

## **P3-211 “Pave the way for deciphering the development of transfer cells in economically important crop plants”**

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### **Abstract:**

Transfer cells are highly specialized plant cells in which cell wall ingrowths increase their plasma membrane surface areas, and abundant mitochondria provide high levels of energy for facilitated solute membrane transport. The elaboration of transfer cells is one of the most impressive and powerful strategies that many crop plants have developed to create a high capacity for membrane transport of assimilates and nutrients, involved in assimilate phloem-loading in source leaves, phloem-unloading in developing fruits and seeds, nutrient uptake in the roots. Increased transport of assimilates into storage tissues will provide abundant resources for biosynthesis of economically important bio-products such as proteins, lipids, starch and health-promoting phytochemicals.

This project will develop valid methods and use model plant, *Arabidopsis* which contains transfer cells, to study the functions of wheat transfer cell specific genes, and test a hypothesis that similar genes and gene networks are required for the development of transfer cells in different transfer cell systems and in different species. The research proposed in this seed grant will pave the way for deciphering the development of transfer cells in economically important crop plants and provide powerful research strategy and tools for the transfer cell research community worldwide.