

8-2018-5702 | Using *Chlorella Ohadii* Algae Genes to Improve Plant Resistance to Photodamage  
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### Our Innovation

- A transgenic plant that expresses genes of *Chlorella Ohadii* algae, and thus demonstrate significant resistance to photo damage
- Prof. Kaplan's research group has discovered *C. Ohadii*, a unique type of algae found to be completely resilient to photo damage even under extremely high light intensities. The algae demonstrates the highest growth rate among photosynthetic eukaryotes, as such its discovery is considered a game changer.
- Prof. Kaplan is the only researcher to fully sequence the *C. Ohadii* genome and isolate the specific genes controlling photo-inhibition resistance.
- The researcher transformed genes to ARABIDOPSIS plant and discovered up to 6 genes that significantly impacted the plants resistance to photo damage, contributing to the overall plant biomass accumulation and improved plant growth factors.
- These results were obtained in lab conditions with significant statistical impact. Thus, suggesting the first ever solution to the problem of photo damage.

### Technology

Photo damage is caused by excess light intensities, and leads to the disintegration of protein D1, a key protein in the Photosystem II (PSII) reaction center. In lower light intensities, the plant is able to overcome the damage, however, in the higher levels, the amount of energy the plant puts in the biosynthesis of new D1 protein reduces product yield (10-50%) in all plant types.

For decades, the process of photo damage was investigated, however until now, no solution has been found to overcome this problem.

### Opportunity

Currently there are no known competitors for similar technologies, and the problem of photo damage is considered inevitable.

The invention is applicable for the agritech field. Due its large market and high sensitivity to photo damage, soy, for example, is an applicable choice for such technology.

### Patent Status

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