Summary of Key Scientific Studies: Benefits To Eye Health

The main function of the eye is to convert light from an external source into electrical nerve impulses, which are then relayed to the part of the brain responsible for vision to be interpreted as a visual scene. In the eye, light from an object traverses through the cornea, anterior chamber, pupil, lens, and vitreous to the retina. The retina is perhaps the most crucial tissue for visual function since it contains cells called photoreceptors that are responsible for converting light to electrical impulses that are relayed by the optic nerve to the brain. The retina is a very active tissue whose functioning depends on a continuous, adequate supply of nutrients and oxygen by a network of capillaries that constitute the choroid layer of the eye. It is therefore crucial that the blood vessels of the eye are maintained healthy, allowing for an optimum supply of nutrients, and thereby ensuring normal functioning of the eye (Guyton and Hall, 2000; Tortora and Grabowski, 1996).

Early scientific observations indicated that MASQUELIER's OPCs can bind to collagen and elastin in blood vessels and strengthen these essential components, possibly promoting healthy functioning of blood vessels (LaParra et al, 1978; Masquelier, 1981). Based on these observations, researchers hypothesized that MASQUELIER's OPCs could also have a beneficial effect on the blood vessels in the eye, thus supporting eye function. This hypothesis was confirmed through a series of scientific studies.

Corbe et al conducted an investigation to determine if MASQUELIER's OPCs could improve visual recovery from exposure to glare and visual dark adaptation in healthy humans. Recovery of sensitivity of the human eye to light after exposure to bright light, as well as adaptation to dim light are partly dependent on normal regeneration of the protein rhodopsin in the photoreceptors (rods) of the eye. Rhodopsin is depleted when eyes are exposed to bright light, and its rapid regeneration requires a normal supply of nutrients, which in turn requires healthy functioning of the blood vessels. In the study by Corbe et al, visual recovery after exposure to glare and dark adaptation were compared in 50 subjects taking 200mg/day of MASQUELIER's OPCs and 50 subjects taking a placebo for five weeks. The investigators observed that MASQUELIER's OPCs caused a statistically significant improvement in speed of recovery of vision following exposure to bright light, as well as a significant improvement in dark adaptation compared to placebo at the end of the five week period. They suggested that the ability of MASQUELIER's OPCs to bind collagen and elastin in blood vessels and improve vascular function reported by other scientists may promote an optimum supply of nutrients to the eye and ensure rapid regeneration of rhodopsin, resulting in the observed improved recovery from exposure to glare and improved dark adaptation upon intake of this phytonutrient (Corbe et al, 1988).

MASQUELIER's OPCs was also found to exhibit vasculo-protective activity and significantly reduce risk of retinopathy in subjects with diabetes. Retinopathy (or vascular abnormalities in the retina) is a frequently-observed complication in diabetes, and if uncontrolled can result in blindness. The underlying causes of diabetic retinopathy are hyperglycemia (increased plasma glucose levels) and the associated hypoxia (low tissue oxygen levels) (Reviewed in Morello, 2007; Rosenblatt and Benson, 2004). As glucose levels build up in the plasma in diabetes, extensive glycation of proteins, lipids and DNA occurs leading to formation of advanced glycation end-products (AGEs). These AGEs affect the vasculature in the retina of the eye by damaging the structural integrity of the blood vessels leading to increased capillary permeability. AGEs can also increase surface stickiness of blood cells impairing blood flow, and induce oxidative stress and inflammatory reactions that damage the endothelial lining of the blood vessels. In a series of double-blind, controlled studies (Arne, 1982; Verin, 1978) and open label studies (Fromantin, 1981; Soyeux et al, 1987), it was demonstrated that MASQUELIER's Original OPCs significantly reduced microvascular abnormalities such as increased capillary permeability, aneurysms, exudates and hemorrhages in the eyes of diabetic subjects, as well as increased rheological parameters such as erythrocyte deformability that increases blood flow rate, and thereby reduced the risk of developing retinopathy in these subjects. These studies further indicated beneficial effects of MASQUELIER's OPCs in supporting healthy functioning of the eye.

Research studies performed in animal and in vitro models elucidated the likely biological mechanism by which MASQUELIER's OPCs exerted vasculo-protective activity and supported eye health in humans. MASQUELIER's OPCs was demonstrated to bind collagen and elastin in blood vessel walls, promote collagen synthesis and polymerization and inhibit degradation of collagen and elastin in studies conducted in rats and guinea pigs (Gavignet-Jeannin et al, 1988; Pfister, 1982). Further in vitro studies revealed that this phytonutrient demonstrated a high percentage of binding to collagen fibres (Masquelier et al, 1981) and promoted synthesis of collagen and elastin, and inhibited their proteolytic degradation, (Gavignet-Jeannin et al, 1988; Tixier et al, 1984). These studies suggested that MASQUELIER's OPCs acts directly at the level of the vascular wall, and has a significant structural reinforcing and protective effect.

Scientific evidence to date therefore supports the potential beneficial effects of MASQUELIER's OPCs in promoting healthy eye function in humans through improving dark adaptation and recovery from glare, as well as enhancing circulatory function and reducing vascular abnormalities in the eye, thus reducing risk of retinopathy. These observed beneficial effects of MASQUELIER's OPCs are likely due to its ability to bind vascular wall components (eg. collagen and elastin) and strengthen the vascular wall structurally, as revealed through investigations in experimental model systems, thereby improving circulatory function that is essential to maintaining eye health.

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