

Monolaurin-Avail™



Potent virucidal and bactericidal formulation

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Monolaurin-Avail™ is an encapsulated formula of monolaurin (glycerol monolaurate), a potent virucidal and bactericidal agent with efficacy across an impressive array of pathogenic organisms and viruses. Monolaurin is the mono-ester form of lauric acid, which is the predominant fatty acid in coconut and palm kernel oils and is also present in human breast milk (as 3.5-6.6 percent of total calories), where it is believed to be the main antiviral and antibacterial compound.¹ Additional benefits of monolaurin are that, unlike conventional antibiotics, it has not been shown to result in antibacterial resistance, nor to have adverse effects on beneficial intestinal flora. As such, in addition to acute therapeutic use it may also be used as a potential preventive measure during cold and flu season, or taken on an ongoing basis by those susceptible to recurrent infection and illness. Monolaurin-Avail™ contains vitamin C for added immune benefit, and sunflower lecithin to enhance absorption of the monolaurin.

Humans metabolize small amounts of monolaurin from lauric acid but the amount is believed to be relatively low. Lauric acid itself is virucidal and bactericidal, but monolaurin has much greater activity and as a therapeutic intervention, it may be required in higher amounts than would be obtained from reasonable servings of coconut oil in the diet. Moreover, unlike monolaurin (as a monoglyceride), diglycerides and triglycerides are not effective against microorganisms.¹

Monolaurin-Avail™ may be especially helpful for individuals plagued by chronic, recurrent stealth infections, such as those linked to Lyme disease and conditions involving chronic fatigue. Some typically difficult-to-treat infections may result from viruses that are encapsulated in such a way that they cloak themselves in parts of the infected individual's own cell membranes and are thus "hidden" from the immune system. Monolaurin may be effective in such cases.

Mechanism and Targets of Action

Monolaurin is believed to inactivate lipid-coated viruses by binding to the lipid-protein viral envelope, thereby preventing it from attaching to and entering host cells, rendering infection and replication impossible. Evidence also suggests that monolaurin (among other monoglycerides and fatty acids) solubilizes the lipids and phospholipids in the viral envelope, causing disintegration of this protective envelope and killing the virus.^{1,2}

Additionally, as a lipid-based surfactant, monolaurin is effective against microbial biofilms, which are associated with a variety of clinical presentations, including periodontitis, otitis media, endocarditis, biliary tract infections, prostatitis, osteomyelitis, burn wound infections, surgical site infections, and device-related infections such as those associated with catheters, sutures, and stents.^{3,4} Biofilm-associated bacteria are typically less susceptible to antibiotic therapy than are free-living bacteria, possibly owing to the inability of some antibiotics to fully penetrate the biofilm and interact directly with bacteria. Researchers believe this is due to "the presence of occasional areas of lipid-containing matrix encasing some bacteria within the biofilm. This lipid matrix prevented comparatively small, ordinarily diffusible molecules from coming into contact with the encased bacterial cells. In light of these findings, it is conceivable that antibiotics may be able to diffuse through the biofilm but not come in contact with all bacterial cells throughout the biofilm. There may be areas in the biofilm that are shielded by a lipid hydrophobic barrier that prevents diffusion of antibiotics into these areas."³ As a surfactant capable of disrupting lipid-containing structures, monolaurin was shown to interfere with biofilm development by *Staphylococcus aureus* and *Enterococcus faecalis*. Notably, in the case of *S. aureus*, monolaurin was demonstrated to act synergistically with gentamicin and streptomycin (but not ampicillin or vancomycin).⁴

Supplement Facts

Serving Size 2 capsules
Servings Per Container 60

Amount Per Serving		% Daily Value
Vitamin C (as Ascorbic Acid)	170 mg	189%
Monolaurin (as Glycerol Monolaurate)	1 g	*

*Daily Value not established.

Other Ingredients: Cellulose (capsule), dicalcium phosphate, sunflower lecithin, silicon dioxide, vegetable stearate.



Monolaurin blocks the production of various bacterial exoproteins and virulence factors, such as protein A, alpha-hemolysin, β -lactamase, and toxic shock syndrome toxin 1 (TSST-1) in *Staphylococcus aureus*, most likely acting through the inhibition of signal transduction and by altering the structure or function of bacterial cell membranes.⁵⁻¹⁰ Monolaurin may be inserted into bacterial cell membranes “and subtly modify membrane structure to interfere with the conformational shifts in the structure of transmembrane proteins by which signals are projected through membranes. Alternatively, GML [monolaurin] may interfere with the normal placement of signaling proteins in the membrane.”¹¹

Monolaurin has been shown to inactivate many pathogens, including herpes simplex virus and chlamydia trachomatis.¹² It is also effective against both gram-positive and gram-negative bacteria, as well as yeast, fungi and protozoa, including *Candida albicans*, several species of ringworm, and the giardia parasite.¹³⁻¹⁵

In vivo and in vitro data support the efficacy of monolaurin for inhibiting proliferation of the following lipid-coated bacteria and viruses*:^{1,3,16-18}

Bacteria

Listeria monocytogenes
Helicobacter pylori (gram-negative)
Hemophilus influenzae (gram-negative)
Staphylococcus aureus
Streptococcus agalactiae
Enterococcus faecalis
Groups A, B, F, and G streptococci
Gram-positive organisms
Gram-negative organisms if pretreated with a chelator

Viruses

Human immunodeficiency virus HIV-1, HIV+
Measles virus
Herpes simplex virus-1
Herpes simplex virus-2
Herpes viridae (all)
Human lymphotropic viruses (type 1)
Vesicular stomatitis virus
Visna virus
Cytomegalovirus
Epstein-Barr virus
Influenza virus
Pneumonovirus
Sarcoma virus
Syncytial virus
Rubeola virus

*Adapted from: Lieberman S, Enig M, Preuss G. A Review of Monolaurin and Lauric Acid: Natural Virucidal and Bactericidal Agents. *Alternative and Complementary Therapies*. 12 (6): 310-314.

Recommended Use

- As a dietary supplement, take two capsules per day with a meal, or as directed by a health care practitioner.
- Consider using this product in conjunction with other systemic immune support products from Designs for Health, such as Immunitone Plus™ or ImmunoMod-A™. For intestinal pathogens, consider combining with GI Microb-X™ or Berb-Evail™.

For a list of references cited in this document, please visit:

http://catalog.designsforhealth.com/assets/itemresources/Monolaurin-Avail_References.pdf

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