Description of Additional Supplementary Files 1 2 File Name: Supplementary Data 1 3 Description: Complete analysis relative 3' isoform usage of signature APA genes across all cell types in 4 the Fly Cell Atlas. 5 6 File Name: Supplementary Data 2 7 Description: Numbers of cells used for each of the Fly Cell Atlas cell type assignments. 8 9 File Name: Supplementary Data 3 10 Description: Genes expressing distinctive TUTR-APA or ALE-APA isoforms in neurons. 11 12 File Name: Supplementary Data 4 13 Description: Genes undergoing TUTR-APA or ALE-APA shifts in the male germline lineage. 14 15 File Name: Supplementary Data 5 16 Description: Genes undergoing TUTR-APA or ALE-APA shifts in the intestinal stem cell lineage. 17 18 File Name: Supplementary Data 6 19 Description: List of RNA binding proteins (RBPs) assessed in this study. 20 21 File Name: Supplementary Data 7 22 Description: RBPs with differential cell-specific expression within cell types of the FCA body, gut and 23 testis datasets. 24 25 File Name: Supplementary Data 8 26 Description: RBPs with differential cell-specific expression between male germline stem cells and 27 spermatocytes. 28 29 File Name: Supplementary Data 9 30 Description: Relative numbers of miRNA binding sites discovered from 3' UTRs of spermatogenesis 31 shortening genes. 32 33 File Name: Supplementary Data 10 34 Description: Relative numbers of RBP binding sites discovered from 3' UTRs of spermatogenesis

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shortening genes.