Special Issue

Genetics of Mitochondrial Diseases: From Laboratory to the Clinic

Message from the Guest Editors

For years, mitochondrial diseases were considered to be very rare, and, due to their extreme phenotypic and genetic variability, difficult to diagnose. The last few years have shown that although still rare, they are much more frequent than was expected, with prevalence reaching 1:5000 in some studies. At the same time, the development of fast massive parallel sequencing technologies has broadened our knowledge of their genetic background revealing new genes involved in the pathology of mitochondrial diseases.While due to existing sequencing approaches such as panel sequencing or whole exome sequencing, it is easier to obtain the molecular diagnosis, there are still limited therapeutic options. Difficulties with reaching the mitochondria with new therapeutic agents, manipulating the mitochondrial genome and conducting clinical trials impeded by the inability to build homogenous patient groups slow down the progress.In this issue, we aim to touch on the threads of clinical and genetic diagnosis and treatment of mitochondrial diseases but also ethical issues of new treatment methods and limitations in performing clinical trials are welcome.

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Deadline for manuscript submissions

closed (10 May 2021)

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Impact Factor 2.8
CiteScore 5.2
Indexed in PubMed

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Genes are central to our understanding of biology, and modern advances such as genomics and genome editing have maintained genetics as a vibrant, diverse and fastmoving field. There is a need for good quality, open access journals in this area, and the *Genes* team aims to provide expert manuscript handling, serious peer review, and rapid publication across the whole discipline of genetics. Starting in 2010, the journal is now well established and recognised.
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