

Code Number:	20439
INCI Nomenclature:	Butylene Glycol & Saccharomyces/Podophyllum Peltatum Ferment Filtrate
INCI Status:	Approved
Suggested Use Levels:	1.0-10.0%
Suggested Applications:	Anti-Aging

Time in a bottle, that's really what consumers are looking for in cosmetics. Scientists now understand that there is a link between longevity and calorie restriction. But for those of us not inclined to count calories, there is another way...Sirtuins. No, this isn't something out of a George Lucas film. The pace of aging has been linked to longevity genes that have evolved as a response to deteriorating environmental conditions or stress.

Sirtuin or silent information regulator 2 proteins, are proteins that regulate important biological pathways in our cells. There are several different classes of sirtuins, but the proteins were named after the first SIR gene discovered in yeast (silent mating type information regulation two).



Increasing the expression of these genes mimic the effects of caloric restriction to inhibit stress-induced apoptotic cell death. Research indicates that an increase in the expression of SIRT1 expression promotes the long-term survival of our cells.¹ It seems odd that caloric restriction or SIRT1 for that matter would be related to longevity and stress resistance. Yet several studies such as the one conducted by Rozalyn Anderson indicate that "metabolic reprogramming by caloric restriction may be central to the mechanism of lifespan extension".²

Concentration of p53

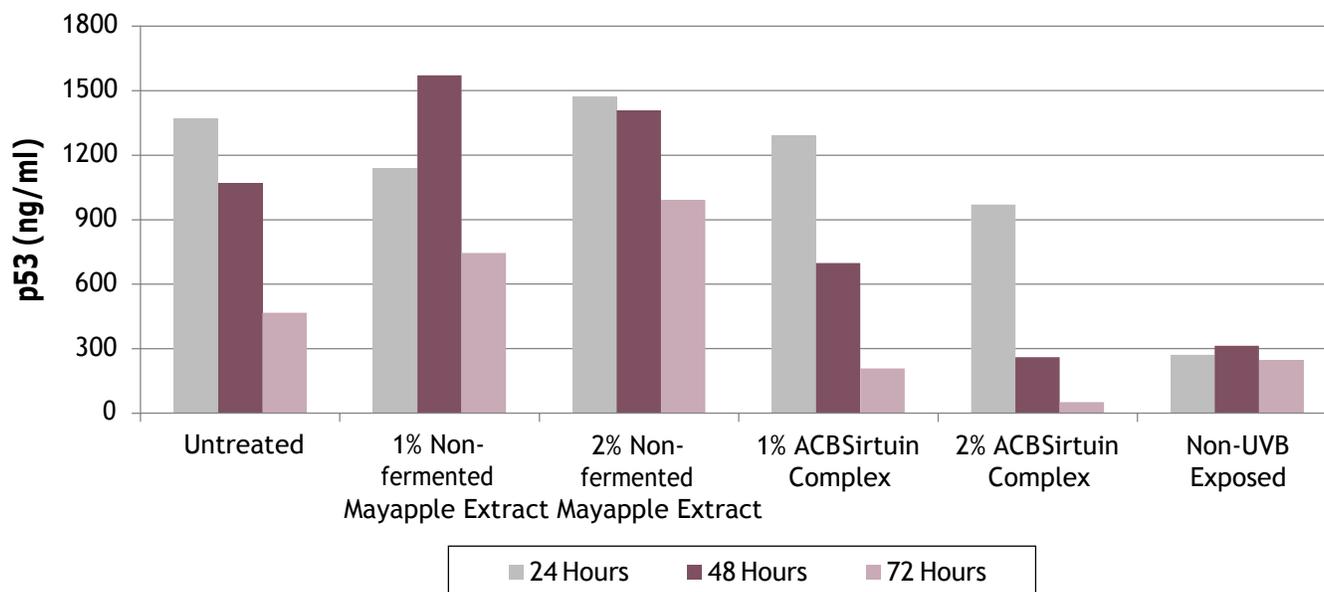


Figure 1: Reduction on the concentration of p53 following treatment with test materials





ACB Sirtuin Complex

Resveratrol has been shown to increase SIRT1 expression to promote longevity. This of course gives credence to the concept of the French Paradox, where drinking a small amount of red wine on a regular basis is thought to counteract the effects of a high cholesterol diet. The use of resveratrol in cosmetics is fairly limited due to its high cost and formulary constraints.

