

# LUPIN LIMITED

## SAFETY DATA SHEET

### Section 1: Identification

#### Section 1, Identification

<b>Material</b>	<b>Tacrolimus Capsules, USP</b> <b>0.5 mg, 1 mg and 5 mg</b>
<b>Manufacturer</b>	<b>Concord Biotech Limited,</b> Ahmedabad – 382 225 Gujarat, India
<b>Distributor</b>	Lupin Pharmaceuticals, Inc. 111 South Calvert Street, Harborplace Tower, 21st Floor, Baltimore, Maryland 21202 United States Tel. 001-410-576-2000 Fax. 001-410-576-2221

### Section 2: Hazard(s) Identification

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<b>Fire and Explosion</b>	Expected to be non-combustible.
<b>Health</b>	Tacrolimus capsules are contraindicated in patients with a hypersensitivity to tacrolimus.  Tacrolimus injection is contraindicated in patients with a hypersensitivity to HCO-60 (polyoxyl 60 hydrogenated castor oil). Hypersensitivity symptoms reported include dyspnea, rash, pruritus, and acute respiratory distress syndrome.
<b>Environment</b>	No information is available about the potential of this product to produce adverse environmental effects.

### Section 3: Composition/Information on Ingredients

#### Section 3, Composition/information on ingredients

<b>Ingredients</b>	<b>CAS</b>
Tacrolimus USP	109581-93-3

### Section 4: First-Aid Measures

#### Section 4, First-aid measures

<b>Ingestion</b>	Immediately give large quantities of water to drink. Never give anything by mouth to a victim who is unconscious or is having convulsions. Call a physician immediately.
<b>Inhalation</b>	Remove to fresh air. If breathing stops, provide artificial respiration. Get medical attention immediately.

**Skin Contact**

Wash off immediately with plenty of water. Continue to rinse for at least 15 minutes. Immediately take off all contaminated clothing. Get medical attention if irritation develops and persists.

**Eye Contact**

In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**NOTES TO HEALTH PROFESSIONALS****Medical Treatment**

Treat according to locally accepted protocols. For additional guidance, refer to the current prescribing information or to the local poison control information center. Protect the patient's airway and support ventilation and perfusion. Meticulously monitor and maintain, within acceptable limits, the patient's vital signs, blood gases, serum electrolytes, etc.

**OVERDOSAGE**

Limited overdosage experience is available. Acute overdosages of up to 30 times the intended dose have been reported. Almost all cases have been asymptomatic and all patients recovered with no sequelae. Acute overdosage was sometimes followed by adverse reactions consistent with those listed in *Adverse Reactions* (including tremors, abnormal renal function, hypertension, and peripheral edema); in one case of acute overdosage, transient urticaria and lethargy were observed. Based on the poor aqueous solubility and extensive erythrocyte and plasma protein binding, it is anticipated that tacrolimus is not dialyzable to any significant extent; there is no experience with charcoal hemoperfusion. The oral use of activated charcoal has been reported in treating acute overdoses, but experience has not been sufficient to warrant recommending its use. General supportive measures and treatment of specific symptoms should be followed in all cases of overdosage.

In acute oral and IV toxicity studies, mortalities were seen at or above the following doses: in adult rats, 52 times the recommended human oral dose; in immature rats, 16 times the recommended oral dose; and in adult rats, 16 times the recommended human IV dose (all based on body surface area corrections).

## Section 5: Fire-Fighting Measures

**Section 5, Fire-fighting measures****Fire and Explosion Hazards**

Assume that this product is capable of sustaining combustion.

**Extinguishing Media**

Water spray, carbon dioxide, dry chemical powder or appropriate foam.

**Special Firefighting Procedures**

For single units (packages): No special requirements needed.  
For larger amounts (multiple packages/pallets) of product: Since toxic, corrosive or flammable vapors might be evolved from fires involving this product and associated packaging, self-contained breathing apparatus and full protective equipment are recommended for firefighters.

**Hazardous Combustion Products**

Hazardous combustion or decomposition products are expected when the product is exposed to fire.

## Section 6: Accidental Release Measures

**Section 6, Accidental release measures****Personal Precautions**

Wear suitable protective clothing, gloves and eye/face protection.

**Environmental Precautions**

Avoid release to the environment.

**Clean-up Methods**

Collect and place it in a suitable, properly labeled container for recovery or disposal.

**Section 7: Handling and Storage****Section 7, Handling and storage****Handling**

Tacrolimus can cause fetal harm. Tacrolimus capsules should not be opened or crushed. Wearing disposable gloves is recommended during dilution of the injection or when preparing the oral suspension in the hospital and when wiping any spills. Avoid inhalation or direct contact with skin or mucous membranes of the powder or granules contained in tacrolimus capsules and tacrolimus granules, respectively. If such contact occurs, wash the skin thoroughly with soap and water; if ocular contact occurs, rinse eyes with water. In case a spill occurs, wipe the surface with a wet paper towel. Follow applicable special handling and disposal procedures.

**Storage**

Store at 20°C to 25°C (68°F to 77°F); excursions permitted to 15°C to 30°C (59°F to 86°F) [See USP Controlled Room Temperature].

**Section 8: Exposure Controls/Personal Protection****Section 8, Exposure controls/personal protection**

Wear appropriate clothing to avoid skin contact. Wash hands and arms thoroughly after handling.

