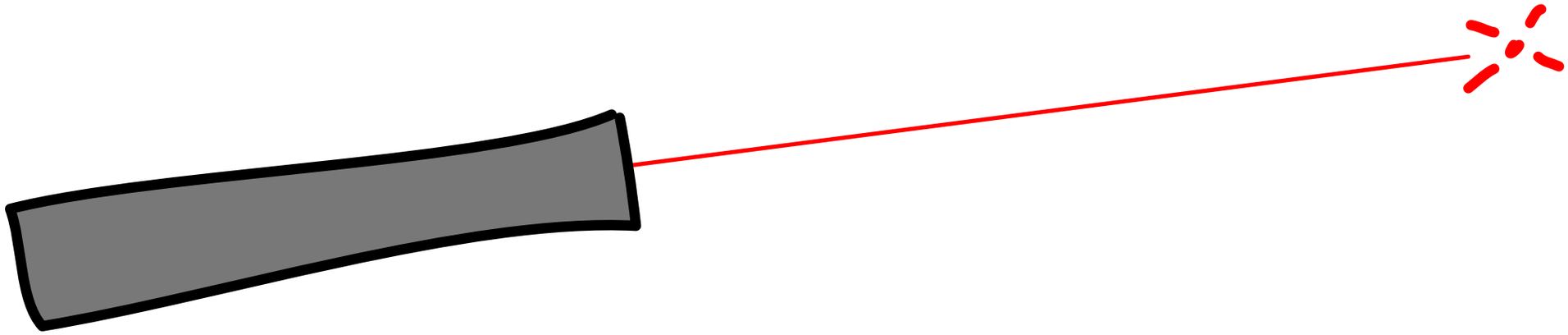
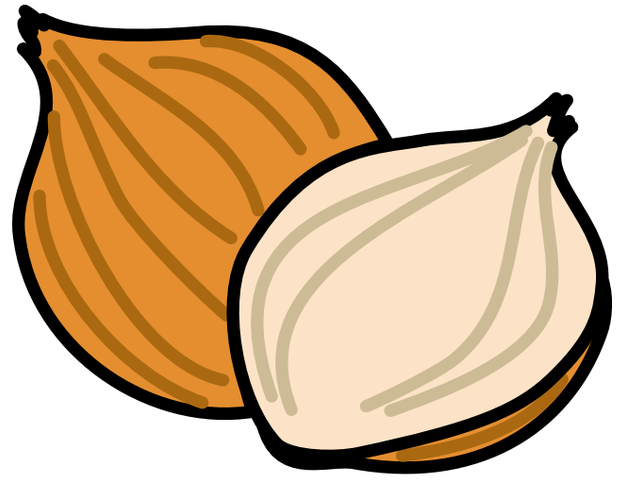
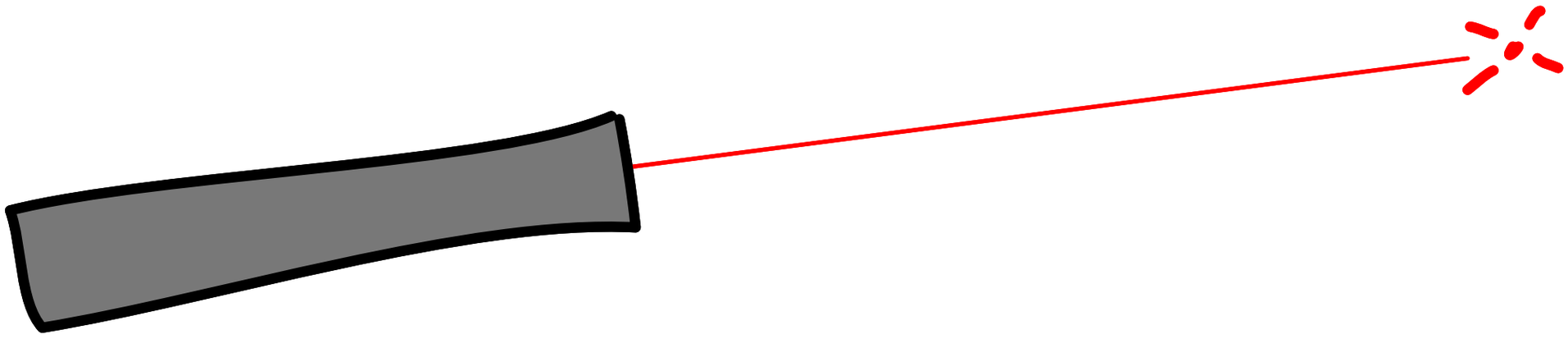


