Interaction of ionizing radiation with the substance and biophysical systems

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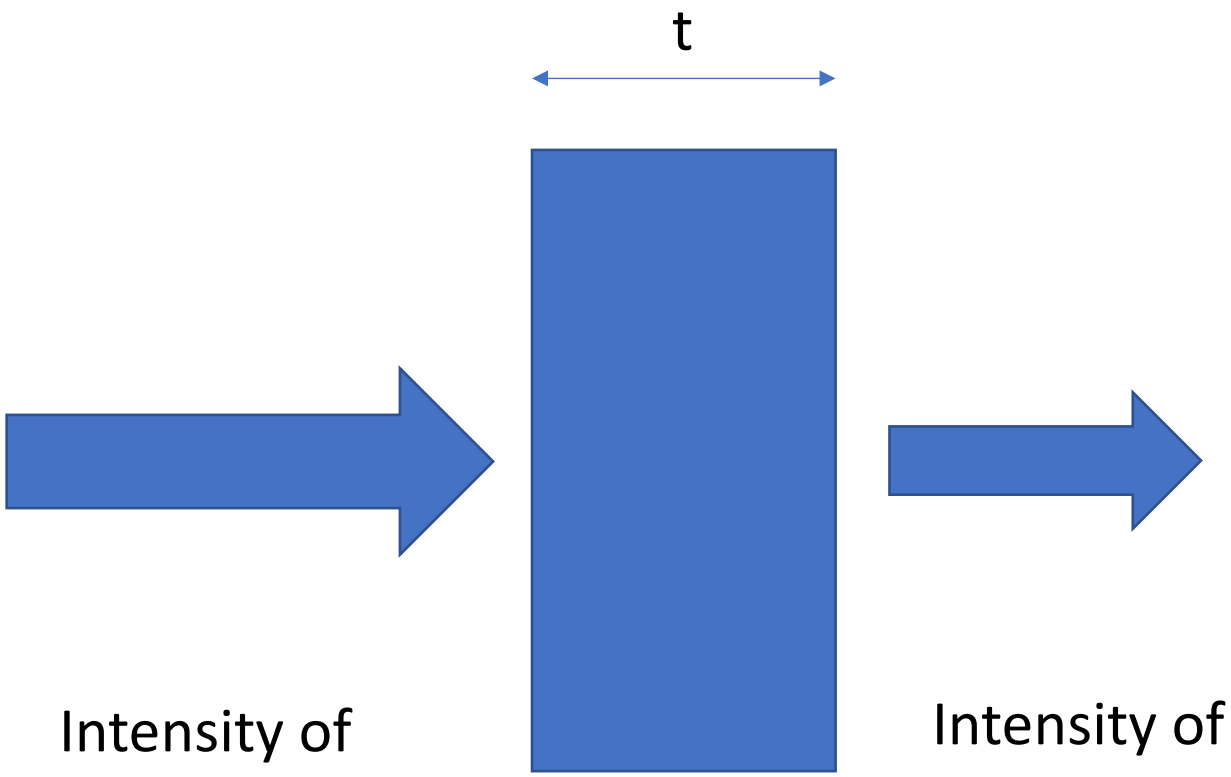
Lambert-Beer law



