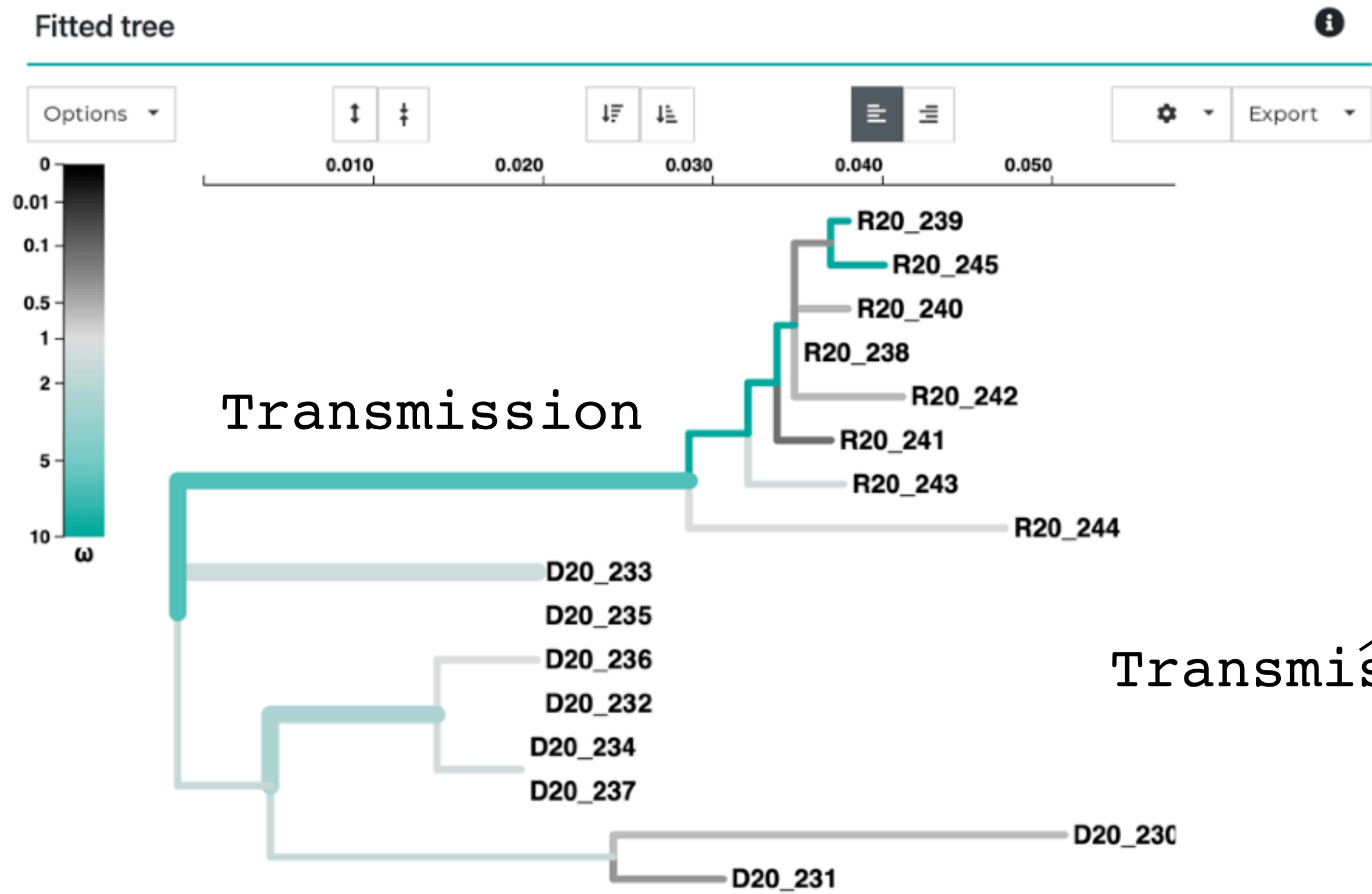
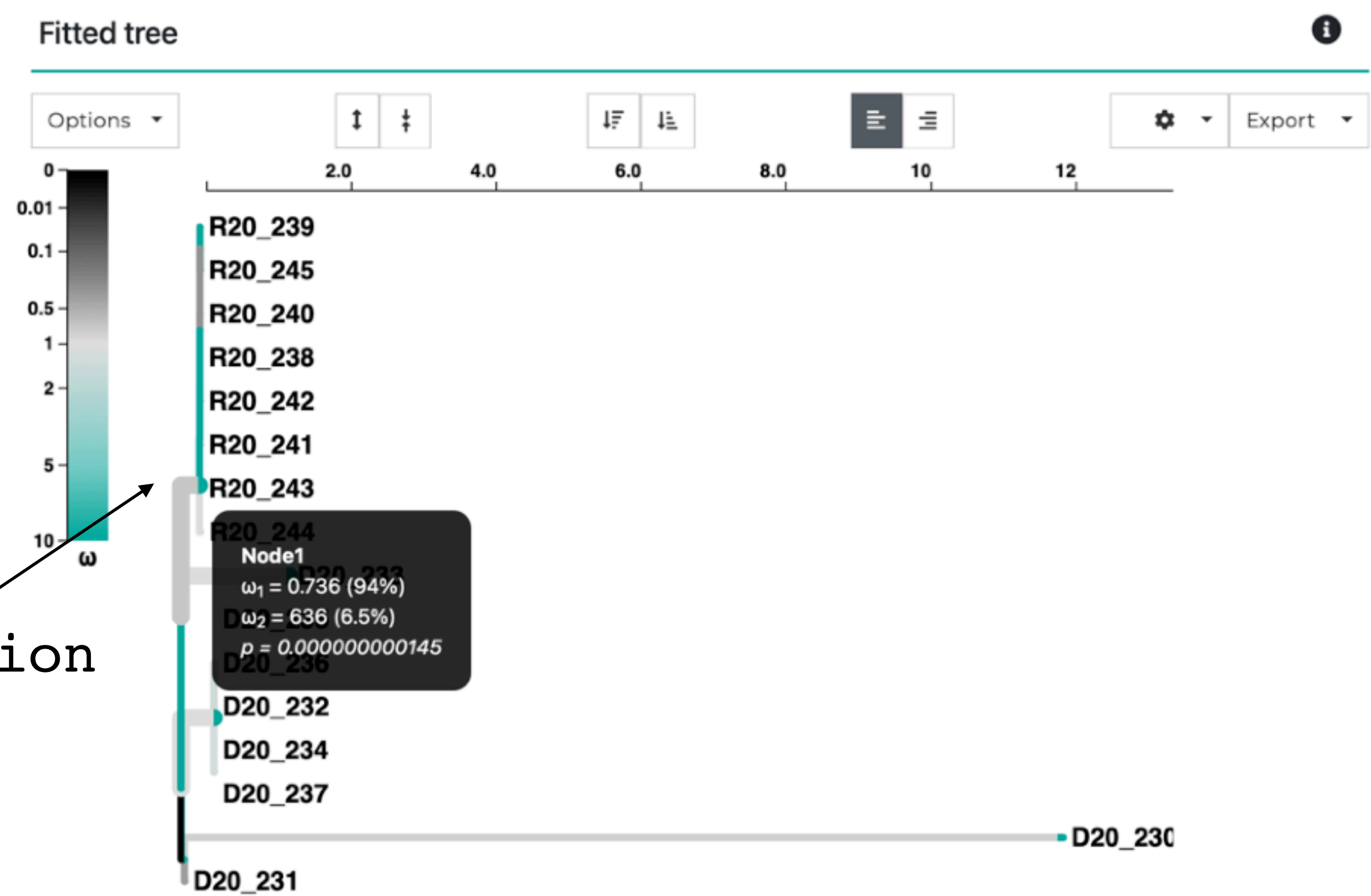


HIV-1 env



One dN/dS per branch



Adaptive dN/dS per branch

aBSREL analysis summary

- **West Nile Virus NS3 protein**

- 91% branches can be explained with simple (single dN/dS) models
- 3 branches (9%, 60% of tree length) have evidence of multiple dN/dS rate classes over sites, but **none** with significant proportions of sites with $dN/dS > 1$

- **HIV-1 transmission pair**

- 76% branches can be explained with simple (single dN/dS) models
- 5 branches (24%, ~100% of tree length) have evidence of multiple dN/dS rate classes over sites
- 3 branches have small (1–7%), but statistically significant ($p < 0.05$, multiple testing corrected) proportions of sites with $dN/dS > 1$, including the **transmission** branch

- **SARS-CoV-2 spike**

- All but **one** branch can be explained with simple (single dN/dS) models
- 1 long terminal branch (~34% of tree length) has evidence of multiple dN/dS rate classes over sites
- No evidence of branch level selection on internal branches.