

Evolutionary Modes

Positive Selection
(Diversifying)

$$dS < dN \text{ or } \omega := dN/dS > 1$$

Negative Selection

$$dS > dN \text{ or } \omega < 1$$

Neutral Evolution

$$dS \approx dN \text{ or } \omega \approx 1$$

Estimating dS and dN

Consider two **aligned homologous** sequences

ACA	ATA	AT C	TTT	AAT T	CAA
T	I	I	F	N	Q
ACA	ATA	AC C	TTT	AAC C	CAA
T	I	T	F	N	Q