Sirt 1 Activity

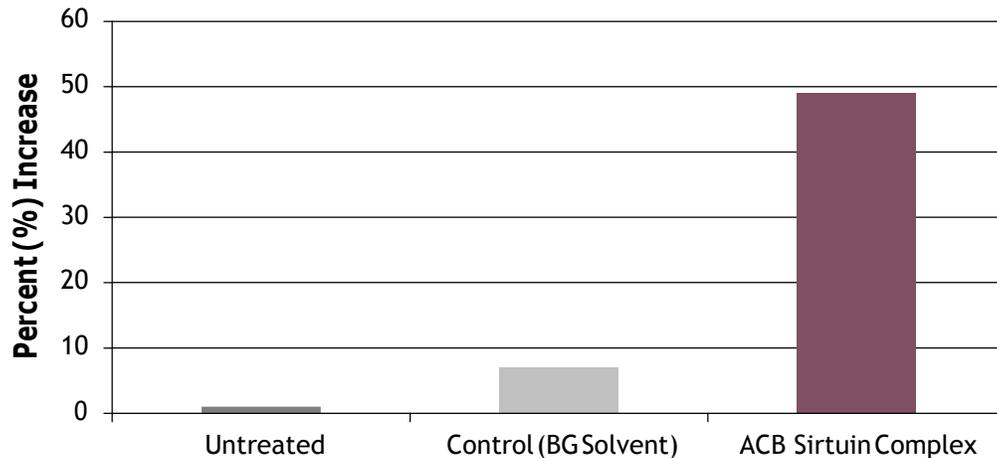


Figure 2: Increases in Sirt 1 activity following application of test materials

Our research has shown that **ACB Sirtuin Complex** is also capable of increasing SIRT1 expression. During our manufacturing process we ferment the plant with yeast. After fermentation, we centrifuge the product to concentrate the actives. An extract is then made from the pellet using butylene glycol. This novel manufacturing process allows for ease of formulation. As a result, **ACB Sirtuin Complex** can be incorporated into a variety of skin and scalp care applications to increase SIRT1 activity.

Sirt1 Activity vs. Cost

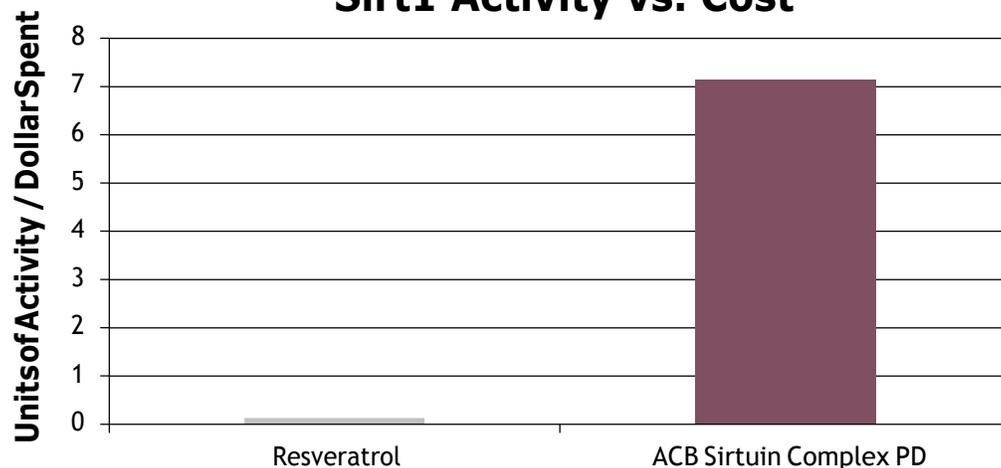


Figure 3: Increases in Sirt 1 activity based on cost contribution to a formula

References:

- 1) Cohen, Haim, *et al.* "Caloric Restriction Promotes Mammalian Cell Survival by Inducing the SIRT1-Deacetylase." *Science*. July 16, 2004. Vol. 305, No. 5682, p. 390-392.
- 2) Anderson, Rozalyn, *et al.* "Dynamic regulation of PGC-1a localization and turnover implicates mitochondrial adaptation in calorie restriction and the stress-response." *Aging Cell*. 2008. Vol. 7, p. 101-111.



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