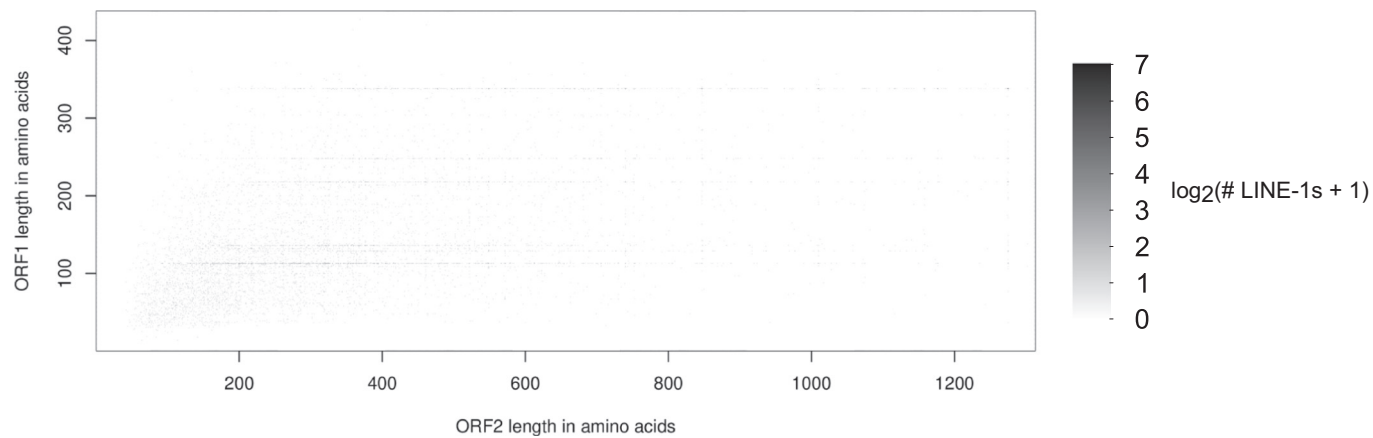
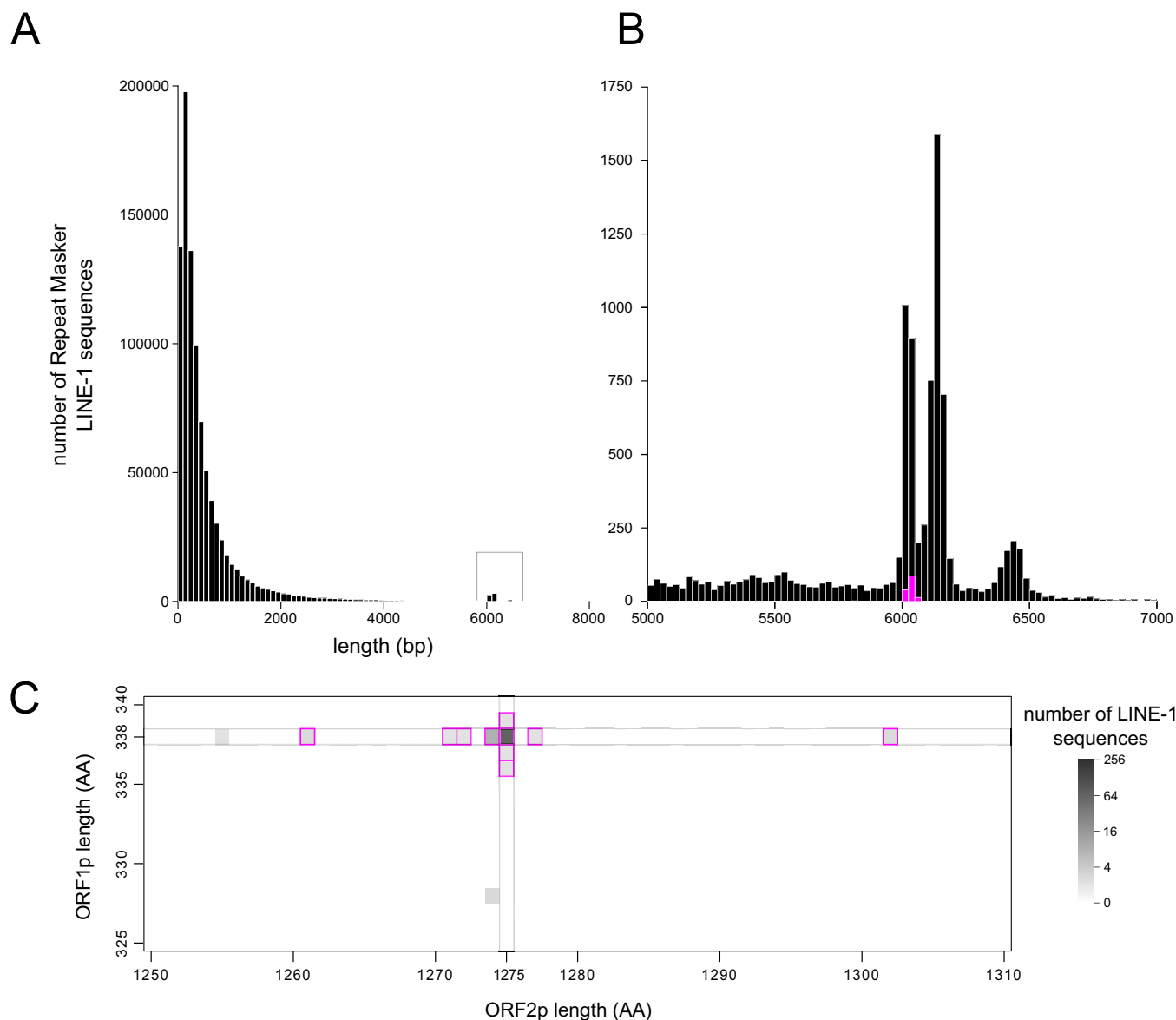


