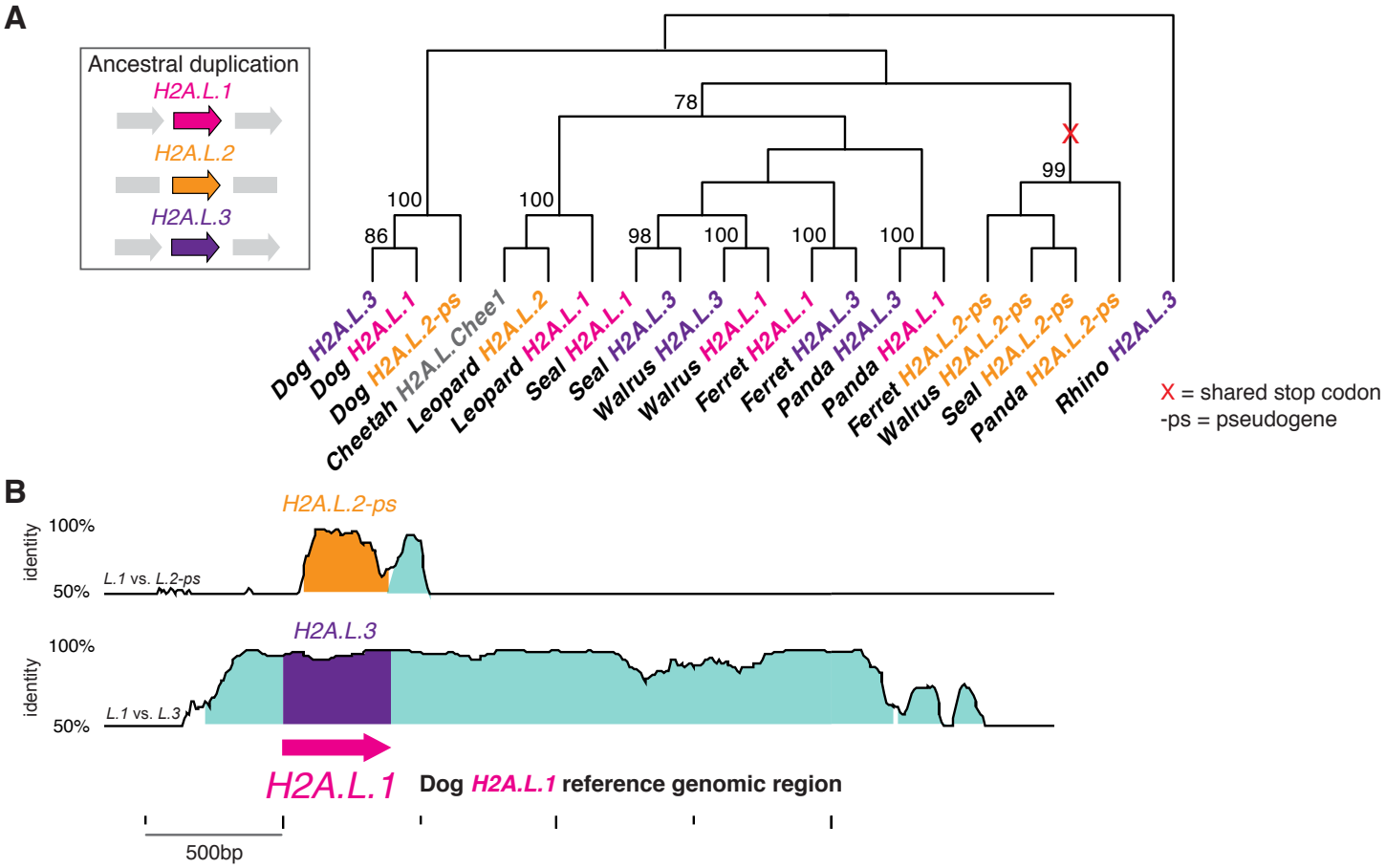


**Supplemental Fig S7: Concerted evolution by gene conversion among carnivore *H2A.L* genes.**
(A) Like Figure 4A, but for carnivore *H2A.L* genes, using rhinoceros as an outgroup. The *H2A.L.2* locus acquired a premature stop codon in the common ancestor of ferret, walrus, seal and panda, so is a pseudogene ("-ps") in those extant species, and appears to have been exempt from gene conversion since its loss of function. Dog *H2A.L.2* is also a pseudogene but its function was likely lost independently. (B) VISTA plots for dog *H2A.L* genes using *H2A.L.1* as reference. Gene conversion appears to have homogenized a ~2.5kb stretch between *H2A.L.1* and *H2A.L.3* but does not appear to have affected the surrounding sequences of the *H2A.L.2* pseudogene.

**Supplemental Fig S7**
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