



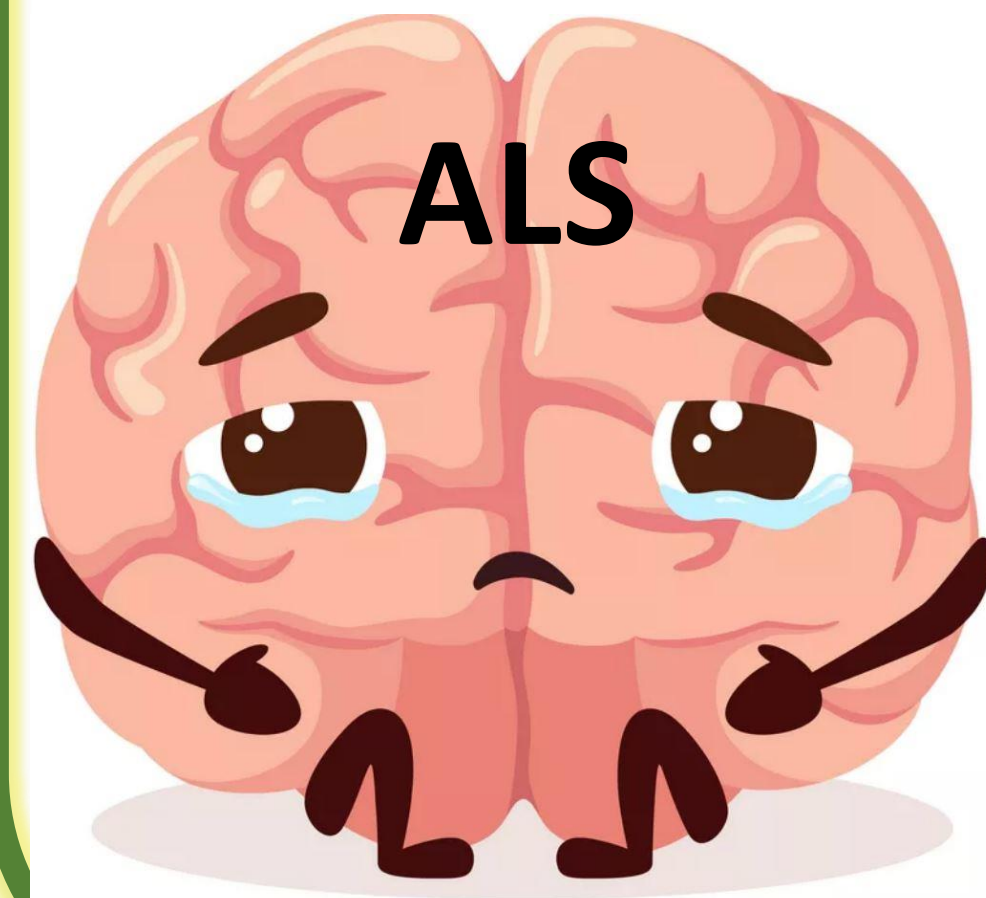
ALS is a devastating neurodegenerative disease

