

<b>Disease Name</b>	
<b>2-METHYL-3-HYDROXYBUTYRYL-CoA DEHYDROGENASE DEFICIENCY (MHBD)</b>	
<i>(HYDROXYL-CoA DEHYDROGENASE DEFICIENCY; 3-HYDROXY-2-METHYLBUTYRYL-COA DEHYDROGENASE DEFICIENCY)</i>	
<b>Classification:</b>	Organic aciduria
<b>Genetic Information</b>	
<b>Inheritance:</b>	X-linked; but an affected female has been identified.
<b>Population Incidence:</b>	Rare, less than 10 reported cases.
<b>Ethnic Incidence:</b>	No known population at increased risk.
<b>Gene &amp; Location:</b>	HADH2, ERAB- Xp11.2
<b>Common Mutation:</b>	No known common mutations.
<b>OMIM #</b>	#300438; *300256
<b>Disease Information</b>	
<b>Symptom Onset:</b>	As neonates and children, usually after a stressor such as illness or vaccinations.
<b>Symptoms:</b>	The majority of cases have an early asymptomatic period from 9-14 months followed by progressive and usually severe loss of motor skills, choreoathetosis, dystonia and seizures. Sensory deficits in some patients have included retinal degeneration and hearing loss. One patient presented in the newborn period with hyperammonemia, hypoglycemia and acidosis if metabolic decompensation. Mild cerebral white matter changes on MRI with spastic diplegia have been noted. A mild case was apparently normal until age 6 before deterioration was noted after a viral infection.
<b>Physical Findings:</b>	Progressive loss of skills and neurological impairment. Mental retardation with epilepsy. No particular dysmorphisms.
<b>Treatment:</b>	Isoleucine and protein restriction has resulted in some improvement of biochemical parameters and physical symptoms. In two cases no further neurological deterioration occurred, but lost function was not regained.
<b>Natural History without treatment:</b>	Uncertain, as all diagnosed patients have been treated, whether neurological deterioration would progress to death. The oldest patient (also the mildest) is severely dysarthric and works in a sheltered workshop.
<b>Natural History with treatment:</b>	Uncertain what long-term therapy will show, but seemed to be some clinical improvement with dietary isoleucine restriction.
<b>Metabolic Information</b>	
<b>Missing Enzyme &amp; Location:</b>	2-METHYL-3-HYDROXYBUTYRYL-CoA DEHYDROGENASE- Defect is in the mitochondrial oxidation of 2-methyl branched-chain fatty acids and isoleucine.
<b>MS/MS profile:</b>	C5-OH (3-hydroxyisovaleryl carnitine)- elevated. C5:1 (methylcrotonyl or tiglyl carnitine)- elevated. Leucine- elevated.
<b>Prenatal testing:</b>	Theoretically can do prenatal testing on amniocytes or CVS cells for enzyme assay.
<b>Miscellaneous Information:</b>	
<b>Credit:</b>	<i>Prepared by the North West Regional Newborn Screening Program Judith Tuerck, RN, MS, and Lorinda Paradise at Oregon Health Services University in Portland, Oregon and by Sara Copeland MD, Iowa Neonatal Metabolic</i>

	<i>Screening Program.</i>	
<b>Sites of Reference:</b>		
<b>Support Groups:</b>	<b>Organic Acidemia Association</b> 13210 - 35th Avenue North Plymouth, MN 55441 (763) 559-1797 (763) 694-0017 oanews@aol.com <a href="http://www.oanews.org">www.oanews.org</a>	