

IB Protein Function Summary

Rubisco by Macy Jenks, Libby Steinberg, Dexter Carpenter, Will Heins, Chloe Gustafson, and Lindsey Hausafus

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Where is Rubisco Found?

Rubisco is found in the stroma of **chloroplasts** in plant cells. Rubisco is one of the most common proteins found in chloroplasts, taking up 15-50% of the proteins in the organelle.

Why is Rubisco Important?

Rubisco is the foundation of all carbon-based life. Rubisco catalyses the first step of ribulose biphosphate and carbon dioxide, eventually producing glucose, fats, and other proteins. Its prevalence in nature is essential for plants to perform photosynthesis.

Scientific Article - Rubisco activase best clue for better photosynthesis in fluctuating light

<https://phys.org/news/2016-02-rubisco-activase-clue-photosynthesis-fluctuating.html>

Scientists and plant breeders are aiming to improve food production by improving photosynthesis in crop plants, using Rubisco activase

Scientific Article

Lancaster University. "Towards smarter crop plants to feed the world." ScienceDaily. ScienceDaily, 26 July 2016. <www.sciencedaily.com/releases/2016/07/160726094830.htm>.

Plant scientists have studied how rubisco can help plants adapt to different environments, which can be used to end

world hunger.

The Rubisco Protien

What Does Rubisco Do?

Rubisco, short for ribulose biphosphate carboxylase, is a protein that begins the **Calvin cycle*** through carboxylation: a process in which it takes in dissolved carbon dioxide in water and transforms it into sugar molecules which allows them to grow. Rubisco transforms CO₂ molecules into C-C bonds with hydrogen atoms. To perform this important function, Rubisco proteins are very complex. They are made up of eight small subunits and eight large subunits.

The Calvin Cycle*

