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MATERNAL CELL CONTAMINATION (MCC) STUDY

Clinical Background Information

Fetal samples obtained by amniocentesis or chorionic villus sampling (CVS) are at risk of contamination by maternal cells due to the presence of maternal blood or decidua. Maternal Cell Contamination (MCC) study is important test which provides assurance that the results of molecular analyses such as sequencing and microarray performed on fetal specimens are accurate and are not influenced by maternal DNA.

To determine the pure fetal origin of all prenatal specimens undergoing genetic analysis, it is recommended that MCC analysis be performed in parallel with diagnostic testing, regardless of the genetic disorder, fetal gender, or mode of inheritance. MCC analysis is recommended by multiple professional genetic societies including American College of Medical Genetics and Genomics (ACMG) and Association for Molecular Pathology (AMP) on CVS, amniotic fluid, and product of conception (POC) tissues submitted for prenatal molecular, cytogenetic, or biochemical analyses. Additionally, MCC analysis can be performed on cord blood specimens when maternal cells contamination is suspected.

Study Indication

Performed in conjunction with fetal molecular or biochemical diagnostic testing

Acceptable test fetal specimens:

- uncultured AF and CVS
- cultured AF and CVS
- cord blood,
- peripheral umbilical blood specimens,
- tissue or CVS from products of conception
- DNA extracted from the same specimen that was used for concurrent diagnostic testing

Maternal sample

5 ml of peripheral whole blood sample collected in EDTA (LAVENDER TOP TUBE)

CPT Code(s)

81265

Methodology

PCR-based analysis of 15 highly polymorphic Short Tandem Repeats (STR) loci (D8S1179, D21S11, D7S820, CSF1PO, D3S1358, TH01, D13S317, D16S539, D2S1338, D19S433, vWA, TPOX, D18S51, D5S818, FGA).

Limitations

MCC study does not rule out the presence of low-level contamination (<5%).