

# Unpacking a secret of photosynthesis

March 27 2018

---



Credit: University of Stavanger

Researchers at University of Stavanger have brought us one step closer to solving the fundamental question how plants build the photosynthetic machinery.

In a new research paper published in the journal PlosOne, professor Lutz Eichacker and postdoc Astrid Mork-Jansson at the Centre for organelle

research (CORE), UiS, provide the proof that a protein called Lil3 which has been found earlier to be key to the process is binding [chlorophyll](#).

In barley plants germinating in the darkness of soil, the Lil3 protein accumulates when the leaf perceives the first light and the first [chlorophyll molecules](#) are made. In contrast, plants were struggling to survive, and accumulation of chlorophyll and of the [photosynthetic machinery](#) failed, when the Lil3 gene was removed from the genome.

It appeared that binding of chlorophyll by Lil3 could be a crucial step in the development of photosynthesis.

In the work now published, the researchers cloned the Lil3 gene and synthesized the Lil3 protein in the bacterium *Escherichia coli*. When they isolated the Lil3 protein and incubated it in the test tube with chlorophyll, they found that Lil3 binds one molecule of chlorophyll per protein.

Follow-up research will investigate further how Lil3 uses the bound chlorophyll to promote building the photosynthetic machinery.

**More information:** Astrid Elisabeth Mork-Jansson et al.  
Characterization of chlorophyll binding to LIL3, *PLOS ONE* (2018).  
[DOI: 10.1371/journal.pone.0192228](https://doi.org/10.1371/journal.pone.0192228)

Provided by University of Stavanger

Citation: Unpacking a secret of photosynthesis (2018, March 27) retrieved 3 May 2024 from <https://phys.org/news/2018-03-secret-photosynthesis.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.