

Lipoic Acid Mineral Complex Monograph

Provided by, and © Paul S. Anderson 2016 – www.ConsultDrA.com –

Lipoic Acid Mineral Complex (LAMC) Mechanism of Action Information: (1)

LAMC is a redox molecule that facilitates energy charge transfer at the cellular level with regards to the cellular transport chain, it can therefore protect and provide energy. Mimics the electron transport chain. Differs from free radical scavengers (e.g. alpha-lipoic acid) since there is no free lipoic acid or palladium. They are irreversibly bound together resulting in a molecule that is both fat and water soluble. LAMC (brand name in North America: Poly-MVA, also referred to as Pd-LA) is a polymer (liquid crystal) rather than a single molecule. Therefore, the polymer provides a unified redox reaction. In summary it is an extremely effective energy transferring molecule. LAMC has been shown to be neuroprotective and helpful in supporting the mitochondrial complex. (2,3,4,5)

Published research addressing the potential use of LAMC in various degenerative and oncologic settings:

Myocardial Damage: “The level of GSH was also significantly improved and the level of lipid peroxidation was decreased significantly ($p < 0.05$) by POLY-MVA. The results indicate that POLY-MVA is effective to protect the age-linked decline of myocardial mitochondrial antioxidant status. The findings suggest the use of this formulation against myocardial aging.” (6)

Cardio and Neurodegenerative disease: “The unique electronic and redox properties of palladium alpha-lipoic acid complex appear to be a key to this physiological effectiveness. The results strongly suggest that this formulation might be effective to protect the aging associated risk of cardiovascular and neurodegenerative diseases.” (7)

Neurodegeneration and Acetylcholine Function: “The results of the current study demonstrate that Pd-LA improves mitochondrial energy status in the brains of aged rats. The effects can be attributed to the enhancing effect on the Krebs cycle dehydrogenase and the activities of complexes I, III, and IV. The results further support the possible use of Pd-LA as an adjuvant treatment, together with the standard cholinesterase inhibitors, in individuals with mild or moderate dementia caused by Alzheimer's disease (AD).” (8)

Diabetes: “Results of the study conclude that the Pd-LA complex is effective in lowering the blood glucose level and enhancing the declined antioxidant status in diabetic animals. Significant finding(s) of the study include: (i) Pd-LA significantly increased the tolerance of glucose and was also effective in ameliorating hyperglycemia induced by alloxan; (ii) Pd-LA significantly enhanced the activities of blood superoxide dismutase, catalase, glutathione peroxidase and level of glutathione in diabetic animals; and (iii) Pd-LA showed significant in vitro antioxidant activity. This study adds: The therapeutic efficiency of Pd-LA is demonstrated against declined antioxidant status as well as hyperglycemia associated with diabetes.” (9)

Mitochondrial and Oxidative Protection: “While numerous routes offer varying degrees of CA1 neuronal survival after transient global ischemia, only the LAPd complex, which quenches radicals and provides energy to stabilize the mitochondria, offers such significant protection. Thus, the administration of Poly MVA may be a potent neuroprotective agent for victims of transient ischemic attack (TIA), cardiac arrest, anesthetic accidents, or drowning.” (10)

Radioprotection: “The administration of POLY-MVA significantly reduced the gamma-radiation-induced mortality and also aided recovery from the radiation-induced loss of body weight in mice surviving after 8 Gy gamma-radiation exposure. These results suggest the potential use of POLY-MVA as a radioprotector in cases of planned radiation exposures.” (11)

Clinical and Research Experience (12):

We have used oral and IV LAMC (PolyMVA) in the setting of mitochondrial damage and dysfunction, as adjunctive therapy for quality of life in oncology patients and as a co-therapeutic agent with Dichloroacetate in advanced cancers. We are currently running two human trials (active comparator) looking at the effect of LAMC on signs and symptoms of Multiple Sclerosis as well as post infectious fatigue. [Ongoing trials run at the AMSA clinics with support from Stonybrook University.]

Doses in the Autoimmune, Fatigue, Mitochondrial injured and Neurodegenerative population need to be lower and ramped up more slowly than in the oncology patient in our experience.

