

## HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use ALTABAX safely and effectively. See full prescribing information for ALTABAX.

**ALTABAX<sup>®</sup> (retapamulin ointment), 1%  
For Dermatological use only  
Initial U.S. Approval: 2007**

### INDICATIONS AND USAGE

ALTABAX, a pleuromutilin antibacterial, is indicated for the topical treatment of impetigo due to *Staphylococcus aureus* (methicillin-susceptible isolates only) or *Streptococcus pyogenes* in patients aged 9 months or older. (1) Safety in patients younger than 9 months has not been established.

### DOSAGE AND ADMINISTRATION

- Apply a thin layer of ALTABAX to the affected area (up to 100 cm<sup>2</sup> in total area in adults or 2% total body surface area in pediatric patients aged 9 months or older) twice daily for 5 days. (2)
- The treated area may be covered with a sterile bandage or gauze dressing if desired. (2)

### DOSAGE FORMS AND STRENGTHS

10 mg retapamulin/1g of ointment in 15-, and 30-gram tubes (3)

### CONTRAINDICATIONS

None. (4)

### WARNINGS AND PRECAUTIONS

- Discontinue in the event of sensitization or severe local irritation. (5.1)
- Not intended for ingestion. Not for intraoral, intranasal, ophthalmic, or intravaginal use. (5.2)

### ADVERSE REACTIONS

The most common drug-related adverse reaction was application site irritation ( $\leq 2\%$  of patients). (6)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

See 17 for PATIENT COUNSELING INFORMATION

Revised: December 2012

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\*Sections or subsections omitted from the full prescribing information are not listed.

## 1 FULL PRESCRIBING INFORMATION

### 1 INDICATIONS AND USAGE

ALTABAX<sup>®</sup> is indicated for use in adults and pediatric patients aged 9 months and older for the topical treatment of impetigo (up to 100 cm<sup>2</sup> in total area in adults or 2% total body surface area in pediatric patients aged 9 months or older) due to *Staphylococcus aureus* (methicillin-susceptible isolates only) or *Streptococcus pyogenes* [see *Clinical Studies (14)*]. Safety in patients younger than 9 months has not been established.

To reduce the development of drug-resistant bacteria and maintain the effectiveness of ALTABAX and other antibacterial drugs, ALTABAX should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria.

### 2 DOSAGE AND ADMINISTRATION

A thin layer of ALTABAX should be applied to the affected area (up to 100 cm<sup>2</sup> in total area in adults or 2% total body surface area in pediatric patients aged 9 months or older) twice daily for 5 days. The treated area may be covered with a sterile bandage or gauze dressing if desired [see *Patient Counseling Information (17)*].

16 **3 DOSAGE FORMS AND STRENGTHS**  
17 10 mg retapamulin/1g of ointment in 15- and 30-gram tubes

18 **4 CONTRAINDICATIONS**  
19 None.

20 **5 WARNINGS AND PRECAUTIONS**

21 **5.1 Local Irritation**

22 In the event of sensitization or severe local irritation from ALTABAX, usage should be  
23 discontinued, the ointment wiped off, and appropriate alternative therapy for the infection  
24 instituted [*see Patient Counseling Information (17)*].

25 **5.2 Not for Systemic or Mucosal Use**

26 ALTABAX is not intended for ingestion or for oral, intranasal, ophthalmic, or  
27 intravaginal use. The efficacy and safety of ALTABAX on mucosal surfaces have not been  
28 established. Epistaxis has been reported with the use of ALTABAX on nasal mucosa.

29 **5.3 Potential for Microbial Overgrowth**

30 The use of antibiotics may promote the selection of nonsusceptible organisms. Should  
31 superinfection occur during therapy, appropriate measures should be taken.

32 Prescribing ALTABAX in the absence of a proven or strongly suspected bacterial  
33 infection is unlikely to provide benefit to the patient and increases the risk of the development of  
34 drug-resistant bacteria.

