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QRICH1

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QRICH1-associated developmental delay and intellectual disability in 36 unrelated individuals

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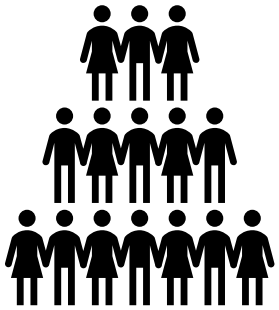
Targeted gene(s)/phenotype under study : *QRICH1*

Abstract : *De novo* pathogenic variants of *QRICH1* (Glutamine-rich protein 1, OMIM #617387) has recently been described in five patients (Ververi et al. 2018; Lui et al. 2019). The variants have been associated with developmental delay and intellectual disability, mild facial dysmorphism and chondrodysplasia in some cases. Through Gene Matcher (Genematcher.org) we have now identified 19 further patients with *QRICH1*-variants. Currently, we are in the process of defining the phenotype-genotype spectrum of *QRICH1*-related disorders in the patient cohort (a total of 24 including the published cases) and preparing a manuscript. We welcome further cases to this study to reach a better understanding of this rare disorder. We aim to close inclusion of further cases 15th July 2020.

Coordinating clinician/researcher: Zeynep Tümer



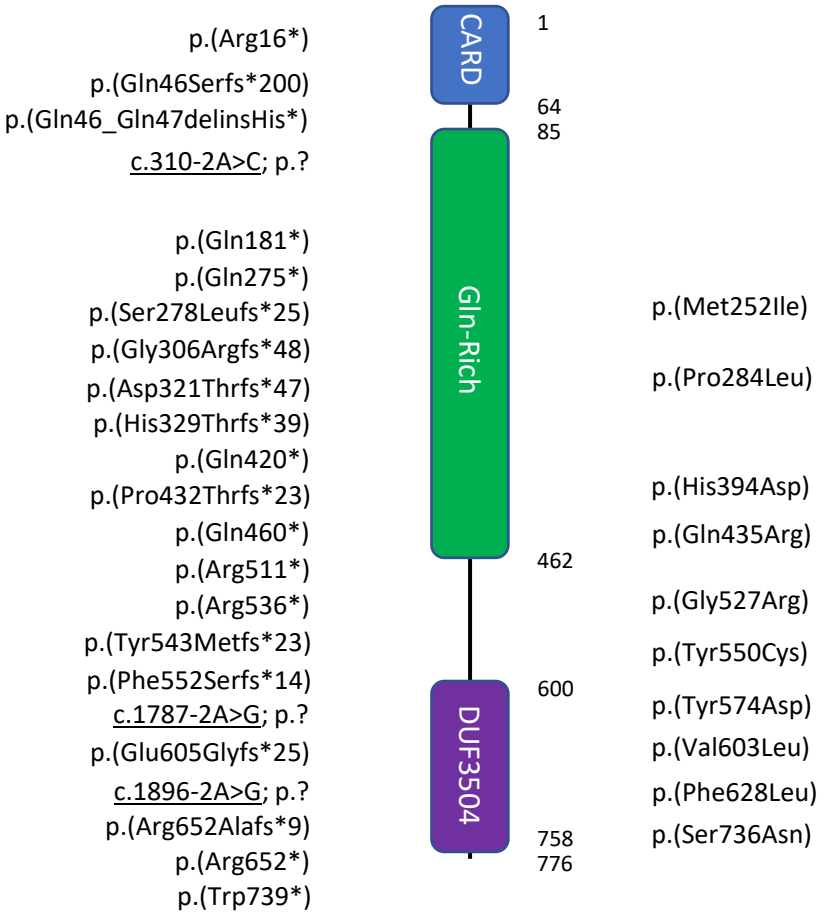
CURRENT STATUS

- The current number of unpublished indivials are now 27 – two of the patients are through ITHACA collaboration (Prof. Favier's group)
- 4 new patients reported meanwhile (Föhrenbach et al. 2020).
- TOTAL number of individuals will be 36 (including 9 published)

QRICH1 has 11 isoforms and all encode the same 776 amino acid protein.

- glutamine (Q) rich region
- **CARD domain** (Caspase activation and recruitment domain): uncharacterized
- **DUF3504 domain** (domain of unknown function): a protein-protein interaction domain found in several proteins involved in apoptosis, inflammation and immune responses.

Protein Truncating Variants: n=23



Missense Variants: n=10

28 *de novo*, 3 paternally inherited (c.961del, c.1655del, c.310-2A>C), 2 being investigated.

Collaborators from 27 different locations *(author list not complete yet and not in the final order)*

- Laurence Faivre, Anne-Sophie Denommé-Pichon - France
- Richard Finkel, Lindsay Rhodes - St. Jude Children's Research Hospital.
- Reymundo Lozano, Cassie Mintz, Isha Gupta - Mount Sinai, New York
- Anya Revah-Politi, Kwame Anyane-Yeboa - Columbia University
- Lindsay Rhodes, GeneDX
- Wendy Chung, Scott Robinson - New York Presbyterian Hospital
- Michael Ciliberto, Lillian H Howard - Iowa
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- Julie Cohen, Anne Comi - Kennedy Krieger, Maryland
- Maria Palomares, Sixto García-Miñaúr - Madrid, Spain
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- Nicholas Ah Mew - Children’s National
- Sylvie Odent, Lena Damaj – France
- Sumit Parikh - Cleveland Clinic
- Mary Beth Fasano, Anna Paulson - Iowa University
- Anja Leiber, Henry Oppermann, Konrad Platzer, Institute of Human Genetics Leipzig University
- Amanda Gerard, Lorraine Potocki - Texas Children’s Hospital.
- Cynthia Curry - UCSF
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- Natasha Brown, Smitha Kumble - Australia
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Article is in preparation and not submitted yet