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