Degenerative diseases

http://wiki.oroboros.at/index.php/O2k-Publications:_Neurodegenerative

High-Resolution FluoRespirometry and mtDNA

nature COMMUNICATIONS

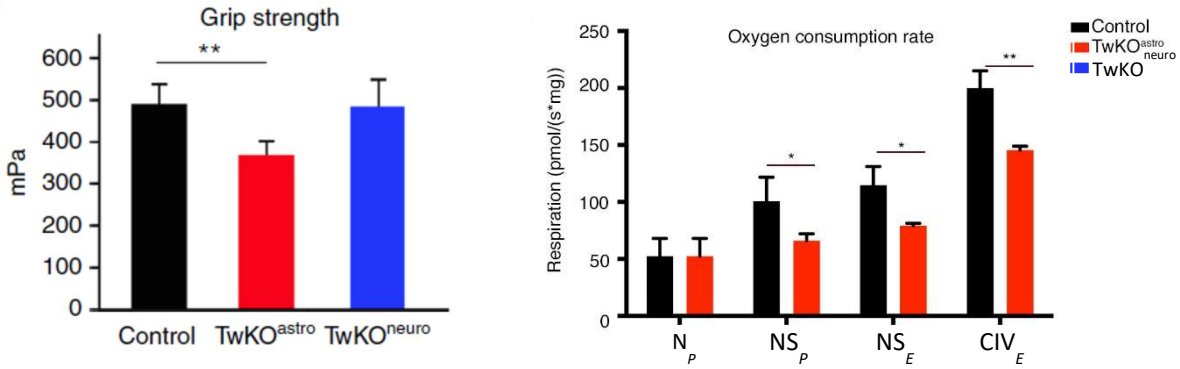
ARTICLE

DOI: 10.1038/s41467-017-01859-9 OPEN

Loss of mtDNA activates astrocytes and leads to spongiotic encephalopathy

Olesia Ignatenko[1], Dmitri Chilov[1], Ilse Paetau[1], Elena de Miguel[2], Christopher B. Jackson[1], Gabrielle Capin[1], Anders Paetau[3], Mugen Terzioglu[1], Liliya Euro[1] & Anu Suomalainen[1,4,5]

The inactivation of Twinkle (TwKO), the replicative $_{mt}$DNA helicase, in mice neurons or astrocytes promote the early-onset spongiotic degeneration of brain parenchyma, microgliosis and secondary neurodegeneration



Oxygen flux measured by Oroboros-O2k. The data are presented as mean and error bars indicate standard deviation. *P<0.05., **P<0.01; cerebellum was homogenized with 6-8 strokes in a 2 mL potter-Elvehjem. N_P: NADH-linked, OXPHOS; NS_P: NADH&Succinate-linked, OXPHOS; NS_E: NADH&Succinate-linked, ETS; CIV_E: Complex IV, ETS.

Reference: Ignatenko O, Chilov D, Paetau I, de Miguel E, Jackson CB, Capin G, Paetau A, Terzioglu M, Euro L, Suomalainen A (2018) Loss of mtDNA activates astrocytes and leads to spongiotic encephalopathy. Nat Commun 9:70.