et al., 2021) |
| Ouabain infusion (control genotype) | Application to the surface of the cerebellum (pharmacological) | Dystonia | **Impaired**  **↑ Dystonia rating:**  Dystonia rating scale  (Fremont et al., 2014) | NA |
| *Car8wdl/wdl* | Spontaneous deletion mutation | Ataxia + Dystonia + Tremor | **Impaired**  **↓ Latency to fall:**  Rotarod    **↓ Print width,**  **↓ Print area:**  CatWalk  **↑ Hind and fore base-width,**  **↑ Hind sway:**  Footprint analysis  **↑ Slips**  Raised beam  **↓ Ambulatory activity:**  Open field  **↑ Tremor amplitude:**  Tremor monitor  **↑ Antagonist muscle co-contraction and over-contraction:** EMG  **Unimpaired**  Righting time, vertical rope climbing, limb clasping  (Jiao et al., 2005; Miterko et al., 2019, 2021; White et al., 2016; Zhou et al., 2022) | **↓ PC Car8:** IHC  **Delayed and abnormal cerebellar zones:** IHC and WGA tracing  **Thinner molecular layer:** IHC  **Transiently smaller cerebellum:** H&E  **Delayed GC proliferation:** IHC  **Transiently abnormal PC morphology:** IHC  **↑ Ectopic TH expression:** IHC  (Miterko et al., 2019; White et al., 2016) |
| *Car8wdl/wdl +* propranolol injection | Spontaneous deletion mutation + intraperitoneal injection  (genetic + pharmacological) | Ataxia + Dystonia | **Impaired**  **↑ Hind sway:**  Footprint analysis  **Unimpaired**  Tremor, open field (movement time, movement episodes, ambulatory activity)  (Zhou et al., 2022) | NA |