

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: This file contains the BIT-ranked TR lists by using the differentially accessible regions generated from five TR perturbation datasets. It also contains the ranking of perturbed TRs by benchmarking methods including BART2, ChIP-Atlas, HOMER, i-cisTarget and WhichTF.

File Name: Supplementary Data 2

Description: This file contains the BIT identified TRs supported by existing publications in investigated nine different cancer types.

File Name: Supplementary Data 3

Description: This file contains the BIT-ranked TR lists by using the cancer-type-specific accessible regions retrieved from TCGA.

File Name: Supplementary Data 4

Description: This file contains the BIT-ranked TR lists by using cell-type-specific accessible regions in nine different cell types from PBMCs and seven different cell types from liver cancer sample.

File Name: Supplementary Data 5

Description: This file contains the BIT identified TRs supported by existing publications and/or verified by the Human Protein Atlas as lineage-enriched TRs in PBMC B cells and liver malignant cells.