35 **6 ADVERSE REACTIONS**

36 **6.1 Clinical Studies Experience**

37 Because clinical studies are conducted under varying conditions, adverse reaction rates  
38 observed in the clinical studies of a drug cannot be directly compared to rates in the clinical  
39 studies of another drug and may not reflect the rates observed in practice. The adverse reaction  
40 information from the clinical studies does, however, provide a basis for identifying the adverse  
41 events that appear to be related to drug use and for approximating rates.

42 The safety profile of ALTABAX was assessed in 2,115 adult and pediatric patients  $\geq 9$   
43 months who used at least one dose from a 5-day, twice a day regimen of retapamulin ointment.  
44 Control groups included 819 adult and pediatric patients who used at least one dose of the active  
45 control (oral cephalexin), 172 patients who used an active topical comparator (not available in  
46 the US), and 71 patients who used placebo.

47 Adverse events rated by investigators as drug-related occurred in 5.5% (116/2,115) of  
48 patients treated with retapamulin ointment, 6.6% (54/819) of patients receiving cephalexin, and  
49 2.8% (2/71) of patients receiving placebo. The most common drug-related adverse events ( $\geq 1\%$   
50 of patients) were application site irritation (1.4%) in the retapamulin group, diarrhea (1.7%) in  
51 the cephalexin group, and application site pruritus (1.4%) and application site paresthesia (1.4%)  
52 in the placebo group.

53 Adults: The adverse events, regardless of attribution, reported in at least 1% of adults

54 (18 years of age and older) who received ALTABAX or comparator are presented in Table 1.

55

56 **Table 1. Adverse Events Reported by  $\geq 1\%$  of Adult Patients Treated With ALTABAX or**  
57 **Comparator in Phase 3 Clinical Studies**

<b>Adverse Event</b>	<b>ALTABAX N = 1,527 %</b>	<b>Cephalexin N = 698 %</b>
Headache	2.0	2.0
Application site irritation	1.6	<1.0
Diarrhea	1.4	2.3
Nausea	1.2	1.9
Nasopharyngitis	1.2	<1.0
Creatinine phosphokinase increased	<1.0	1.0

58

59 Pediatrics: The adverse events, regardless of attribution, reported in at least 1% of  
60 pediatric patients aged 9 months to 17 years who received ALTABAX are presented in Table 2.

61

62 **Table 2. Adverse Events Reported by  $\geq 1\%$  in Pediatric Patients Aged 9 Months to 17 Years**  
63 **Treated With ALTABAX in Phase 3 Clinical Studies**

<b>Adverse Event</b>	<b>ALTABAX N = 588 %</b>	<b>Cephalexin N = 121 %</b>	<b>Placebo N = 64 %</b>
Application site pruritus	1.9	0	0
Diarrhea	1.7	5.0	0
Nasopharyngitis	1.5	1.7	0
Pruritus	1.5	1.0	1.6
Eczema	1.0	0	0
Headache	1.2	1.7	0
Pyrexia	1.2	<1.0	1.6

64

65 Other Adverse Events: Application site pain, erythema, and contact dermatitis were  
66 reported in less than 1% of patients in clinical studies.

## 67 **6.2 Postmarketing Experience**

68 In addition to reports in clinical trials, the following events have been identified during  
69 postmarketing use of ALTABAX. Because these events are reported voluntarily from a  
70 population of uncertain size, it is not possible to reliably estimate their frequency or establish a  
71 causal relationship to drug exposure.

72 General Disorders and Administration Site Conditions: Application site burning.

73 Immune System Disorders: Hypersensitivity including angioedema.

## 74 **7 DRUG INTERACTIONS**

75 Coadministration of oral ketoconazole 200 mg twice daily increased retapamulin

76 geometric mean  $AUC_{(0-24)}$  and  $C_{max}$  by 81% after topical application of retapamulin ointment, 1%  
77 on the abraded skin of healthy adult males. Due to low systemic exposure to retapamulin  
78 following topical application in adults and pediatric patients 2 years of age and older, dosage  
79 adjustments for retapamulin are unnecessary in these patients when coadministered with  
80 CYP3A4 inhibitors, such as ketoconazole. Based on in vitro P450 inhibition studies and the low  
81 systemic exposure observed following topical application of ALTABAX, retapamulin is unlikely  
82 to affect the metabolism of other P450 substrates.

