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## Cannabis Metabolomics

Over the past two decades, the ability to identify and quantify a whole range of metabolites from plant material has become progressively simpler and increasingly cost effective. This field of study, known as 'Plant Metabolomics', is transforming the discovery process for compounds that impact our everyday perception of plants. However, one of the major challenges we face in the post-metabolomics era is to understand how plants actually make these compounds – compounds, for example, which are nutritionally important or have industrial and pharmaceutical relevance. Combined with an avalanche of sequenced genomes and DNA technology, advances in high resolution instrumentation have finally made it feasible to 'bring plant genes to life' and uncover the involvement of specific genes in previously unknown plant metabolic pathways.

From identifying new metabolic pathways to engineering plants with enhanced nutraceutical content, our past research has integrated cellular, genetic, and molecular approaches with cutting edge analytical and biochemical platforms in order to define previously uncharacterized biochemical phenomena in plants (1-7). We now turn our attention to Cannabis, which since antiquity, has proved to be a source of natural products with unparalleled medicinal versatility. Yet many of the medicinally relevant compounds made by Cannabis are enigmatic, in that almost nothing is known about how they are made. Using our vast expertise in plant metabolism, our goal is to gain a better understanding how these compounds are synthesized and then to use this knowledge to rationally engineer the production of Cannabis natural products for the medical Cannabis community.

### References

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## Full Version

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