

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Genomic coordinates of labeled regions used in chromatin tracing of 50 TADs on Chr19.

File Name: Supplementary Data 2

Description: Genomic coordinates of labeled regions used in chromatin tracing of 19 5-kb loci upstream of Scd2.

File Name: Supplementary Data 3

Description: Codebook of genes targeted by RNA MERFISH.

File Name: Supplementary Data 4

Description: Template oligonucleotide sequences for chromatin tracing and RNA MERFISH.

File Name: Supplementary Data 5

Description: Sequences of PCR primers and reverse transcription primers for primary probe library syntheses.

File Name: Supplementary Data 6

Description: Sequences of dye-labeled secondary probes for chromatin tracing and RNA MERFISH.