Malaria has caused approximately 584,000 deaths in 2013. Although the mortality rate of children infected with malaria has fallen to about 54% since 2000, every minute a child dies from this disease. Artemisinin, a unique endoperoxide sesquiterpene lactone molecule produced by *Artemisia annua*, is an effective antimalarial drug. It is the only natural source of the drug available to malarial patients, and the artemisinin-based combination therapy (ACT), which is the first clinical line of malaria treatment. Many efforts have been undertaken to understand artemisinin biosynthesis to increase content for ACT. Although the final steps of artemisinin biosynthetic pathway are unknown, new genes have been continuously identified to be involved in the pathway such as ADH1 and CYB5. Recently, cytochrome P-450 reductase members have been mined from our sequence assembly. In this report, we will discuss candidates that are potentially associated with artemisinin biosynthesis. This research is supported by CALS Enrichment Bridge grant.