CLONING AND CHARACTERIZING PUTATIVE POLYOL TRANSPORTERS FROM THE LICHEN *Peltigera britannica*

Tami McDonald[1*]; Margaret Piecz[1]; Anke Reinders[2]; John M.Ward[2]

[1] St. Catherine University, USA; [2] University of Minnesota, USA; [*]E-mail:trmcdonald@stkate.edu

In the lichen symbiosis, atmospheric carbon is fixed by the photobiont and then exported to the lichenizing fungus in the form of polyols and simple sugars. The conduits through which these symbiotically exchanged carbon sources flow are transporter proteins embedded in the membranes at the symbiotic interface. Although the nature of the carbon source has been elucidated, the transporter proteins that facilitate the exchange are not well understood. To identify the transporters facilitating symbiotic carbon exchange between the symbionts in the tripartite lichen *Peltigera britannica*, transcriptomes were generated from portions of thalli. Putative polyol transporters were identified via homology with five previously characterized polyol transporters from the yeast *Debaryomyces hansenii*. The full-length coding sequences of putative polyol transporters were amplified from cDNA and cloned into expression plasmids for yeast and *Xenopus* oocytes. The functionality of the transporters was tested by electrophysiology. This type of analysis can reveal transporter substrate specificity and regulation which are important for understanding the physiological function or transporters.