RUSSELL-SILVER SYNDROME (RSS)

Background: Russell-Silver syndrome (RSS, OMIM 180860) is a growth disorder characterized by intrauterine and postnatal growth retardation, with a reported incidence of approximately one in 100,000 live births. Other clinical features that may be associated with RSS are asymmetry, triangular face, fifth finger clinodactyly, frontal bossing, café au lait spots, genitourinary anomalies, cognitive delay, feeding disorder and hypoglycemia.

Assay: Analysis of chromosome 11p15 by methylation-specific PCR to detect methylation errors and abnormal copy number. If MS-PCR analysis is negative, reflex to uniparental disomy (UPD) testing of chromosome 7 is recommended.

Utility: Affected individuals can benefit from screening and treatment regimens aimed at preventing the most serious complications of this condition. Cytogenetically detectable abnormalities involving chromosome 11p15 or chromosome 7 are found in ~1% of affected individuals; therefore, methylation errors are more often the cause of the disorder. Identifying the mutation in hereditary forms of RSS allows for prenatal or early postnatal diagnosis.

Sensitivity: Loss of methylation on the paternal chromosome at imprinting center 1 (IC1) on chromosome 11p15 occurs in about 50% of affected individuals. Maternal uniparental disomy for chromosome 7 occurs in about 10% of affected individuals. In 1-2% of RSS patients, chromosomal aberrations on 11p15 or chromosome 7 can be observed.

Turnaround: 3-4 weeks for methylation and copy number analysis of 11p15.5
3 weeks for UPD7 analysis
1-3 weeks for prenatal diagnosis of amniocytes only

Fees: $800 for methylation and copy number analysis of 11p15.5
$630 for UPD7 analysis
$600 for a known familial methylation defect
$1530 for methylation and copy number analysis of 11p15.5 with automatic reflex to UPD7 analysis* (If methylation analysis is positive, will only be charged $900)
$900 for prenatal methylation and copy number analysis only* (also yields information regarding UPD11p15.5)
$730 for prenatal UPD7 analysis only*
$900 for prenatal diagnosis of known familial methylation analysis*
*Cost includes MCC studies

CPT codes: Methylation and copy number analysis of 11p15.5: 81401x2, 81402, 81403
UPD7 analysis: 81402
Known familial methylation defect: 81401x2, 81402
Prenatal methylation/copy number analysis of 11p15.5 and UPD7 analysis: 81401x2, 81402x2, 81403, 81265
Prenatal methylation/copy number analysis of 11p15.5 only: 81401x2, 81402, 81403, 81265
Prenatal UPD7 analysis only: 81402
Prenatal known familial methylation analysis: 81401x2, 81402, 81265