



INSTITUTE FOR CELLULAR ENGINEERING

Establishing Gene-to-metabolite Networks for Plant Signaling Compounds

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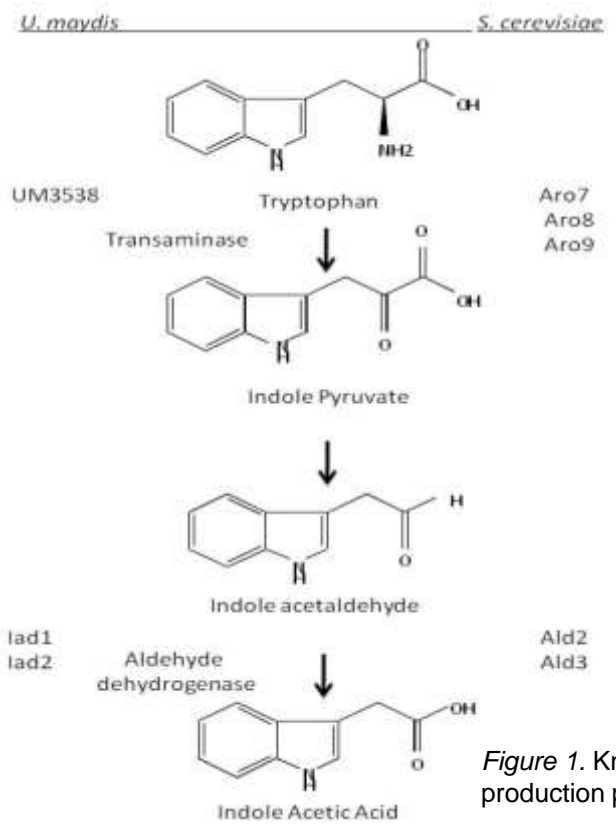


Figure 1. Known IAA production pathway

Indole-3-acetic acid (IAA) is a phytohormone that is produced by many plant-associated microbes. IAA causes plants cells to elongate and to divide. It also may signal a morphological transition in fungi from a vegetative state to a virulent state. Several biosynthetic pathways have been discovered in microbes and plants. One of the pathways for IAA synthesis in the yeast *Saccharomyces cerevisiae* that uses tryptophan (Trp) as a precursor and converts indole-3-acetaldehyde (IAALD) to IAA by way of the ALD2 and ALD3 gene products as shown in Figure 1. Previously, we found that ALD2 and ALD3 deletion mutants produce four-fold more IAA than wild type, which was unexpected if Trp is a precursor to IAA. The goal of the project is to identify the precursor of IAA in yeast.

We are using stable isotope labeling methods to follow the incorporation of label from precursors of Trp into IAA. We are testing various culture media conditions to optimize the incorporation of label.

Prusty Rao et al., 2010 Genetics vol: 211-220