## Supplementary information, Data S4 Admixture in dingoes and New Guinea singing dogs

In our principal component analysis, we observed two populations that are closer to wolves than the Chinese indigenous dogs and Asian breeds: the dingo and the New Guinea singing dog. This is not entirely surprising given the ultimate origin of these populations from southern East Asia. However, we wondered whether gene flow with gray wolves could be a contributing factor for their closeness to the wolves in our samples.

Thus, we carried out a TreeMix analysis by combining our dataset with a previously published SNP array dataset to include a large number of canids<sup>5</sup>. We found that the first two migratory tracts are between the dingo/New Guinea singing dogs and wolves, as well as the migration between Basenjis and wolves (Supplementary information, Figure S4). The first migration track is a possible factor behind the closeness of dingoes/New Guinea singing dogs to wolves. The second migration track matches our observation that dogs from the Middle East and Africa have a strong signal of admixture from wolves.