## Expanded View Figures



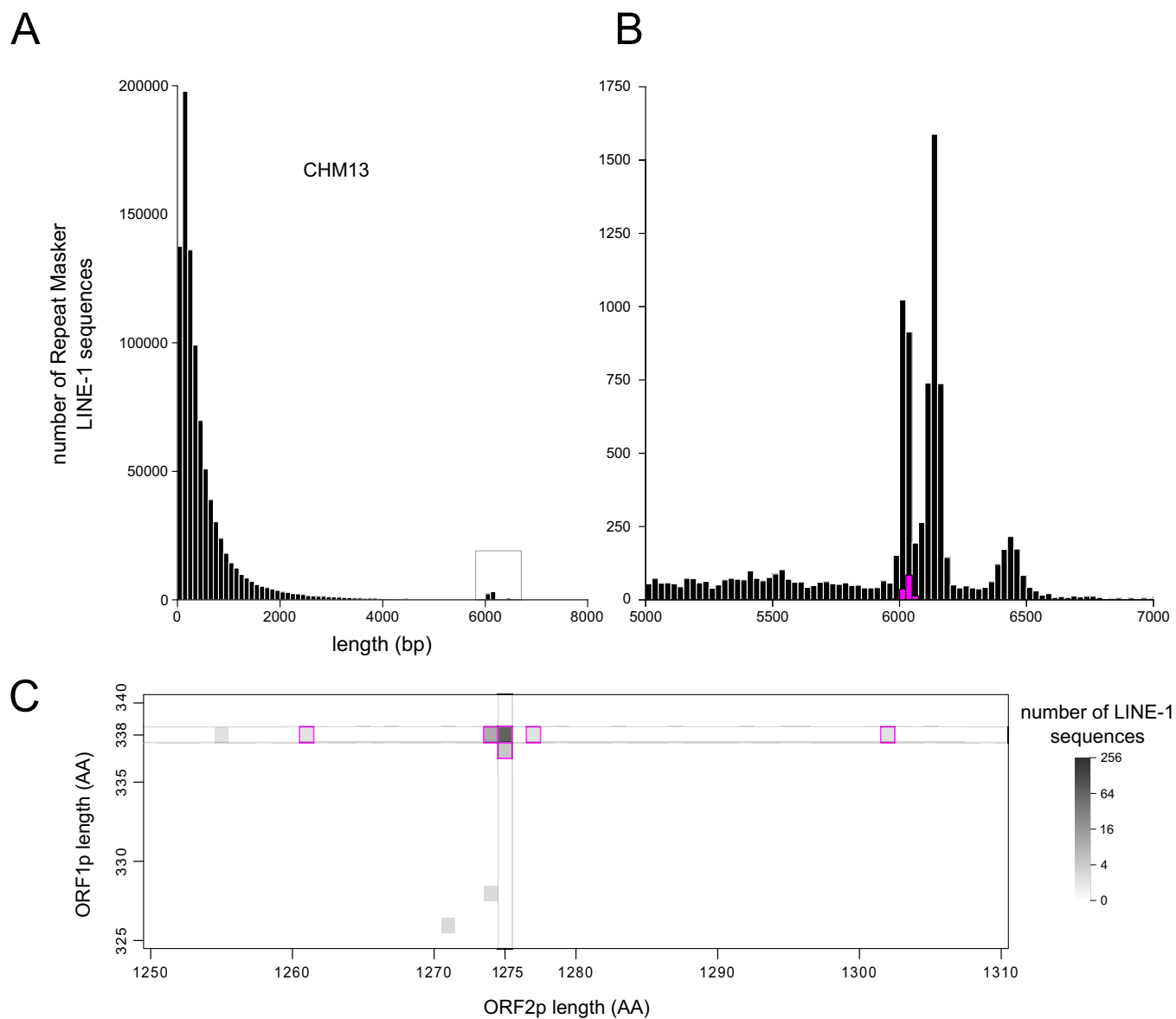
**Figure EV1. Heatmap of translated ORF lengths in full-length LINE-1s from CHM1.**

