

Foods with Functional Claims

β -cryptoxanthin standard

Cryptobeta Series

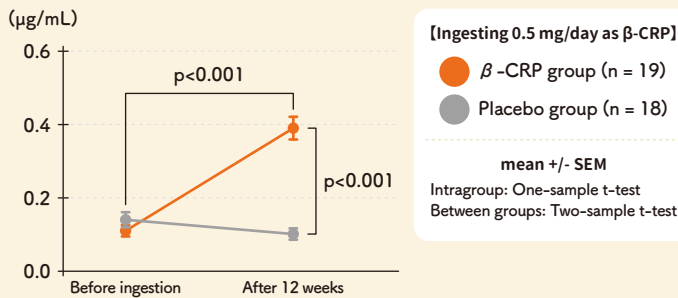


What Is the Cryptobeta Series?

Cryptobeta Series are functional materials with standardized amounts of highly concentrated β -cryptoxanthin (β -CRP) derived from the pulp of the Satsuma mandarin pulp that is discarded after juicing. We at Karada Lab have focused our attention on this juiced pulp, which contains high concentrations of β -CRP that has, until now, gone unutilized and to waste. Enzymatic treatment of this material has made it possible to produce the standardized paste material 'Cryptobeta' with higher concentrations of β -CRP. Additionally, we have also developed Cryptobeta D and the higher-concentrated Cryptobeta C15, which are stably powdered using patented techniques. We have come up with three types of Cryptobeta products to suit a wide variety of applications, creating the Cryptobeta Series.

Three Products Types Available, for a Wide Range of Applications

β -CRP Concentration in Blood (All Subjects)*¹



Unlike other phytochemicals, β -CRP is known to be easily absorbed and accumulated*¹ in the body when ingested orally. For this reason, long-term continuous ingestion of even small doses is still effective. By using the Cryptobeta Series with the standardized β -CRP compound, it becomes possible to have a continuous intake of β -CRP even during periods when mandarin oranges are limited or out-of-season. Three types with different properties and concentrations are available for use with a variety of products.

* 1...In clinical trials using cryptobeta, β -CRP concentration in blood significantly increased in the β -CRP group that ingested cryptobeta.

Cryptobeta Series

<Beverages, jellies, confectioneries, etc.>

• Cryptobeta

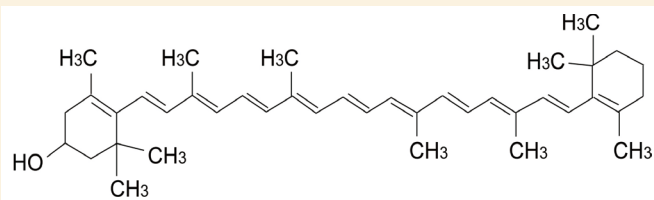


<Supplements>

• Cryptobeta D
• Cryptobeta C15



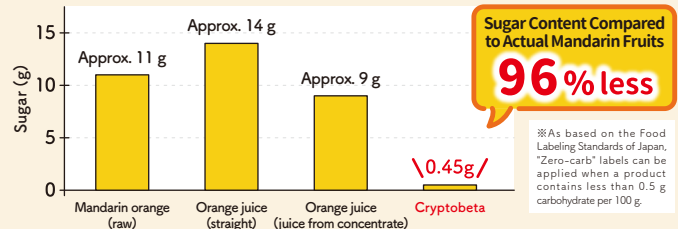
What is β -cryptoxanthin (β -CRP)?



β -CRP is a precursor that is converted into vitamin A inside the body and is a type of carotenoid found in vegetables and fruits, classified as a xanthophyll. According to an epidemiological survey conducted in the town of Mikkabi in Shizuoka Prefecture, where there are many Satsuma mandarin farmers, it was reported that those who consume a lot of Satsuma mandarin (those with high concentrations of β -CRP in their blood) have reduced risk of lipid metabolism disorders, arteriosclerosis, type 2 diabetes and liver function. The study also reported a reduced risk of osteoporosis in post-menopausal women*².

Zero-Carb/Low-Carb Foods with Mandarin Orange Flavor Made Using Cryptobeta

Amount of carbohydrates when ingesting 1 mg of β -CRP



Cryptobeta is produced using the residual pomace of Satsuma mandarin citrus fruits, and thus contains very little sugar. This product allows you to take β -CRP with lower carbohydrates than eating Satsuma oranges, so it can be used for foods that are low-carb or zero-carb products.

