METABOLON®

AGRICULTURE AND PLANT BIOLOGY

MEETING THE DEMANDS OF A RISING GLOBAL POPULATION WITH THE PLANETS FINITE RESOURCES TO SUPPORT THE PLANETS FOOD SUPPLY (IN AN ECONOMICAL AND SUSTAINABLE MANNER) IS AN ESCALATING PRESSURE. AGRICULTURE RESEARCHERS ARE ACUTELY AWARE OF THE NEED FOR DEEP AND MEANINGFUL INSIGHTS IN ORDER TO DEVELOP STRATEGIES TO MEET THESE CHALLENGES.

Delivering Essential Mechanistic Insights to Agriculture Research with Metabolomics

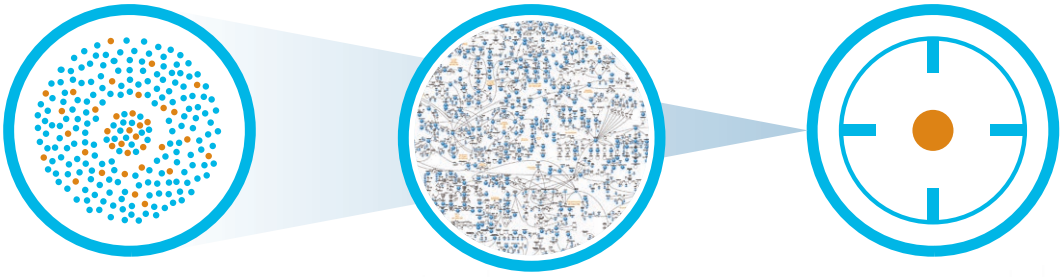
Metabolomics, or comprehensive biochemical profiling, creates a snapshot of all biochemicals present in a sample by identifying, quantifying, tracking and mapping each metabolite present in the system. Metabolomics provides unique biological insight into the fundamental nature of any plant trait in relation to both genetics (trait development, biodiversity, gene expression, mutations, genetic engineering, etc.) and the environment (abiotic stress, disease, nutrition, etc.). Researchers are using this deep fundamental insight as a key ally for engineering solutions for meeting the agriculture demands of our growing planet.

FOR A COMPLETE LIST OF OUR METABOLOMICS SERVICES, VISIT WWW.METABOLON.COM

Agriculture Applications

- Abiotic stress response: heat, drought, nitrogen utilization, etc.
- Transgene characterization: GM vs WT, and across GM lines
- Seed diversity, bioequivalence and fitness
- Gene function characterization (gene KO and overexpression)
- Seed and plant development characterization
- Plant pathology
- Characterization and MoA of crop protection agents
- Biofuels and plant derived chemicals: for example lipids expression, tissues, TAG, terpenoids
- Genomic enrichment: identification of new gene targets with metabolic "sentinels"

METABOLON'S PROCESS: FROM CONCEPT TO CONFIDENCE



YOUR PARTNER IN METABOLOMICS.

METABOLON IS A LEADER IN BIOPROCESS METABOLOMICS, HAVING PERFORMED HUNDREDS OF PLANT AND AGRICULTURALLY-RELATED STUDIES WITH DOZENS OF HIGH IMPACT PUBLICATIONS INCLUDING:

- Rudd, J.J. et al. Transcriptome and metabolite profiling of the infection cycle of Zymoseptoria tritici on wheat reveals a biphasic interaction with plant immunity involving differential pathogen chromosomal contributions and a variation on the hemibiotrophic lifestyle definition. *Plant Physiol* **167**, 1158-1185 (2015).
- Coneva, V. et al. Metabolic and co-expression network-based analyses associated with nitrate response in rice. *BMC Genomics* **15**, 1056 (2014).
- Clark, J.D. et al. Assessment of Genetically Modified Soybean in Relation to Natural Variation in the Soybean Seed Metabolome. *Scientific Reports* **3**, 3082 (2013).
- Ren, M. et al. Target of Rapamycin Signaling Regulates Metabolism, Growth, and Life Span in Arabidopsis. *Plant Cell* **24**, 4850-4874 (2012).
- Oliver, M.J. et al. A sister group contrast using untargeted global metabolomic analysis delineates the biochemical regulation underlying desiccation tolerance in Sporobolus stapfianus. *Plant Cell* **23**, 1231-1248 (2011).

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Since our founding in 2000, we have invested heavily in creating the innovative, industry-leading discovery metabolomics technology that provides unparalleled coverage depth and data quality.

Metabolon provides rapid, accurate metabolite identification and quantification across nearly every metabolite class, including complex lipids.

From our initial consultation to the delivery of results, the entire process of working with Metabolon is designed to empower informed decision making so you can move forward with confidence.

Supported Sample Types:

Metabolon has developed robust methodologies for most nearly any sample type including:

Species

Algae	Ginseng	Peony	Soybean
Aligatorwood	Grape	Pepper	Sporobolus
Allium	Iceplant	Petunia	Sugarcane
Arabidopsis	Kalanchoe	Phytoplankton	Summergrass
Brassica	Maize	Pine	Switchgrass
Broccoli	Medicago	Pomegranate	Tobacco
Cacao	Mixed	Poplar	Tomato
Camelina	Moss	Potato	Walnut
Corn	Oat	Pumpkin	Watermelon
Cotton	Opuntia (cactus)	Rice	Wheat
Cucumber	Orange	Selaginella	Yeast
Euphorbia	Palm	Solution	
Fungus	Peanut	Sorghum	

Sample Types

Bark	Floret	Nodule	Seedling
Berries	Flower	Orange Juice	Shank
Cambium	Fluid	Ovary	Shoot
Cell Extract	Hydrolysate	Phloem	Silk
Ear	Internode	Plant Extract	Solution
Ear Shoot	Leaf	Pollen	Spiklets
Ear Spikelet	Leaf Diffusate	Processed Food	Stem
Embryo	Media	Root	Tissue unknown
Etiolated Seedling	Mixed	Sap	Whole organism
Fiber Cells	Node	Seed	Yeast

METABOLON®
Where **knowing** comes to **life**™

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