A zoomed-out version of Fig. 1C shows the distribution of all called translated ORF lengths in the complete set of full-length (>5000 bp) LINE-1 sequences. Many full-length sequences have either an intact ORF1 or ORF2, but only 148 have both intact ORFs that align along the entire length of a reference amino acid sequence (L1<sub>RP</sub>).



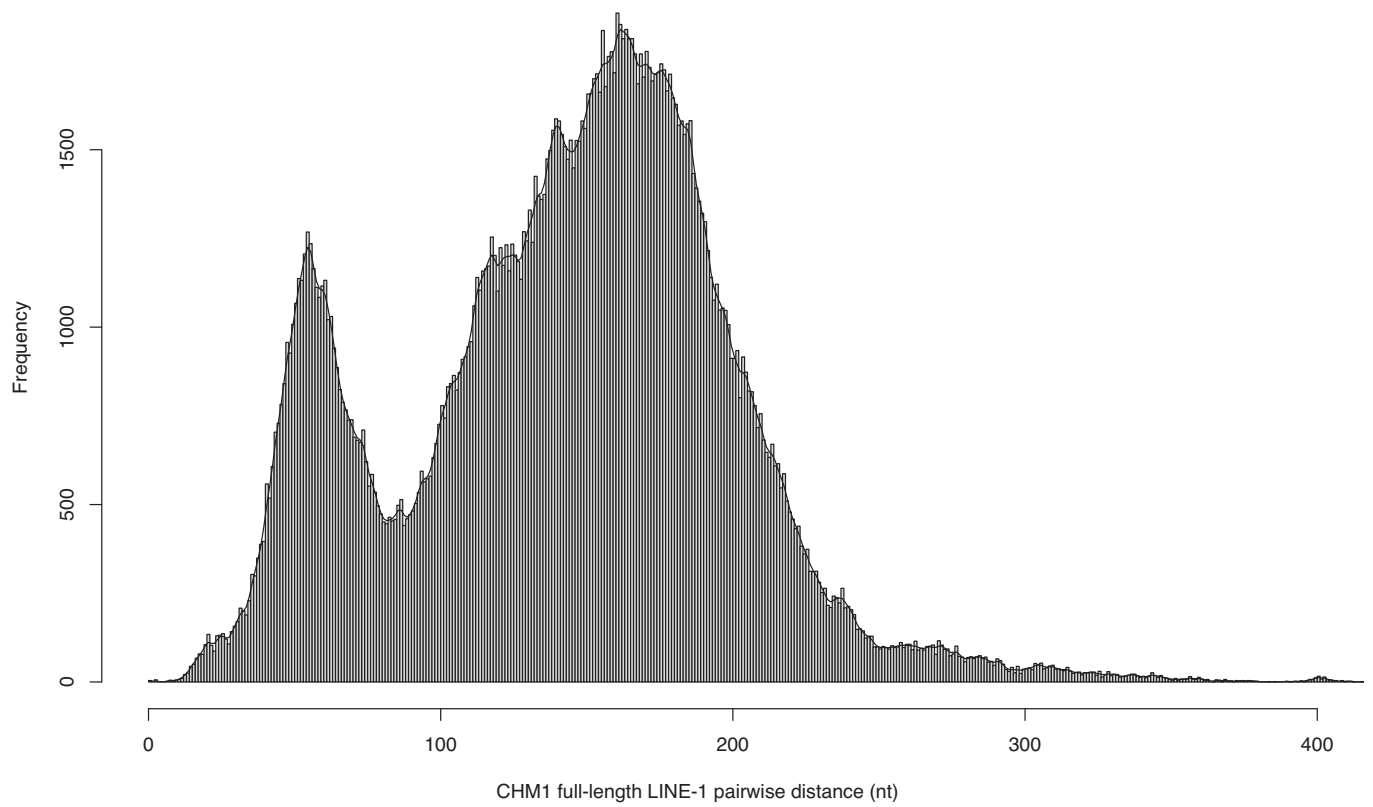
**Figure EV2. Identification of intact LINE-1s in CHM1.**

