

F.P.O.

45698

PROFESSIONAL SAMPLES—NOT FOR SALE



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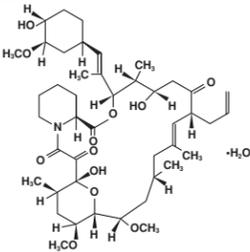
**Protopic®**  
(tacrolimus)

Ointment 0.03%  
Ointment 0.1%

FOR DERMATOLOGIC USE ONLY  
NOT FOR OPHTHALMIC USE

**DESCRIPTION:**

PROTOPIC (tacrolimus) Ointment contains tacrolimus, a macrolide immunosuppressant produced by *Streptomyces tsukubaensis*. It is for topical dermatologic use only. Chemically, tacrolimus is designated as (3S,3R,7E,11S,3S,4S,4S,4S,5R,5R,8S,9E,12R,14R,15S,16R,18S,19S,26aR)-5,6,8,11,12,13,14,15,16,17,18,19,24,25,26,26a-hexadecahydro-5,19-dihydroxy-3-(4-hydroxy-3-methoxycyclohexyl)-1-methylethenyl-14,16-dimethoxy-4,10,12,18-tetramethyl-8-(2-propenyl)-15,19-epoxy-3H-pyrido[2,1-c][1,4]oxazacycloheptane-1,7,20,21-tetrahydro-2H-tetronate, monohydrate. It has the following structural formula:



Tacrolimus has an empirical formula of  $C_{48}H_{76}NO_{13} \cdot H_2O$  and a formula weight of 822.03. Each gram of PROTOPIC Ointment contains (w/w) either 0.03% or 0.1% of tacrolimus in a base of mineral oil, paraffin, propylene carbonate, white petrolatum and white wax.

**CLINICAL PHARMACOLOGY:**

**Mechanism of Action**

The mechanism of action of tacrolimus in atopic dermatitis is not known. While the following have been observed, the clinical significance of these observations in atopic dermatitis is not known. It has been demonstrated that tacrolimus inhibits T-lymphocyte activation by first binding to an intracellular protein, FKBP-12. A complex of tacrolimus-FKBP-12, calcium, calmodulin, and calcineurin is then formed and the phosphatase activity of calcineurin is inhibited. This effect has been shown to prevent the dephosphorylation and translocation of nuclear factor of activated T-cells (NF-AT), a nuclear component thought to initiate gene transcription for the formation of lymphokines (such as interleukin-2, gamma interferon). Tacrolimus also inhibits the transcription for genes which encode IL-3, IL-4, IL-5, GM-CSF, and TNF- $\alpha$ , all of which are involved in the early stages of T-cell activation. Additionally, tacrolimus has been shown to inhibit the release of pre-formed mediators from skin mast cells and basophils, and to downregulate the expression of FC $\gamma$ RI on Langerhans cells.

**Pharmacokinetics**

The pooled results from two pharmacokinetic studies in 49 adult atopic dermatitis patients indicate that tacrolimus is absorbed after the topical application of 0.1% PROTOPIC Ointment. Peak tacrolimus blood concentrations ranged from undetectable to 20 ng/mL after single or multiple doses of 0.1% PROTOPIC Ointment, with 45 of the 49 patients having peak blood concentrations less than 5 ng/mL. The results from a pharmacokinetic study of 0.1% PROTOPIC Ointment in 20 pediatric atopic dermatitis patients (ages 6-13 years), show peak tacrolimus blood concentrations below 1.6 ng/mL in all patients.

There was no evidence based on blood concentrations that tacrolimus accumulates systemically upon intermittent topical application for periods of up to 1 year. The absolute bioavailability of topical tacrolimus is unknown. Using IV historical data for comparison, the bioavailability of tacrolimus from PROTOPIC in atopic dermatitis patients is less than 0.5%. In adults with average of 53% BSA treated, exposure (i.e., AUC) of tacrolimus from PROTOPIC is approximately 30-fold less than that seen with oral immunosuppressive doses in kidney and liver transplant patients. The lowest tacrolimus blood level at which systemic effects can be observed is not known.

**CLINICAL STUDIES:**

Three randomized, double-blind, vehicle-controlled, multi-center, phase 3 studies were conducted to evaluate PROTOPIC Ointment for the treatment of patients with moderate to severe atopic dermatitis. One (Pediatric) study included 351 patients 2-15 years of age, and the other two (Adult) studies included a total of 632 patients 15-79 years of age. Fifty-five percent (55%) of the patients were women and 27% were black. At baseline, 58% of the patients had severe disease and the mean body surface area (BSA) affected was 46%. Over 80% of patients had atopic dermatitis affecting the face and/or neck region. In these studies, patients applied either PROTOPIC Ointment 0.03%, PROTOPIC Ointment 0.1%, or vehicle ointment twice daily to 10% - 100% of their BSA for up to 12 weeks.

