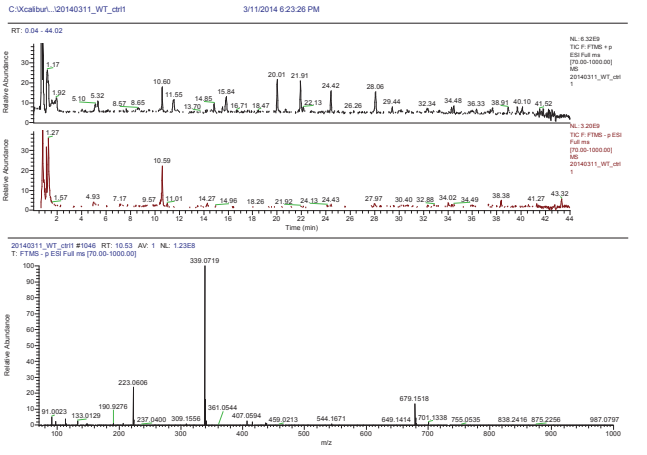
THOMSON
Solutions At Work™

series	cap color	membrane	pore size	part #
nanoIFilter Vial®	●	PTFE	0.45µm	15540

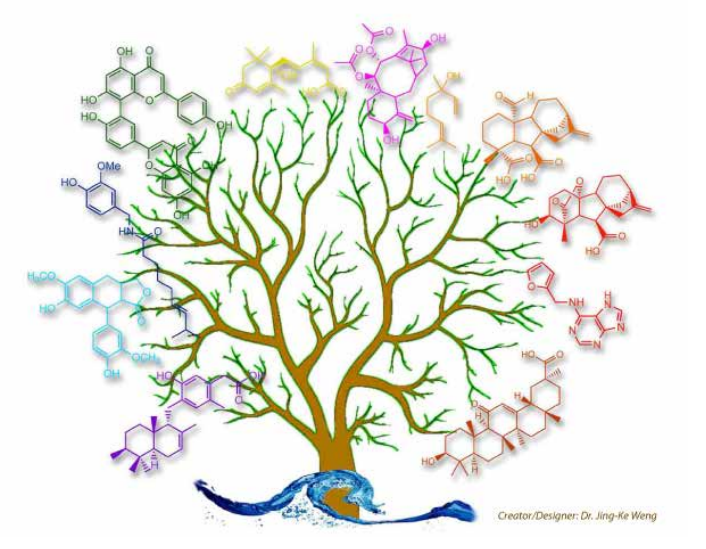
Analysis of Sinapoylmalate in the Arabidopsis thaliana Leaf by Using the nanoIFilter Vial®: Sinapoyl Malate is a major UV protectant in *Arabidopsis thaliana*

Data provided by Jing-Ke Weng, Ph.D.
Member, Whitehead Institute for Biomedical Research
Assistant Professor of Biology, Massachusetts Institute of Technology



Introduction

Plants contain rapidly evolving specialized metabolic system, and presumably encounter destabilized evolutionary intermediates along their mutational trajectories. Have plants evolved unique molecular mechanisms that assist folding of those destabilized proteins and/or mitigate proteotoxicity arising from protein misfolding? We use the model plant *Arabidopsis thaliana* to examine the in vivo function and behavior of mutant enzymes that exhibit broadened product promiscuity and/or decreased folding stability in vitro. We attempt to identify genetic components involved in cellular mechanisms that assist folding or alter product profile of these mutant enzymes. We designed a simple sample preparation method for the analysis of Sinapoyl Malate by LC-MS to study its mechanism in UV protection of the *Arabidopsis thaliana*.



Method

- Grind Leaf tissue under liquid nitrogen.
- Extract with 80% MeOH (1mL MeOH to 200mg fresh weight leaves).
- Centrifuge.
- Filter with 0.2µm PTFE nanoIFilter Vial®.
- Analyze by UHPLC - Orbitrap Mass Spec.

Equipment

HPLC Column: Phenomenex Kinetex 2.6µm C18 150x3.0

Mobile Phase

Solvent A: H2O + 0.1% Formic Acid

Solvent B: Acetonitrile + 0.1% Formic Acid

Gradient

time	%A	%B
2min	95	5%
40min	20	80%
40.1min	5	95%
44min	5	95%
44.1min	95	5%
48min	95	5%