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**PSUEDOPTEROSIN COMPOUNDS OF SYMBIODINIUM SPP ISOLATED  
FROM PSEUDOTEROGORGIA ELISABETHAE**

**BACKGROUND:** Pseudopterogorgia is a marine animal from which a group of compounds called pseudopterოსins has been isolated. The pseudopterოსins have been useful as anti-inflammatory and analgesic agents. Unfortunately, in order to obtain these therapeutic compounds, the marine animals are sacrificed. As animal products are often undesirable for use in pharmaceuticals and cosmetics, many have attempted to chemically synthesize these complex compounds. Others have attempted to elucidate the biosynthetic pathway to make pseudopterოსins with *in vitro* and *in vivo* recombinant systems that use crude or semi-purified enzyme extracts. These chemical and biosynthetic methods are expensive and often unsuccessful. Thus, a need exists for pseudopterოსin compounds of non-animal origin and inexpensive methods for obtaining the pseudopterოსin compounds.

**DESCRIPTION:** Researchers at the University of California have discovered that an algae symbiont, *Symbiodinium spp.*, is involved in the synthesis of pseudopterოსin compounds and can produce pseudopterოსin compounds without the aid of the host, *P. elisabethae*. Thus, pseudopterოსin compounds may be produced by or isolated from *Symbiodinium* symbionts without the need to destroy the marine animal host. These compounds, as well as their salts, analogs, and derivatives, and methods to produce these compounds are available. In addition, pharmaceutical preparations and therapeutic methods are available.

**ADVANTAGES:**

- The compounds are potent anti-inflammatory and anti-proliferative agents, and are non-narcotic analgesics.
- The pharmaceutical compositions may be administered orally, rectally, nasally, topically, vaginally, or parenterally.
- The compounds can be prepared without the need for sacrificing animals.

**APPLICATIONS:** The pseudopterოსin compounds may be useful in the treatment of:

- Rheumatoid arthritis, osteoarthritis, rheumatic carditis, auto-immune diseases such as myasthenia gravis, allergic diseases, bronchial asthma.
- Ocular and skin inflammatory diseases such as poison ivy, and conjunctivitis.
- Proliferative diseases such as psoriasis.
- Neurological diseases involving metabolism of nervous tissue phospholipid, such as multiple sclerosis.
- Insect bites, bee or wasp stings or any venom in which a major constituent is the enzyme phospholipase A2.
- Pain resulting from traumatic injury or acute progressive disease, such as post operative pain, burns, or other conditions involving a coincident inflammation.
- Inflammatory diseases of the lungs, including emphysema and chronic inflammation due to smoking.
- Degenerative diseases associated with radiation exposure.
- Other inflammatory conditions such as hypersensitivity pneumonitis, inflammation associated with coronary angioplasty, and nephritis.
- Infections, diseases and disorders related to an organism belonging to the kingdom Protista, including malaria, Chagas' disease, African sleeping sickness, Leishmaniasis, giardiasis, or amebic dysentery.

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