AN INTRODUCTION TO CASK DISORDERS

CASK Research Foundation
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Mutations in the CASK gene cause a range of disorders that affect brain function, including MICPCH and XL-ID with or without nystagmus. Prognosis is poor for males with MICPCH and highly variable in females, likely due to the phenomenon of skewed X chromosome inactivation.

THE GENETICS

- X-linked dominant condition
- Predominantly affects neurones
- Mostly de novo mutations
- Overexpression of CASK linked to pancreatic and colorectal cancers

LIVING WITH CASK

Children with CASK disorders have a spectrum of phenotypes, most often with severe intellectual disability and ASD. Speech is generally absent.

- visual &/or hearing impairment
- epilepsy (50%) - often drug resistant
- sleep disturbances
- regression (>30%)
- hypotonia
- scoliosis

There is currently no treatment for any CASK disorder.

WHAT WE NEED RESEARCH INTO

- CASK & metabolism
- Gene replacement potential
- Regression and female deaths
- Mechanisms of gene expression
- End points for clinical trials
- Biomarkers

TREATMENT AVENUES

- Platform technologies such as CRISPR-CAS9 can be used to reactivate the inactive CASK gene. The CASK gene loci makes it ideal for this technique.

- Apoptosis is observed in neurones when there is insufficient CASK protein. Drugs that prevent this apoptosis could improve outcomes.

- Treatments based on rebalancing the observed E/I imbalance.

CASK RESEARCH FOUNDATION

WHO ARE WE?

- We are a registered UK based charity with a global reach.
- We fund, facilitate and accelerate research into CASK disorders.
- We have established and actively promote a detailed data collection programme with over 100 patients. This is hosted and created by RARE-X.

website
www.caskresearch.org