

$$\frac{dS_i}{dt} = cE_i(\mathbf{S}) \cdot N - \delta_i \cdot S_i - m \cdot S_i \quad (3)$$

The diagram illustrates the components of the differential equation for the change in concentration of signal i over time. The equation is presented in a light blue box. To the right of the equation, three colored boxes (green, yellow, and red) represent the production and loss terms. Arrows point from these boxes to the corresponding terms in the equation. Below the equation, three horizontal lines with arrows pointing to the terms provide detailed descriptions of each component.

Change in concentration over time for signal i ,
where i is 3-oxo-C₁₂-HSL, C₄-HSL

Production of signal proportional to per capita expression of synthase, multiplied by density N ; synthase expression a function of all signal concentrations \mathbf{S}

Loss of signal due to chemical decay

Loss of signal due to mass transfer