Muscle cramps, muscle weakness

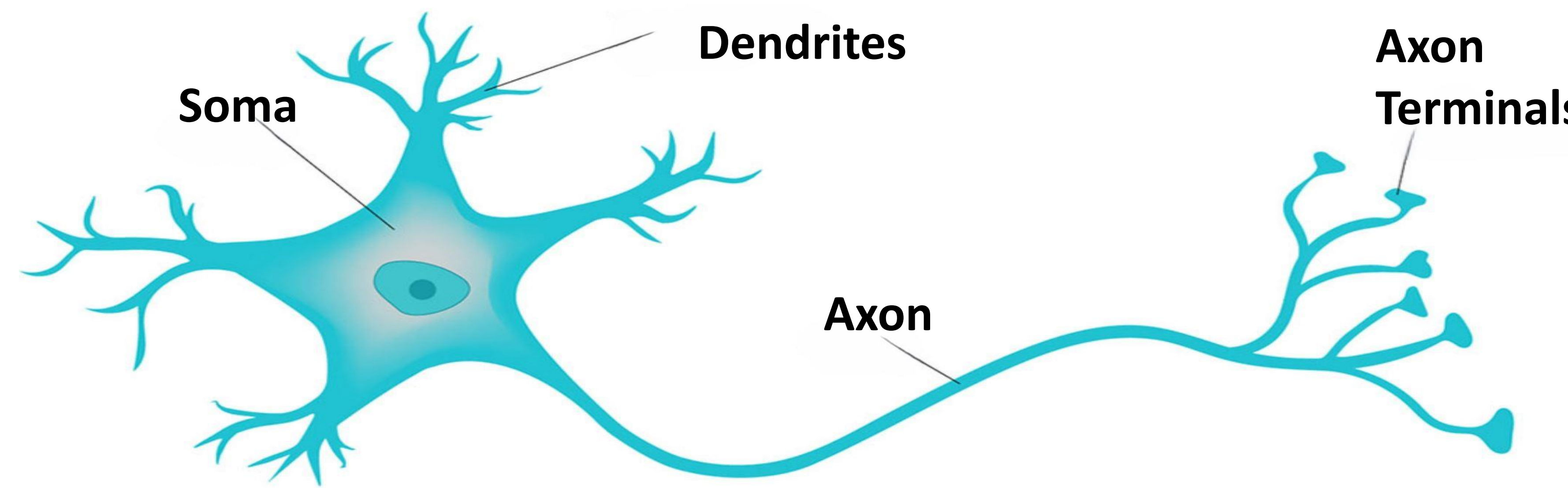
Difficulty in swallowing and speech

Respiratory insufficiency

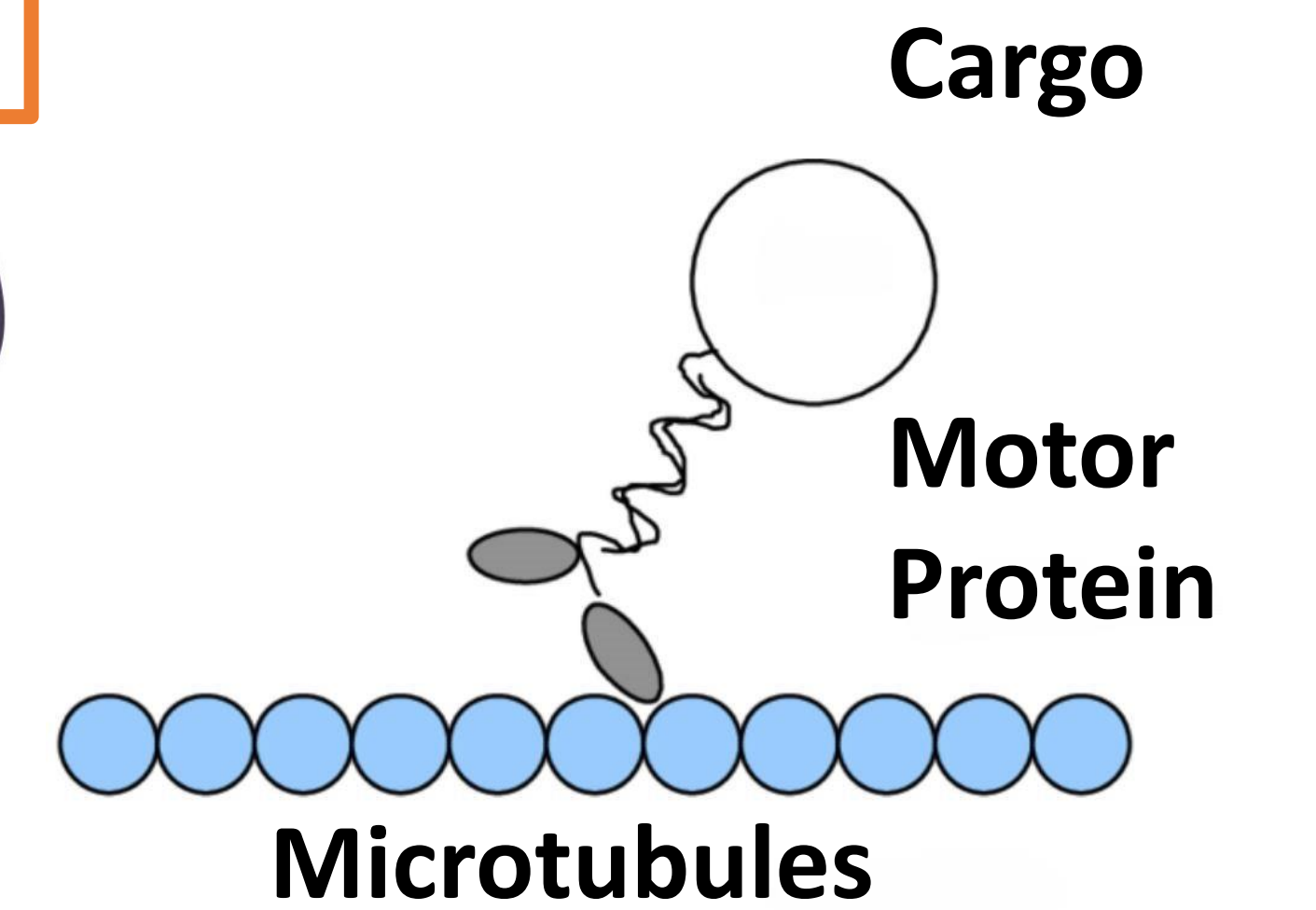
