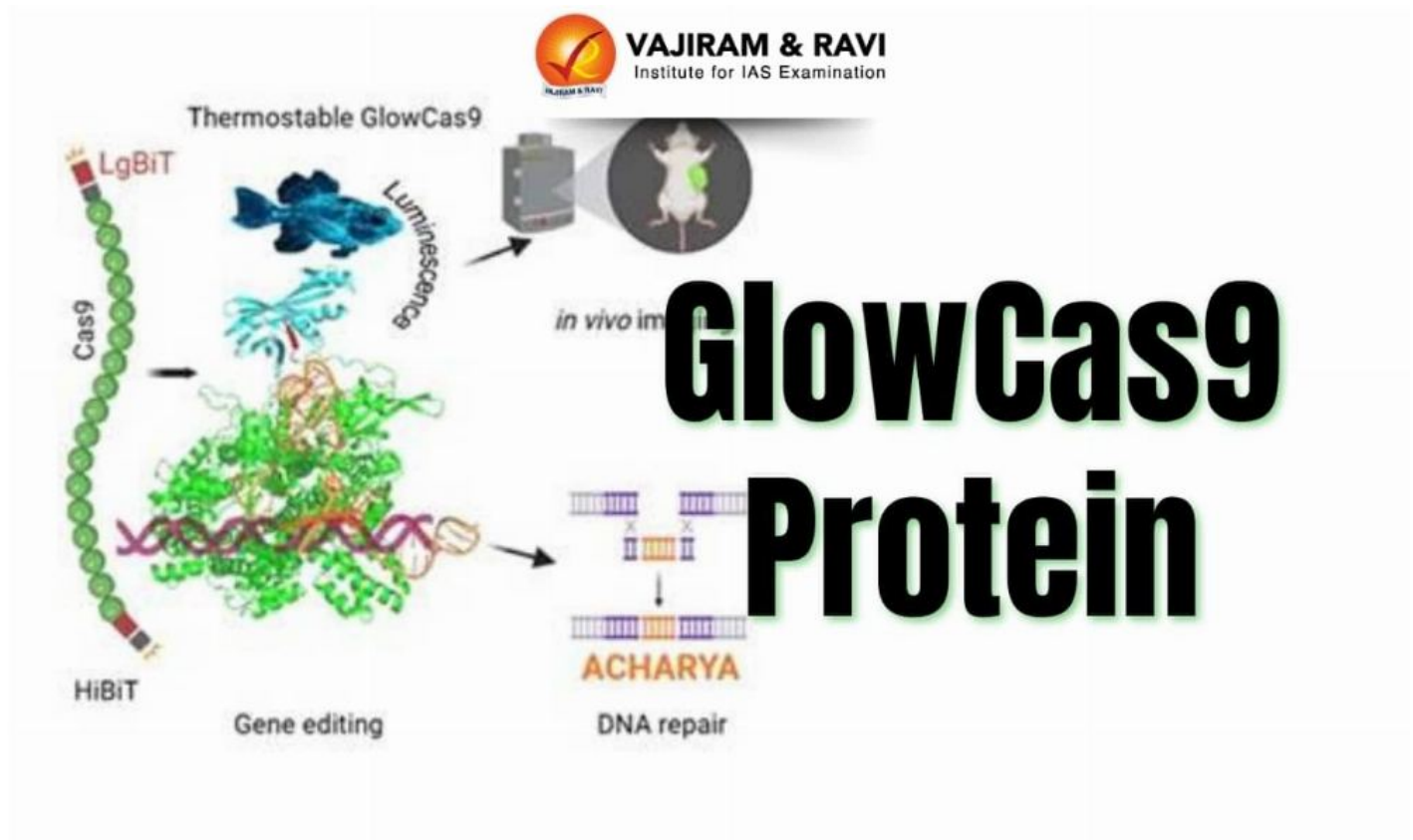


GlowCas9 Protein

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GlowCas9 Protein Latest News

Recently, scientists from Kolkata based Bose institute have created GlowCas9 protein which can track gene editing.

About GlowCas9 Protein

- It is a **CRISPR protein** that lights up while performing gene editing.
- It is a **bioluminescent version of Cas9** that glows inside cells.
- **Structure:** GlowCas9 is created **by fusing Cas9** with a split **nano-luciferase enzyme** derived from **deep-sea shrimp proteins**.

Properties of GlowCas9 Protein

- The GlowCas9 is **very stable and maintains** its structure and **activity at higher temperatures** compared to the conventional enzyme.
- **It glows inside cells**, allowing for real-time monitoring of CRISPR operations

Working of GlowCas9 Protein

- The **split nano-luciferase enzyme** pieces reconnect when Cas9 folds correctly, producing light
- This glowing activity **allows scientists to monitor CRISPR operations** in living cells, tissues, and even plant leaves—without harming them.

Benefits of GlowCas9 Protein

- It can also increase the **precision of homology-directed repair** (HDR).
 - **Homology-Directed Repair** (HDR) is a **DNA repair process crucial** for **fixing hereditary mutations** that are linked to genetic diseases like sickle cell anaemia, muscular dystrophy and so on.
- GlowCas9 pioneers the emerging **field of theratracking** or visualizing molecular gene therapy in motion.

Source: PIB

Source: <https://vajiramandravi.com/current-affairs/glowcas9-protein/>

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