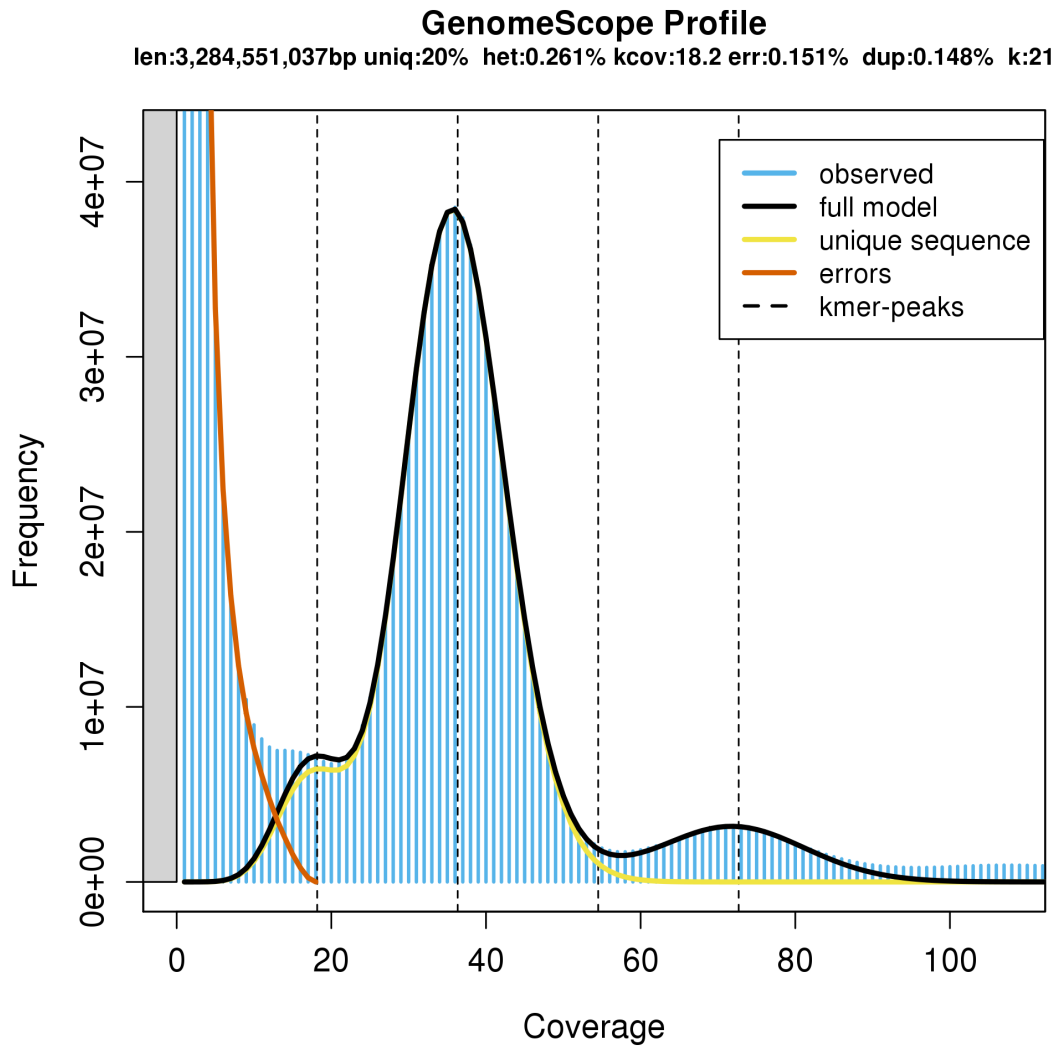
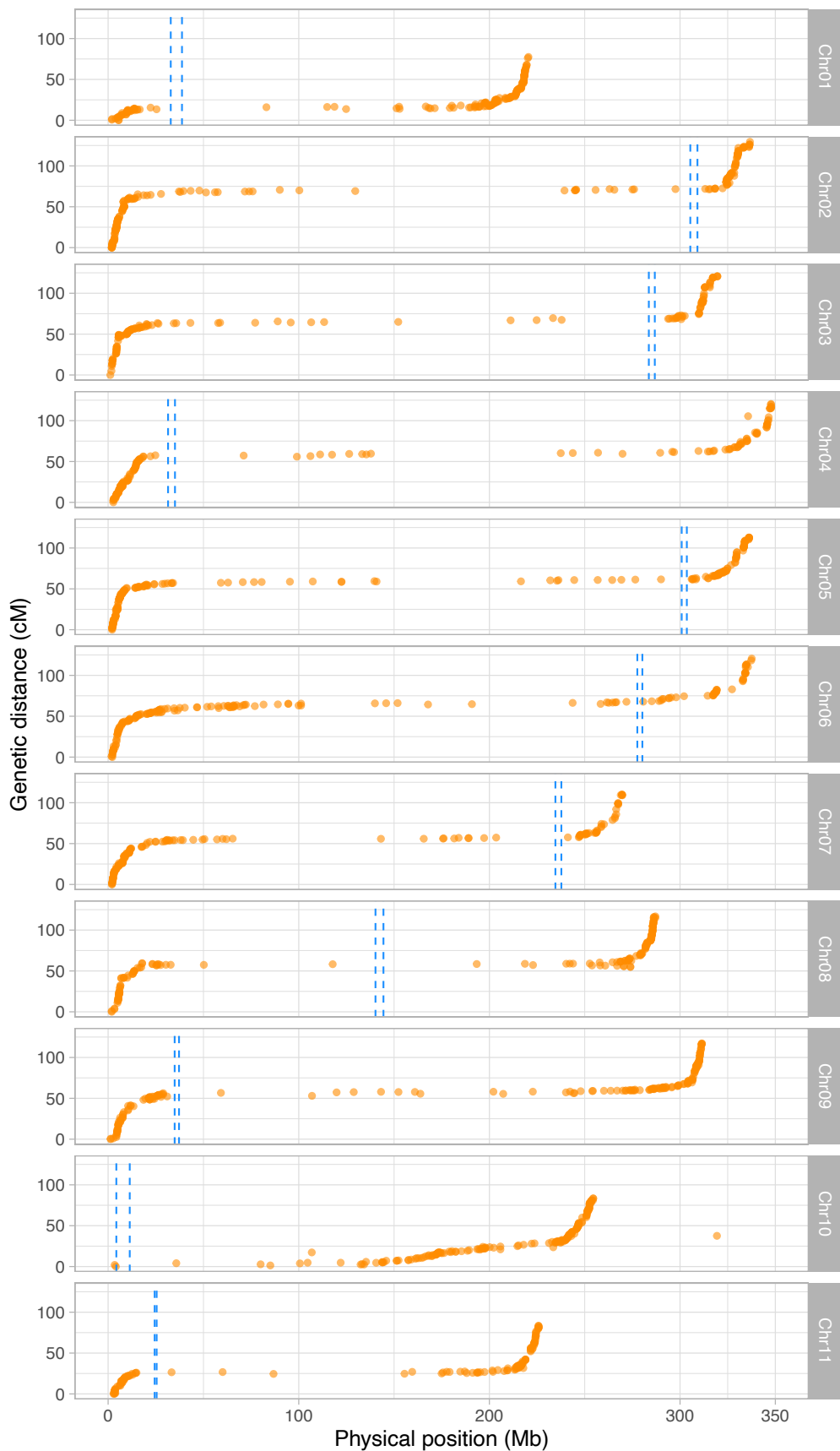