Functionality

Reduction of LDL cholesterol, reduction of body fat, improvement of skin spots (skin-lightening effect), inhibition of melanin biosynthesis (skin-lightening effect), acceleration of bone formation and inhibition of bone resorption, and improvement of hepatic function

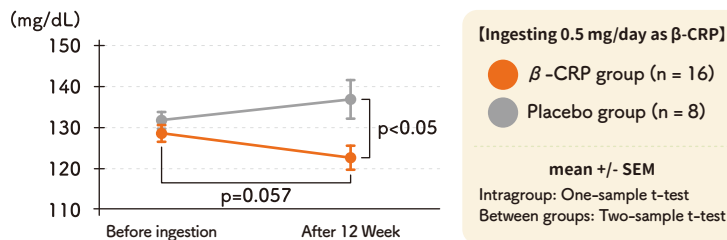
Patent and Trademark

• Patent No. 5909084
Water containing stabilized β -cryptoxanthin and its uses
• Cryptobeta™ is a registered brand by ARKRAY, Inc.



LDL cholesterol * 1

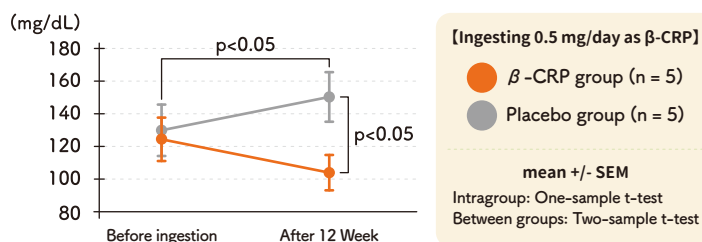
Subgroup: The β -CRP group and the placebo group (less diet-derived β -CRP), excluding smokers



LDL cholesterol was significantly reduced in the β -CRP group in comparison to the placebo group.

Triglycerides * 1

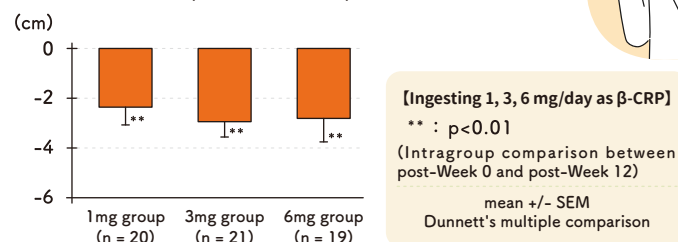
Subgroup: Those at or above the median Triglyceride reference interval (92 mg/dL)





The β -CRP group saw significant decrease in triglycerides in comparison to the placebo group.

Abdominal circumference * 3

Difference in abdominal circumference by test group (difference between circumference post-Week 0 and post-Week 12)



A significant decrease in abdominal circumference before and after ingestion was observed.

Product name	Cryptobeta	Cryptobeta D	Cryptobeta C15	
Properties	 Paste	 Powder		
β -Cryptoxanthin	0.18 mg/g or more	1.0 mg/g or more	1.5 mg/g or more	
Storage conditions	Deliver frozen, store frozen	Avoid heat and moisture, and store in the dark place at room temperature under the sealed condition.		
Packaging	15 kg (18-liter/4.75-gallon can)	1 kg (aluminum bag with oxygen scavenger)		
Recommended intake (per day)	2.8 g to 17 g	500 mg to 3 g	340 mg to 2 g	
Equivalent amount of β -cryptoxanthin	0.5 mg	2.8 g	500 mg	340 mg
	1.0 mg	5.6 g	1.0 g	680 mg
	3.0 mg	16.8 g	3.0 g	2.0 g
Example of Labeling	Satsuma mandarin	Satsuma mandarin powder / Antioxidant (Vitamin C)		

● Reference

* 1...Hiroshige Kawai, et al. Japanese Pharmacology & Therapeutics, 2020, 48(11), 1935-43.

* 2...Sugiura M. Nippon Shokuhin Kagaku kogaku Kaishi. 2014, 61(8), 373-81.

* 3...Hiroshige Kawai, et al. Carotenoid Science and Its Application for Current Practical Use; CMC Publishing Co., Ltd. 2009, 287-95.

