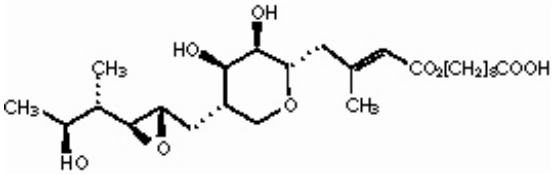
BACTROBAN- mupirocin ointment
GlaxoSmithKline LLC

BACTROBAN OINTMENT®
(mupirocin ointment, 2%)
For Dermatologic Use

DESCRIPTION

Each gram of BACTROBAN OINTMENT (mupirocin ointment, 2%) contains 20 mg mupirocin in a bland water miscible ointment base (polyethylene glycol ointment, N.F.) consisting of polyethylene glycol 400 and polyethylene glycol 3350. Mupirocin is a naturally occurring antibiotic. The chemical name is (*E*)-(2*S*,3*R*,4*R*,5*S*)-5-[(2*S*,3*S*,4*S*,5*S*)-2,3-Epoxy-5-hydroxy-4-methylhexyl]tetrahydro-3,4-dihydroxy-β-methyl-2*H*-pyran-2-crotonic acid, ester with 9-hydroxynonanoic acid. The molecular formula of mupirocin is $C_{26}H_{44}O_9$, and the molecular weight is 500.63. The chemical structure is:



CLINICAL PHARMACOLOGY

Application of ^{14}C-labeled mupirocin ointment to the lower arm of normal male subjects followed by occlusion for 24 hours showed no measurable systemic absorption (<1.1 nanogram mupirocin per milliliter of whole blood). Measurable radioactivity was present in the stratum corneum of these subjects 72 hours after application.

Following intravenous or oral administration, mupirocin is rapidly metabolized. The principal metabolite, monic acid, is eliminated by renal excretion, and demonstrates no antibacterial activity. In a study conducted in 7 healthy adult male subjects, the elimination half-life after intravenous administration of mupirocin was 20 to 40 minutes for mupirocin and 30 to 80 minutes for monic acid. The pharmacokinetics of mupirocin has not been studied in individuals with renal insufficiency.

Microbiology

Mupirocin is an antibacterial agent produced by fermentation using the organism *Pseudomonas fluorescens*. It is active against a wide range of gram-positive bacteria including methicillin-resistant *Staphylococcus aureus* (MRSA). It is also active against certain gram-negative bacteria. Mupirocin inhibits bacterial protein synthesis by reversibly and specifically binding to bacterial isoleucyl transfer-RNA synthetase. Due to this unique mode of action, mupirocin demonstrates no in vitro cross-resistance with other classes of antimicrobial agents.

Resistance occurs rarely. However, when mupirocin resistance does occur, it appears to result from the production of a modified isoleucyl-tRNA synthetase. High-level plasmid-mediated resistance (MIC >1024 mcg/mL) has been reported in some strains of *S. aureus* and coagulase-negative staphylococci.

Mupirocin is bactericidal at concentrations achieved by topical administration. However, the minimum bactericidal concentration (MBC) against relevant pathogens is generally 8-fold to 30-fold higher than the minimum inhibitory concentration (MIC). In addition, mupirocin is highly protein-bound (>97%), and the effect of wound secretions on the MICs of mupirocin has not been determined.

Mupirocin has been shown to be active against most strains of *S. aureus* and *Streptococcus pyogenes*, both

in vitro and in clinical studies (see INDICATIONS AND USAGE). The following in vitro data are available, BUT THEIR CLINICAL SIGNIFICANCE IS UNKNOWN. Mupirocin is active against most strains of *Staphylococcus epidermidis* and *Staphylococcus saprophyticus*.

INDICATIONS AND USAGE

BACTROBAN OINTMENT is indicated for the topical treatment of impetigo due to: *S. aureus* and *S. pyogenes*.

CONTRAINDICATIONS

This drug is contraindicated in individuals with a history of sensitivity reactions to any of its components.

WARNINGS

BACTROBAN OINTMENT is not for ophthalmic use.

PRECAUTIONS

If a reaction suggesting sensitivity or chemical irritation should occur with the use of BACTROBAN OINTMENT, treatment should be discontinued and appropriate alternative therapy for the infection instituted.

As with other antibacterial products, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi.

BACTROBAN OINTMENT is not formulated for use on mucosal surfaces. Intranasal use has been associated with isolated reports of stinging and drying. A paraffin-based formulation — BACTROBAN NASAL® (mupirocin calcium ointment)— is available for intranasal use.

Polyethylene glycol can be absorbed from open wounds and damaged skin and is excreted by the kidneys. In common with other polyethylene glycol-based ointments, BACTROBAN OINTMENT should not be used in conditions where absorption of large quantities of polyethylene glycol is possible, especially if there is evidence of moderate or severe renal impairment.

Information for Patients

Use this medication only as directed by your healthcare provider. It is for external use only. Avoid contact with the eyes. The medication should be stopped and your healthcare practitioner contacted if irritation, severe itching, or rash occurs.

If impetigo has not improved in 3 to 5 days, contact your healthcare practitioner.

Drug Interactions

The effect of the concurrent application of BACTROBAN OINTMENT and other drug products has not been studied.

Carcinogenesis, Mutagenesis, Impairment of Fertility

Long-term studies in animals to evaluate carcinogenic potential of mupirocin have not been conducted.

