

1D Rad Inf (solution)

Green's function

$$v(z, t | z', t' = 0) = \frac{1}{2\sqrt{\pi D_1 t}} [e^{-(z-z')^2/(4D_1 t)} + e^{-(z+z')^2/(4D_1 t)}] \\ - h e^{h(z+z') + D_1 t h^2} \operatorname{erfc}\left(\frac{z+z'}{2\sqrt{D_1 t}} + h\sqrt{D_1 t}\right).$$

Survival probability

$$S_{z=0}(t) = 1 + e^{h z' + D_1 t h^2} \operatorname{erfc}\left(\frac{z'}{2\sqrt{D_1 t}} + h\sqrt{D_1 t}\right) - \operatorname{erfc}\left(\frac{z'}{2\sqrt{D_1 t}}\right).$$

Propensity function

$$q_{z=0}(t) = k_+ v|_{z=0} \\ = \frac{h\sqrt{D_1}}{\sqrt{\pi t}} e^{-z'^2/(4D_1 t)} - h^2 D_1 e^{h z' + D_1 t h^2} \operatorname{erfc}\left(\frac{z'}{2\sqrt{D_1 t}} + h\sqrt{D_1 t}\right).$$