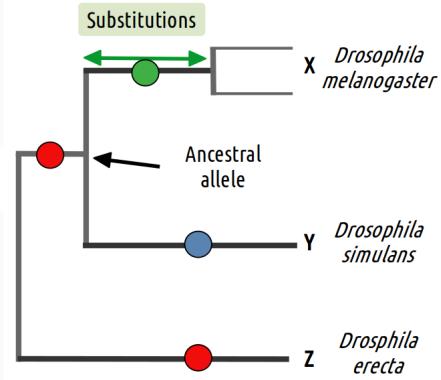


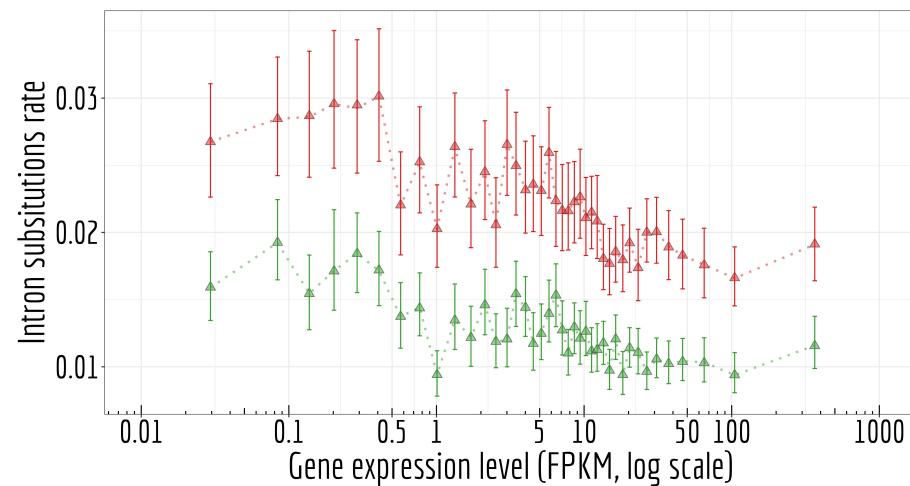
**A**

We defined the ancestral allele invoking at most one substitution event to explain the observation on the three species

- If  $X = Y$  or  $X = Z \rightarrow$  ancestral = X (*i.e.* no substitution)
- If  $Y = Z$  and  $Y \neq X \rightarrow$  ancestral = Y (*i.e.* substitution  $Y \rightarrow X$ )
- Else  $\rightarrow$  ancestral = **Undefined**

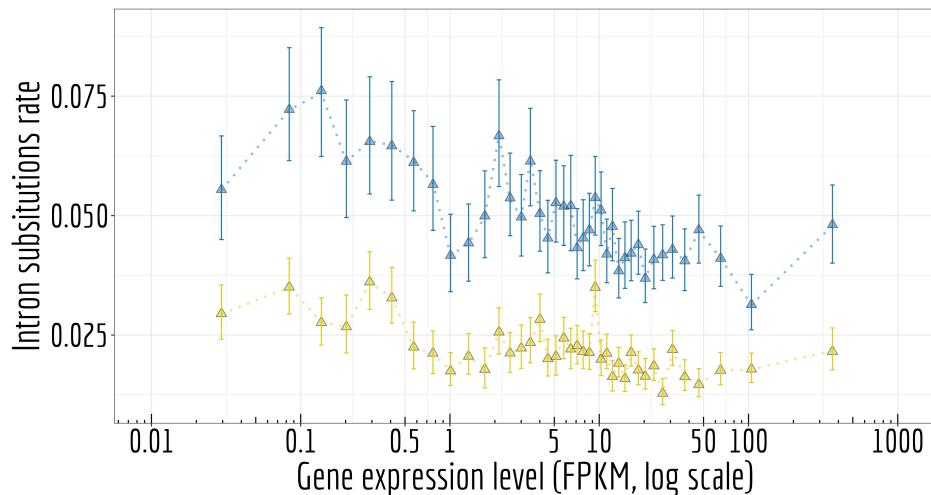
**B**

POC for non ambiguous amino acid

● non-POC  $\rightarrow$  POC    ● POC  $\rightarrow$  non-POC
**C**

Wobble G:U for ambiguous duets

- watson-crick (NNC)  $\rightarrow$  wobble (NNT)
- wobble (NNT)  $\rightarrow$  watson-crick (NNC)

**D**

Wobble I:C

- watson-crick (NNC)  $\rightarrow$  wobble (NNC)
- wobble (NNC)  $\rightarrow$  watson-crick (NNT)

