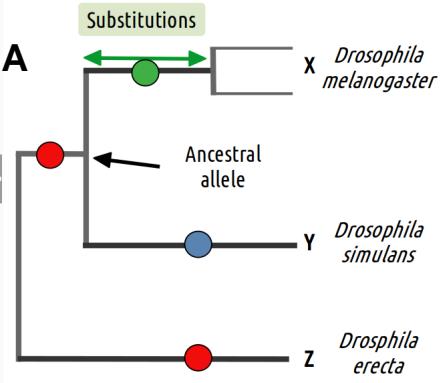


A

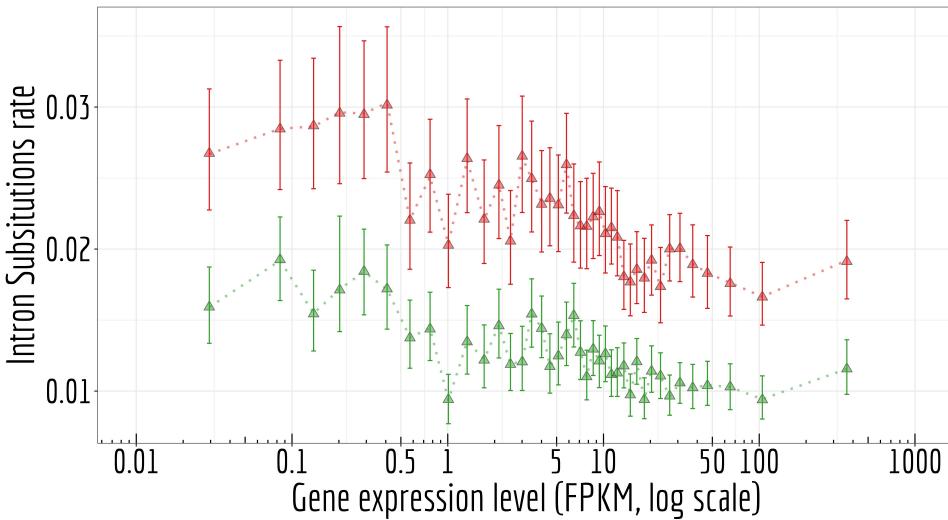
We defined the ancestral allele invoking at most one substitution event to explain the observation on the three species

- 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

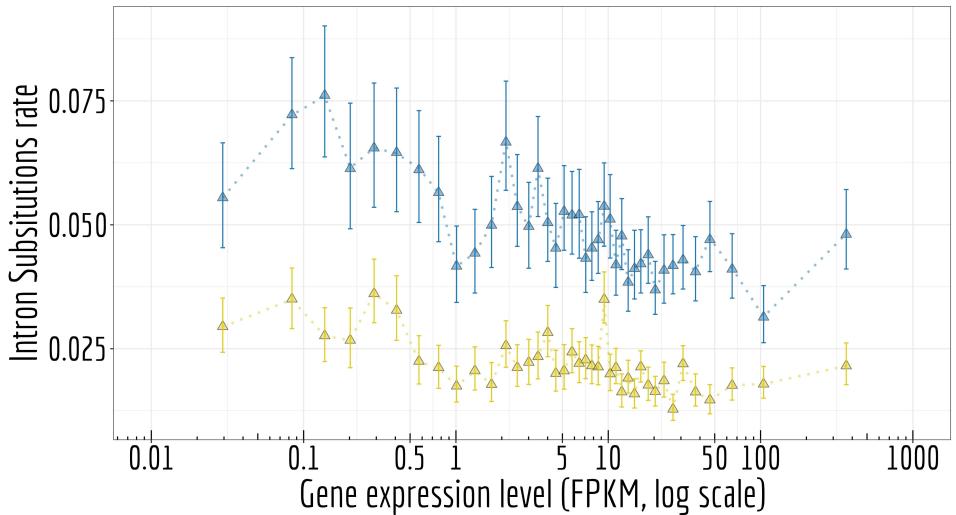
B

Wb_WC_notambiguous

- non-optimal \rightarrow optimal
- optimal \rightarrow non-optimal

**C**Duet not ambiguous (watson-crick \rightarrow watson-crick of the most abundant tRNA)

- watson-crick \rightarrow wobble
- wobble \rightarrow watson-crick

**D**IC (watson-crick \rightarrow watson-crick of the most abundant tRNA)

- watson-crick \rightarrow wobble
- wobble \rightarrow watson-crick

