






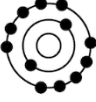
	(2015).				secretion rate after 90 days of supplementation vs. baseline (p<0.05)	
Supports healthy immune response 	Hongo et al. 2016. J Clin Ther Med. 32(7):577-91.	DBPC	39 healthy subjects	0, 12 mg/day	<b>12 mg/day:</b> Salivary SIgA concentration stable over the course of 8 weeks in spite of mental/physical stress loads. In contrast, placebo group had decrease in salivary SIgA concentration after 8 weeks vs. baseline (p<0.05).	Pg 19, Fig 5
Claim	Reference	Study Design	Participants	Dose	Results	Page #
Supports healthy inflammation response 	Park J.S. et al. <i>Nutr Metab (Lond)</i> . 2010;7:18.	DBPC	42 healthy subjects	0, 2, 8 mg/day	<b>8 mg/day:</b> IFN- $\gamma$ levels greater in 8mg group (9.55 pg/mL) vs. placebo (4.68 pg/mL) after 8 weeks (p<0.05) <b>8 mg/day:</b> IL-6 levels greater in 8mg group (25.2 pg/mL) vs. placebo (13.6 pg/mL) after 8 weeks (p<0.05) <b>2 mg/day:</b> CRP levels lower after 8 weeks compared to placebo (p<0.05)	Pg 6, Table 3  Pg 6, Fig 4
Supports healthy inflammation response	Baralic et al. Evidence-Based Complementary and Alt. Med. 2015 (4): 1-9	DBPC	40 healthy subjects	0, 4 mg/day	<b>4 mg/day:</b> CRP levels did not increase after 90 days of training following 2 hour bout of exercise compared to baseline. In contrast, 57%	





<p>Antioxidant</p> 	<p>Iwabayashi M. et al. <i>Anti-Aging Medicine</i> 6(4): 15-21, 2009.</p>	<p>Uncontrolled</p>	<p>35 healthy subjects</p>	<p>12 mg/day</p>	<p><b>12 mg/day:</b> AstaReal® Astaxanthin increases blood biological antioxidant potential (BAP; +4.6%, p&lt;0.05)</p>
<p>Antioxidant</p> 	<p>Karppi, J. et al. <i>Int. J. Vitam. Nutr. Res.</i> 77(1): 3-11, 2007.</p>	<p>DBPC</p>	<p>39 healthy subjects</p>	<p>0, 8 mg/day</p>	<p><b>8 mg/day:</b> AstaReal® Astaxanthin decreases oxidation of fatty acids in healthy men (p&lt;0.05)</p>
<p>Antioxidant</p> 	<p>Hashimoto H. et al. <i>Atarashii Ganka (Journal of the Eye)</i> 26 (2):229-234, 2009. and Hashimoto, H. et al. <i>J. Clin. Biochem. Nutr.</i> 53(1): 1-7, 2013.</p>	<p>Uncontrolled</p>	<p>35 cataract patients</p>	<p>6 mg/day</p>	<p><b>6 mg/day:</b> AstaReal® Astaxanthin increases superoxide scavenging activity (p&lt; 0.05)</p>
<p>Antioxidant</p> 	<p>Yamada T. et al. <i>J. Clin. Biochem. Nutr.</i>, 47: 130–137, 2010.</p>	<p>Uncontrolled</p>	<p>6 healthy subjects and 6 Sjogren's syndrome subjects</p>	<p>12 mg/day</p>	<p><b>12 mg/day:</b> reduces total salivary HEL oxidation marker in SS patients (p&lt;0.05)</p>
<p>Antioxidant</p> 	<p>Baralic I. et al. <i>Phytother. Res.</i> 27: 1536–1542, 2013.</p>	<p>DBPC</p>	<p>40 healthy subjects</p>	<p>0, 4 mg/day</p>	<p><b>4 mg/day:</b> protection of thiol groups against oxidative modification (increase in -SH groups, p&lt;0.05; improved PON1 activity towards paraoxon and diazoxon,</p>

					p<0.05 and p<0.01, respectively)	
Antioxidant 	Fujino, H. et al. Medicine and science in sports and exercise. 48. 129. Board #290 June 1, 2016.	DBPC	29 healthy subjects	0, 24 mg/day	<b>24 mg/day</b> : reduced derivatives of reactive oxygen metabolites (d-ROM; p<0.01)	

**Immune Function notes:**

- B Cell - a lymphocyte not processed by the thymus gland, and responsible for producing antibodies.
- T Cell - a lymphocyte of a type produced or processed by the thymus gland and actively participating in the immune response.
- T cell-dependent (phytohemagglutinin, concanavalin A) and B cell-dependent (pokeweed mitogen) mitogens
- SIgA is an antibody produced by B cells that inhibits the proliferation of pathogens on the mucosa of the oral cavity, airway, intestines, and other organs.