83 Concomitant administration of retapamulin and CYP3A4 inhibitors, such as  
84 ketoconazole, has not been studied in pediatric patients. In pediatric patients 2 to 24 months of  
85 age, systemic exposure of retapamulin was higher compared with patients  $\geq 2$  years of age after  
86 topical application [see *Pharmacokinetics (12.3)*]. Based on the higher exposure of retapamulin,  
87 it is not recommended to coadminister ALTABAX with strong CYP3A4 inhibitors in patients  
88 younger than 24 months of age.

89 The effect of concurrent application of ALTABAX and other topical products to the same  
90 area of skin has not been studied.

## 91 **8 USE IN SPECIFIC POPULATIONS**

### 92 **8.1 Pregnancy**

93 Pregnancy Category B

94 Effects on embryo-fetal development were assessed in pregnant rats given 50, 150, or  
95 450 mg/kg/day by oral gavage on days 6 to 17 postcoitus. Maternal toxicity (decreased body  
96 weight gain and food consumption) and developmental toxicity (decreased fetal body weight and  
97 delayed skeletal ossification) were evident at doses  $\geq 150$  mg/kg/day. There were no treatment-  
98 related malformations observed in fetal rats.

99 Retapamulin was given as a continuous intravenous infusion to pregnant rabbits at  
100 dosages of 2.4, 7.2, or 24 mg/kg/day from day 7 to 19 of gestation. Maternal toxicity (decreased  
101 body weight gain, food consumption, and abortions) was demonstrated at dosages  
102  $\geq 7.2$  mg/kg/day (8-fold the estimated maximum achievable human exposure, based on AUC, at  
103 7.2 mg/kg/day). There was no treatment-related effect on embryo-fetal development.

104 There are no adequate and well-controlled studies in pregnant women. Because animal  
105 reproduction studies are not always predictive of human response, ALTABAX should be used in  
106 pregnancy only when the potential benefits outweigh the potential risk.

### 107 **8.3 Nursing Mothers**

108 It is not known whether retapamulin is excreted in human milk. Because many drugs are  
109 excreted in human milk, caution should be exercised when ALTABAX is administered to a  
110 nursing woman. The safe use of retapamulin during breast-feeding has not been established.

### 111 **8.4 Pediatric Use**

112 The safety and effectiveness of ALTABAX in the treatment of impetigo have been  
113 established in pediatric patients 9 months to 17 years of age. Use of ALTABAX in pediatric  
114 patients (9 months to 17 years of age) is supported by evidence from adequate and well-

115 controlled studies of ALTABAX in which 588 pediatric patients received at least one dose of  
116 retapamulin ointment, 1% [see *Adverse Reactions (6.1), Clinical Studies (14)*]. The magnitude of  
117 efficacy and the safety profile of ALTABAX in pediatric patients 9 months and older were  
118 similar to those in adults.

119 The safety and effectiveness of ALTABAX in pediatric patients younger than 9 months  
120 of age have not been established. An open-label clinical study of topical treatment with  
121 ALTABAX (twice daily for 5 days) was conducted in patients 2 to 24 months of age. Plasma  
122 samples were obtained from 79 patients. In these pediatric patients, systemic exposure of  
123 retapamulin was higher compared with patients 2 to 17 years of age. Furthermore, a higher  
124 proportion of pediatric patients 2 to 9 months of age had measurable concentrations (>0.5  
125 ng/mL) of retapamulin compared with patients 9 to 24 months of age [see *Pharmacokinetics*  
126 *(12.3)*]. The highest levels were seen in patients 2 to 6 months of age [see *Pharmacokinetics*  
127 *(12.3)*]. The use of retapamulin is not indicated in pediatric patients younger than 9 months of  
128 age.

### 129 **8.5 Geriatric Use**

130 Of the total number of patients in the adequate and well-controlled studies of  
131 ALTABAX, 234 patients were 65 years of age and older, of whom 114 patients were 75 years of  
132 age and older. No overall differences in effectiveness or safety were observed between these  
133 patients and younger adult patients.