Cognitive, behavioral impairment



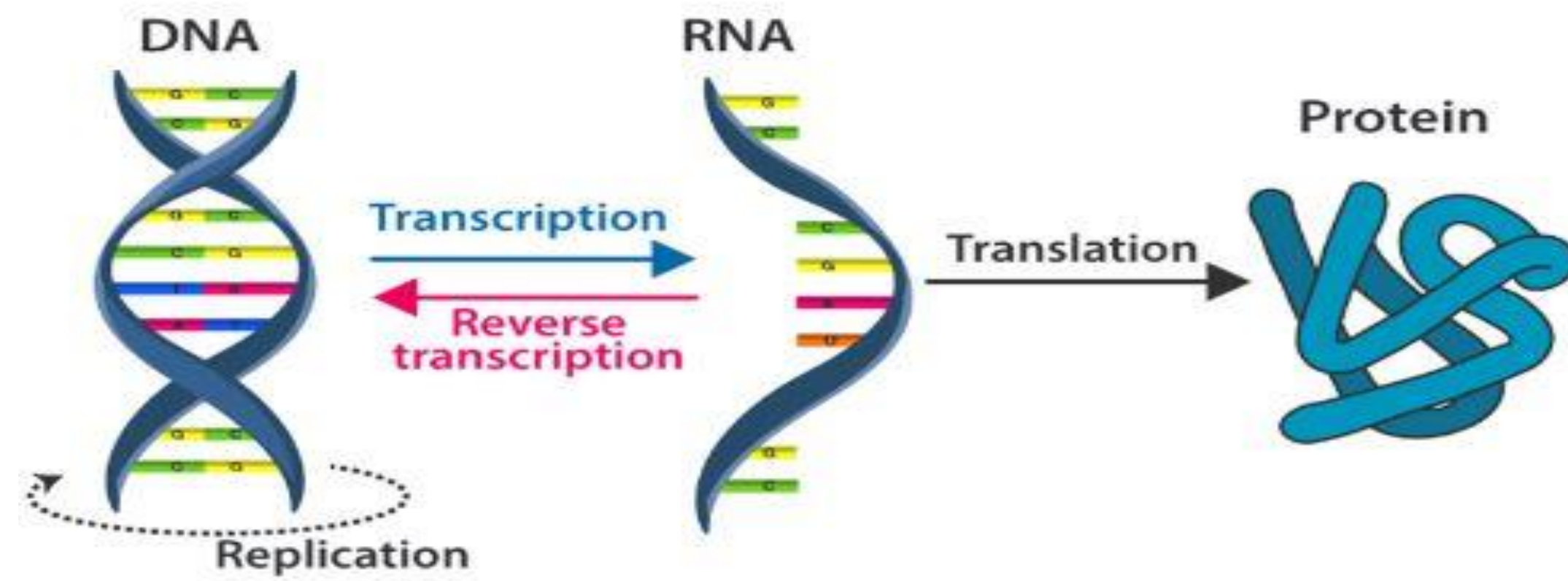
Motor neuronal protein KIF5A drives anterograde transport of cellular cargos



