Enzyme kinetics

1. (Three-step kinetics) Derive Eqs. (2.27) in Heinrich and Schuster, pp. 18-19.

2. (Inhibition) Derive Eq. (2.35) in Heinrich and Schuster, pp. 20-22.

3. (Two substrates) Derive Eq. (2.41) in Heinrich and Schuster, pp. 23-24.

4. (Monod-Wyman-Changeux) Derive Eq. (3.12) in Fell, p. 74.

5. (Unbranched reaction chain with linear kinetics) Using Heinrich and Schuster, p. 162, show that the flux control coefficients are in the ratios

$$C_1^J : C_2^J : C_3^J : \cdots = 1 - \rho_1 : \rho_1(1 - \rho_2) : \rho_1\rho_2(1 - \rho_3) : \cdots \tag{1}$$

where ρ_i is the disequilibrium ratio

$$\rho_i = \frac{S_i}{q_i S_{i-1}} \tag{2}$$