

## Description of Additional Supplementary Files

**Supplementary Data 1:** Gene expression values from RNA-seq of Ctrl and *Rnf20*<sup>+/-</sup> MLE12 cells and statistical differences in *Rnf20*<sup>+/-</sup> vs Ctrl MLE12 cells (n = 3 per group). Differential expression was quantified and normalized using DESeq2 (Version 1.40.0).

**Supplementary Data 2:** Metabolite levels in Ctrl and *Rnf20*<sup>+/-</sup> MLE12 cells measured by LC-MS/MS (n = 6 per group).

**Supplementary Data 3:** Pausing index values from total Pol II ChIP-seq of Ctrl and *Rnf20*<sup>+/-</sup> MLE12 cells (n = 3 per group).

**Supplementary Data 4:** List of genes with decreased PI in *Rnf20*<sup>+/-</sup> MLE12 cells compared to controls.

**Supplementary Data 5:** List of antibodies used in this study.

**Supplementary Data 6:** List of primers used in this study