**Section 9: Physical and Chemical Properties****Section 9, Physical and chemical properties****Tacrolimus Capsules, USP**

Strength	0.5 mg (containing the equivalent of 0.5 mg anhydrous tacrolimus USP)	1 mg (containing the equivalent of 1 mg anhydrous tacrolimus USP)	5 mg (containing the equivalent of 5 mg anhydrous tacrolimus USP)
Shape/color	capsule/light yellow	capsule /white	capsule /grayish red
Imprint on capsule cap	"C5" "0.5mg" on cap	"C6" "1mg" on cap	"C7" "5mg" on cap
100 count bottle	NDC 70748-219-01	NDC 70748-220-01	NDC 70748-221-01

Note: Tacrolimus capsules USP are not filled to maximum capsule capacity. Capsule contains labeled amount.

**Section 10: Stability and Reactivity****Section 10, Stability and reactivity**

The product is stable and non-reactive under normal conditions of use, storage and transport.

## Section 11: Toxicological Information

### Section 11, Toxicological information

#### Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenicity studies were conducted in male and female rats and mice. In the 80-week mouse oral study and in the 104-week rat oral study, no relationship of tumor incidence to tacrolimus dosage was found. The highest dose used in the mouse was 3.0 mg/kg/day (0.9 to 2.2 times the AUC at clinical doses of 0.075 to 0.2 mg/kg/day) and in the rat was 5.0 mg/kg/day (0.265 to 0.65 times the AUC at clinical doses of 0.075 to 0.2 mg/kg/day).

A 104-week dermal carcinogenicity study was performed in mice with tacrolimus ointment (0.03%-3%), equivalent to tacrolimus doses of 1.1-118 mg/kg/day or 3.3-354 mg/m<sup>2</sup>/day. In the study, the incidence of skin tumors was minimal and the topical application of tacrolimus was not associated with skin tumor formation under ambient room lighting. However, a statistically significant elevation in the incidence of pleomorphic lymphoma in high-dose male (25/50) and female animals (27/50) and in the incidence of undifferentiated lymphoma in high-dose female animals (13/50) was noted in the mouse dermal carcinogenicity study. Lymphomas were noted in the mouse dermal carcinogenicity study at a daily dose of 3.5 mg/kg (0.1% tacrolimus ointment). No drug-related tumors were noted in the mouse dermal carcinogenicity study at a daily dose of 1.1 mg/kg (0.03% tacrolimus ointment). The relevance of topical administration of tacrolimus in the setting of systemic tacrolimus use is unknown.

The implications of these carcinogenicity studies to the human condition are limited; doses of tacrolimus were administered that likely induced immunosuppression in these animals, impairing their immune system's ability to inhibit unrelated carcinogenesis.

No evidence of genotoxicity was seen in bacterial (*Salmonella* and *E. coli*) or mammalian (Chinese hamster lung-derived cells) *in vitro* assays of mutagenicity, the *in vitro* CHO/HGPRT assay of mutagenicity, or *in vivo* clastogenicity assays performed in mice; tacrolimus did not cause unscheduled DNA synthesis in rodent hepatocytes.

Tacrolimus, subcutaneously administered to male rats at paternally toxic doses of 2 mg/kg/day (1.6 to 4.3 times the recommended clinical dose range [0.2 to 0.075 mg/kg/day] on a mg/m<sup>2</sup> basis) or 3 mg/kg/day (2.4 to 6.4 times the recommended clinical dose range), resulted in a dose-related decrease in sperm count. Tacrolimus, administered orally at 1.0 mg/kg (0.8 to 2.2 times the clinical dose range) to male and female rats, prior to and during mating, as well as to dams during gestation and lactation, was associated with embryoletality and adverse effects on female reproduction. Effects on female reproductive function (parturition) and embryoletal effects were indicated by a higher rate of pre- and post-implantation loss and increased numbers of undelivered and nonviable pups. When administered at 3.2 mg/kg (2.6 to 6.9 times the clinical dose range based on body surface area), tacrolimus was associated with maternal and paternal toxicity as well as reproductive toxicity including marked adverse effects on estrus cycles, parturition, pup viability, and pup malformations.

## Section 12: Ecological Information

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No relevant studies identified.

## Section 13: Disposal Considerations

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Incinerate in an approved facility. Follow all federal state and local environmental regulations.

## Section 14: Transport Information

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#### IATA/ICAO - Not Regulated

IATA Proper shipping Name	:	N/A
IATA UN/ID No	:	N/A
IATA Hazard Class	:	N/A
IATA Packaging Group	:	N/A
IATA Label	:	N/A

#### IMDG - Not Regulated

IMDG Proper shipping Name	:	N/A
IMDG UN/ID No	:	N/A
IMDG Hazard Class	:	N/A
IMDG Flash Point	:	N/A
IMDG Label	:	N/A

#### DOT - Not Regulated

DOT Proper shipping Name	:	N/A
DOT UN/ID No	:	N/A
DOT Hazard Class	:	N/A
DOT Flash Point	:	N/A
DOT Packing Group	:	N/A
DOT Label	:	N/A

## Section 15: Regulatory Information

### Section 15: Regulatory Information

This Section Contains Information relevant to compliance with other Federal and/or state laws.

## Section 16: Other Information

### Section 16, Other information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. Nothing herein shall be deemed to create any warranty, express or implied. It is the responsibility of the user to determine the applicability of this information and the suitability of the material or product for any particular purpose.

**Lupin** shall not be held liable for any damage resulting from handling or from contact with the above product. Lupin reserves the right to revise this SDS.