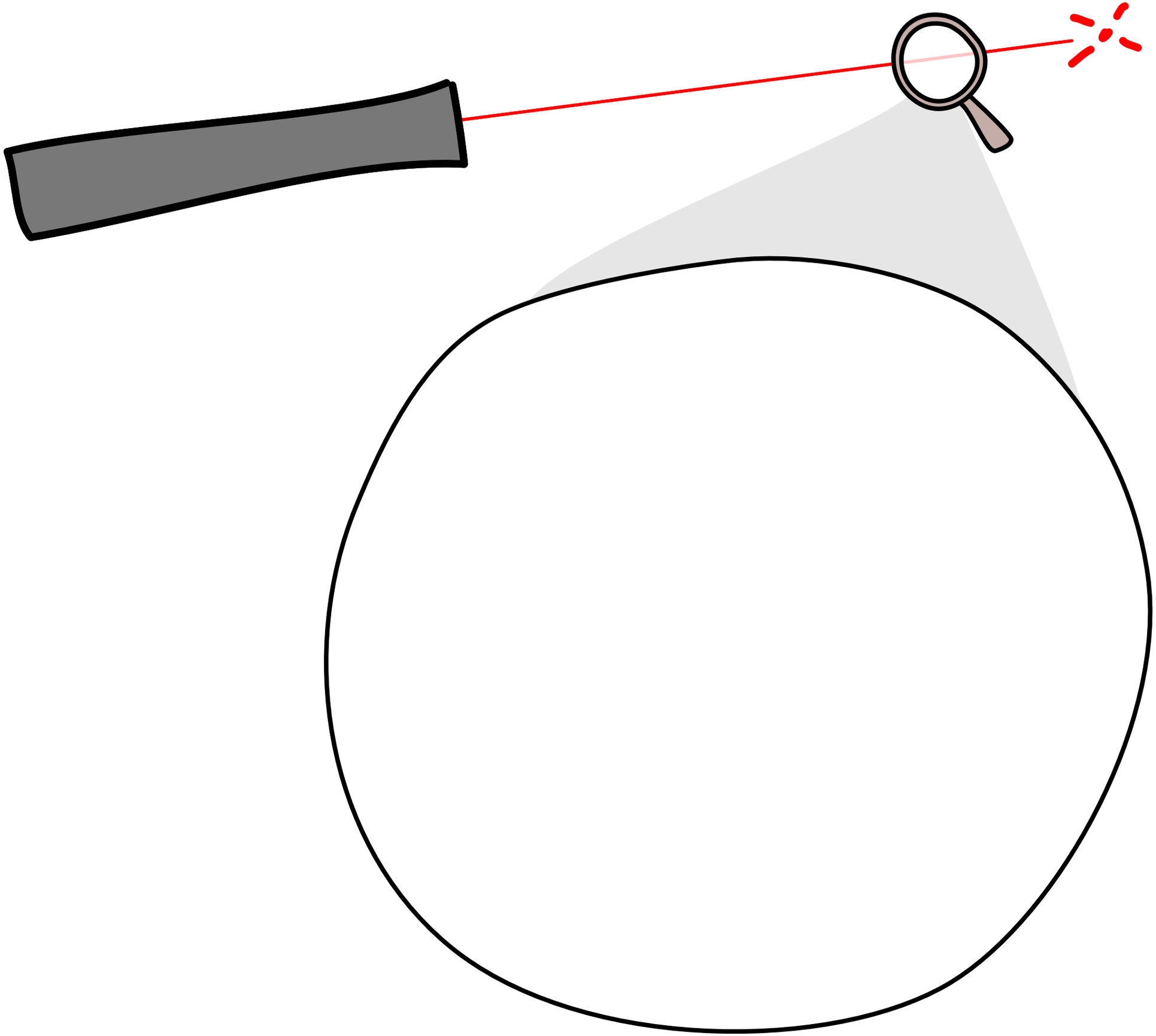
Biophysics:
Studying Onions with LASERs

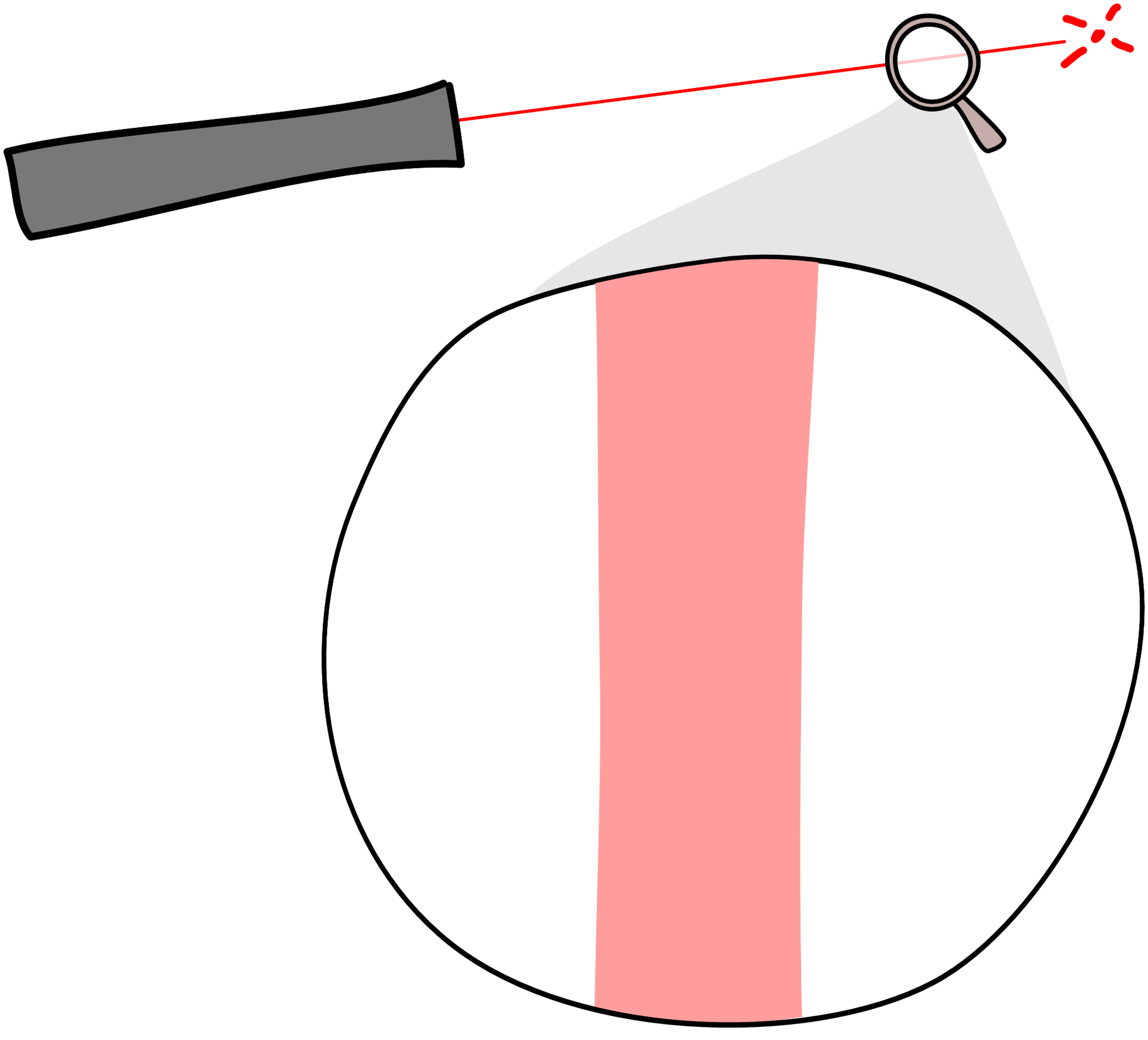
Tal Scully

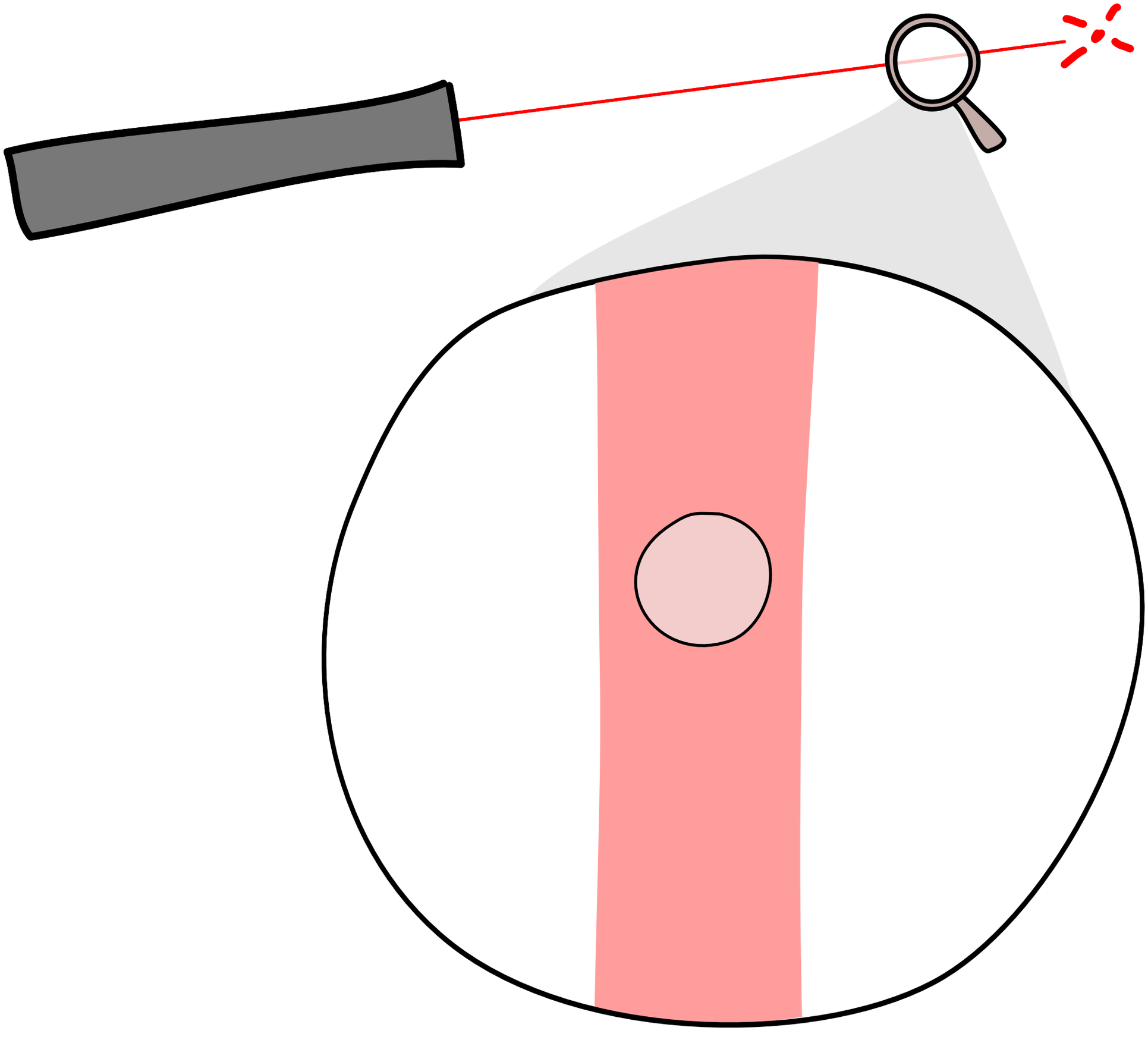
Undergraduate Senior at MIT
Double Major in Physics and Theater Arts