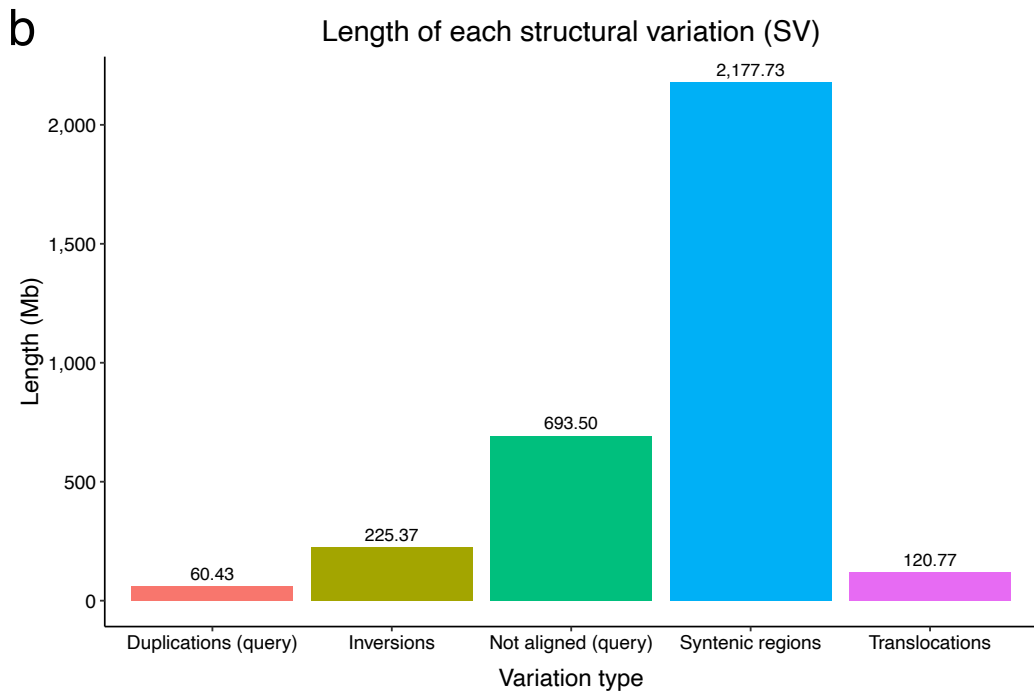
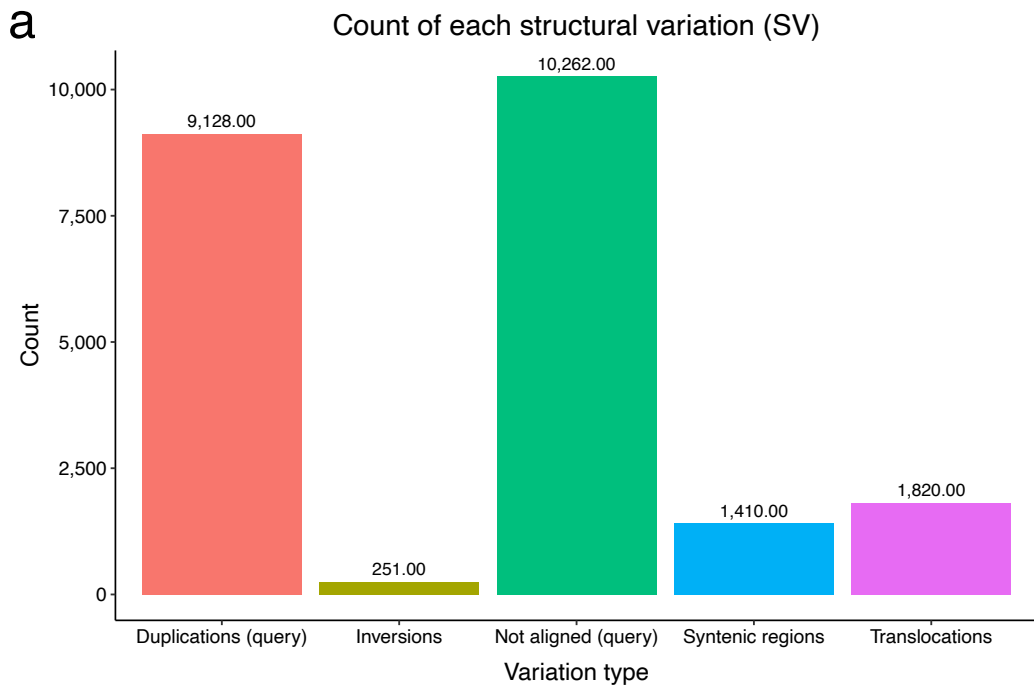
**Fig. S1.** Read mapping coverage of the Challenger genome. The read mapping coverage was calculated for each chromosome in 1 Mb windows.



