

Presenter: Ralph E. Dewey

Title: Plant Mitochondrial Genome Editing

Abstract: The inability to transform the genomes of higher plant mitochondria has limited molecular genetics-based investigation of the genes encoded by this essential organelle. The recent advent of genome editing technologies, however, has presented new opportunities for modifying the plant mitochondrial genome. Using tobacco as the model system, we repurposed an essential mitochondrial gene to function as a nuclear gene, followed by the introduction of custom designed meganucleases to eliminate its function from the mitochondrial genome. My presentation will describe the potential for using this system to generate new sources of cytoplasmic male sterility, an important trait used in the production of hybrid seed, as well as seedless fruits.