

# Fulvic Acid, a Nutrient Delivery Ingredient

*A popular manufacturer reviews the bioscience behind fulvic acid as a nutrient delivery ingredient for nutraceuticals and functional foods*

KALAMAZOO, MI, USA, August 5, 2019 /EINPresswire.com/ -- Mineral Logic recently shared a blog and white paper by biochemist, Dr. M.K. Williams, Ph.D. on the nutrient delivery capabilities of fulvic acid.

Can nutraceuticals and functional foods boost their efficacy with fulvic acid? To find out how this is explained in biochemical terms, Dr. M.K. Williams, Ph.D. reviews this topic and give us his opinion. See his white paper here.

The effects of fulvic acids in the diet has been attributed to several concerted molecular events that greatly enhance the digestive process. To be clear, fulvic acid, like other organic acids, is also known as flavonoids, phenolic acids and a class of polyphenols. They are phytochemicals that come from fruit, nuts, seeds, and vegetables.

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*Dr. M. K. Williams, Ph.D.*

At a minimum, our modern diet places an unnatural load of simple sugars, and chemically-altered molecules on us that increase our production of fat, reduce our energy, lower our immune response, decrease our ability to neutralize free-radical damage, and destabilize our gut bacterial balance.

The studies Dr. Williams has reviewed in his white paper show that polyphenols modulate intracellular signaling. One major instance of this is signaling glucose to be shuttled away from typical fat production and storage to

increase uptake in muscle. This process increases available energy and subsequently improves mitochondrial biogenesis for more energy (ATP) production.

“Polyphenols (also) have antioxidant activity and inhibit advanced glycation end-product formation. AGEs are proteins or lipids that become damaged as a result of exposure to sugars. These damaged proteins or lipids can be a factor in aging and in the development or worsening of many degenerative diseases.” Dr. Williams

The way fulvic acids and polyphenols facilitate nutrient transport and absorption can be reduced to four significant functions:

- Transports glucose away from fat storage to muscular availability



**FLAVONOIDS    FULVIC ACID    POLYPHENOLS**

Nutrient Delivery Farm Truck Illustration

- Increases mitochondrial biogenesis – mitochondrial production.
- Stimulates AMPK, a master regulator of cellular energy
- Maintains a healthy gut microbiome

“The uptake of nutrients effected by fulvic acids can be looked at in two ways – both of which I think are correct. FA’s are nutrient delivery agents because they reduce the uptake of glucose in the intestine, liver, and fat cells, and they ‘deliver it’ to the muscle cells. Moreover, they shuttle glucose away from liver storage to the breakdown of stored glucose in the liver, shuttle glucose away from adipocyte formation, stimulate AMPK and mitochondrial biogenesis. FA’s can be called nutrient delivery molecules because of the way they divert nutrient delivery away from certain tissues and deliver it to others.” “Fulvic acids can also be called ‘metabolic regulators’ for all the same reasons stated above. They do indeed “down-regulate” or “up-regulate” certain gene pathways, that result in the shuttling of glucose from fatty acid synthesis to ATP production. This is more scientifically correct terminology. If I had to choose, I would call FAs nutrient regulators.”

Across the board, flavonoids are the powerhouse of nutritional activators and fulvic acids appear to be the most complex assortment of flavonoids available.

Read more in-depth science in the White Paper by Dr. M.K. Williams, Ph.D. Biochemist. Read the blog synopsis: Nature's Most Potent Delivery Molecule.

- Polyphenols and Nutrient Absorption- Focus on Glucose and Carbohydrate Metabolism
- Dietary [Fulvic Acids Modulate Tissue Uptake of Glucose](#)
- Gut Microbiota – How Fulvic Acids are Absorbed
- Liver Glucose Homeostasis
- AMPK is the Master Regulator of Cellular Energy
- Stimulation of skeletal muscle fatty acid oxidation and glucose uptake
- [Flavonoids as Mediators of AMPK Activity](#)

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