

resVida[®] Health benefit solution

What is resVida[®]

resVida[®] is a high purity resveratrol (99% of pure trans-resveratrol). resVida[®] is free of impurities such as Emodin or herbicides and pesticides like Anthraquinone. Resveratrol is a polyphenol present in various foods predominantly in grapes and red wine. Resveratrol is believed to be responsible for the so-called *French Paradox*, the fact that French people – who consume a highfat diet – maintain relatively low mortality rates from coronary heart disease compared to other western countries. Their moderate but regular consumption of red wine is a contributing factor in explaining this paradox.

Mechanism of action

Resveratrol is a potent antioxidant that reduces harmful reactive oxygen species which can lead to premature aging of cells. Resveratrol further acts by upregulating multiple endogenous antioxidant enzymes such as e.g. SOD.

In vitro and *in vivo* studies have demonstrated many health benefits for resveratrol. Identified mechanisms of action relate to the maintenance of a healthy cardiovascular system as well as a normal metabolic function which includes the maintenance of healthy blood glucose and insulin activity.

Efficacy

Numerous scientific publications show that resveratrol can contribute to:

- maintenance of a healthy cardiovascular system
- maintenance of neurocognitive function
- an improvement of age-associated decline of metabolic and sensory-motor coordination function

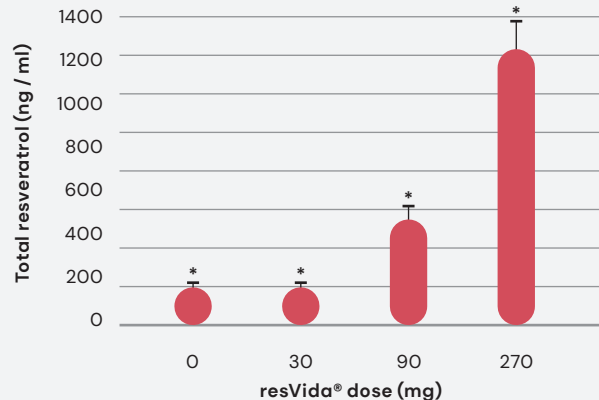
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resVida[™]

- Proven bioavailability and safety
- Proven efficacy in humans
- Improves vascular and metabolic health
- Structure function claims
- High purity and consistent quality

Resveratrol plasma concentration (60 minutes after resVida[®] supplementation) was significantly increased with each dose



Mean +/- SEM * p<0.0001 vs. placebo Wong et al., Nutr Metab Cardiovasc Dis 2011

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...Efficacy continued

resVida® resveratrol comes along with an unmatched set of human data and has been demonstrated to:

- be bioavailable
- be efficacious at low dose
- maintain healthy blood pressure
- maintain healthy blood glucose and insulin activity
- induce endurance training-like effects in muscle such as increased fat oxidation and fat storage capacity
- mimic the metabolic benefits of calorie restriction

Overall scientific evidence indicates that resVida® promotes healthy aging.

Safety

resVida® resveratrol is a consistent, quality product free of pesticides and herbicides. The safety of resVida® has been evaluated in a comprehensive battery of safety studies that is unmatched by any other form of resveratrol and has been demonstrated in human studies to be well tolerated.

Applications

dsm-firmenich's resVida® is a 99% pure trans-resveratrol that is highly versatile and is ideally suited for a broad range of food, beverages and dietary supplement applications including fruit and vegetable juices, health bars, breakfast cereals, capsules, tablets, softgels and powders.

dsm-firmenich's resVida® is supported by FDA-acknowledged structure function claims and has obtained self-affirmation GRAS status for functional food applications.



For dsm-firmenich, quality is a way of life. This is the core of Quality for Life™: a seal of excellence for our products.

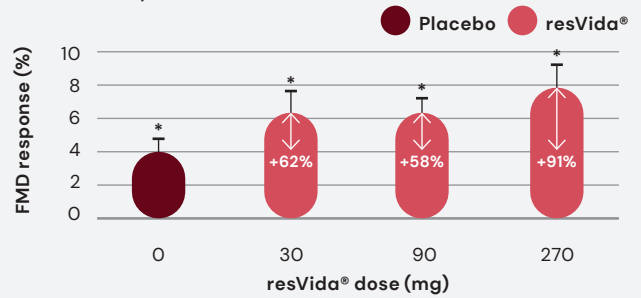
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With the Quality for Life™ seal, we guarantee peace of mind for you and for your customers. www.qualityforlife.com

For more information on this Health Benefit Solution by dsm-firmenich, visit www.dsm.com/human-nutrition, www.quali-blends.com or e-mail info.dnp@dsm.com

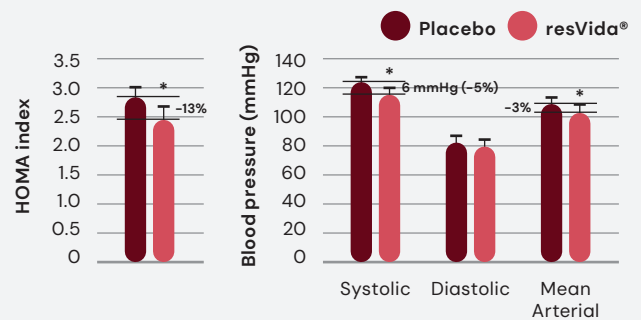
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resVida® significantly improved vascular reactivity in humans



Mean +/- SEM * p<0.0001 vs. plc Wong et al., Nutr Metab Cardiovasc Dis 2011

resVida® improved insulin sensitivity in humans (HOMA index) and reduced blood pressure



Mean +/- SEM * p<0.05 Timmers et al. Cell Metabolism 2011

Effects of resVida® compared to calorie restriction

	Calorie restriction		Resveratrol	
	Rodents	Humans	Rodents	Humans
Body weight	↓	↓	↓	•
Insulin	↓	↓	↓	↓
Energy expenditure:				
Total	↓	↓	↑?	•
Postprandial	↓	↓	?	↓
Sedentary / sleep	↓	↓	?	↓
Fat mass and fat-free mass	↓	↓	↓	?
Liver fat	↓	↓	↓	↓
Intramyocellular lipids	↓	↓	↓	↓
Insulin sensitivity	↓	↓	↓	↑
Inflammation markers	↑	↑	↑	↑
Mitochondrial eSciencey	↓	↓	↓	↓
sulin	↑	↑	↑	↑

↓ Decrease ↑ Increase • Similar ? Currently unknown

Timmers et al., Cell Metab 2011, Suppl Info