**Final Report ABG 2017: Yeast 2-Hybrid Assay Reagents for Independent Study Student and Faculty Research**

**Submitted By:** Dr. Jessica Petko (9071099705), Assistant Professor of Biology

**Amount Awarded:** $2000 (all spent)

The goal of this funding was to obtain the reagents for yeast 2-hybrid screening. This technique uses yeast as a genetic tool for determining molecular interactions that may be relevant to cell function and disease. A majority of the budget was invested in the screening library which are yeast cells containing human brain proteins. This past summer three students were involved in performing three such studies using the materials purchased with the outlined budget. Two out of the three screens were successful, and one of these screens has resulted in publishable data. There are enough materials remaining for three more yeast screens.

The most successful project that came from this grant was a screen involving Wntless, a gene that is important for development and adult brain function. This gene has multiple forms, and we chose to screen for new interactors of a form that is found only in primates. The screen revealed four novel protein interactions, one that is of great interest in the development of the nervous system. This project will be submitted for publication this summer, and will contribute significantly to my tenure review. In addition, we screened two portions of a protein called Shroom for new interactors. Shroom is required for proper closure of the nervous system during development. Of the two screens performed for Shroom, only one successfully yielded results. The most exciting interactor, Kif3a, is known to be involved shaping the developing nervous system. We are continuing to analyze this interaction in other systems aside from yeast.

Perhaps most importantly, this grant provided my students with research experience and data to present at the Pennsylvania Academy of Science annual meeting which was held at IUP this year. This experience was extremely motivating for them. My junior research student, who is extremely shy and was terrified at the thought of presenting her poster, came back determined to get more data to present again next year.

 I thank the Advisory Board for its support and the opportunity to provide my students with invaluable hands on experience.