$$\frac{dA_{ET}(t)}{dt} = -kA_{ET}(t)$$

$$\frac{1}{A_{ET}(t)}\frac{dA_{ET}(t)}{dt} = -k$$

$$\frac{d}{dt}\left(\ln\left(A_{ET}(t)\right)\right) = -k$$

$$\ln\left(A_{ET}(t)\right) = \int -k\,dt = -kt + C \quad (\textit{where } C \textit{ is an arbitrary constant})$$

$$A_{ET}(t) = e^{-kt+C} = e^{-kt}\underbrace{e^{C}}_{B}$$

$$A_{ET}(t) = Be^{-kt}$$

Figure S2. Solution of the first-order linear homogeneous differential Equation (3) using the separation of variables method