

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Summary of *DICER1* mutations in the TCGA PanCan dataset.

File Name: Supplementary Data 2

Description: Summary of *DICER1* mutations in the MSK-IMPACT dataset.

File Name: Supplementary Data 3

Description: Summary of m_{53}^i ratio across TCGA small RNA datasets.

File Name: Supplementary Data 4

Description: Evolutionary couplings analysis using human DICER1 aa 1271-1829.

File Name: Supplementary Data 5

Description: List of broadly expressed + conserved miRNAs used for comparing 5p and 3p populations in TCGA PanCancer dataset.