

Title: Central Core Disease *GeneReview*; Table 3

Authors: Malicdan MCV, Nishino I

Last update: May 2007

Note: The following information is provided by the authors listed above and has not been reviewed by GeneReviews staff.

Table 3. RYR1 Mutations Reported in CCD

Exon	Mutation
3	p.D60N, p.S71Y*
4	p.R109W*
6	p.R146C*
6	p.R163C, p.Q160G
7	p.G215E
12	p.I403M, p.M402T*
13	p.S427L*, p.Q474H
14	p. E512K, p.Q512K, p.Y522S
17	p.R614C*
	p.A1577T*
40	p.R2163H, p.R2163C, p.V2168M
42	p.N2283H*
45	p.R2434H, p.M2434K*, p.R2435H, p.R2454H
46	p.I2453T, p.R2452W
47	p.R2508C
48	p.E2545D
57	p.R2939K*
67	p.K3367R
71	p.P3527S
73	p.L3606P
91	p. R4214 del 3, p.R4214 del 16, p.A4329D*,
94	p.R4558Q, p.L4568P
95	p.Y4631N, p.E4634K, p.T4637A, p.T4637I, p.G4638D, p.G4638N, p.G4638S, p.L4647 del 2, p.L4650P*, p.H4651P
96	p.T4709M*
97	p.K4724Q*
100	p.L4793P, p.Y4796C, p.L4796C, p.F4808P, p.L4814F, p.R4825C
101	p.A4846V, p.V4849I, p.V4849R, p.N4858D, p.F4860 del, p.R4861H, p.R4861C, p.F4863D del 7
102	p.Y4864C, p.H4887Y, p.G4897V, p.G4890R, p.G4891R, p.G4893R, p.R4893P, p.R4893Q, p.R4893W, p.4894Q, p.I4898T, p.G4899E*, p.G4899R, p.A4906V, p.F4906 del, p.R4914G, p.R4914T, p.T4920N, p.F4921S, p.F4921T, p.V4927 del 2
103	p.A4940T, p.I4938M, p.N4939Q

Mutations associated with autosomal recessive inheritance are followed by an asterisk (*).

Mutations associated with rods and cores: p.Y4796C, p.G4638S, p.T4637A.

Mutations associated with fetal akinesia: p.R614C, p.L4650P, p.K4724Q, p.G4899E.

Mutations associated with severe phenotype with high penetrance phenotype: p.I4898T [Lynch et al 1999], p.Y4796C [Monnier et al 2000].

Mutation p.V4849I was found in one of 50 French controls [Monnier et al 2000], but was also found to be associated with MH [Sambuughin et al 2005] and CCD [Jungbluth et al 2002].

References

- Jungbluth H, Muller CR, Halliger-Keller B, Brockington M, Brown SC, Feng L, Chattopadhyay A, Mercuri E, Manzur AY, Ferreiro A, Laing NG, Davis MR, Roper HP, Dubowitz V, Bydder G, Sewry CA, Muntoni F (2002) Autosomal recessive inheritance of RYR1 mutations in a congenital myopathy with cores. *Neurology* 59:284-7
- Lynch PJ, Tong J, Lehane M, Mallet A, Giblin L, Heffron JJ, Vaughan P, Zafra G, MacLennan DH, McCarthy TV (1999) A mutation in the transmembrane/luminal domain of the ryanodine receptor is associated with abnormal Ca²⁺ release channel function and severe central core disease. *Proc Natl Acad Sci U S A* 96:4164-9
- Monnier N, Romero NB, Lerale J, Nivoche Y, Qi D, MacLennan DH, Fardeau M, Lunardi J (2000) An autosomal dominant congenital myopathy with cores and rods is associated with a neomutation in the RYR1 gene encoding the skeletal muscle ryanodine receptor. *Hum Mol Genet* 9:2599-608
- Sambuughin N, Holley H, Muldoon S, Brandom BW, de Bantel AM, Tobin JR, Nelson TE, Goldfarb LG (2005) Screening of the entire ryanodine receptor type 1 coding region for sequence variants associated with malignant hyperthermia susceptibility in the North American population. *Anesthesiology* 102:515-21