In the pediatric study, a significantly greater ( $p < 0.001$ ) percentage of patients achieved at least 90% improvement based on the physician's global evaluation of clinical response (the pre-defined primary efficacy end point) in the PROTOPIC Ointment 0.03% treatment group compared to the vehicle treatment group, but there was insufficient evidence that PROTOPIC Ointment 0.1% provided more efficacy than PROTOPIC Ointment 0.03%.

In both adult studies, a significantly greater ( $p < 0.001$ ) percentage of patients achieved at least 90% improvement based on the physician's global evaluation of clinical response in the PROTOPIC Ointment 0.03% and PROTOPIC Ointment 0.1% treatment groups compared to the vehicle treatment group. There was evidence that PROTOPIC Ointment 0.1% may provide more efficacy than PROTOPIC Ointment 0.03%. The difference in efficacy between PROTOPIC Ointment 0.1% and 0.03% was particularly evident in adult patients with severe disease at baseline, adults with extensive BSA involvement, and black adults. Response rates for each treatment group are shown below by age groups. Because the two adult studies were identically designed, the results from these studies were pooled in this table.

**Global Improvement over Baseline at the End-of-Treatment in These Phase 3 Studies**

Physician's Global Evaluation of Clinical Response (% Improvement)	Pediatric Study (2-15 Years of Age)		Adult Studies		
	Vehicle Ointment 0.03%	PROTOPIC Ointment 0.03%	Vehicle Ointment 0.03%	PROTOPIC Ointment 0.03%	PROTOPIC Ointment 0.1%
100%	4 (3%)	14 (12%)	2 (1%)	21 (10%)	20 (10%)
≥ 90%	8 (7%)	42 (36%)	14 (7%)	58 (28%)	77 (37%)
≥ 75%	18 (16%)	65 (56%)	30 (14%)	97 (46%)	117 (56%)
≥ 50%	31 (27%)	85 (73%)	42 (20%)	130 (62%)	152 (73%)

A statistically significant difference in the percentage of adult patients with ≥ 90% improvement was achieved by week 1 for those treated with PROTOPIC Ointment 0.1%, and by week 3 for those treated with PROTOPIC Ointment 0.03%. A statistically significant difference in the percentage of pediatric patients with ≥ 90% improvement was achieved by week 2 for those treated with PROTOPIC Ointment 0.03%.

In adult patients who had achieved ≥ 90% improvement at the end of treatment, 35% of those treated with PROTOPIC Ointment 0.03% and 41% of those treated with PROTOPIC Ointment 0.1%, regressed from this state of improvement at 2 weeks after end-of-treatment. In pediatric patients who had achieved ≥ 90% improvement, 54% of those treated with PROTOPIC Ointment 0.03% regressed from this state of

improvement at 2 weeks after end-of-treatment. Because patients were not followed for longer than 2 weeks after end-of-treatment, it is not known how many additional patients regressed at periods longer than 2 weeks after cessation of therapy.

In both PROTOPIC Ointment treatment groups in adults and in the PROTOPIC Ointment 0.03% treatment group in pediatric patients, a significantly greater improvement compared to vehicle ( $p < 0.001$ ) was observed in the secondary efficacy endpoints of percent body surface area involved, patient evaluation of pruritus, erythema, edema, excoriation, oozing, scaling, and lichenification. The following two graphs depict the time course of improvement in the percent body surface area affected in adult and in pediatric patients as a result of treatment.

Figure 1 - Adult Patients Body Surface Area Over Time

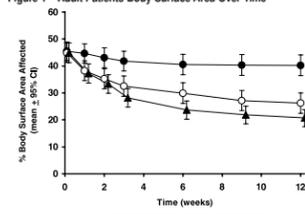
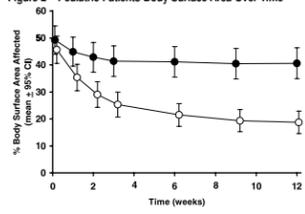


Figure 2 - Pediatric Patients Body Surface Area Over Time



The following two graphs depict the time course of improvement in erythema in adult and in pediatric patients as a result of treatment.

Figure 3 - Adult Patients Mean Erythema Over Time

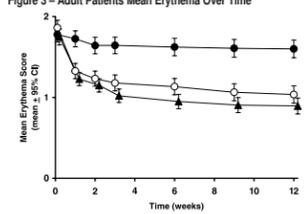
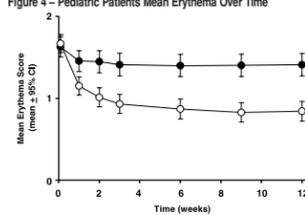


Figure 4 - Pediatric Patients Mean Erythema Over Time



The time course of improvement in the remaining secondary efficacy variables was similar to that of erythema, with improvement in lichenification slightly slower.

A total of 571 patients applied PROTOPIC Ointment 0.1% in long-term adult and pediatric safety studies for up to one year. In the adult study, 246 patients were evaluated for at least 6 months and 68 patients for 12 months. In the pediatric study, 219 patients were evaluated for at least 6 months and 180 patients for 12 months. On average, patients received treatment for 87% of study days.