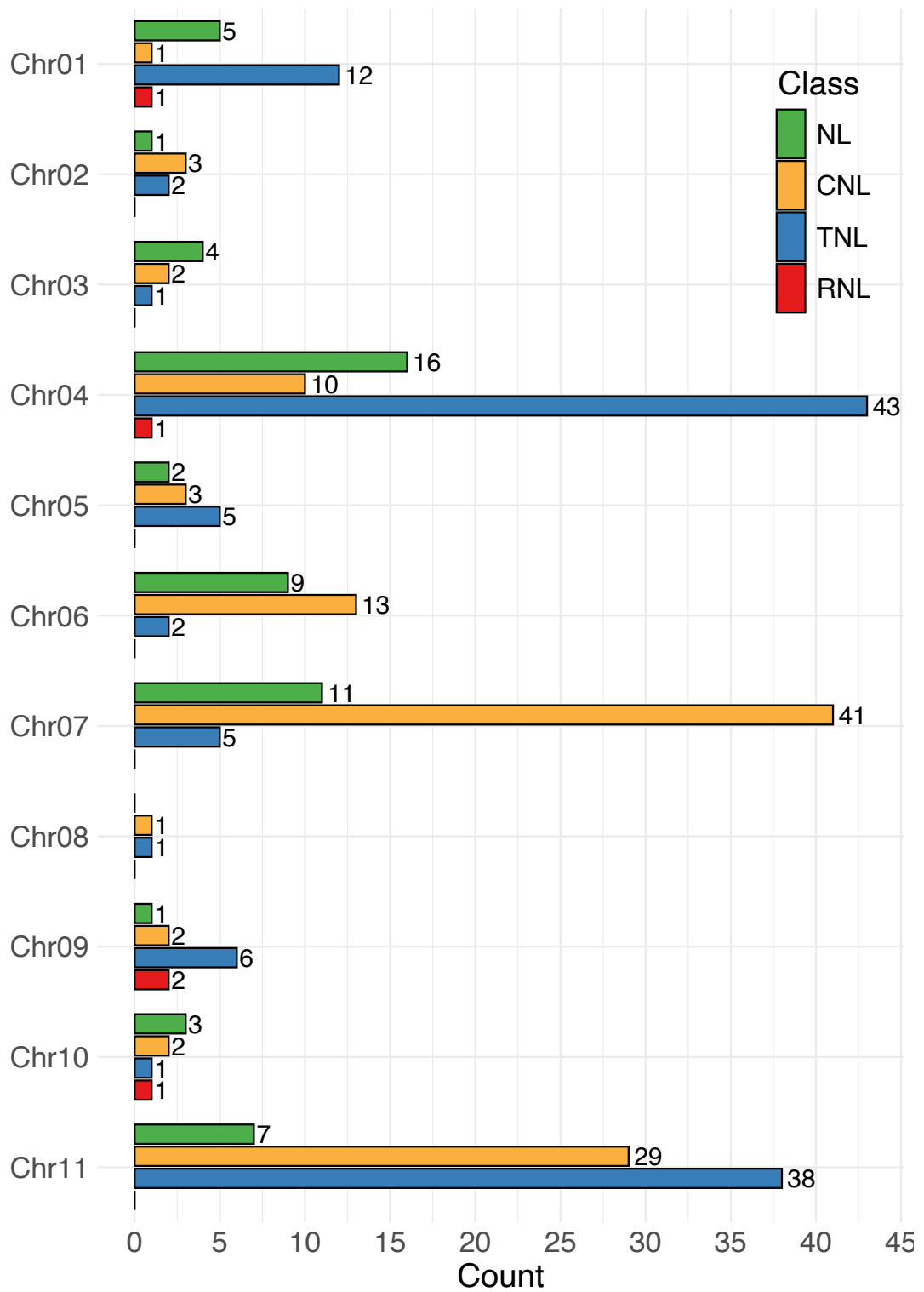
**Fig. S2.** Challenger genome survey. The estimation of genome size, heterozygosity, and repeat content were estimated with 21-mer frequency using jellyfish and visualized with GenomeScope. The coverage cutoff was increased to  $1e6$  due to high repetitiveness. len, haploid length; uniq, percentage of unique (non-repetitive) sequence; het, percentage of heterozygosity; err, percentage of sequencing error rate; dup, rate of mean read duplication.