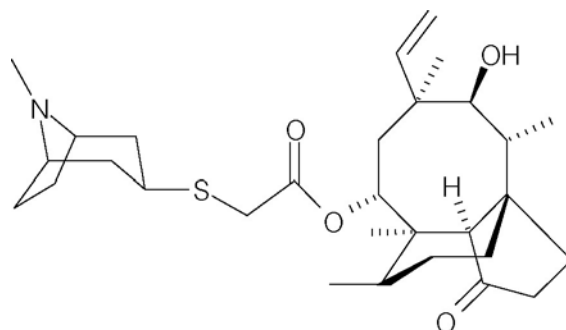
## 134 **10 OVERDOSAGE**

135 Overdosage with ALTABAX has not been reported. Any signs or symptoms of overdose,  
136 either topically or by accidental ingestion, should be treated symptomatically consistent with  
137 good clinical practice.

138 There is no known antidote for overdoses of ALTABAX.

## 139 **11 DESCRIPTION**

140 ALTABAX contains retapamulin, a semisynthetic pleuromutilin antibiotic. The chemical  
141 name of retapamulin is acetic acid, [[[(3-*exo*)-8-methyl-8-azabicyclo[3.2.1]oct-3-yl]thio]-,  
142 (3*aS*,4*R*,5*S*,6*S*,8*R*,9*R*,9*aR*,10*R*)-6-ethenyldecahydro-5-hydroxy-4,6,9,10-tetramethyl-1-oxo-3*a*,9-  
143 propano-3*aH*-cyclopentacycloocten-8-yl ester. Retapamulin, a white to pale-yellow crystalline  
144 solid, has a molecular formula of C<sub>30</sub>H<sub>47</sub>NO<sub>4</sub>S, and a molecular weight of 517.78. The chemical  
145 structure is:



146

147  
148 Each gram of ointment for dermatological use contains 10 mg of retapamulin in white  
149 petrolatum.

## 150 **12 CLINICAL PHARMACOLOGY**

### 151 **12.1 Mechanism of Action**

152 ALTABAX is an antibacterial agent [see *Clinical Pharmacology (12.4)*].

### 153 **12.2 Pharmacodynamics**

154 In post-hoc analyses of manually over-read 12-lead ECGs from healthy subjects  
155 (N = 103), no significant effects on QT/QTc intervals were observed after topical application of  
156 retapamulin ointment on intact and abraded skin. Due to the low systemic exposure to  
157 retapamulin with topical application, QT prolongation in patients is unlikely [see *Clinical*  
158 *Pharmacology (12.3)*].

### 159 **12.3 Pharmacokinetics**

160 Absorption: In a study of healthy adult subjects, retapamulin ointment, 1% was applied  
161 once daily to intact skin (800 cm<sup>2</sup> surface area) and to abraded skin (200 cm<sup>2</sup> surface area) under  
162 occlusion for up to 7 days. Systemic exposure following topical application of retapamulin  
163 through intact and abraded skin was low. Three percent of blood samples obtained on Day 1 after  
164 topical application to intact skin had measurable retapamulin concentrations (lower limit of  
165 quantitation 0.5 ng/mL); thus C<sub>max</sub> values on Day 1 could not be determined. Eighty-two percent  
166 of blood samples obtained on Day 7 after topical application to intact skin and 97% and 100% of  
167 blood samples obtained after topical application to abraded skin on Days 1 and 7, respectively,  
168 had measurable retapamulin concentrations. The median C<sub>max</sub> value in plasma after application to  
169 800 cm<sup>2</sup> of intact skin was 3.5 ng/mL on Day 7 (range 1.2 to 7.8 ng/mL). The median C<sub>max</sub> value  
170 in plasma after application to 200 cm<sup>2</sup> of abraded skin was 11.7 ng/mL on Day 1 (range 5.6 to  
171 22.1 ng/mL) and 9.0 ng/mL on Day 7 (range 6.7 to 12.8 ng/mL).

