Pyrroloquinoline quinone (PQQ) is a B vitamin-like cofactor that occurs naturally in plant foods and in most organs and tissues. Over fifteen years of research has underscored the unique properties of PQQ in maintaining neuronal health. The diverse cellular mechanisms of PQQ distinguish this powerful quinone antioxidant from other neuroprotective dietary supplements.*

The effects of PQQ on neuronal function partially stem from its influence on mitochondrial homeostasis. While many nutritional supplements support mitochondrial bioenergetics by acting as metabolic cofactors, PQQ supports de novo synthesis of mitochondria by the activation of the transcription factor CREB (cAMP response element binding protein) and the genomic coactivator PGC1α (PPARγ coactivator 1α). PGC1α promotes the expression of a network of genes involved in the synthesis of mitochondria. Thus, the mitochondrial effects of PQQ complement the well-known properties of CoQ10. While CoQ10 plays a bioenergetic role within the mitochondrial membrane, PQQ supports the coordinated process through which new mitochondria are generated.*

PQQ also supports neuronal health through intracellular targets that are distinct from CoQ10 and are largely unprecedented in the realm of nutritional supplementation. For example, PQQ maintains healthy levels of DJ-1, a protein that plays a role in antioxidant defenses in dopaminergic neurons. PQQ also supports the biosynthesis of nerve growth factor (NGF), an important signaling molecule in the brain and sensory nerves. Perhaps the most salient discovery over the past two decades of research on PQQ and neuronal function is its ability to balance activation of ionotropic glutamate receptors. The N-methyl D-aspartate (NMDA) receptor is the primary conduit for excitatory glutamate neurotransmission and is regarded as an important target for maintaining neuronal health. PQQ supports synaptic and intracellular responses by maintaining healthy NMDA receptor activity.* Recent studies indicate that PQQ supports cognitive function. In one study involving rats, PQQ supplementation supported performance in a water maze test.* In a randomized, double blind study of 71 middle aged individuals,
PQQ supplementation over 12 weeks promoted mental processing. In the same study, a combination of PQQ and CoQ10 was more effective than either agent alone.\,*
PQQ offers wide range neural and cognitive support, including antioxidant activity, mitochondrial synthesis and nerve cell receptor function. While additional clinical investigations are necessary, existing evidence suggests that PQQ provides powerful multifaceted neuroprotection.\,*

References


*These statements have not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.