ARUP LABORATORIES | A nonprofit enterprise of the University of Utah and its Department of Pathology

Effective Date: October 20, 2025

TEST CHANGE

Angelman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA

3006247, AS-PWS DD

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender (EDTA), pink (K2EDTA) ~~For Nonfetal Specimens: Lavender (EDTA), pink (K2EDTA) For Fetal Specimens: Two T-25 flasks at 80 percent confluent of cultured amniocytes AND Maternal Whole Blood Specimen: Lavender (EDTA), pink (K2EDTA), or yellow (ACD solution A) Fetal Specimens will require MCC-FETAL testing to be added on by ARUP, and additional charges will apply.~~
Specimen Preparation:	Transport 3 mL whole blood (Min: 1mL) ~~For Nonfetal Specimens: Transport 3 mL whole blood (Min: 1mL) For Fetal Specimens: Cultured Amniocytes: Fill flasks with culture media. Transport two T-25 flasks at 80 percent confluent of cultured amniocytes filled with culture media. Backup cultures must be retained at the client's institution until testing is complete. If ARUP receives a sample below the minimum confluence, CG GRW&SND (0040182) will be added on by ARUP, and additional charges will apply. If clients are unable to culture specimens, CG GRW&SND should be added to initial order. Maternal Whole Blood Specimen: Transport 3 mL whole blood (Min: 1 mL)~~
Transport Temperature:	~~For Nonfetal Specimens:~~ Whole Blood: Refrigerated. ~~Also acceptable: Ambient. For Fetal Specimens: Cultured Amniocytes: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to viability Maternal Whole Blood Specimen: Refrigerated.~~ Also acceptable: Ambient.
Unacceptable Conditions:	~~For Nonfetal Specimens:~~ Transfused whole blood, severely hemolyzed whole blood, heparinized whole blood, frozen whole blood.
Remarks:	~~New York State Clients: Informed consent is required with submission.~~
Stability:	~~For Nonfetal Specimens:~~ Whole Blood: Room temperature: 1 week; Refrigerated: 1 month; Frozen: unacceptable. ~~For Fetal Specimens: Cultured Amniocytes: Room temperature: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable Maternal Whole Blood Specimen: Room temperature: 1 week; Refrigerated: 1 month; Frozen: Unacceptable.~~

Methodology:	~~Qualitative /~~Methylation-Specific Multiplex Ligation-Dependent Probe Amplification (MS-MLPA)
Performed:	Varies
Reported:	12-14 days
Note:	
CPT Codes:	81331~~; for fetal specimens add 81265~~
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Refer to report. ~~BACKGROUND INFORMATION: Angleman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA~~

~~Characteristics of Angelman Syndrome (AS): Developmental delays by 6-12 months of age, seizures, microcephaly, movement or balance disorder, minimal or absent speech, and a distinctive behavioral phenotype, which includes a happy demeanor with frequent laughter, hand flapping, and excitability.~~
~~Characteristics of Prader-Willi Syndrome (PWS): Neonatal hypotonia, hyperphagia, obesity, global developmental delay, mild intellectual disability, hypogonadism, and a distinctive behavioral phenotype, which includes temper tantrums, stubbornness, manipulative behavior, and obsessive-compulsive behavior.~~
~~Prevalence: 1 in 15,000 for AS; 1 in 15,000 for PWS.~~
~~Inheritance: Varies, depending on the molecular genetic mechanism.~~
~~Cause: AS: Absence of maternal expression of the UBE3A gene. PWS: Absence of the paternally contributed PWS/AS critical region of chromosome 15q11.2-q13.~~
~~Molecular Genetic Mechanisms: AS: Microdeletions in the AS/PWS critical region (68 percent), UBE3A mutations (11 percent), paternal uniparental disomy of chromosome 15 (7 percent), imprinting center defects (3 percent), unbalanced chromosome translocation (less than 1 percent), and unknown (10 percent). PWS: Microdeletions in the PWS/AS critical region (70-75 percent), maternal uniparental disomy of chromosome 15 (25-29 percent), imprinting center defect or balanced chromosome translocation (less than 1 percent).~~
~~Clinical Sensitivity: PWS: Over 99 percent. AS: 80 percent.~~
~~Methodology: Methylation-specific multiplex ligation probe amplification (MLPA) of the AS/PWS critical region of chromosome 15q11.2-q13.~~
~~Analytical Sensitivity and Specificity: 99 percent for AS and PWS.~~
~~Limitations: Disease mechanisms causing AS that do not alter methylation patterns will not be detected. Diagnostic errors can occur due to rare sequence variations. This assay is not validated to detect increased copy number of 15q11.2-q13 nor determine parent of origin for duplications. This assay cannot distinguish between uniparental disomy (UPD) or an imprinting defect for PWS or AS. AS and PWS mosaicism will not be assessed by this assay. Interpretation of this test result may be impacted if this patient has had an allogeneic stem cell transplantation. Methylation patterns may not be fully established in early gestation; thus, diagnostic testing on chorionic villus samples is not recommended.~~

Reference Interval:

By Report

Inserted Cells