Evolutionary Modes

Positive Selection (Diversifying)

Negative Selection

Neutral Evolution

$$dS < dN \text{ or}$$

 $\omega := dN/dS > 1$

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

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

Estimating dS and dN

Consider two aligned homologous sequences

	<u>Site 1</u>	Site 2	Site 3	Site 4	Site 5	Site 6
DNA	ACA	ATA	A T C		AAT	CAA
AA	T			F	Z	Q
DNA	ACA	ATA	A C C	TTT	AAC	CAA
AA	T		T	F	Ν	Q