

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Full list of patients within the pediatric MDS cohort including demographic and other clinical laboratory values.

File Name: Supplementary Data 2

Description: Whole exome and RNA sequencing coverage data.

File Name: Supplementary Data 3

Description: Somatic mutation calls from WES, with corresponding validation data.

File Name: Supplementary Data 4

Description: Genes and targets of the TruSeq Custom Amplicon reagent.

File Name: Supplementary Data 5

Description: TruSeq Custom Amplicon coverage data.

File Name: Supplementary Data 6

Description: Mutation calls from TruSeq Custom Amplicon.

File Name: Supplementary Data 7

Description: Copy number analysis (from both conventional karyotyping, and WES, where available) for the entire pediatric MDS cohort.

File Name: Supplementary Data 8

Description: List of genes analyzed for presence of germline alterations.

File Name: Supplementary Data 9

Description: Germline variant calls including ACMG pathogenicity classification for those which were classified.

File Name: Supplementary Data 10

Description: Loss-of-Function mutation calls from WES.

File Name: Supplementary Data 11

Description: *SAMD9/SAMD9L* mutation calls from WES and PCR Validation.

File Name: Supplementary Data 12

Description: Validation primers used for PCR amplification and MiSeq validation.

File Name: Supplementary Data 13

Description: Mutagenesis primers used for creating *BRAF*, *SAMD9*, and *SAMD9L* mutations for in vitro studies.