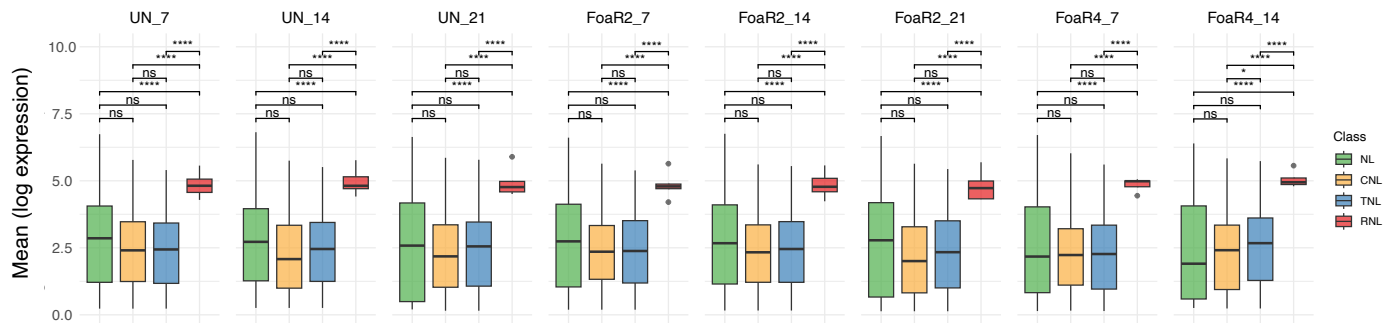
**Fig. S3.** An *A. graveolens* genetic map as a function of the physical position of each eSNP. The figure is a higher resolution image of the data shown in Fig. 1d. The blue dashed lines show the beginning and end of each centromeric region.



**Fig. S4.** Count and length of structural variants between the Challenger and Ventura genomes



**Fig. S5.** The number of Challenger's 287 NLRs in each chromosome by NLR type.



**Fig. S6.** Box plots of DESeq2-normalized counts of 243 NLRs that were expressed in the Challenger crowns. There were 42 NLs, 90 CNLs, 106 TNLs and 5 RNLs. Whiskers extend to 1.5 X the interquartile range. There were three pathogen treatments: UN, mock-infested; and infested with either *Foa* race 2 (FoaR2) or *Foa* race 4 (FoaR4). All the plants in the treatments were sampled destructively at 7- and 14- days post infestation/transplantation, but only the uninfested plants and those in the soil infested with *Foa* race 2 were sampled at 21 dpi because Challenger in *Foa* race 4 had started to die. Each replicate was a pool of 5 plants. There were 3 and 4 replicates for the uninfested and infested treatments, respectively, except for 3 replicates for the *Foa* race 2 treatment at 7 dpi. Significance at  $\leq 0.0001$  (\*\*\*),  $\leq 0.01$  (\*\*) or  $\leq 0.05$  (\*) was determined by the Wilcoxon nonparametric test, adjusted for multiple comparisons.