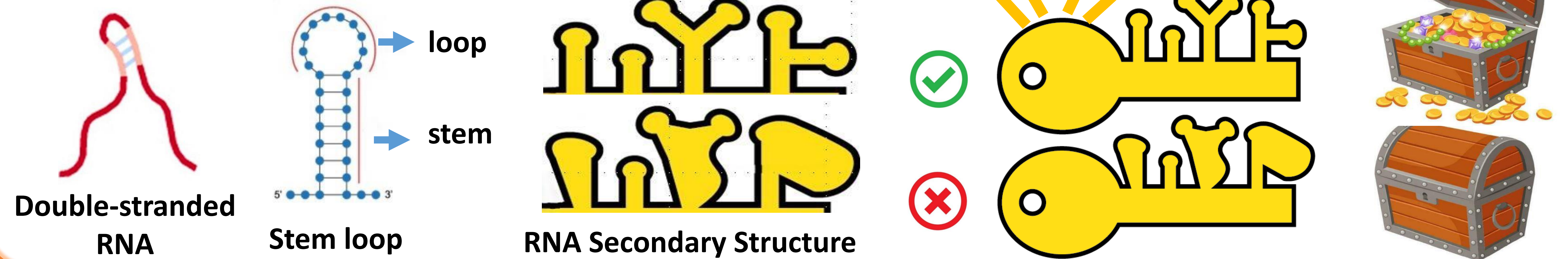
KIF5A



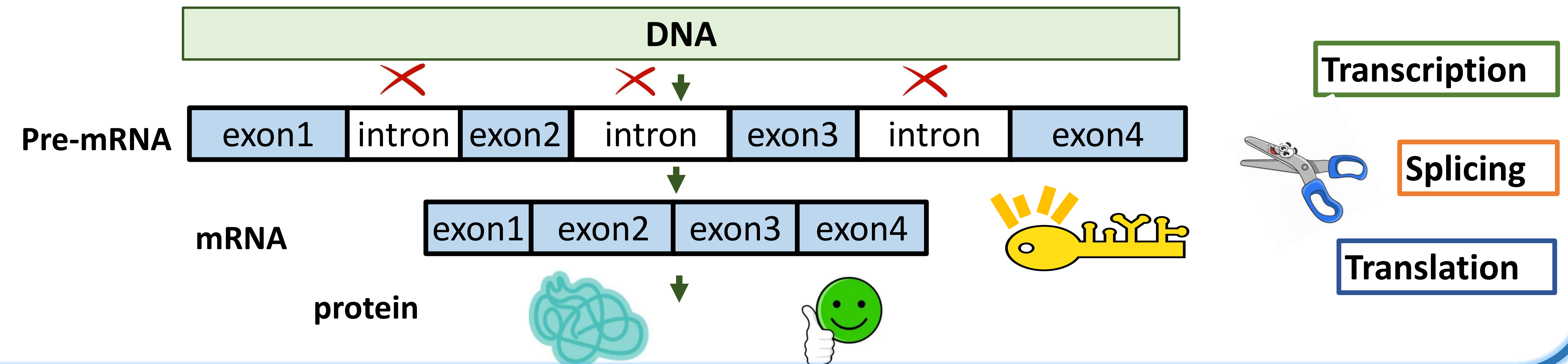
