

Congenital Disorders of Glycosylation Sequential Testing – Panel 2 (Test #542)

Brief Description of Clinical Features: Congenital disorders of glycosylation (CDG) are a genetically heterogeneous group of disorders caused by defective synthesis of asparagine (N)-linked glycans. Abnormalities in these glycoconjugates result in disturbed metabolism, cell recognition, cell adhesion, protease resistance, host defense, cell migration, and antigenicity (Marquardt and Denecke *Eur J Pediatr* 162:359-379, 2003). Consequently, clinical presentations are characterized by multisystem involvement. Psychomotor retardation is a finding of all CDG types in this Panel except CDG Ih (Chantret et al. *J Biol Chem* 278:9962-9971, 2003). Patients with CDG Ih demonstrate life-threatening GI findings (Schollen et al. *J Med Genet* 41:550-556, 2004) and lack facial dysmorphism which has been reported for types Id (Denecke et al. *Pediatr Res* 58:248-253, 2005), Ie (Kim et al. *J Clin Invest* 105:191-198, 2000), and Ig (Chantret et al. *J Biol Chem* 277:25815-25822, 2002). Vision impairment and seizures are reported for cases of type Id (Denecke et al. 2005), Ie (Kim et al. 2000), If (Kranz et al. *J Clin Invest* 108:1613-1619, 2003), and Ii (Thiel et al. *J Biol Chem* 278:22498-22505, 2003). Microcephaly is reported for cases of type Ie (Imbach et al. *J Clin Invest* 105:233-239, 2000), and Ig (Chantret et al. 2002). Congenital hypotonia and/or contractures are noted in cases of types Id (Denecke et al. 2005), Ie (Kim et al. 2000), and If (Kranz et al. 2003). Recurrent infections have been reported in patients with type Ie (Imbach et al. 2000) and Ig (Chantret et al. 2002).

Genetics: CDGs exhibit autosomal recessive inheritance. Missense, nonsense, small deletions, and splice site mutations have been reported for the genes in this panel.

Description of This Particular Test: Testing is accomplished by sequentially amplifying the coding exons and ~50 bp of adjacent noncoding sequence of each gene, then determining the nucleotide sequence using standard dideoxy sequencing methods and a capillary electrophoresis instrument. The genes will be tested in the order specified by the client on the Requisition Form.

Reference Sequences:

Gene:	CDG:	Genomic: NC_	mRNA: NM_	Protein: NP_	mRNA & Protein: CCDS_
ALG3	Id	000003.1	005787.5	005778.1	46968.1
DPM1	Ie	000020.9	003859.1	003850.1	13434.1
MPDU1	If	000017.9	004870.2	004861.2	11115.1
ALG12	Ig	000022.9	024105.3	077010.1	14081.1
ALG8	Ih	000011.8	024079.4	076984.2	8258.1
ALG2	Ii	000009.1	033087.3	149078.1	6739.1

Indication for Testing: Individuals with clinical and biochemical findings consistent with CDG.

Sensitivity of Test: Each of these disorders has been described in only a small number of patients. Therefore, clinical sensitivity cannot be estimated.

Turn Around Time: Maximum of 40 days for the first gene and 10 days for each subsequent gene.

Specimen Requirements: See page 4 of the Requisition Form.

Price: Sequential Sequencing of: ALG3, DPM1, MPDU1, ALG12, ALG8, ALG2

CPT Codes	ALG3	DPM1	MPDU1	ALG12	ALG8	ALG2	Panel
83890	\$ 30 (x1)	\$ 30 (x1)	\$ 30 (x1)	\$ 30 (x1)	\$ 30 (x1)	\$ 30 (x1)	\$ 30 (x1)
83891	\$ 40 (x1)	\$ 40 (x1)	\$ 40 (x1)	\$ 40 (x1)	\$ 40 (x1)	\$ 40 (x1)	\$ 40 (x1)
83898	\$ 160 (x9)	\$150 (x8)	\$140 (x7)	\$160 (x9)	\$ 220 (x13)	\$120 (x5)	\$ 980 (x51)
83904	\$ 230 (x9)	\$220 (x8)	\$210 (x7)	\$230 (x9)	\$ 340 (x13)	\$170 (x5)	\$1,470 (x51)
83894	\$ 50 (x1)	\$ 50 (x1)	\$ 40 (x1)	\$ 50 (x1)	\$ 70 (x1)	\$ 40 (x1)	\$ 270 (x1)
83912	\$ 80 (x1)	\$ 80 (x1)	\$ 80 (x1)	\$ 80 (x1)	\$ 90 (x1)	\$ 70 (x1)	\$ 230 (x1)
Totals:	\$ 590*	\$ 570*	\$ 540*	\$ 590*	\$ 790*	\$ 470*	\$3,020

*When four or more of the genes on this panel are sequentially tested, a 15% discount will apply to the total cost.

Accreditation Info. CLIA ID #: 52D1027685 (expires 1/18/13) (CAP#: 7185561, AU ID: 1407125 expires 12/20/12)

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