

**Episodic ataxia type 2 – improving diagnosis and understanding of molecular mechanisms of disease**

**Principal Researcher:** Dr Frontali - University of Rome, Italy

**Final report – lay summary**

Episodic Ataxia type 2 (EA2) is an hereditary (autosomal dominant) disorder characterised by episodes of ataxia/vertigo which can be prevented by treatment with acetazolamide. EA2 belongs to a genetically and clinically heterogeneous group of episodic ataxias and is due to point mutations of a large CACNA1A gene, coding for the main subunit of calcium channels particularly abundant in the cerebellum. The molecular confirmation of the clinical diagnosis can be attained only in 20-30% of patients and is exceedingly expensive and time consuming

The present project was aimed at improving the rate of molecularly diagnosed EA patients, by 1) identifying new gene regions, so far unexplored, possibly harboring disease mutations and 2) setting up a new method for mutation screening.

Both objectives were fulfilled: 1) a method for mutation screening based on RNA instead of genomic DNA analysis, has been set up and validated, allowing for a cheaper, quicker, and more efficient mutation screening, and 2) Two new gene regions in which mutations could be located, have been identified, i.e. 2 exonic regions and several highly conserved intronic regions most likely involved in gene regulation.

These results extend the knowledge of the molecular basis of the disease and can greatly improve the probability of attaining a molecular diagnosis in EA2 patients, thus increasing their chance of receiving early treatment and participating in future trials of new drug therapies.



**For more support or information please contact: Ataxia UK, Winchester House,  
Kennington Park, Cranmer Road. London SW9 6EJ**

**Website: [www.ataxia.org.uk](http://www.ataxia.org.uk).**

**Helpline: 0845 644 0606 Tel: +44 (0)20 7582 1444 Fax: +44 (0)20 7582 9444**

**Email: [helpline@ataxia.org.uk](mailto:helpline@ataxia.org.uk).**