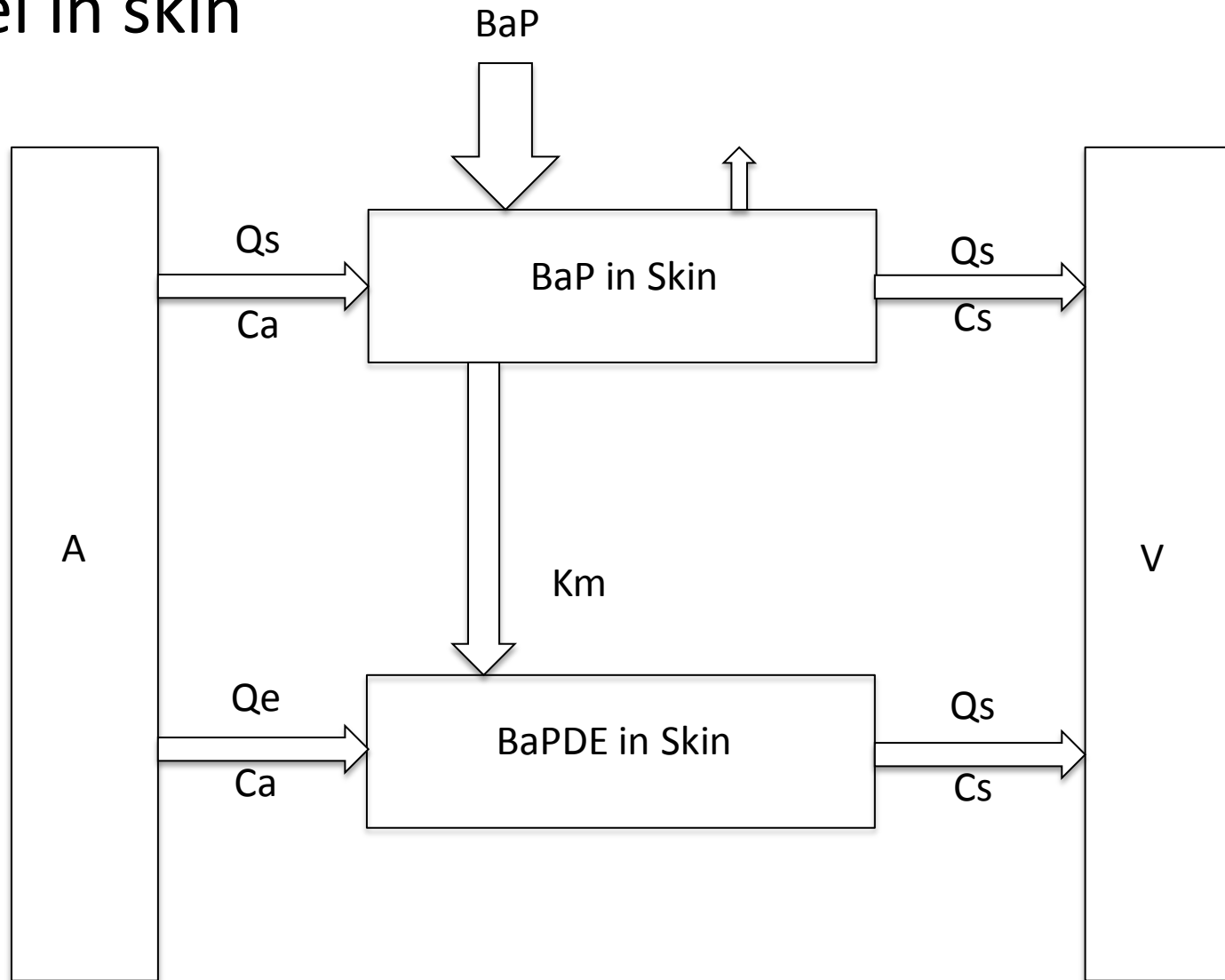


# Model in skin



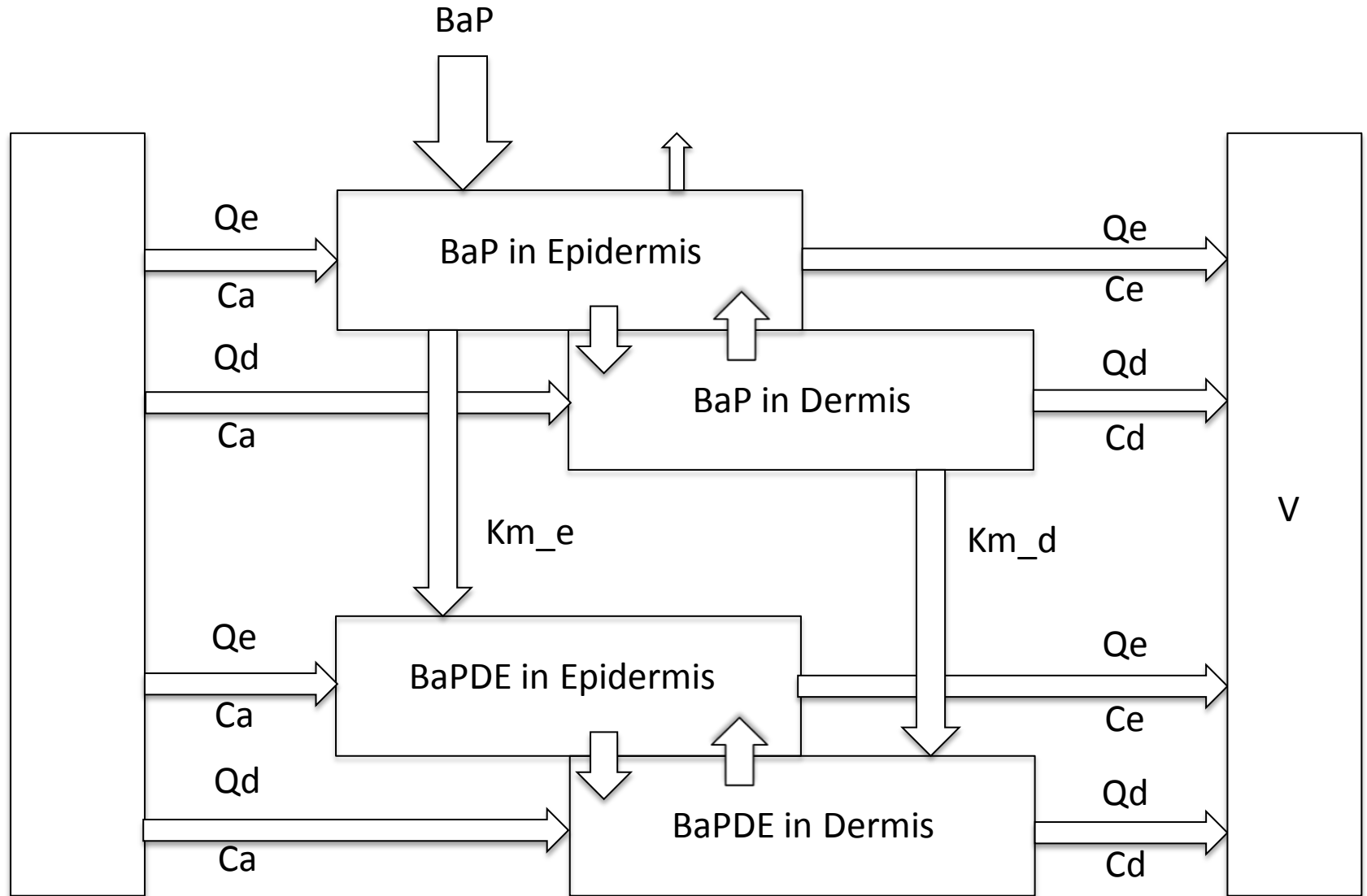
BaP in skin

$$V_s \frac{d}{dt} C_s(t) = Q_s C_A(t) - \left( Q_s + \frac{V_{MAX}}{k_m} \right) \frac{C_s(t)}{P_{SV}} + k_p(t) S \left( C_D(t) - \frac{C_s(t)}{P_{DV}} \right)$$

BaPDE in skin

$$V_s \frac{d}{dt} C_s(t) = Q_s C_A(t) - Q_s \frac{C_s(t)}{P_{SV}} + \frac{V_{MAXBaP} C_{SBaP}(t)}{k_m P_{SBaPV}}$$

# Model in epidermis and dermis



## BaP in epidermis

$$V_e \frac{d}{dt} C_e(t) = Q_e C_A(t) - \left( Q_e + \frac{V_{MAX}}{k_m} \right) \frac{C_e(t)}{P_{eV}} - k_{ed} C_e(t) + k_{de} C_d(t) + k_p(t) S \left( C_D(t) - \frac{C_e(t)}{P_{DV}} \right)$$

## BaP in dermis

$$V_d \frac{d}{dt} C_d(t) = Q_d C_A(t) - \left( Q_d + \frac{V_{MAX}}{k_m} \right) \frac{C_d(t)}{P_{dV}} + k_{ed} C_e(t) - k_{de} C_d(t)$$

## BaPDE in epidermis

$$V_e \frac{d}{dt} C_e(t) = Q_e C_A(t) - Q_e \frac{C_e(t)}{P_{eV}} - k_{ed} C_e(t) + k_{de} C_d(t) + \frac{V_{MAXeBap} C_{SeBaP}(t)}{k_{m\_e} P_{SeBaPV}}$$

## BaPDE in dermis

$$V_d \frac{d}{dt} C_d(t) = Q_d C_A(t) - Q_d \frac{C_d(t)}{P_{dV}} + k_{ed} C_e(t) - k_{de} C_d(t) + \frac{V_{MAXdBap} C_{SdBaP}(t)}{k_{m\_d} P_{SdBaPV}}$$