172 Plasma samples were obtained from 380 adult patients and 136 pediatric patients (aged 2  
173 to 17 years) who were receiving topical treatment with ALTABAX topically twice daily. Eleven  
174 percent had measurable retapamulin concentrations (lower limit of quantitation 0.5 ng/mL), of  
175 which the median concentration was 0.8 ng/mL. The maximum measured retapamulin  
176 concentration in adults was 10.7 ng/mL and in pediatric patients (aged 2 to 17 years) was  
177 18.5 ng/mL.

178 A single plasma sample was obtained from 79 pediatric patients (aged 2 to 24 months)  
179 who were receiving topical treatment with ALTABAX twice daily. Forty-six percent had  
180 measurable retapamulin concentrations (> 0.5 ng/mL) compared with 7% in pediatric patients 2  
181 to 17 years of age. A higher proportion (69%) of pediatric patients aged 2 to 9 months had  
182 measurable concentrations of retapamulin compared with patients aged 9 to 24 months (32%).  
183 Among pediatric patients 2 to 9 months of age (n = 29), four patients had retapamulin  
184 concentrations that were higher (≥26.9 ng/mL) than the maximum concentration observed in  
185 pediatric patients aged 2 to 17 years (18.5 ng/mL). Among pediatric patients aged 9 to 24 months

186 (n = 50), one patient had a retapamulin concentration that was higher (95.1 ng/mL) than the  
187 maximum level observed in pediatric patients aged 2 to 17 years.

188 Distribution: Retapamulin is approximately 94% bound to human plasma proteins, and  
189 the protein binding is independent of concentration. The apparent volume of distribution of  
190 retapamulin has not been determined in humans.

191 Metabolism: In vitro studies with human hepatocytes showed that the main routes of  
192 metabolism were mono-oxygenation and di-oxygenation. In vitro studies with human liver  
193 microsomes demonstrated that retapamulin is extensively metabolized to numerous metabolites,  
194 of which the predominant routes of metabolism were mono-oxygenation and N-demethylation.  
195 The major enzyme responsible for metabolism of retapamulin in human liver microsomes was  
196 cytochrome P450 3A4 (CYP3A4).

197 Elimination: Retapamulin elimination in humans has not been investigated due to low  
198 systemic exposure after topical application.

#### 199 **12.4 Microbiology**

200 Retapamulin is a semisynthetic derivative of the compound pleuromutilin, which is  
201 isolated through fermentation from *Clitopilus passeckerianus* (formerly *Pleurotus*  
202 *passeckerianus*). In vitro activity of retapamulin against isolates of *Staphylococcus aureus* as  
203 well as *Streptococcus pyogenes* has been demonstrated.

204 Antimicrobial Mechanism of Action: Retapamulin selectively inhibits bacterial protein  
205 synthesis by interacting at a site on the 50S subunit of the bacterial ribosome through an  
206 interaction that is different from that of other antibiotics. This binding site involves ribosomal  
207 protein L3 and is in the region of the ribosomal P site and peptidyl transferase center. By virtue  
208 of binding to this site, pleuromutilins inhibit peptidyl transfer, block P-site interactions, and  
209 prevent the normal formation of active 50S ribosomal subunits. Retapamulin is bacteriostatic  
210 against *Staphylococcus aureus* and *Streptococcus pyogenes* at the retapamulin in vitro minimum  
211 inhibitory concentration (MIC) for these organisms. At concentrations 1,000x the in vitro MIC,  
212 retapamulin is bactericidal against these same organisms. Although cross-resistance between  
213 retapamulin and other antibacterial classes (such as clindamycin and oxazolidones) exist, isolates  
214 resistant to these classes may be susceptible to retapamulin.