- Oral doses can be 5 to 15 mL BID in non-oncology cases and 10-20 mL BID-TID in oncology cases.
- IV doses are given in 100 to 250 mL D5W or NS
 - 5 - 10 mL test dose on the first administration
 - Ramp up to 20-25 mL in non-oncology cases
 - Ramp up to 40 mL in oncology cases
- Give in series (as a separate IV bag) with other nutrients or medications if desired. Compatible with most IV therapies. [13]

References:

1. Cell death assay (U-87 glioblastoma cell line) provided by: Frank Antonawich, Ph.D. Senior Scientist and Clinical Research Administrator Garnett McKeen Laboratory, Inc.
2. Menon, A., and Nair, C.K.K. (2011) Poly MVA – a dietary supplement containing alpha-Lipoic Acid Mineral Complex, enhances cellular DNA repair. Int. J. Low Radiation, in print.
3. Ramachandran, L., Krishnan, C.V., Nair, C.K.K. (2010) Radioprotection by α -Lipoic Acid Mineral Complex formulation, (POLY-MVA) in mice, Cancer Biotherapy and Radiopharmaceuticals, Vol. 25, No.4, 395-399.
4. Menon, A., Krishnan, C.V., Nair, C.K.K. (2009) Protection from gamma-radiation insult to antioxidant defense and cellular DNA by POLY-MVA, a dietary supplement containing palladium lipoic acid formulation. Int. J. Low Radiation, Vol. 6, No.3, 248-262.

5. Menon, A., Krishnan, C.V., Nair, C.K.K. (2008) Antioxidant and radioprotective activity of POLY-MVA against radiation induced damages, *Amala Cancer Bulletin*, Vol 28, 167-173
6. Sudheesh NP, Ajith TA, Janardhanan KK, Krishnan CV. Effect of POLY-MVA, a palladium alpha-lipoic acid complex formulation against declined mitochondrial antioxidant status in the myocardium of aged rats. *Food Chem Toxicol.* 2010 Jul;48(7):1858-62. doi: 10.1016/j.fct.2010.04.022. Epub 2010 Apr 20. PMID: 20412826
7. Sudheesh NP, Ajith TA, Janardhanan KK, Krishnan CV. Palladium alpha-lipoic acid complex formulation enhances activities of Krebs cycle dehydrogenases and respiratory complexes I-IV in the heart of aged rats. *Food Chem Toxicol.* 2009 Aug;47(8):2124-8. doi: 10.1016/j.fct.2009.05.032. Epub 2009 Jun 13. PMID: 19500641
8. Ajith TA, Nima N, Veena RK, Janardhanan KK, Antonawich F. Effect of palladium α -lipoic acid complex on energy in the brain mitochondria of aged rats. *Altern Ther Health Med.* 2014 May-Jun;20(3):27-35. PMID:24755568
9. Sudheesh NP, Ajith TA, Janardhanan KK, Krishnan CV. Palladium- α -lipoic acid complex attenuates alloxan-induced hyperglycemia and enhances the declined blood antioxidant status in diabetic rats. *J Diabetes.* 2011 Dec;3(4):293-300. doi: 10.1111/j.1753-0407.2011.00142.x.PMID: 21679354
10. Antonawich FJ, Fiore SM, Welicky LM. Regulation of ischemic cell death by the lipoic acid-palladium complex, Poly MVA, in gerbils. *Exp Neurol.* 2004 Sep;189(1):10-5. PMID: 15296831
11. Ramachandran L, Krishnan CV, Nair CK. Radioprotection by alpha-lipoic acid palladium complex formulation (POLY-MVA) in mice. *Cancer Biother Radiopharm.* 2010 Aug;25(4):395-9. doi: 10.1089/cbr.2009.0744. PMID: 20701542
12. Anderson P, Cochran B. Personal experiences with the clinical use of intravenous LAMC. AMSA, BIORC and Private clinic data. Seattle Washington, 2015
13. See attached document: IV Therapy Use and Compatibility Chart © Paul S. Anderson 2015 – Prepared for Anderson Medical Group, BCRC* and SCRI* – All rights reserved