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Scientists at Bose Institute create glowing protein to monitor gene editing

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GloCas9is highly stable and maintains its structure and activity even at higher temperatures compared to conventional enzymes



Scientists at the Bose Institute in Kolkata have created a CRISPR protein that can help scientists observe molecular scissors called the **Cas9** enzyme as it enables them to edit the genome using the CRISPR – Cas9system for the treatment of genetic diseases, including cancer.

CRISPR-Cas9 was designed to cut and correct DNA with precision. Scientists have not been able to observe **Cas9** in real time in living cells, however. Traditional detection methods rely on connecting or breaking open cells, making this process impossible to track.

In the new study, the researchers have combined Cas9 **with a split nano-luciferase enzyme** derived from a deep-sea shrimp protein to create a bio-luminous version of **Cas9 called GloCas9**, which glows inside cells.

By combining gene editing with light emission, **GlockaS9** is leading the way in the emerging field of **theratracking**, a unique example of looking at molecular gene therapy in a moving state. This invention brings us closer to a future where scientists will not only be able to fine-tune genes but **also witness the process of treatment firsthand.**