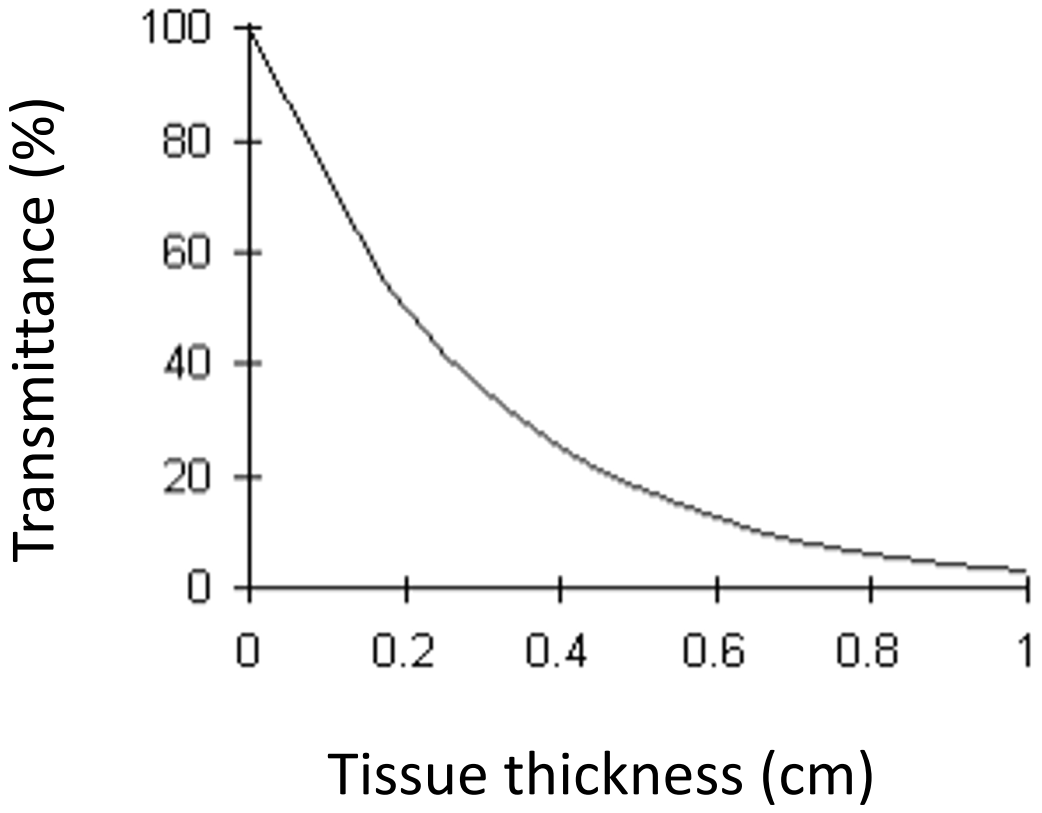
I/I_0= Transmittance

Absorption

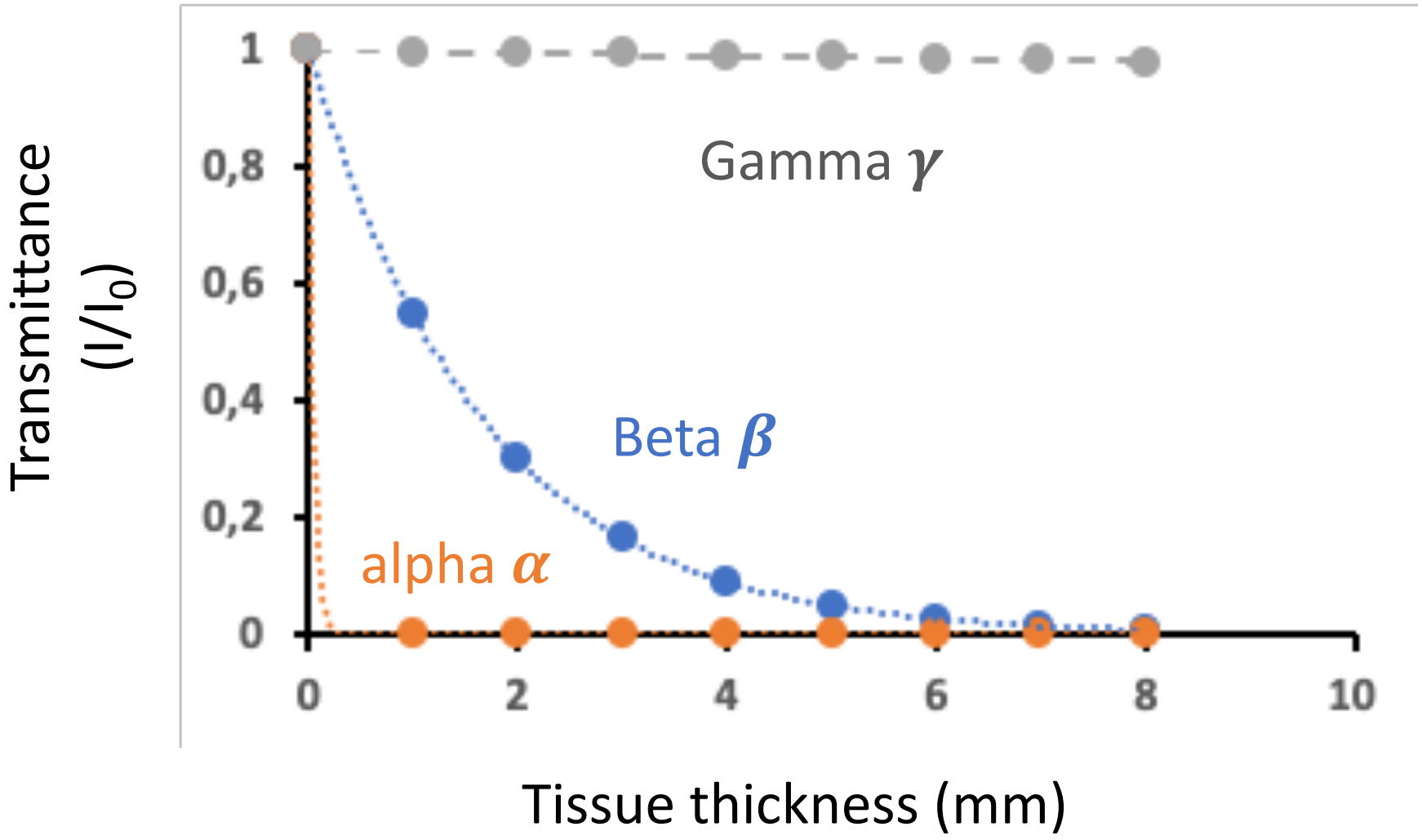
- Transmittance can be expressed as an exponential function;

