

Title: Carnitine Palmitoyltransferase 1A Deficiency *GeneReview* Table 2

Authors: Bennett MJ, Santani AB

Date: March 2013

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

Table 2. Mutations in *CPT1A*

cDNA	Protein	Exon
Homozygous missense and nonsense mutations		
298C>T	Q100X	4
367C>T	R123C	4
986C>T	T314I	9
1069C>T	R357W	10
1361A>G	D454G	12
1436C>T	P479L	12
2129G>A	G710E	17
2126G>A	G709E	17
478C>T	R160X	5
1027T>G	F343V	10
1393G>T	G465W	12
1737C>A	Y579X	14
Heterozygous missense and nonsense mutations		
96T>G	Y32X	2
1079A>G	E360G	10
823G>A	A275T	8
912C>G	C304W	9
823G>A	A275T	8
1241C>T	A414V	11
1493A>G	Y498C	13
1069C>T	R357W	10
1451T>C	L484P	12
1425G>A	W475X	12
1494T>G	Y498X	13
946C>G?	R316G?	9
1339C>T	R446X	11
2156G>A	G719D	18

cDNA	Protein	Exon
Deletions and insertion		
Homozygous IVS 14+3kb	del 581-702	15
E525 Ins FLPYHELXS	Trunc 240 amino acids del 626-676	16
1876-1G>A		
2027-2028 +2del AAGT		17
948delG	R316fsX328	9
1600delC	L534fsX	13

Mutations are matched to the protein sequence (GI 32879925) in the PubMed protein bank [Brown et al 2001, Gobin et al 2002, Bennett et al 2004, Stoler et al 2004, Korman et al 2005, Tsuburaya et al 2010].

References

Bennett MJ, Boriack RL, Narayan S, Rutledge SL, Raff ML. Novel mutations in CPT 1A define molecular heterogeneity of hepatic carnitine palmitoyltransferase I deficiency. *Mol Genet Metab.* 2004;82:59-63.

Brown NF, Mullur RS, Subramanian I, Esser V, Bennett MJ, Saudubray JM, Feigenbaum AS, Kobari JA, Macleod PM, McGarry JD, Cohen JC. Molecular characterization of L-CPT I deficiency in six patients: insights into function of the native enzyme. *J Lipid Res.* 2001;42:1134-42.

Gobin S, Bonnefont JP, Prip-Buus C, Mugnier C, Ferrec M, Demaugre F, Saudubray JM, Rostane H, Djouadi F, Wilcox W, Cederbaum S, Haas R, Nyhan WL, Green A, Gray G, Girard J, Thuillier L. Organization of the human liver carnitine palmitoyltransferase 1 gene (CPT1A) and identification of novel mutations in hypoketotic hypoglycaemia. *Hum Genet.* 2002;111:179-89.

Korman SH, Waterham HR, Gutman A, Jakobs C, Wanders RJ. Novel metabolic and molecular findings in hepatic carnitine palmitoyltransferase I deficiency. *Mol Genet Metab.* 2005;86:337-43.

Stoler JM, Sabry MA, Hanley C, Hoppel CL, Shih VE. Successful long-term treatment of hepatic carnitine palmitoyltransferase I deficiency and a novel mutation. *J Inherit Metab Dis.* 2004;27:679-84.

Tsuburaya R, Sakamoto O, Arai N, Kobayashi H, Hasegawa Y, Yamaguchi S, Shigematsu Y, Takayanagi M, Ohura T, Tsuchiya S. Molecular analysis of a presymptomatic case of carnitine palmitoyl transferase 1 (CPT1) deficiency detected by tandem mass spectrometry newborn screening in Japan. *Brain Dev.* 2010;32:409-11.