

# **Palmitoylethanolamide/Luteolin and Methylene Blue**

## **List of uses**

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Palmitoylethanolamide is a natural lipid mediator, an endogenous modulator for body balance.

General Health Benefits (Palmitoylethanolamide/Luteolin)

Anti-inflammatory, Analgesic, Neuroprotective & Cognitive Restoration, Immunomodulatory, Tissue Repair & Regeneration, Gut Health, Ocular Health.

**Investigational Therapeutic Applications (Evidence Strength Varies)**

- **Neurodegenerative & Cognitive Impairment**

- **Alzheimer's Disease (AD)**
- **Mild Cognitive Impairment (MCI)**
- **Frontotemporal Dementia (FTD)**
- **Parkinson's Disease**
- **Multiple Sclerosis**
- **Traumatic Brain Injury**
- **Stroke**
- **Amyotrophic Lateral Sclerosis**
- **Epilepsy (Seizures)**
- **Neonatal Anoxia-Ischemia**
- **Autism Spectrum Disorder (ASD)**
- **Myasthenia Gravis**
- A randomized, double-blinded, placebo-controlled cross-over trial published in 2024 showed that Palmitoylethanolamide improved memory and increased levels of BDNF in healthy adults.

- **Pain Management**

- **Chronic Pain**
- **Neuropathic Pain**
- **Spinal Cord Injury**
- **Osteoarthritis**
- **Fibromyalgia**

- **Migraines & Headache**
  - **Oral/Orofacial Pain**
  - **Endometriosis & Menstrual Pain**
  - **Vulvodynia**
  - **Metabolic & Organ Health**
    - **Nonalcoholic Steatohepatitis; Chronic Kidney Disease/Diabetic Nephropathy; Metabolic Syndrome; Atherosclerosis; Vascular Injury**
    - **Irritable Bowel Syndrome & Colitis**
    - **Glaucoma**
    - **Diabetic Retinopathy**
  - **Sensory & Respiratory Conditions**
    - **Sleep Disturbance; Anxiety Disorders; Schizophrenia & Psychosis**
    - **Depression**
    - **Tinnitus**
    - **Post-COVID-19 Olfactory Dysfunction**
    - **Influenza & Common Cold**
    - **COVID-19 (Lung Inflammation/Cytokine Storm)**
  - **Other**
    - **Muscle Health & Athletic Performance**
    - **Atopic Dermatitis (Eczema)**
    - **Allergic Rhinitis**
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## **Methylene Blue (MB)**

Methylene Blue is a synthetic dye. Used diagnostically/surgically; direct therapeutic potential largely investigational.

General Health Benefits (as a direct therapeutic agent in cancer)

Metabolic Disruption, Direct Apoptosis Induction, Tumor Microenvironment Modulation, Sensitizer in Photodynamic Therapy and Sonodynamic Therapies, Stimulation of Anti-tumor Immunity.

### **Investigational Therapeutic Applications**

- **Cancer (as a direct therapeutic agent)**
  - **Ovarian, Breast**
  - **Brain**
  - **Colorectal, Melanoma, Lung**
  - **Prostate, Oral/Head & Neck**
  - **Cervical**
  - **Esophageal**
  - **Thyroid**

- **Renal**
- **Gastric, Liver**
- **Pancreatic**
- **Multiple Myeloma**
- **Leukemia**
- **Sarcoma**
- **Bladder**
- **Supportive/Palliative Care**
  - **Ifosfamide-induced Encephalopathy**
  - **Oral Mucositis**
  - **Postoperative Cognitive Dysfunction**

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#### Note on Combined Use

No evidence supports the combined use of Palmitoylethanolamide and Methylene Blue.

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#### Summary

Palmitoylethanolamide (often with Luteolin) is a versatile compound, established for chronic pain, with other uses investigational. Methylene Blue is primarily diagnostic/supportive; its direct therapeutic role in cancer is largely investigational and preclinical.

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