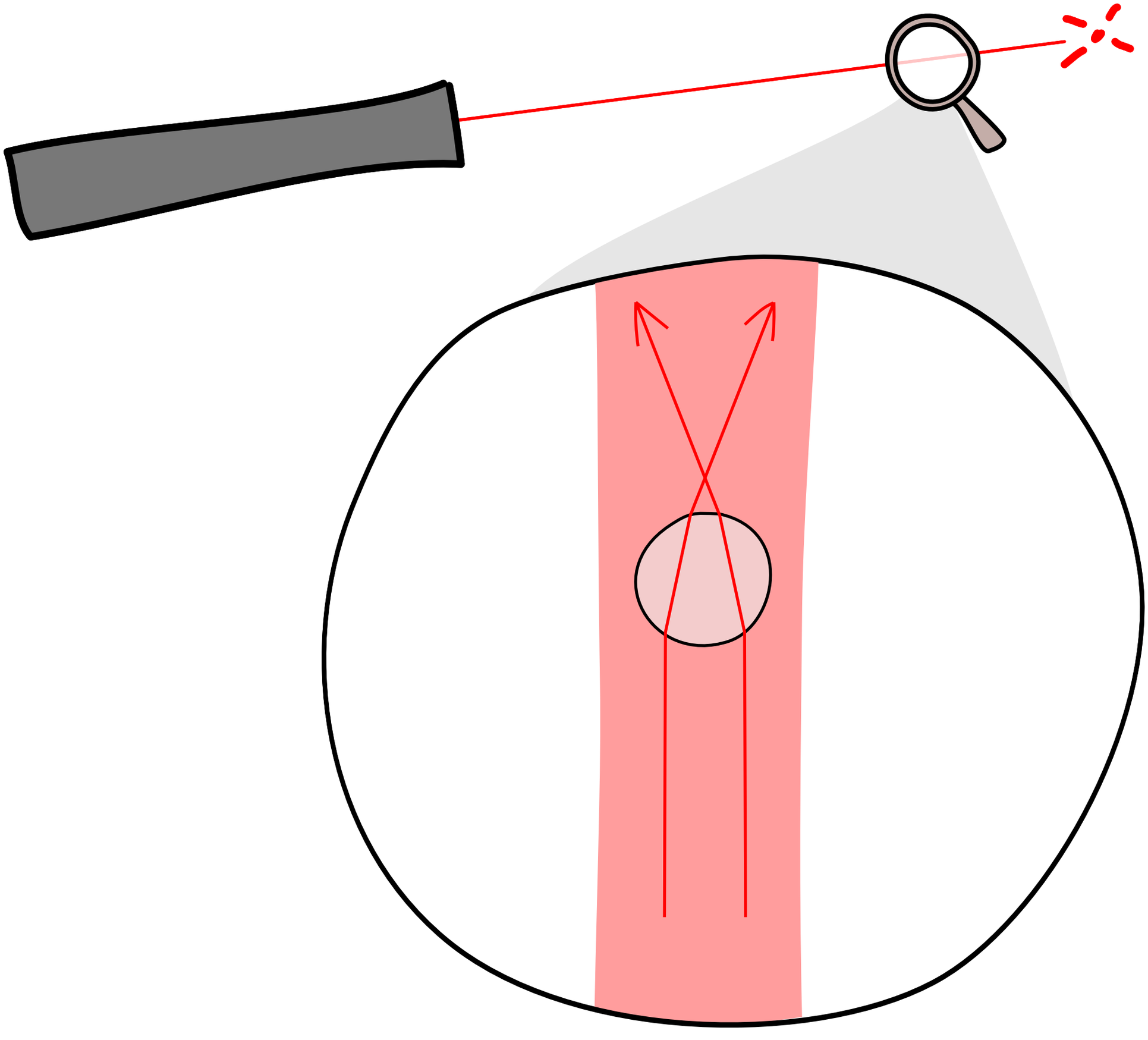


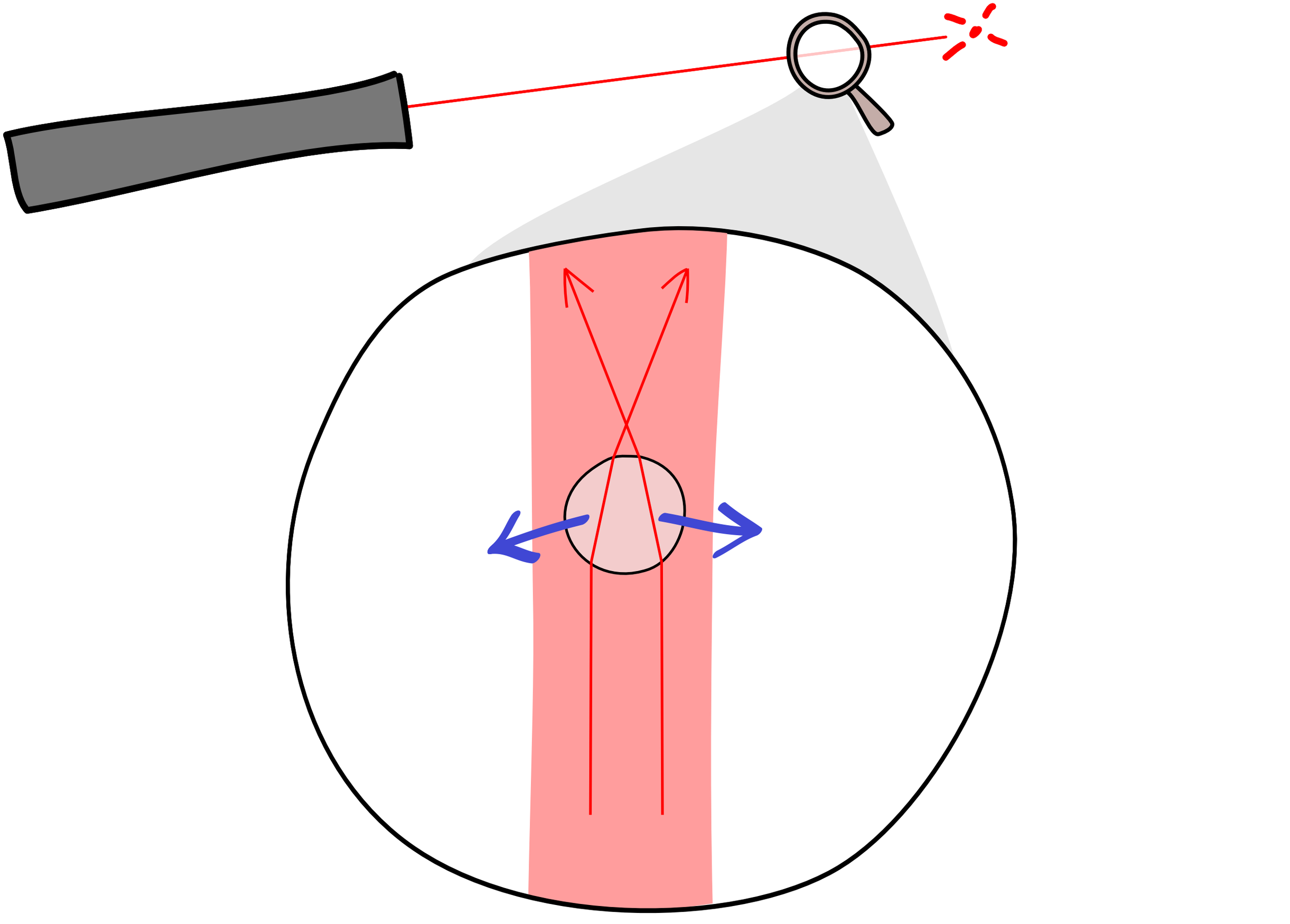


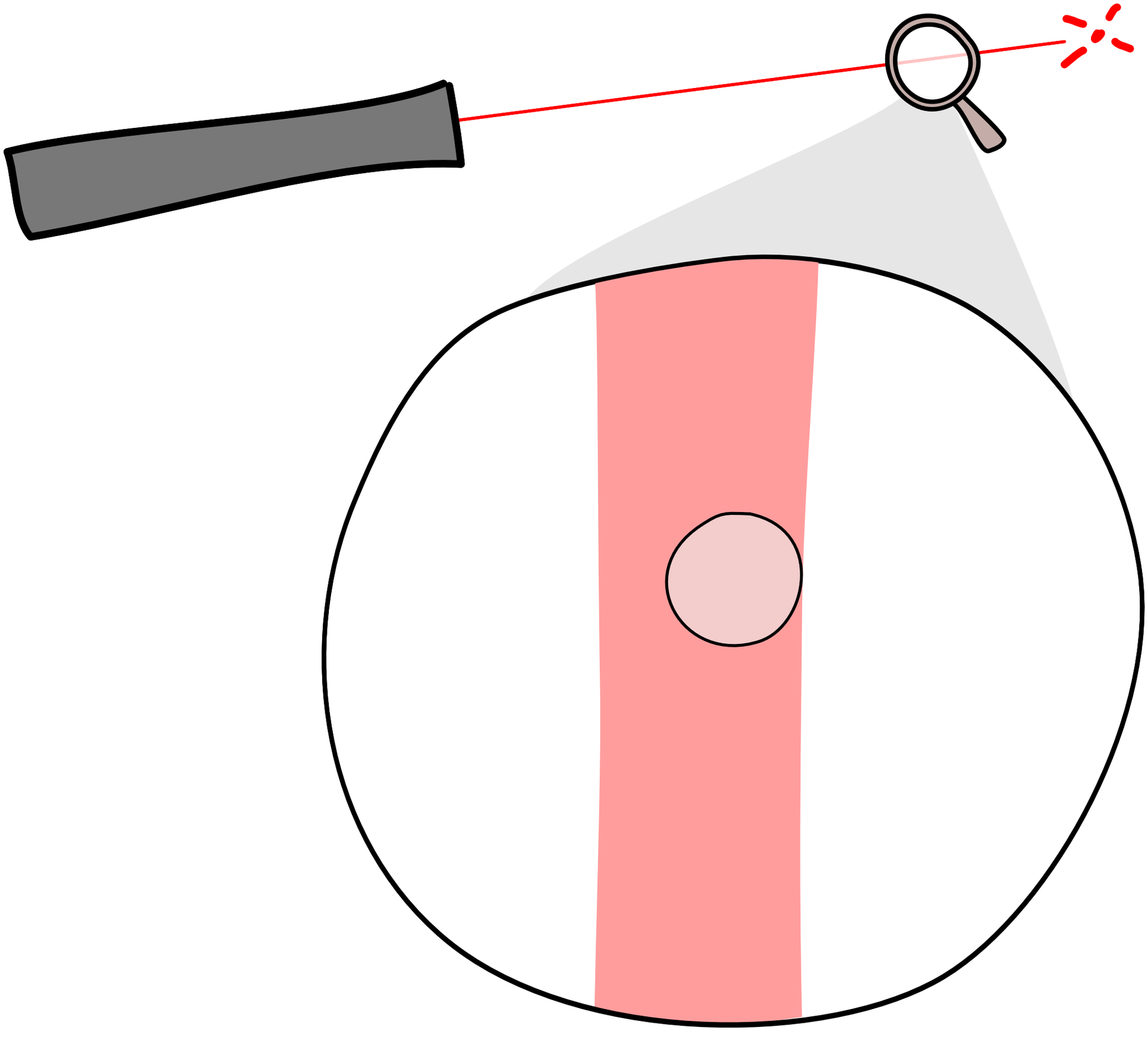


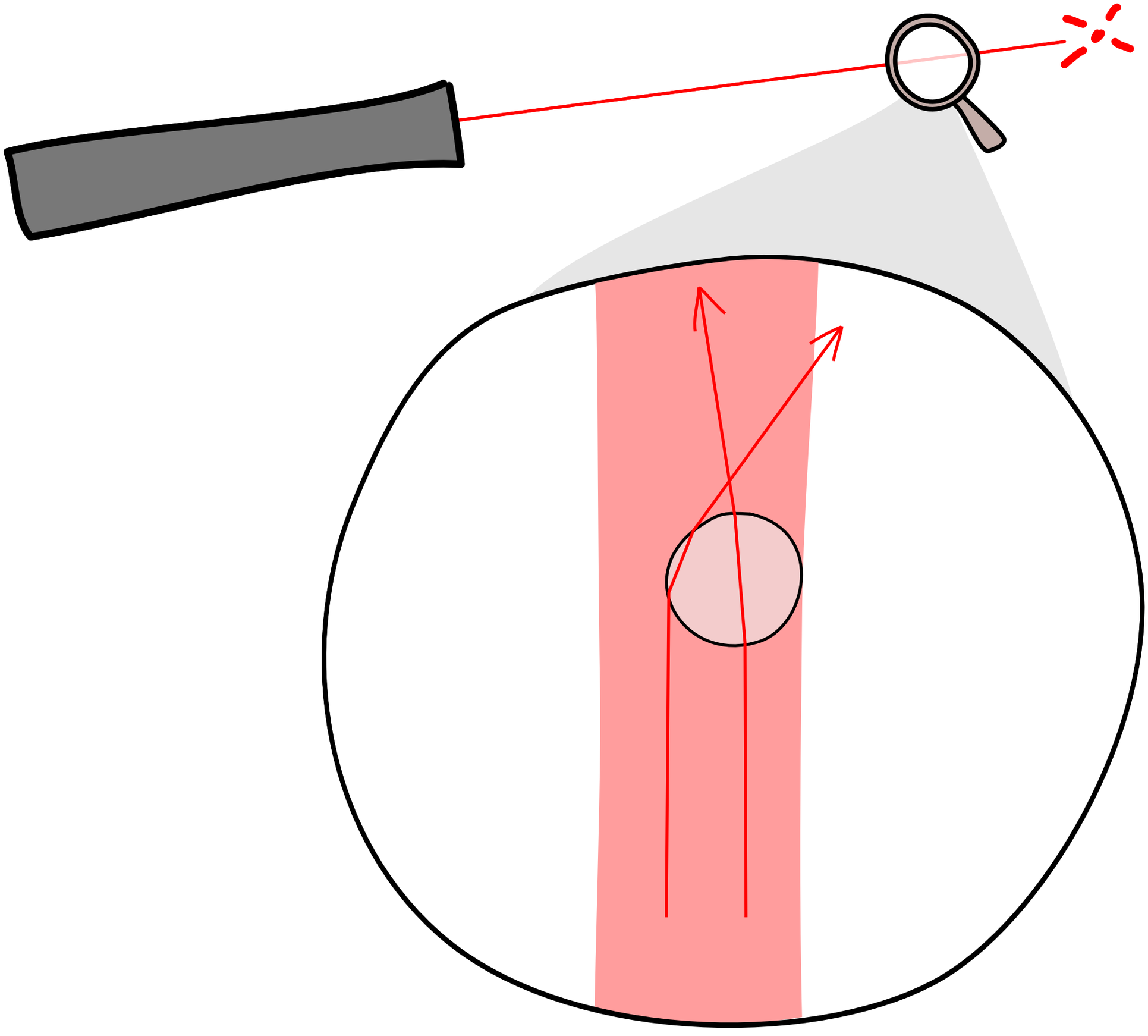


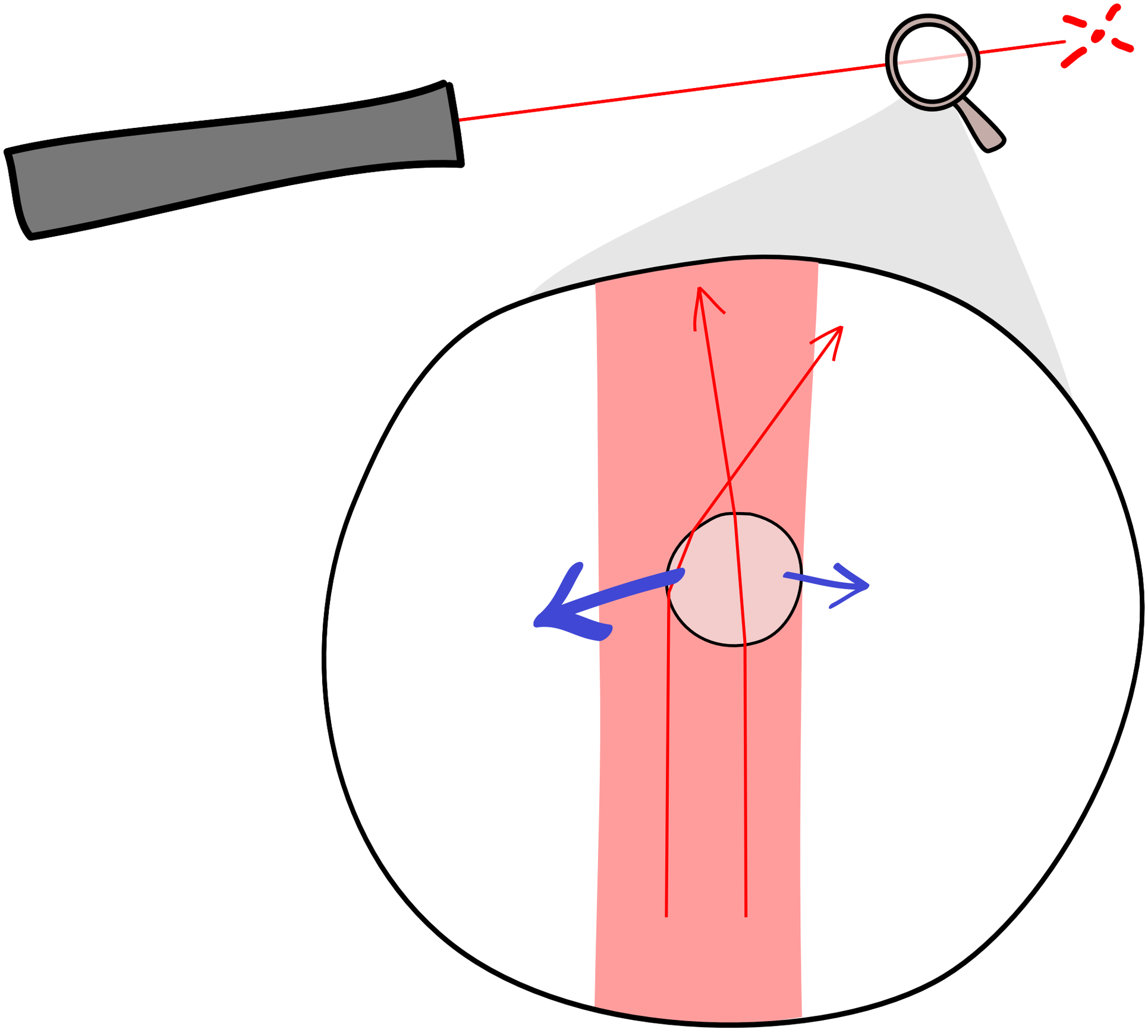


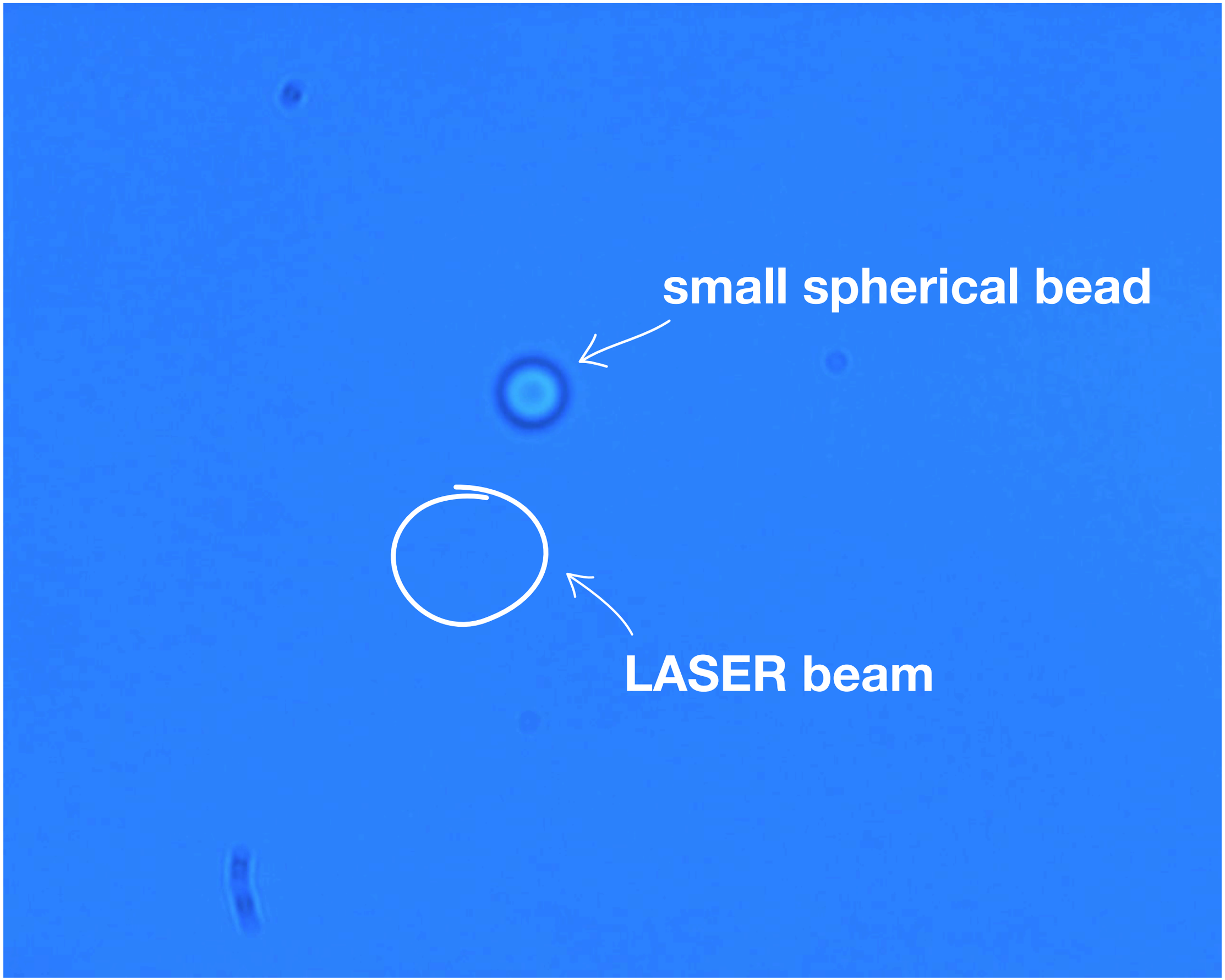


