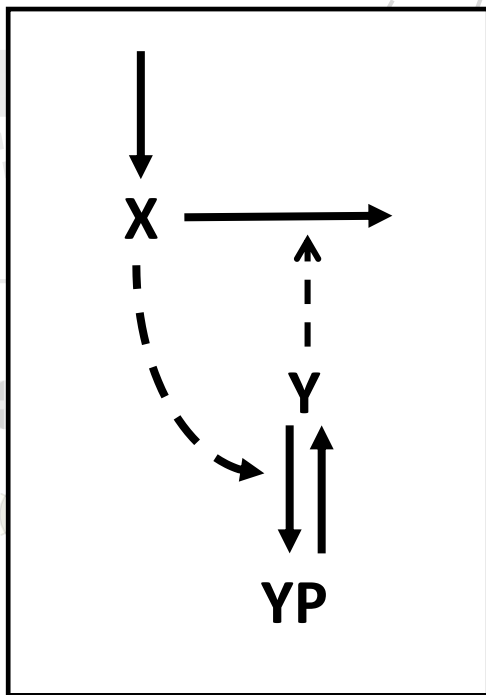
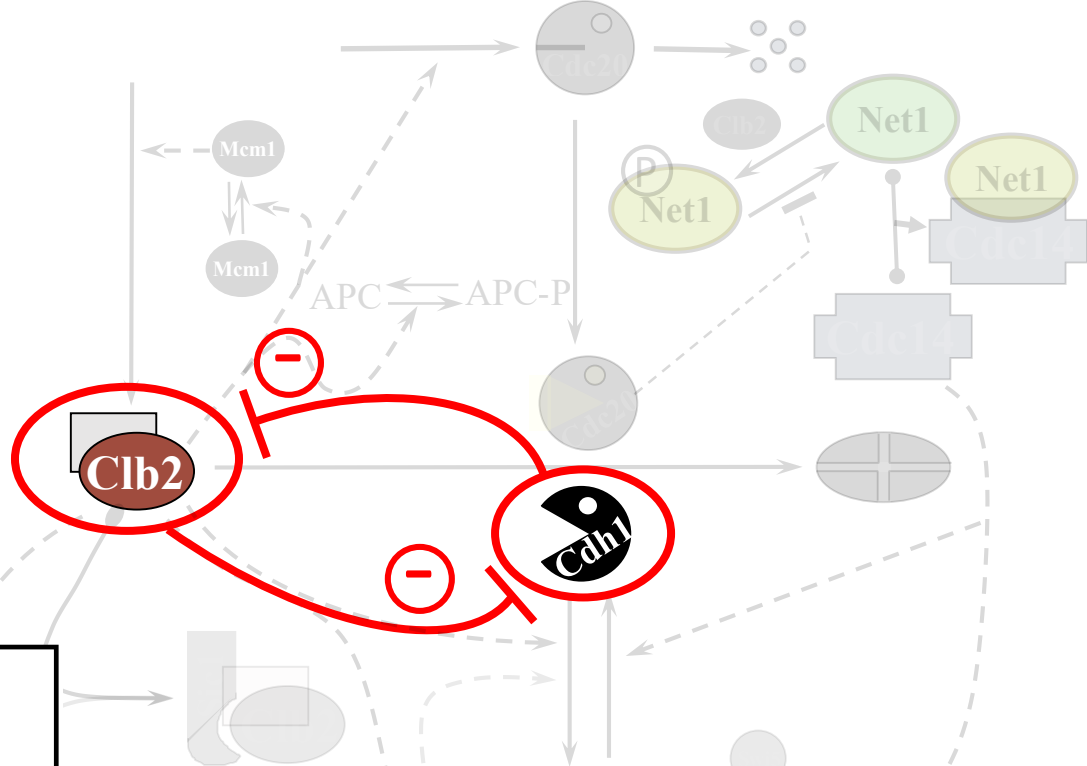




$$\frac{dX}{dt} = k_1 S - (k_2' + k_2'' Y) X$$

$$\frac{dY}{dt} = \frac{k_3 (1 - Y)}{J_3 + 1 - Y} - \frac{k_4 XY}{J_4 + Y}$$