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Phytochlorin Sodium-Polyvinylpyrrolidone Complex

National Cancer Institute

Source

National Cancer Institute. *Phytochlorin Sodium-Polyvinylpyrrolidone Complex*. NCI Thesaurus. Code C126802.

A photosensitizer composed of the sodium salt form of chlorin e6 and its derivatives complexed with a low-molecular weight polyvinylpyrrolidone (PVP) polymer component, with diagnostic and antineoplastic activities upon photodynamic therapy (PDT). Upon intravenous administration, the photosensitizer phytochlorin-PVP sodium complex preferentially accumulates in hyperproliferative tissues, such as tumors. Local application of light with a certain wavelength to the tumor site results in the absorption of light by this agent leading to its photoactivation. This results in a photodynamic reaction between phytochlorin and oxygen, which causes the production of reactive oxygen species (ROS), including singlet oxygen molecules, the superoxide ion, and other cytotoxic free radicals. The formation of ROS induces free radical-mediated oxidative DNA damage followed by apoptosis of tumor cells. Chlorin e6-PVP is able to penetrate deeply into tissues and is therefore able to treat hard-to-reach tumors.