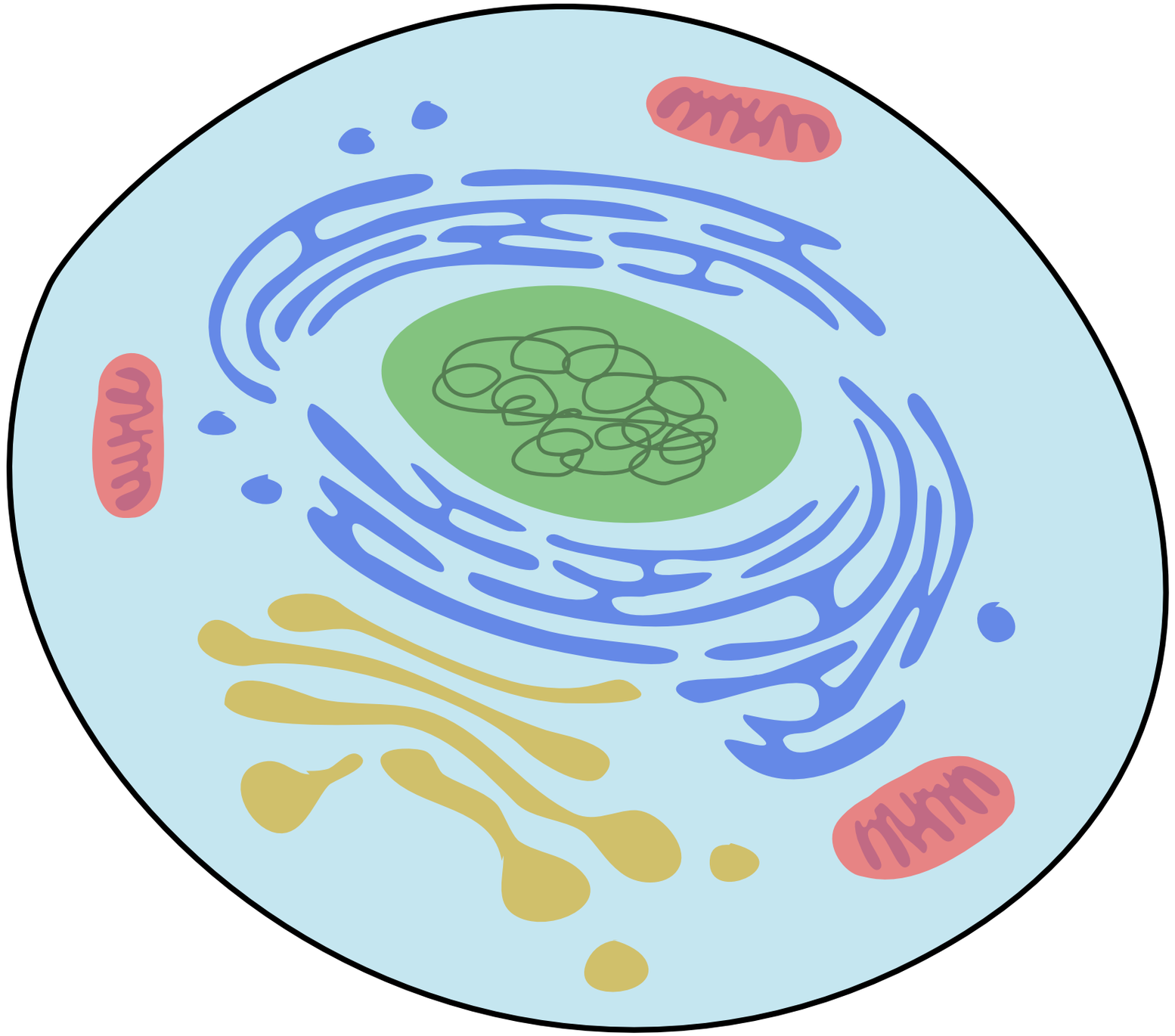


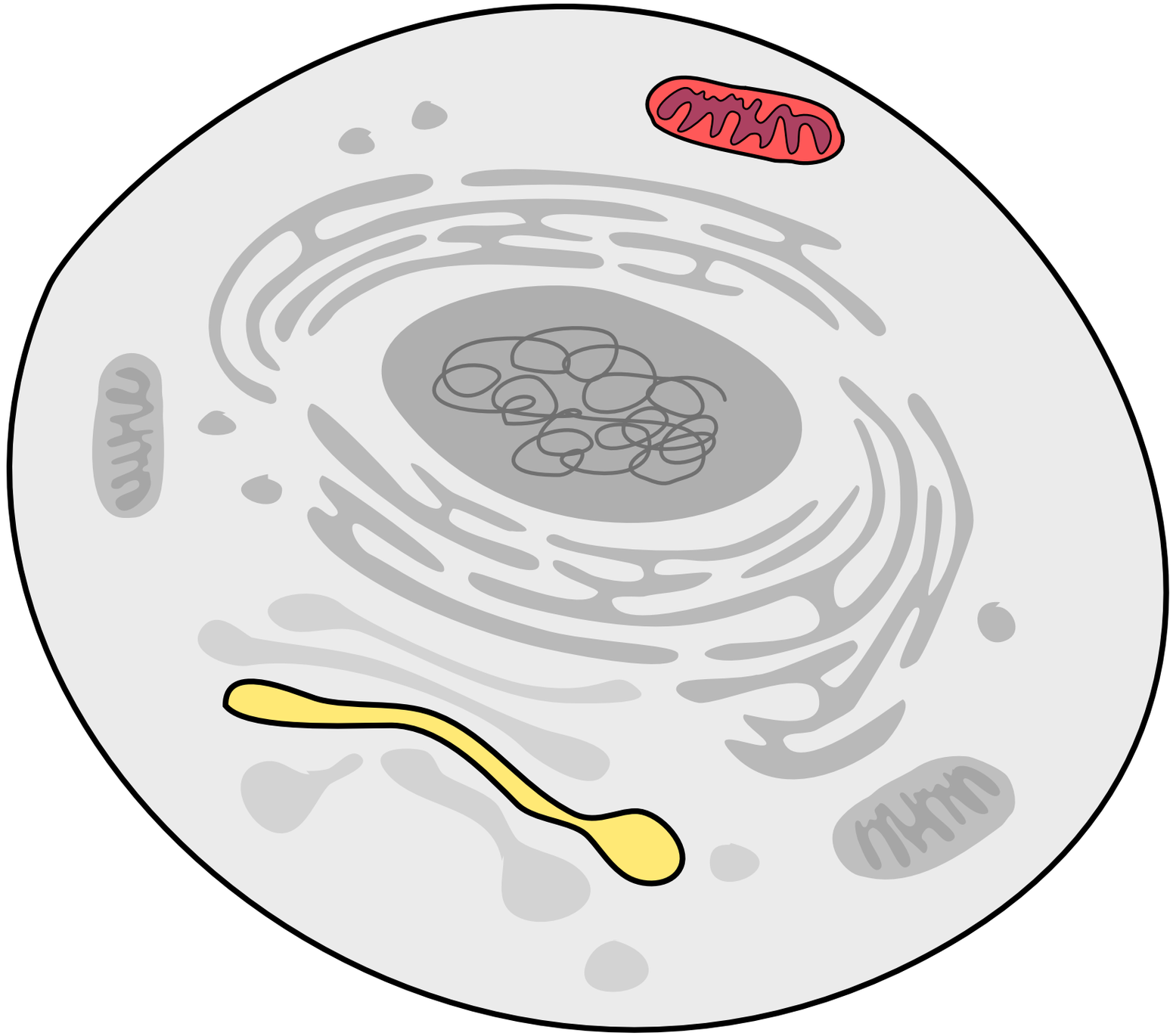


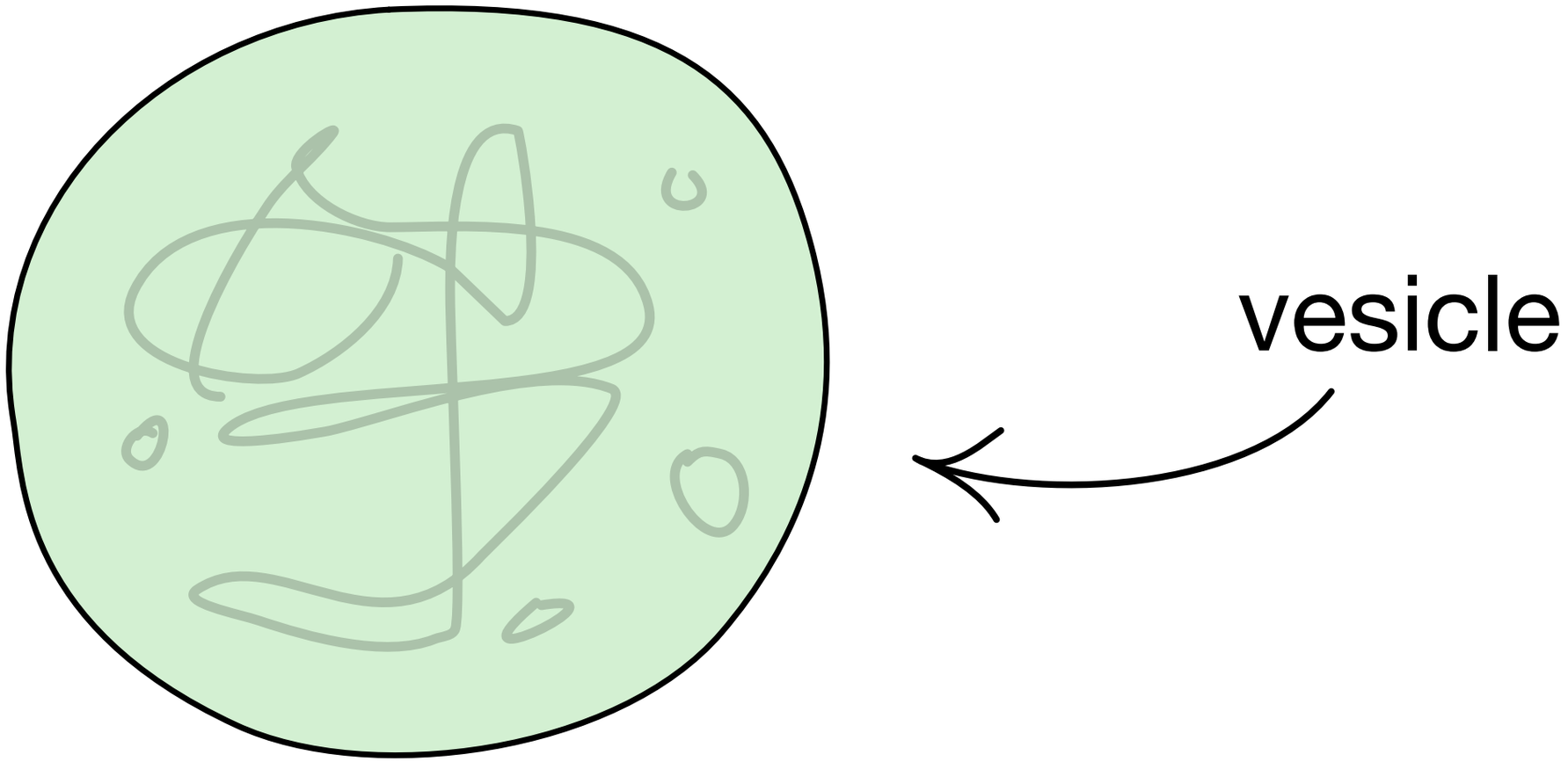


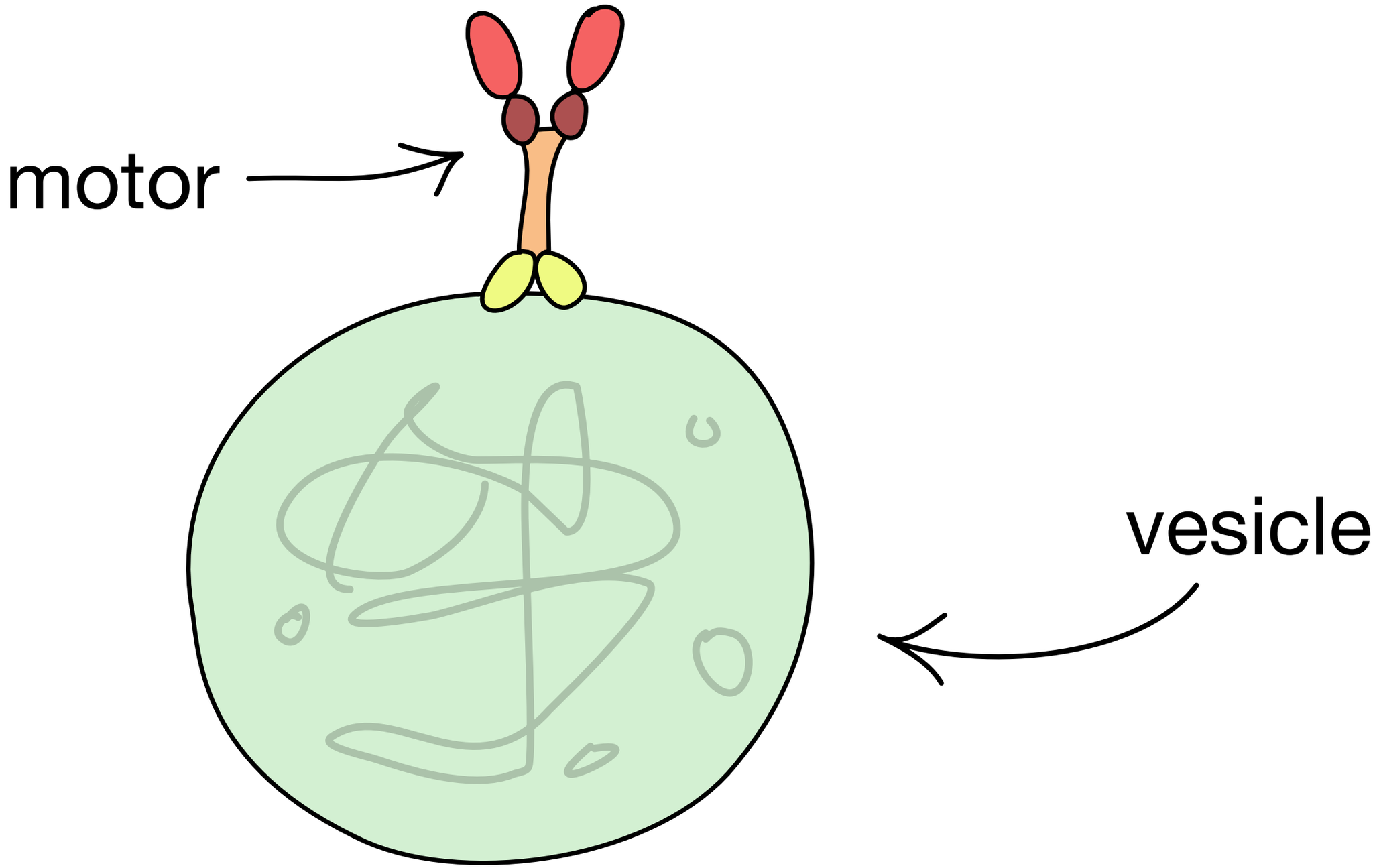


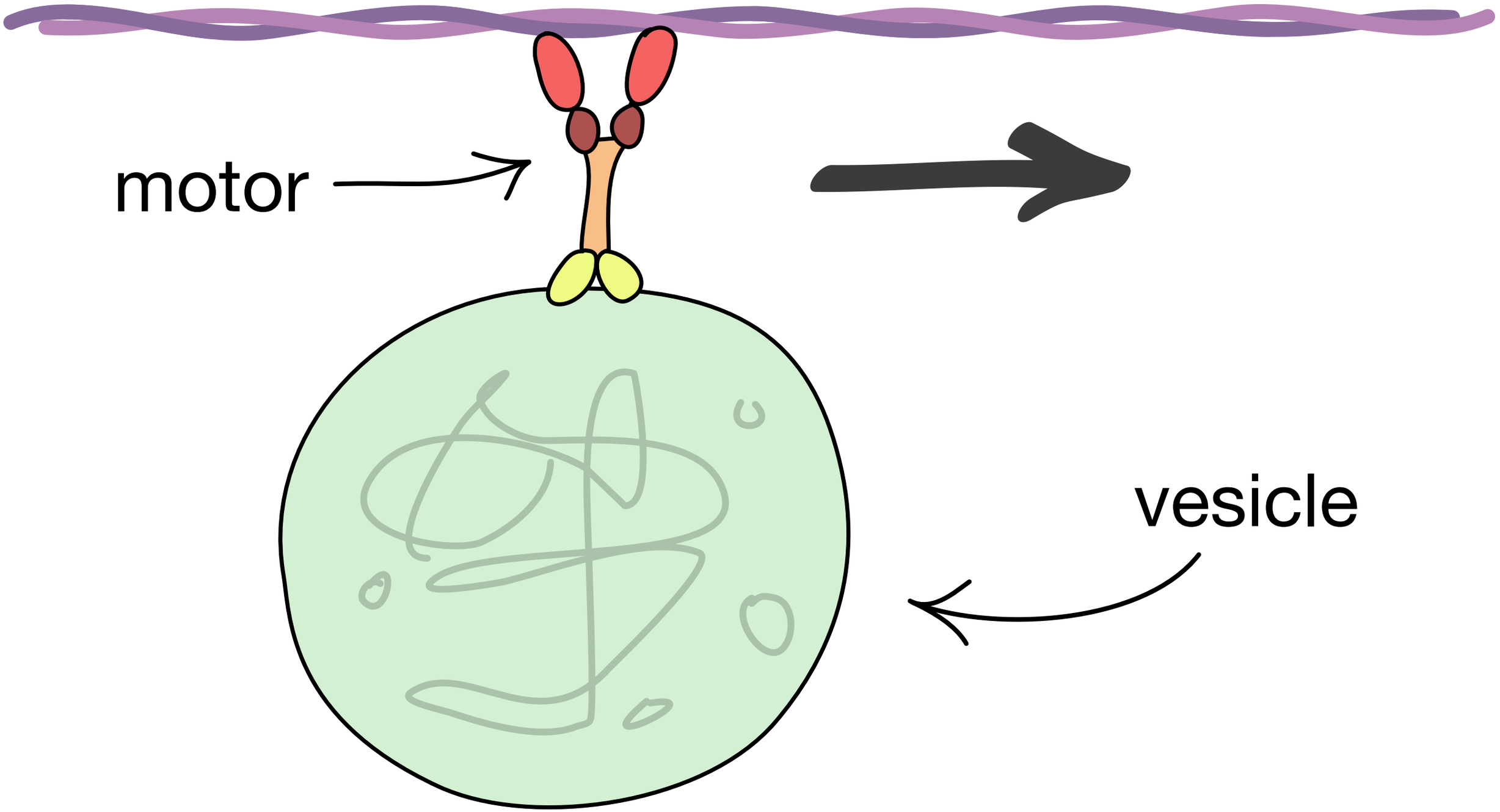

small spherical bead
LASER beam

