Universität Basel

Publication

A hypomorphic variant in EYS detected by genome-wide association study contributes toward retinitis pigmentosa

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4616089
Author(s) Nishiguchi, Koji M.; Miya, Fuyuki; Mori, Yuka; Fujita, Kosuke; Akiyama, Masato; Kamatani, Takashi; Koyanagi, Yoshito; Sato, Kota; Takigawa, Toru; Ueno, Shinji; Tsugita, Misato; Kunikata, Hiroshi; Cisarova, Katarina; Nishino, Jo; Murakami, Akira; Abe, Toshiaki; Momozawa, Yukihide; Terasaki, Hiroko; Wada, Yuko; Sonoda, Koh-Hei; Rivolta, Carlo; Tsunoda, Tatsuhiko; Tsujikawa, Motokazu; Ikeda, Yasuhiro; Nakazawa, Toru
Author(s) at UniBasel Rivolta, Carlo ;
Year 2021
Title A hypomorphic variant in EYS detected by genome-wide association study contributes toward retinitis pigmentosa
Journal Communications Biology
Volume 4
Number 1
Pages / **Article-Number** 140
The genetic basis of Japanese autosomal recessive retinitis pigmentosa (ARRP) remains largely unknown. Herein, we applied a 2-step genome-wide association study (GWAS) in 640 Japanese patients. Meta-GWAS identified three independent peaks at P < 5.0 Œ 10; -8; , all within the major ARRP gene EYS. Two of the three were each in linkage disequilibrium with a different low frequency variant (allele frequency A, p.G843E) of unknown significance. mRNA harboring c.2528 G > A failed to restore rhodopsin mislocalization induced by morpholino-mediated knockdown of eys in zebrafish, consistent with the variant being pathogenic. c.2528 G > A solved an additional 7.0% of Japanese ARRP cases. The third peak was in linkage disequilibrium with a common non-synonymous variant (c.7666 A > T, p.S2556C), possibly representing an unreported disease-susceptibility signal. GWAS successfully unraveled genetic causes of a rare monogenic disorder and identified a high frequency variant potentially linked to development of local genome therapeutics.
Publisher Springer Nature
ISSN/ISBN 2399-3642
edoc-URL https://edoc.unibas.ch/81905/
Full Text on edoc Available;
Digital Object Identifier DOI 10.1038/s42003-021-01662-9
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/33514863