A novel ADOA-associated *OPA1* mutation alters the mitochondrial function, membrane potential, ROS production and apoptosis

Juanjuan Zhang^{1,2,3,+}, Xiaoling Liu^{3,+}, Xiaoyang Liang², Yuanyuan Lu⁴, Ling Zhu^{1,2}, Runing Fu^{3,4}, Yanchun Ji^{1,2}, Wenlu Fan³, Jie Chen³, Bing Lin³, Yimin Yuan^{3,4}, Pingping Jiang^{1,2,}, Xiangtian Zhou^{3,*} and Min-Xin Guan^{1,2,5,*}

¹Division of Medical Genetics and Genomics, Zhejiang Children's Hospital, Zhejiang University School of Medicine, Hangzhou, Zhejiang, 310058 China.

²Institute of Genetics, Zhejiang University School of Medicine, Hangzhou, Zhejiang, 310058 China.

³School of Ophthalmology and Optometry, Wenzhou Medical University, Wenzhou, Zhejiang, 325027 China.

⁴Attardi Institute of Mitochondrial Biomedicine, Wenzhou Medical University, Wenzhou, Zhejiang, 325035 China.

⁵Collaborative Innovation Center for Diagnosis and Treatment of Infectious Diseases, Zhejiang University, Hangzhou, Zhejiang 310058, China

*To whom correspondences should be: Min-Xin Guan, Ph.D, Institute of Genetics, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China; Telephone: (571) 88206916; Fax: (571) 88982377; E-mail: gminxin88@zju.edu.cn.

Xiangtian Zhou, MD, School of Ophthalmology and Optometry, Wenzhou Medical University, Wenzhou, Zhejiang, China, E-mail: zxt-dr@wz.zj.cn.

⁺J. Zhang and X. Liu contributed equally to this work.



Supplementary Figure 1. Construction of lymphoblastoid cell lines and identification of cell lines. (a) Genotype analysis of the Chinese pedigree. Filled symbols: individuals with visual impairment, arrow indicated the proband; +/+: homozygote; +/-: heterozygote; *, Construction of lymphoblastoid cell lines. (b) Partial sequence chromatograms of the *OPA1* gene from lymphoblastoid cell lines of affected individual III-11 and the married-in control subject III-11. Arrow: location of the base changes at position 400.



Supplementary Figure 2. Standard curves of primers in QPCR. The standard curves were drawn with a ten-fold dilution series $(10^{0}-10^{4})$ of reference DNA.



Supplementary Figure 3. The ratio of apoptotic cells from the third to sixth generation. Flow cytometric analysis of the third to sixth generation cells stained with both PI and annexin V-FITC to demonstrate the ratio of later stage apoptosis and early necrosis.