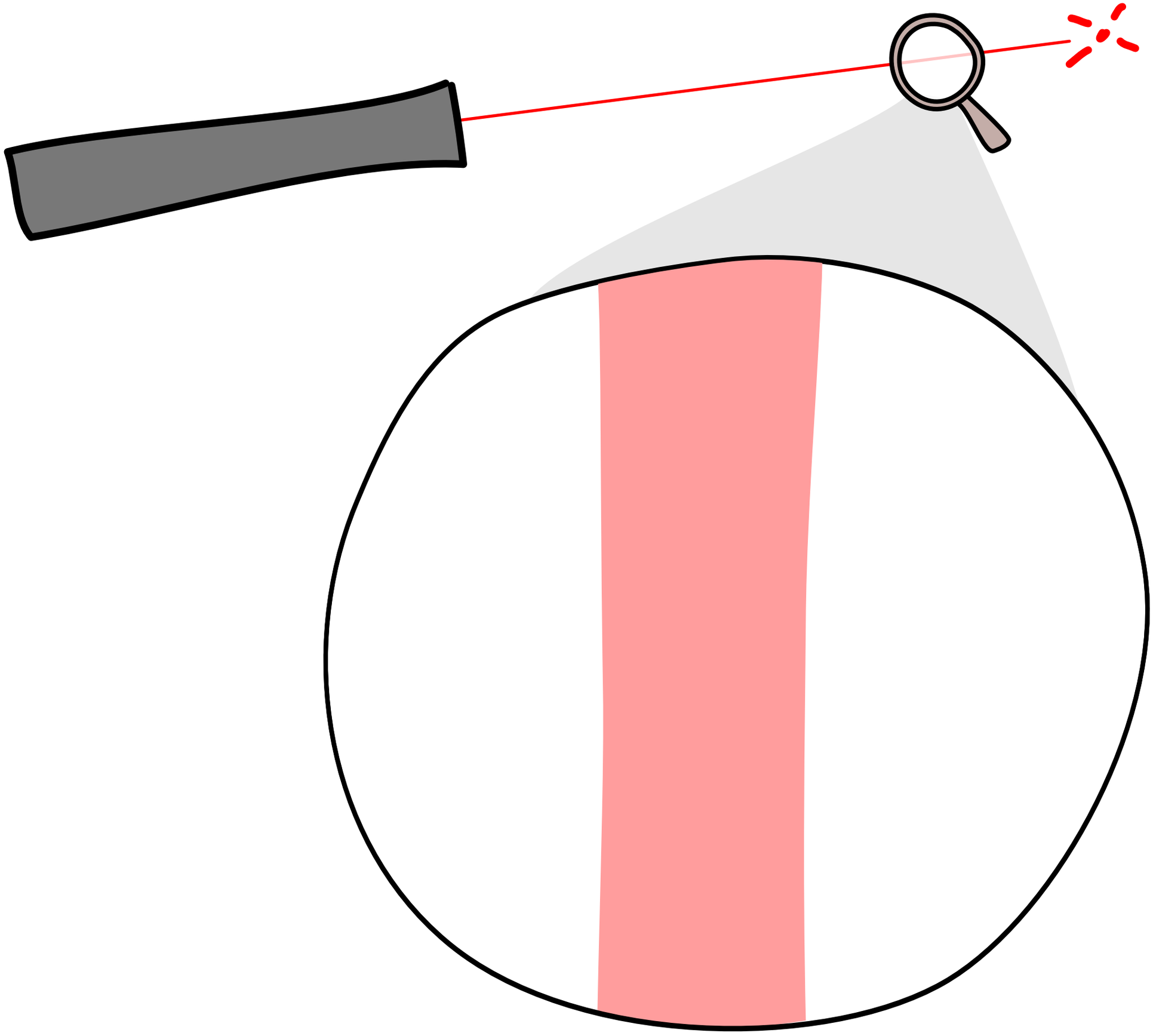


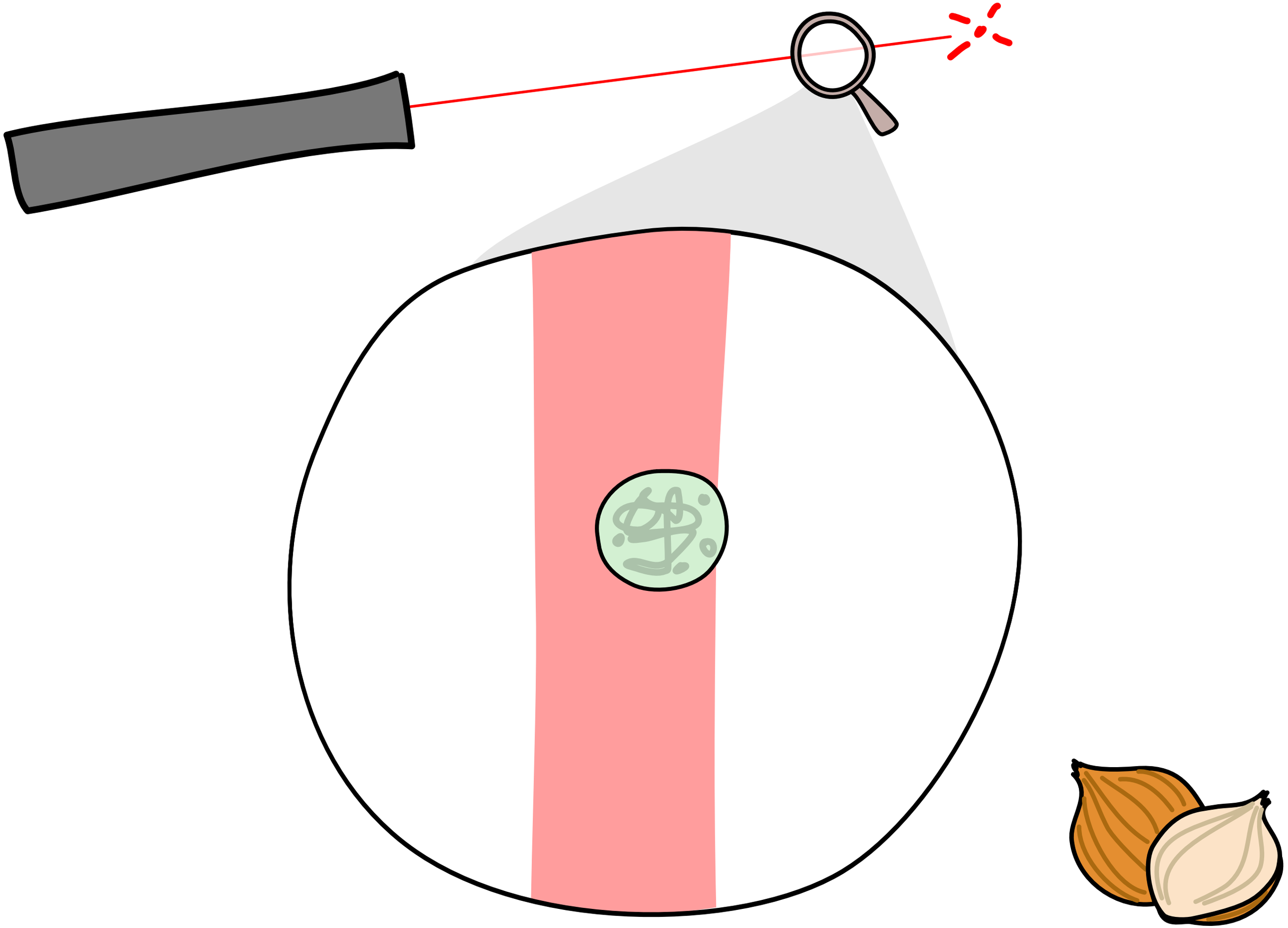


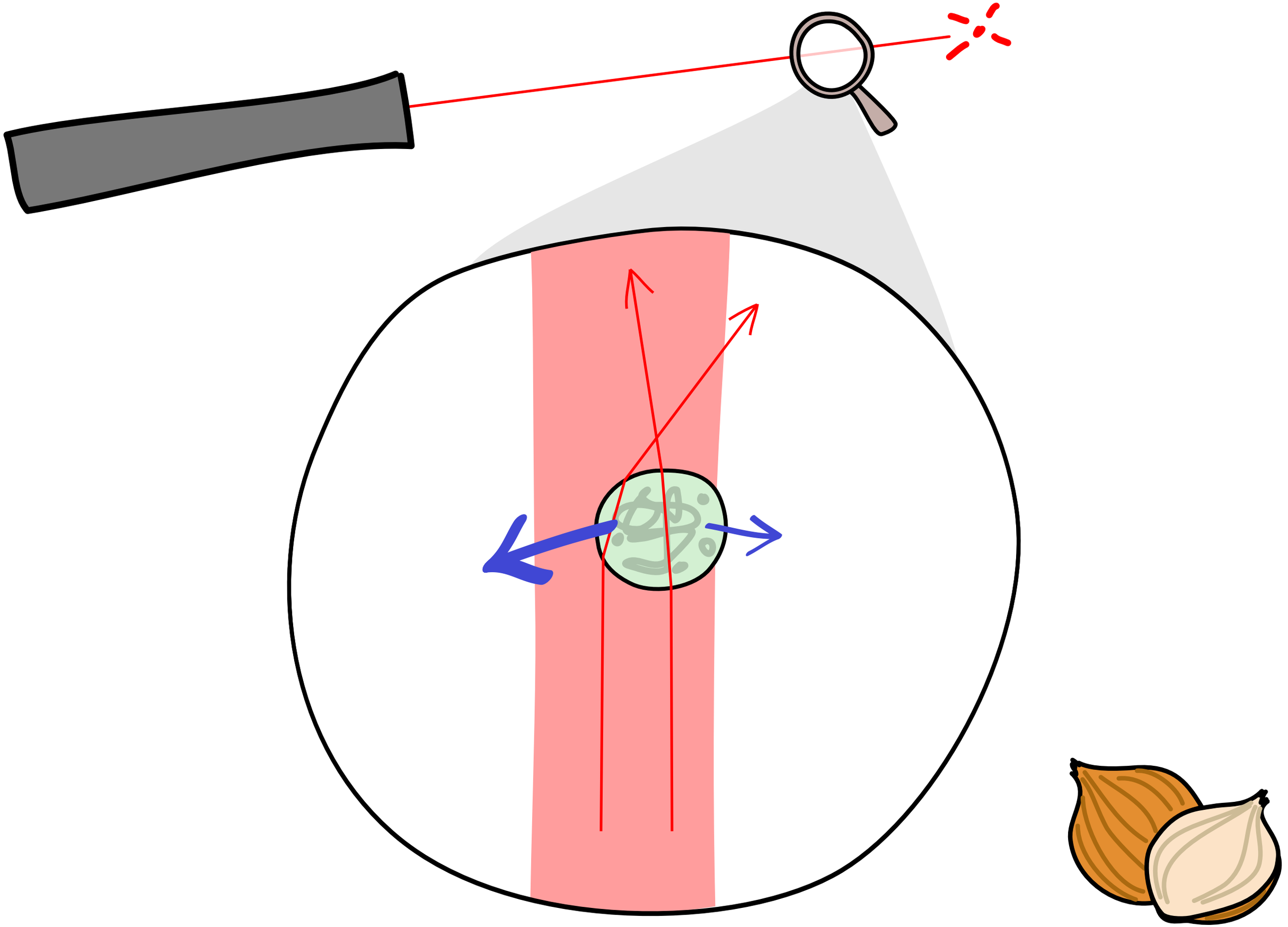

vesicle

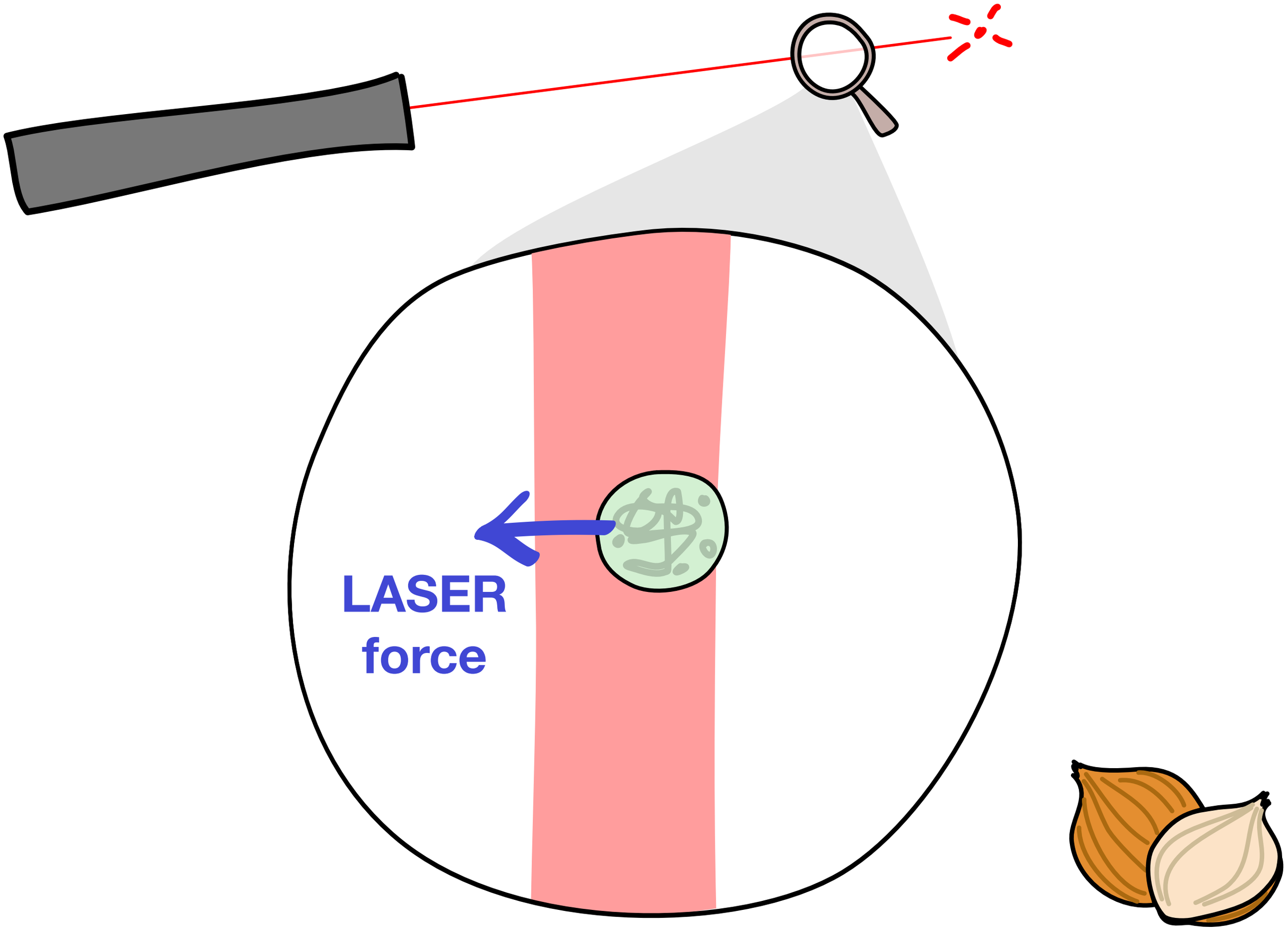

motor
vesicle

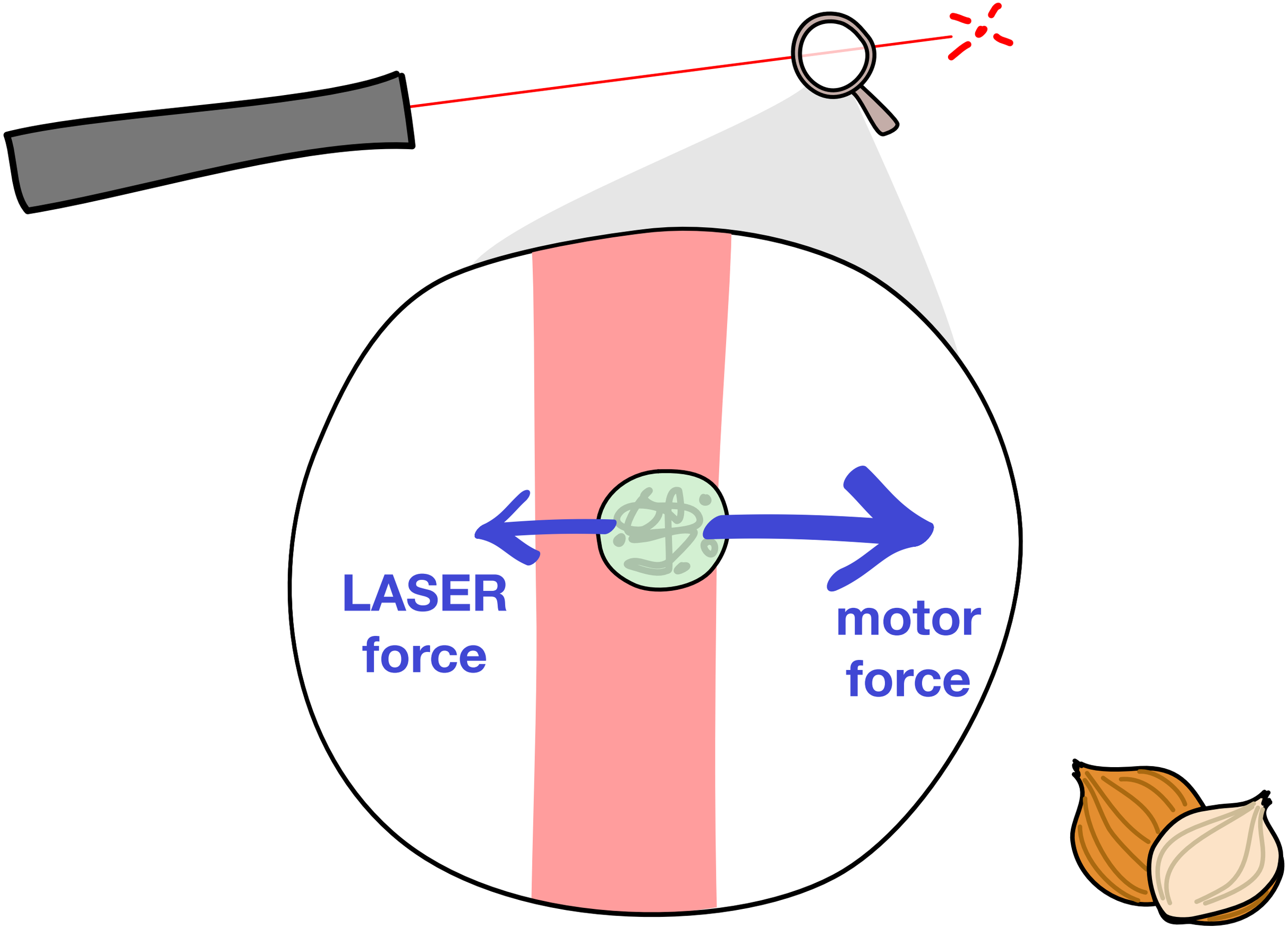

motor
vesicle

