

$$V_1 = K_1[E][S]$$

$$V_2 = K_2[ES]$$

$$V_3 = K_3[ES]$$

$$\text{Rate}(E) = K_2[ES] + K_3[ES] - K_1[E][S]$$

$$\text{Rate}(S) = K_2[ES] - K_1[E][S]$$

$$\text{Rate}(ES) = K_1[E][S] - K_2[ES] - K_3[ES]$$

$$\text{Rate}(P) = K_3[ES]$$