

Description of Additional Supplementary Files

Supplementary Data 1. Meta forest analysis and statistics. Chromosome speed differences were quantified as the absolute difference between faster and slower averages, ensuring positive values. Confidence intervals were derived per cell, and each cell was treated as an independent study. A meta-analysis approach was applied to incorporate both means and variances across time, rather than relying solely on standard mean-comparison tests.

Supplementary Video 1. 3D time-lapse movie. A representative 3D time-lapse movie showing an Imaris orthogonal view of a typical field within a live seminiferous tubule explant obtained from a mouse positive for lacO-lacI-GFP and stained with Hoechst. The total time-lapse of raw images is 17 minutes, followed by an example of lacO-lacI-GFP spot tracking, and examples of cell track trace visualization. At each time point (every 1 minute), a z-axis stack is visualized.