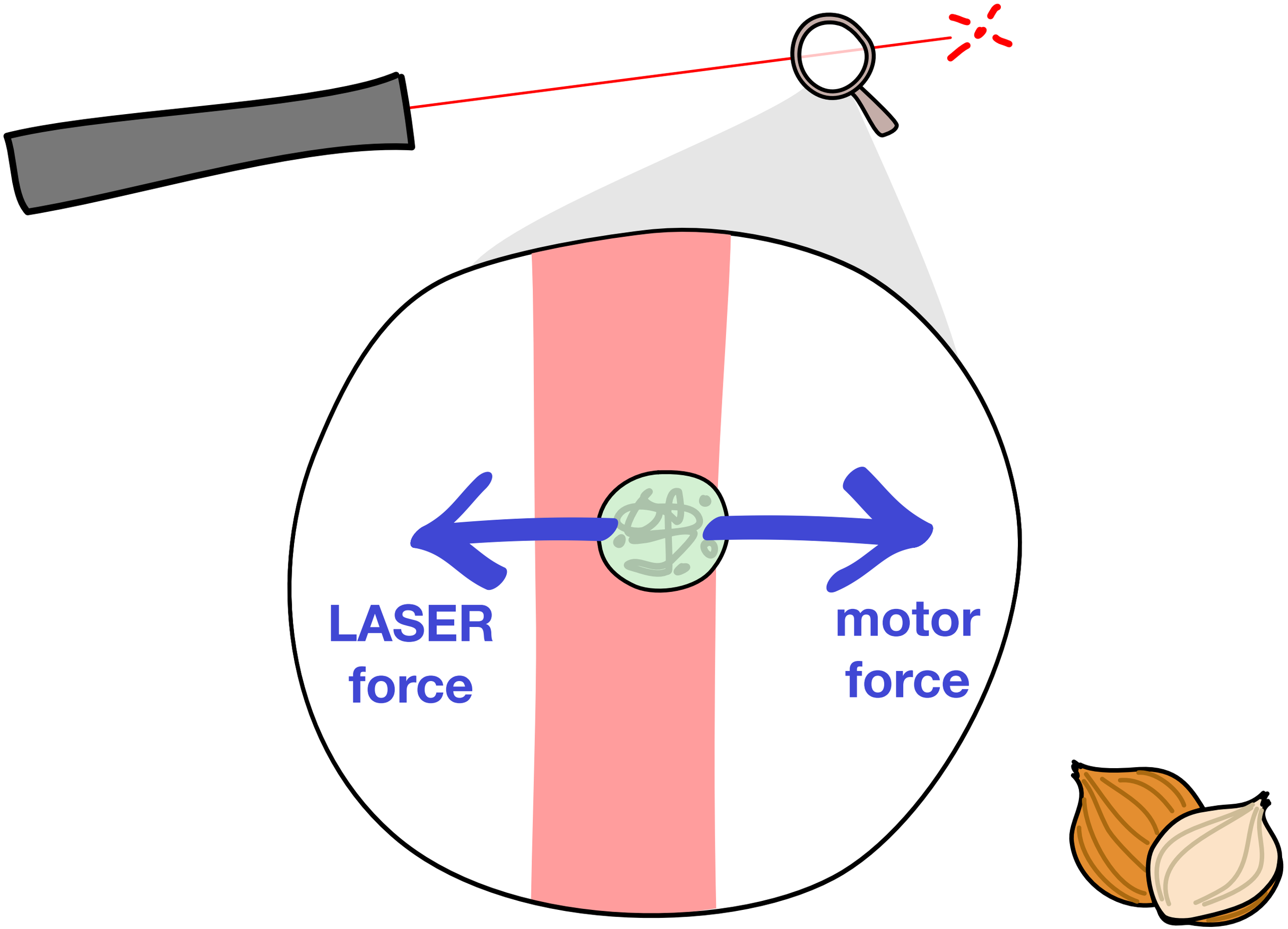







LASER
force


LASER
force
motor
force


LASER
force
motor
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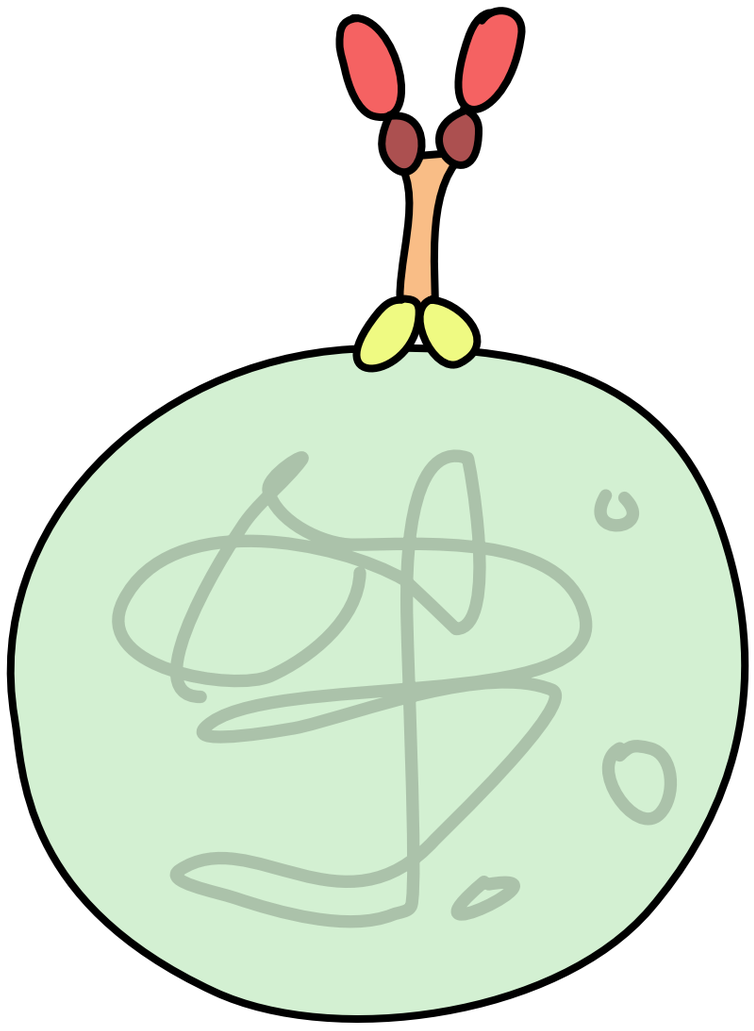
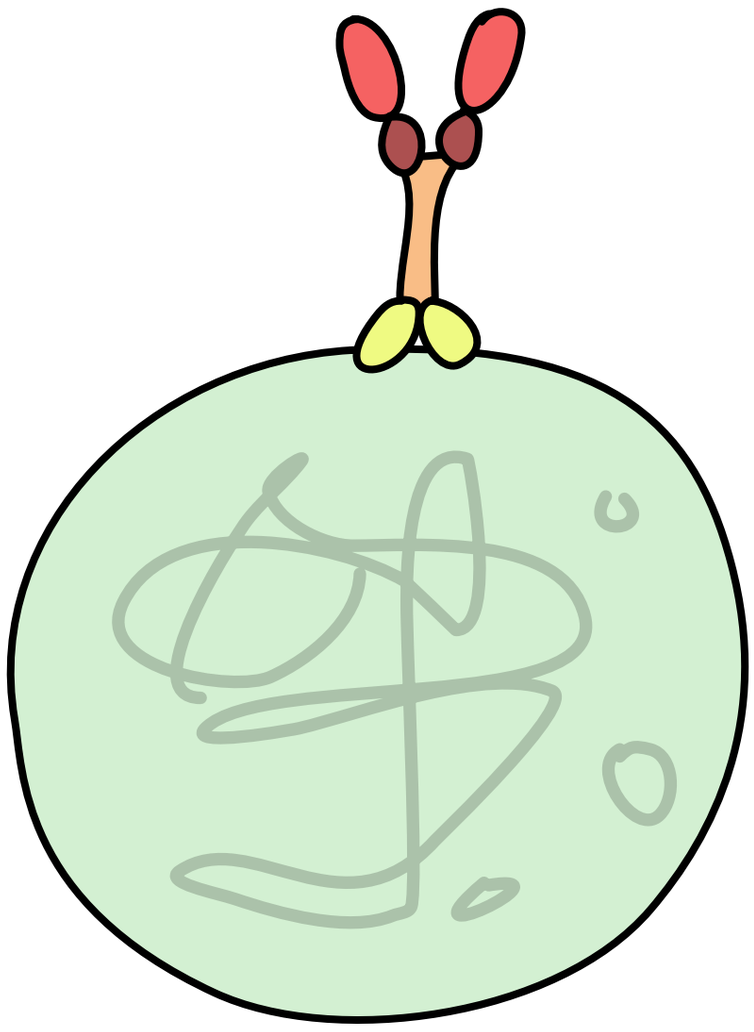


0.000000000005 newtons