$$I = I_0 . e^{-k.t}$$

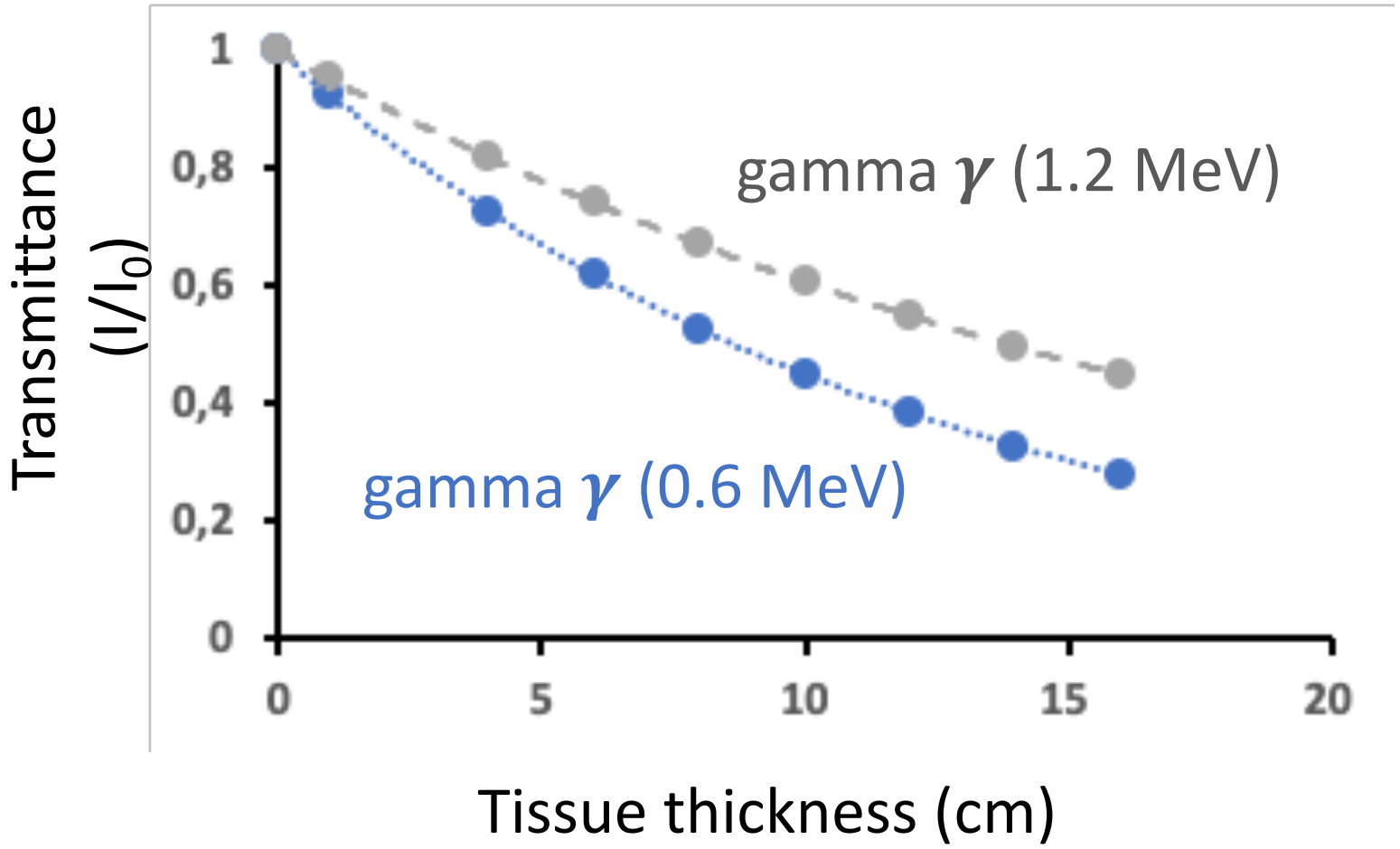
- In this function “k” can change with molecular structure, radiation type and energy. “t” is tissue thickness
- Absorption can be obtained from the negative logarithm of transmittance[$-\log(I/I_0)$]



The effect of **radiation type** on transmittance at equal radiation energies (~ 1 MeV)



The effect of radiation **energy** on transmittance



The effect of **absorbing material** on transmittance