(A) The distribution of lengths of LINE-1-masked sequences. (B) A zoomed-in view of the boxed region of the complete length histogram. Intact LINE-1 sequences are highlighted in magenta. (C) A heatmap of the number of sequences with the indicated translated ORF1 and ORF2 lengths. Within the full-length set of LINE-1 sequences, magenta-outlined pixels encode putative ORFs that align along the entire length of the ORF1p and ORF2p sequences of a reference element (L1<sub>RP</sub>).



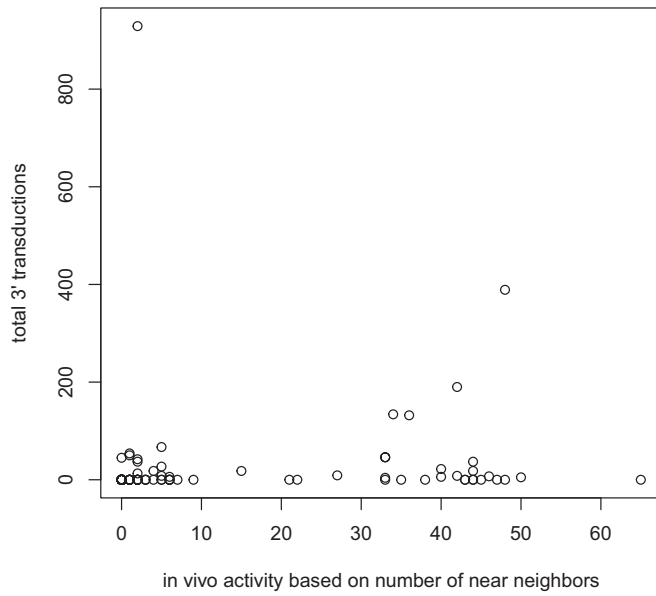
**Figure EV3. Identification of intact LINE-1s in CHM13.**

(A) The distribution of lengths of LINE-1-masked sequences. (B) A zoomed-in view of the boxed region of the complete length histogram. Intact LINE-1 sequences are highlighted in magenta. (C) A heatmap of the number of sequences with the indicated translated ORF1 and ORF2 lengths. Within the full-length set of LINE-1 sequences, magenta-outlined pixels encode putative ORFs that align along the entire length of the ORF1p and ORF2p sequences of a reference element ( $L1_{RP}$ ).



**Figure EV4. Distribution of pairwise distances between full-length LINE-1s in CHM1.**

The histogram shows the frequency of bins of nucleotide distances for pairwise comparisons of all full-length LINE-1 pairs in CHM1.



**Figure EV5. Scatterplot comparison of in vivo fitness and 3' transductions of intact CHM1 LINE-1s.**

In vivo fitness of a LINE-1 is quantified as the number of full-length LINE-1s within 28 nucleotides distance to that LINE-1. The number of 3' transductions is the combined number of full-length LINE-1s reported by Tubio et al (2014), Rodriguez-Martin et al (2020), and Chuang et al (2021).