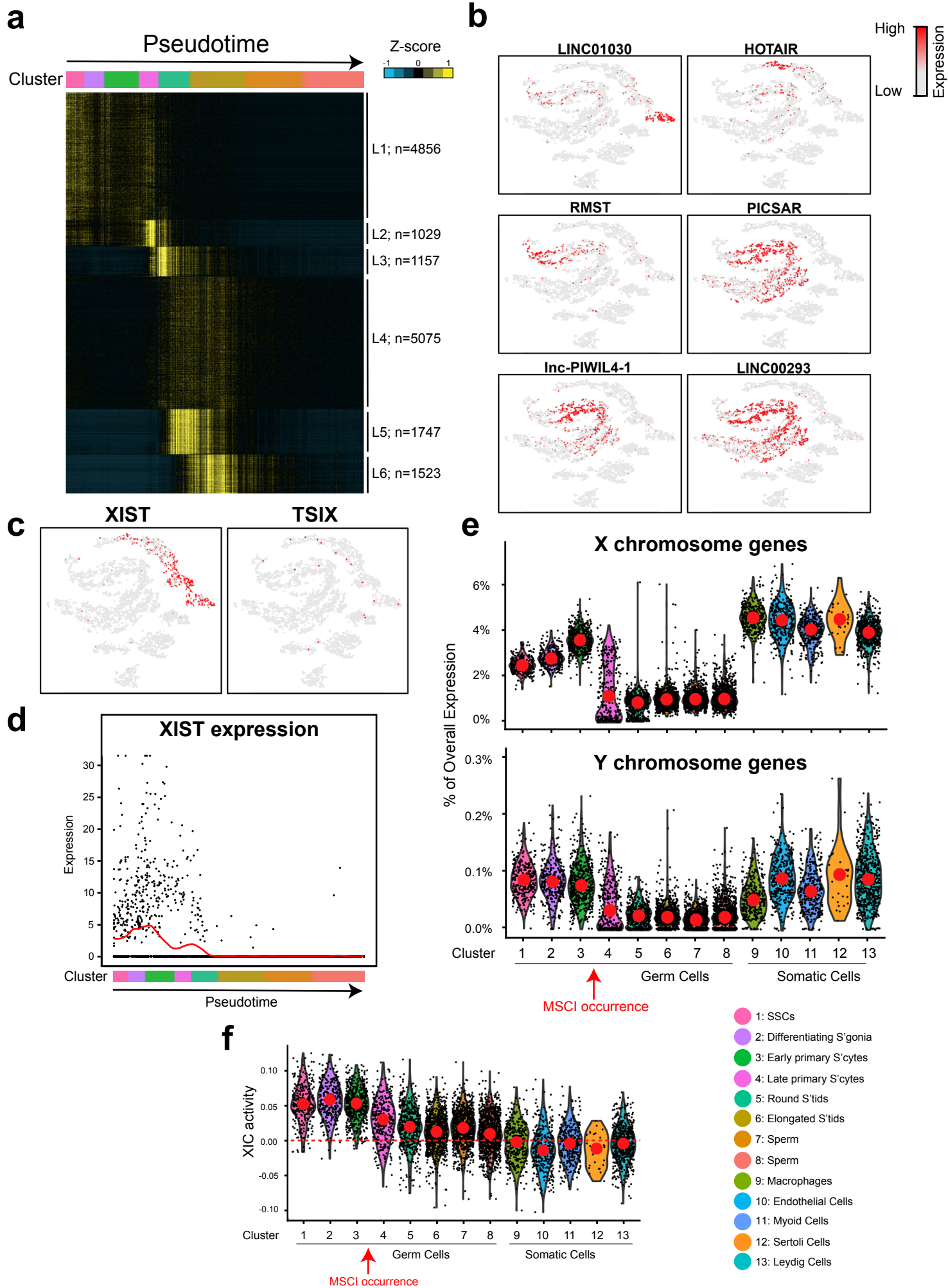


**Fig. S4**

**Fig. S4. Long non-coding RNA Expression Dynamic during Spermatogenesis.**

(a) K-means clustering ( $k=6$ ) of long non-coding RNA (lncRNA) during spermatogenesis.

(b) Relative expression levels of selected lncRNAs projected on the tSNE plot.

(c) Relative expression levels observed for *XIST* (left) and *TSIX* (right) projected on the tSNE plot.

(d) Expression of *XIST* during spermatogenesis. y-axis: normalized expression levels.

(e) Violin plot of relative expression of X (top) or Y (bottom) chromosome genes in different cell clusters. Red dot indicates the median. Note: meiotic sex chromosome inactivation (MSCI) starts at spermatocytes stage (Cluster 3-4 transition).

(f) Violin plot representing level of XCI activity in different cell clusters. Red dot indicates the median. XCI activity is measured as the correlation (spearman) between X chromosome gene expression levels and their distances from XCI, the X inactivation center.