Results of the following studies performed with mupirocin calcium or mupirocin sodium in vitro and in vivo did not indicate a potential for genotoxicity: Rat primary hepatocyte unscheduled DNA synthesis, sediment analysis for DNA strand breaks, *Salmonella* reversion test (Ames), *Escherichia coli* mutation assay, metaphase analysis of human lymphocytes, mouse lymphoma assay, and bone marrow micronuclei assay in mice.

Reproduction studies were performed in male and female rats with mupirocin administered subcutaneously at doses up to 14 times a human topical dose (approximately 60 mg mupirocin per day) on a mg/m^2 basis and revealed no evidence of impaired fertility and reproductive performance from mupirocin.

Pregnancy

Teratogenic Effects

Reproduction studies have been performed in rats and rabbits with mupirocin administered subcutaneously at doses up to 22 and 43 times, respectively, the human topical dose (approximately 60 mg mupirocin per day) on a mg/m^2 basis and revealed no evidence of harm to the fetus due to mupirocin. There are, however, no adequate and well-controlled studies in pregnant women. Because animal studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when BACTROBAN OINTMENT is administered to a nursing woman.

Pediatric Use

The safety and effectiveness of BACTROBAN OINTMENT have been established in the age range of 2 months to 16 years. Use of BACTROBAN OINTMENT in these age groups is supported by evidence from adequate and well-controlled studies of BACTROBAN OINTMENT in impetigo in pediatric patients studied as a part of the pivotal clinical trials (see CLINICAL STUDIES).

ADVERSE REACTIONS

The following local adverse reactions have been reported in connection with the use of BACTROBAN OINTMENT: Burning, stinging, or pain in 1.5% of patients; itching in 1% of patients; rash, nausea, erythema, dry skin, tenderness, swelling, contact dermatitis, and increased exudate in less than 1% of patients. Systemic reactions to BACTROBAN OINTMENT have occurred rarely.

DOSAGE AND ADMINISTRATION

A small amount of BACTROBAN OINTMENT should be applied to the affected area 3 times daily. The area treated may be covered with a gauze dressing if desired. Patients not showing a clinical response within 3 to 5 days should be re-evaluated.

CLINICAL STUDIES

The efficacy of topical BACTROBAN OINTMENT in impetigo was tested in 2 studies. In the first, patients with impetigo were randomized to receive either BACTROBAN OINTMENT or vehicle placebo 3 times daily for 8 to 12 days. Clinical efficacy rates at end of therapy in the evaluable populations (adults and pediatric patients included) were 71% for BACTROBAN OINTMENT (n = 49) and 35% for vehicle placebo (n = 51). Pathogen eradication rates in the evaluable populations were 94% for BACTROBAN OINTMENT and 62% for vehicle placebo. There were no side effects reported in the group receiving BACTROBAN OINTMENT.

In the second study, patients with impetigo were randomized to receive either BACTROBAN OINTMENT 3 times daily or 30 to 40 mg/kg oral erythromycin ethylsuccinate per day (this was an unblinded study) for 8 days. There was a follow-up visit 1 week after treatment ended. Clinical efficacy

rates at the follow-up visit in the evaluable populations (adults and pediatric patients included) were 93% for BACTROBAN OINTMENT (n = 29) and 78.5% for erythromycin (n = 28). Pathogen eradication rates in the evaluable patient populations were 100% for both test groups. There were no side effects reported in the group receiving BACTROBAN OINTMENT.

Pediatrics

There were 91 pediatric patients aged 2 months to 15 years in the first study described above. Clinical efficacy rates at end of therapy in the evaluable populations were 78% for BACTROBAN OINTMENT (n = 42) and 36% for vehicle placebo (n = 49). In the second study described above, all patients were pediatric except 2 adults in the group receiving BACTROBAN OINTMENT. The age range of the pediatric patients was 7 months to 13 years. The clinical efficacy rate for BACTROBAN OINTMENT (n = 27) was 96%, and for erythromycin it was unchanged (78.5%).

HOW SUPPLIED

BACTROBAN OINTMENT is supplied in 22-gram tubes.

NDC 0029-1525-44 (22-gram tube)

Store at controlled room temperature 20° to 25°C (68° to 77°F).

GlaxoSmithKline

Research Triangle Park, NC 27709

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Principal Display Panel

NDC 0029-1525-44

BACTROBAN OINTMENT®

MUPIROCIN OINTMENT, 2%

22 grams (Net Wt.)

R_x only

Store at controlled room temperature 20° to 25°C (68° to 77°F).

Each gram contains 20 mg mupirocin in a polyethylene glycol ointment, NF base.

Dosage: For dermatologic use only. Apply a small amount of ointment to the affected area three times daily. Patients not showing a clinical response within 3 to 5 days should be re-evaluated. See accompanying prescribing information.

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Research Triangle Park, NC 27709

Made in England

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Made in England 10000000017839 Rx only

BACTROBAN

mupirocin ointment

Product Information

Product Type	HUMAN PRESCRIPTION DRUG LABEL	**Item Code (Source)**	NDC:0029-1525
Route of Administration	TOPICAL	**DEA Schedule**	

Active Ingredient/Active Moiety

Ingredient Name	Basis of Strength	Strength
MUPIROCIN (mupirocin)	MUPIROCIN	20 mg in 1 g

Inactive Ingredients

Ingredient Name	Strength
POLYETHYLENE GLYCOL 3350	
POLYETHYLENE GLYCOL 400	

Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:0029-1525-44	22 g in 1 TUBE		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA	NDA050591	04/07/2000	

Labeler - GlaxoSmithKline LLC (167380711)

Revised: 10/2012 GlaxoSmithKline LLC