**INDICATIONS AND USAGE:**

PROTOPIC Ointment, both 0.03% and 0.1% for adults, and only 0.03% for children aged 2 to 15 years, is indicated for short-term and intermittent long-term therapy in the treatment of patients with moderate to severe atopic dermatitis in whom the use of alternative, conventional therapies are deemed inadvisable because of potential risks, or in the treatment of patients who are not adequately responsive to or are intolerant of alternative, conventional therapies.

**CONTRAINDICATIONS:**

PROTOPIC Ointment is contraindicated in patients with a history of hypersensitivity to tacrolimus or any other component of the preparation.

**PRECAUTIONS:**

**General**

Studies have not evaluated the safety and efficacy of PROTOPIC Ointment in the treatment of clinically infected atopic dermatitis. Before commencing treatment with PROTOPIC Ointment, clinical infections at treatment sites should be cleared. While patients with atopic dermatitis are predisposed to superficial skin infections including eczema herpeticum (Kaposi's varicelliform eruption), treatment with PROTOPIC Ointment may be associated with an increased risk of varicella zoster virus infection (chicken pox or shingles), herpes simplex virus infection, or eczema herpeticum. In the presence of these infections, the balance of risks and benefits associated with PROTOPIC Ointment use should be evaluated.

In clinical studies, 33 cases of lymphadenopathy (0.8%) were reported and were usually related to infections (particularly of the skin) and noted to resolve upon appropriate antibiotic therapy. Of these 33 cases, the majority had either a clear etiology or were known to resolve. Transplant patients receiving immunosuppressive regimens (e.g., systemic tacrolimus) are at increased risk for developing lymphoma; therefore, patients who receive PROTOPIC Ointment and who develop lymphadenopathy should have the etiology of their lymphadenopathy investigated. In the absence of a clear etiology for the lymphadenopathy, or in the presence of acute infectious mononucleosis, discontinuation of PROTOPIC Ointment should be considered. Patients who develop lymphadenopathy should be monitored to ensure that the lymphadenopathy resolves.

The enhancement of ultraviolet carcinogenicity is not necessarily dependent on phototoxic mechanisms. Despite the absence of observed phototoxicity in humans (see **ADVERSE REACTIONS**), PROTOPIC Ointment shortened the time to skin tumor formation in an animal photocarcinogenicity study (see **Carcinogenesis, Mutagenesis, Impairment of Fertility**). Therefore, it is prudent for patients to minimize or avoid natural or artificial sunlight exposure.

The use of PROTOPIC Ointment may cause local symptoms such as skin burning (burning sensation, stinging, soreness) or pruritus. Localized symptoms are most common during the first few days of

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PATIENT INFORMATION ABOUT

**Protopic®**  
(tacrolimus)

**Ointment**

Read this important information before you start using PROTOPIC [pro-TOP-ik] Ointment and each time you refill your prescription. There may be new information. This summary is not meant to take the place of your doctor's advice.

**What Is PROTOPIC?**

PROTOPIC Ointment is a prescription medicine that is used to treat eczema (atopic dermatitis). It is for adults and children age 2 years and older. You can use PROTOPIC for short or intermittent long periods of treatment. Intermittent means starting and stopping repeatedly, as directed by your doctor. You can use it on all affected areas of your skin, including your face and neck.

**Who should not use PROTOPIC? Do not use PROTOPIC if you are**

- breastfeeding
- allergic to PROTOPIC Ointment or any of its ingredients. The active ingredient is tacrolimus. Ask your doctor or pharmacist about the inactive ingredients.

Before you start using PROTOPIC, tell your doctor if you are:

- using **any** other prescription medicines, non-prescription (over-the-counter) medicines, or supplements
- receiving any form of light therapy (phototherapy, UVA or UVB) on your skin
- using any other type of skin product
- pregnant or planning to become pregnant

**How Do I Use PROTOPIC?**

Use PROTOPIC only to treat eczema that has been diagnosed by a doctor.

- Wash your hands before using PROTOPIC.
- Apply a thin layer of PROTOPIC to all skin areas that your doctor has diagnosed as eczema. Try to cover the affected areas completely. Most people find that a pea-sized amount squeezed from the tube covers an area about the size of a two-inch circle (approximately the size of a silver dollar).
- Apply the ointment twice a day, about 12 hours apart.
- Before applying PROTOPIC Ointment after a bath or shower, be sure your skin is completely dry.
- Do not cover the skin being treated with bandages, dressings or wraps. Unless otherwise instructed by your doctor, do not apply another type of skin product on top of PROTOPIC Ointment. However, you can wear normal clothing.
- Do not bathe, shower or swim right after applying PROTOPIC. This could wash off the ointment.
- If you are a caregiver applying PROTOPIC Ointment to a patient, or if you are a patient who is **not** treating your hands, wash your hands with soap and water after applying PROTOPIC. This should remove any ointment left on the hands.
- Use PROTOPIC only on your skin. Do **not** swallow PROTOPIC.

