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Sommario/riassunto	Helicases are the proteins that bind to double- or single-stranded DNA and/or RNA chains to unwind higher order structures, usually consuming energy from the hydrolysis of ATP molecules. The biological roles of helicases are associated with a variety of DNA and/or RNA metabolisms, including DNA-replication, -repair, -recombination, RNA processing, and transcription. Dysfunctions of helicases cause various diseases, such as xeroderma pigmentosum (XP), premature aging syndrome, cancer and immunodeficiency, in humans. Moreover, recent genetic analyses revealed that mutations in helicase-encoding genes are frequently found in patients of specific diseases. Some helicases regulate cellular senescence by controlling integrity of genomes, and others play a role in neuromuscular functions presumably by modulating processing of mRNAs. However, the molecular mechanisms of how helicases are regulated in order to maintain our health are not yet fully understood. In this research topic, we will focus on the expression and functions of helicases and their encoding genes, reviewing recent research progresses that provide new insights into development of clinical and pharmaceutical treatments targeting helicases.