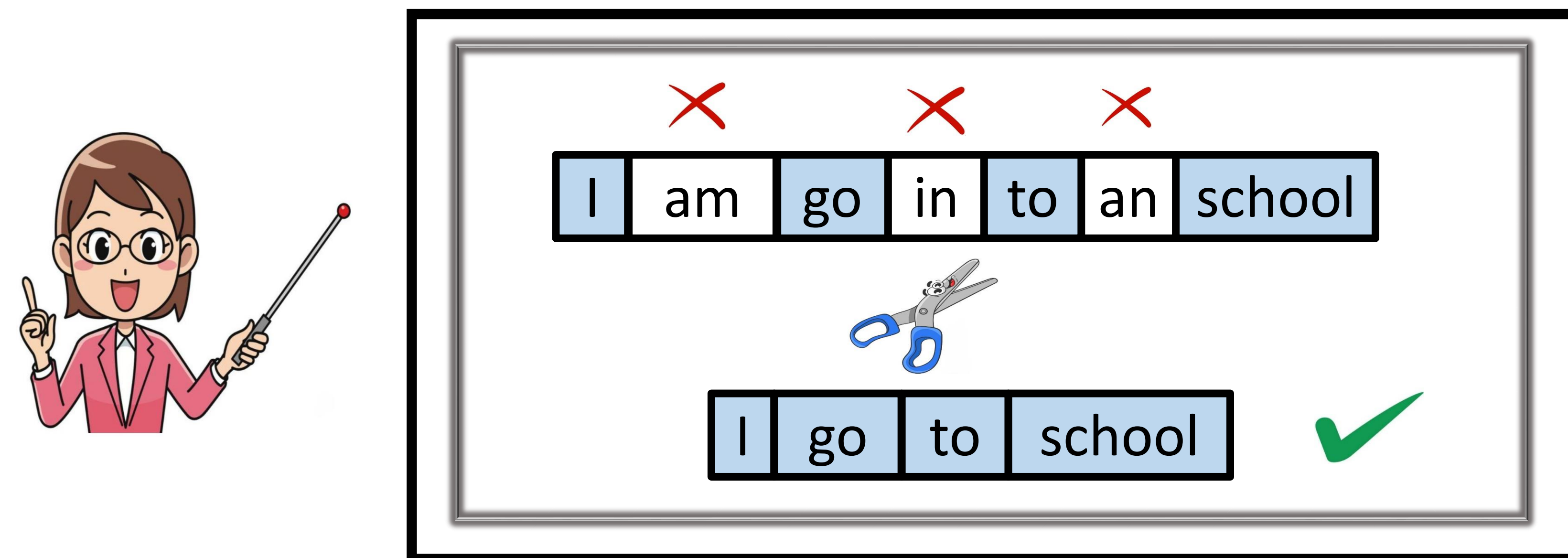
Central dogma of molecular biology



