MNN Seminar December 11th 2019 @ 12:15

Media & Knowledge Sciences (MAKS) Room 414

How Molecular Biology and DNA science are helping us achieve breakthroughs in medical research.

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Ataxia is a disorder which presents with varying degrees of loss of control of normal bodily movements. Although acquired ataxia may be encountered, it is more commonly found as a hereditary condition. A wide array of genetic variants have been identified as the cause of each of the multiple subtypes of inherited ataxias. Several members of a particular Maltese family had been diagnosed with hereditary ataxia however little was known about the nature of the causative variant/s. The family history suggested an X- linked recessive pattern of inheritance. This study aimed to profile the genetic variants responsible for this ailment in the affected family members by means of clinical exome sequencing coupled with bioinformatics analysis. A missense variant in an alternative isoform of the PDHA1 gene on the X chromosome, p.T103A, was detected in both probands, their mother and 2 of her female relatives. The variant was not detected in any of the other study participants. Variants of the PDHA1 gene are associated with pyruvate dehydrogenase E1-alpha deficiency (PDHAD) and X-linked Leigh syndrome. This variant was identified as the most likely causative variant upon correlation of the family history and clinical picture of the probands with the expected observations in these disorders. However, this conclusion can only be confirmed once further studies are carried out. Once a definite diagnosis is established, efforts can be made to understand the mechanisms by which the variant is generating ataxia such that a cure or treatment may be provided. Additionally, genetic counselling can be delivered to guide future generations of this family line with regards to aspects of family planning and follow-up.