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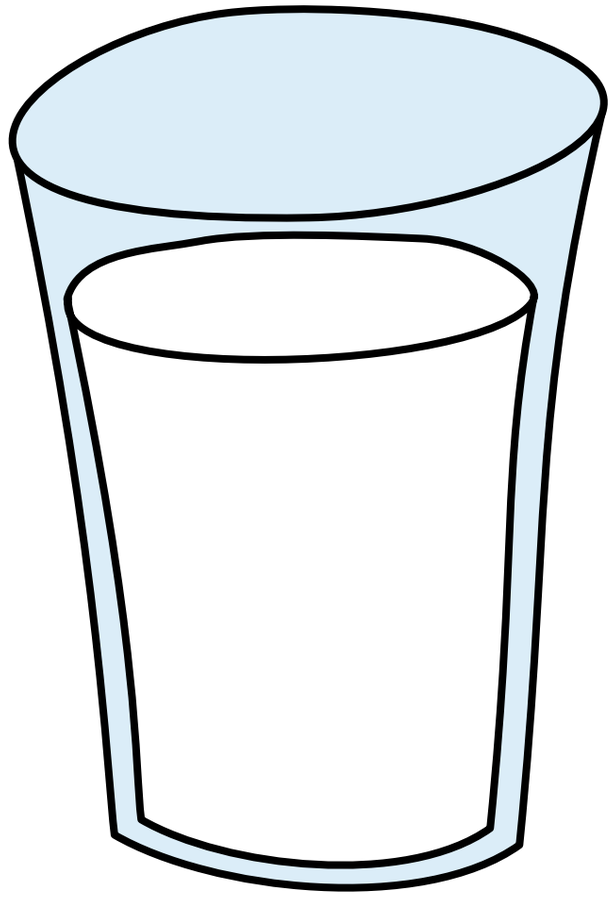
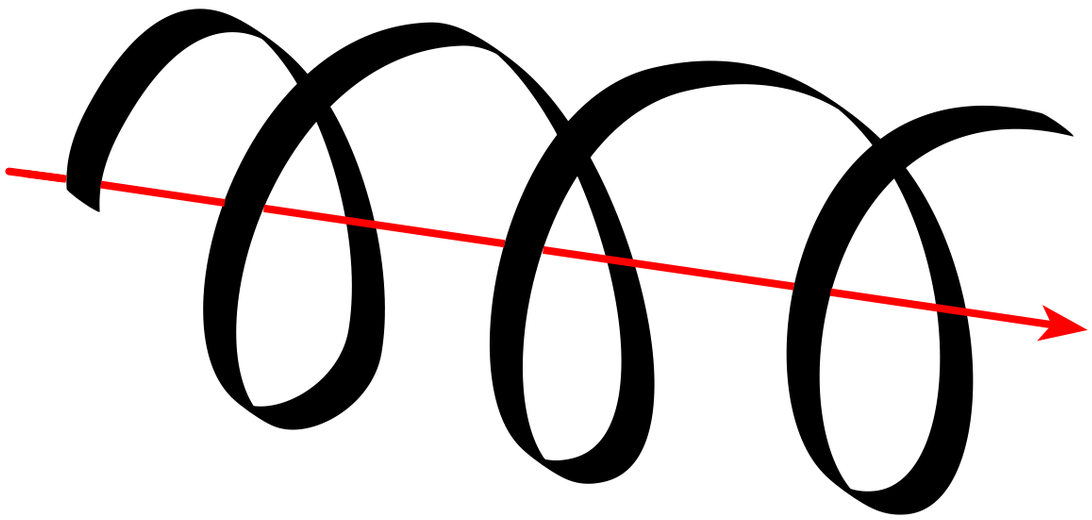


2.5 newtons

Physics and Biology

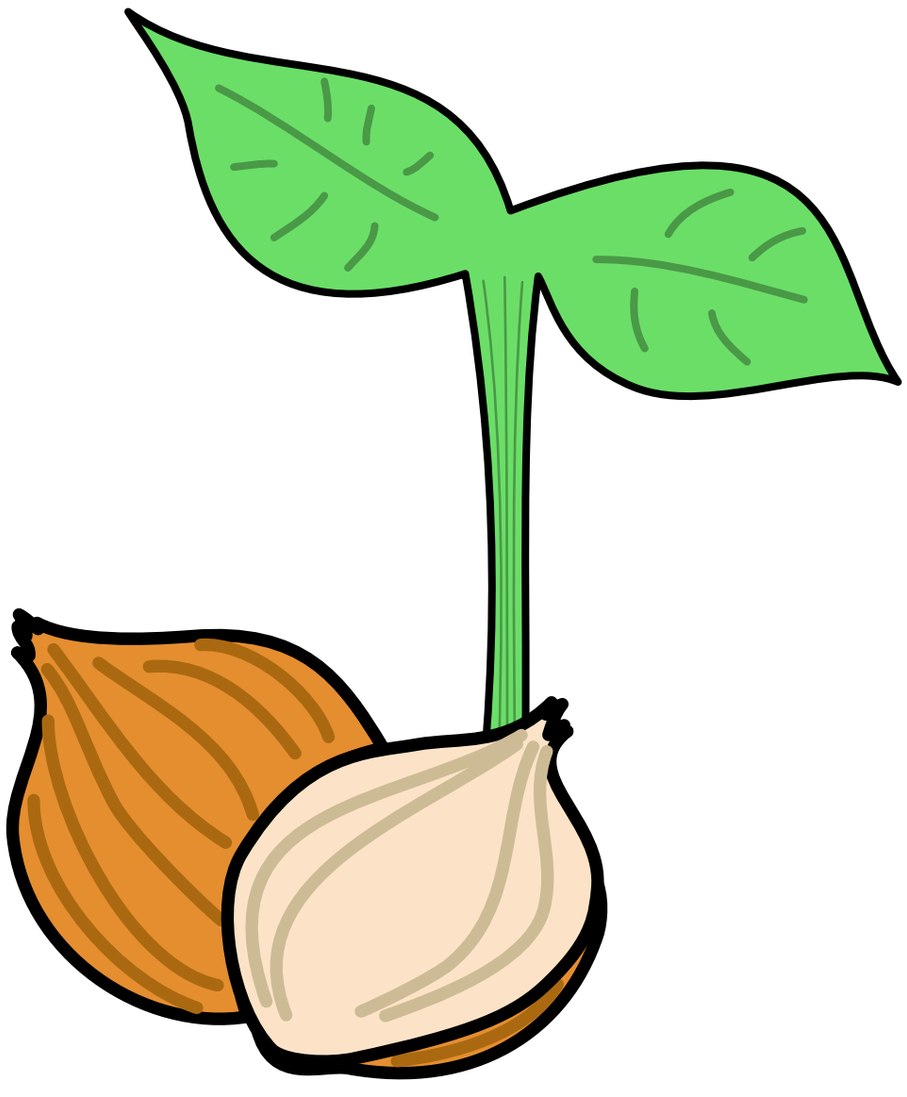


$$\vec{\nabla}\cdot\vec{E} = \frac{\rho}{\varepsilon_0}$$

$$\vec{\nabla}\cdot\vec{B} = 0$$

$$\vec{\nabla}\times\vec{E} = -\frac{\partial\vec{B}}{\partial t}$$

$$\vec{\nabla}\times\vec{B} = \mu_0\left(\vec{J} + \varepsilon_0\frac{\partial\vec{E}}{\partial t}\right)$$



Science and Art