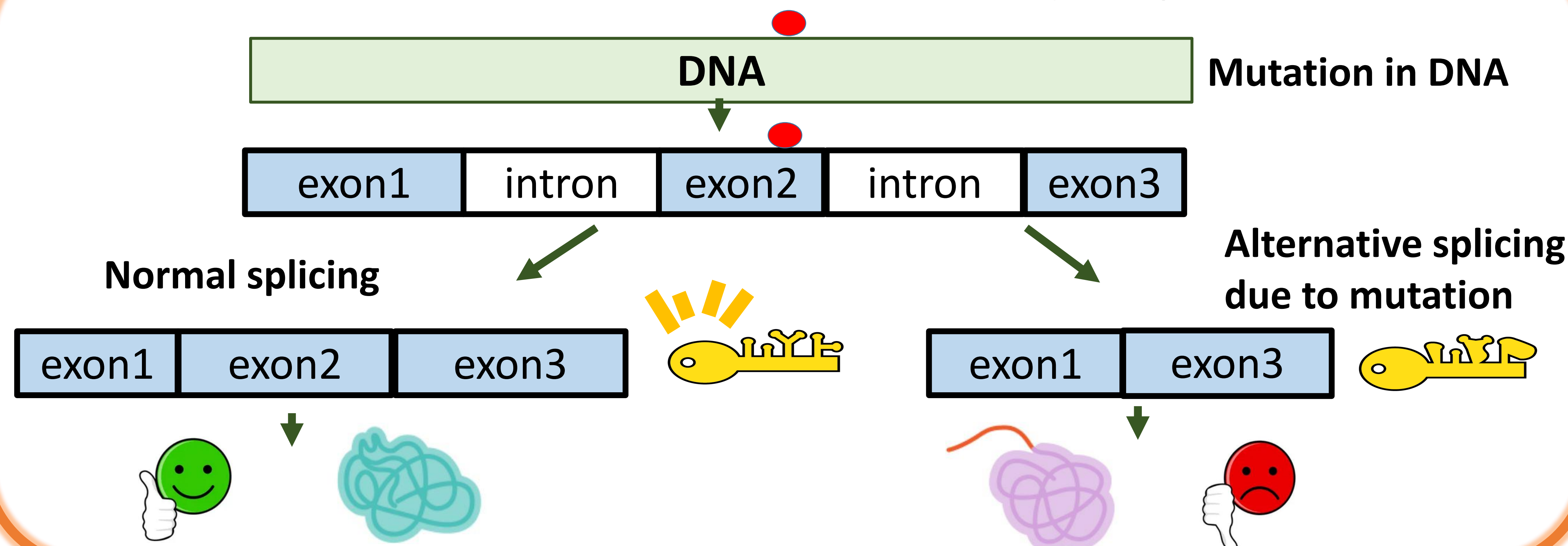
RNA structure plays a crucial role in functional protein synthesis



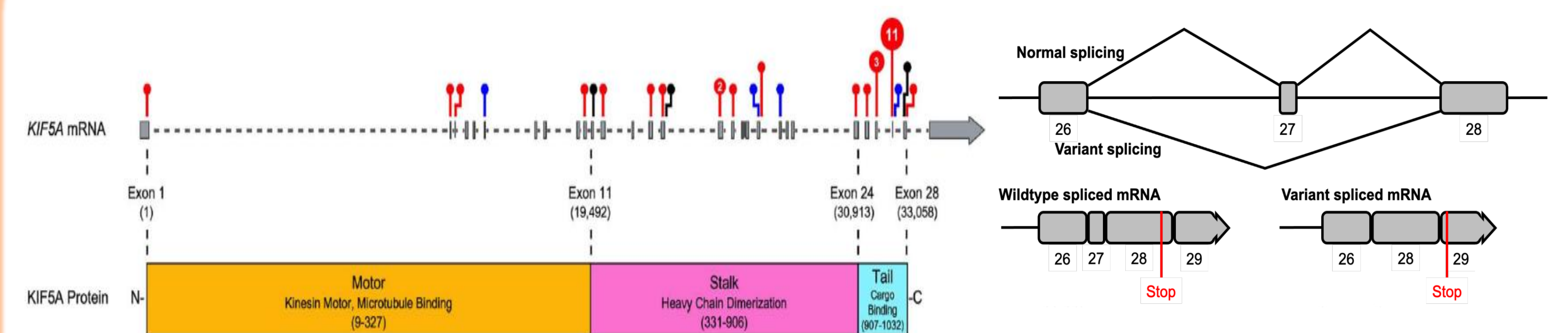
RNA splicing modifies precursor messenger RNA (pre-mRNA) into mature mRNA that leads to functional protein



Mutations in DNA can cause alternative splicing of RNA



Mutations in KIF5A are associated with ALS



Hypothesis: RNA structures of normal and ALS-associated mutated KIF5A pre-mRNAs are different, resulting in alternative splicing.