

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Source Data of Figure 2, genome-wide stats of HG002

File Name: Supplementary Data 2

Description: Source Data of Figure 3, stats of per chromosome on R10 60X HG002

File Name: Supplementary Data 3

Description: Source Data of Figure 5a, genome-wide N50 stats of HPRC pangenome dataset

File Name: Supplementary Data 4

Description: Source Data of Figure 5b, genome-wide N50 stats of patient blood sample

File Name: Supplementary Data 5

Description: Comparison of with/without GIAB "high-confidence" region

File Name: Supplementary Data 6

Description: Comparison of different read length's impact on MethPhaser

File Name: Supplementary Data 7

Description: MethPhaser's Performance on HapCUT2 VS WhatsHap

File Name: Supplementary Data 8-10

Description: per-chromosome N50, switch error stats of HG002 with different read type and coverages

File Name: Supplementary Data 11

Description: The spanning information of phaseblocks on medically relevance genes on HG002 and pangenome samples

File Name: Supplementary Data 12

Description: Overall stats of the genome-wide phaseblocks spanning medically relevance genes