215 Mechanisms of Decreased Susceptibility to Retapamulin: In vitro, 2 mechanisms  
216 that cause reduced susceptibility to retapamulin have been identified, specifically, mutations in  
217 ribosomal protein L3, the presence of Cfr rRNA methyltransferase or the presence of an efflux  
218 mechanism. Decreased susceptibility of *S. aureus* to retapamulin (highest retapamulin MIC was  
219 2 mcg/mL) develops slowly in vitro via multistep mutations in L3 after serial passage in sub-  
220 inhibitory concentrations of retapamulin. There was no apparent treatment-associated reduction  
221 in susceptibility to retapamulin in the Phase 3 clinical program. The clinical significance of these  
222 findings is not known.

223 Other: Based on in vitro broth microdilution susceptibility testing, no differences were  
224 observed in susceptibility of *S. aureus* to retapamulin whether the isolates were methicillin-  
225 resistant or methicillin-susceptible. Retapamulin susceptibility did not correlate with clinical

226 success rates in patients with methicillin-resistant *S. aureus*. The reason for this is not known but  
227 may have been influenced by the presence of particular strains of *S. aureus* possessing certain  
228 virulence factors, such as Panton-Valentine Leukocidin (PVL). In the case of treatment failure  
229 associated with *S. aureus* (regardless of methicillin susceptibility), the presence of strains  
230 possessing additional virulence factors (such as PVL) should be considered.

231 Retapamulin has been shown to be active against the following microorganisms, both in  
232 vitro and in clinical trials [see *Indications and Usage (1)*].

233 ***Aerobic and Facultative Gram-Positive Bacteria:***

234 *Staphylococcus aureus* (methicillin-susceptible isolates only)

235 *Streptococcus pyogenes*

236 **Susceptibility Testing:** The clinical microbiology laboratory should provide cumulative  
237 results of the in vitro susceptibility test results for antimicrobial drugs used in local hospitals and  
238 practice areas to the physician as periodic reports that describe the susceptibility profile of  
239 nosocomial and community-acquired pathogens. These reports should aid the physician in  
240 selecting the most effective antimicrobial.

241 ***Susceptibility Testing Techniques:***

242 ***Dilution Techniques:*** Quantitative methods can be used to determine the  
243 minimum inhibitory concentration (MIC) of retapamulin that will inhibit the growth of the  
244 bacteria being tested. The MIC provides an estimate of the susceptibility of bacteria to  
245 retapamulin. The MIC should be determined using a standardized procedure.<sup>1,2</sup> Standardized  
246 procedures are based on a dilution method (broth or agar) or equivalent with standardized  
247 inoculum concentrations and standardized concentrations of retapamulin powder.

248 ***Diffusion Techniques:*** Quantitative methods that require measurement of zone  
249 diameters also provide reproducible estimates of the susceptibility of bacteria to antimicrobial  
250 compounds. One such standardized procedure requires the use of standardized inoculum  
251 concentrations.<sup>2,3</sup> This procedure uses paper disks impregnated with 2 mcg of retapamulin to test  
252 the susceptibility of microorganisms to retapamulin.

253 ***Susceptibility Test Interpretive Criteria:*** In vitro susceptibility test interpretive criteria  
254 for retapamulin have not been determined for this topical antimicrobial. The relation of the in  
255 vitro MIC and/or disk diffusion susceptibility test results to clinical efficacy of retapamulin  
256 against the bacteria tested should be monitored.

257 ***Quality Control Parameters for Susceptibility Testing:*** In vitro susceptibility test  
258 quality control parameters were developed for retapamulin so that laboratories that test the  
259 susceptibility of bacterial isolates to retapamulin can determine if the susceptibility test is  
260 performing correctly. Standardized dilution techniques and diffusion methods require the use of  
261 laboratory control microorganisms to monitor the technical aspects of the laboratory procedures.  
262 Standard retapamulin powder should provide the following MIC and a 2 mcg retapamulin disk  
263 should produce the following zone diameters with the indicated quality control strains in Table 3.

264



265 **Table 3. Acceptable Quality Control Ranges for Retapamulin**

Microorganism	MIC Range (mcg/mL)	Disk Diffusion Zone Diameter (mm)
<i>Staphylococcus aureus</i> ATCC 29213	0.06-0.25	NA
<i>Staphylococcus aureus</i> ATCC 25923	NA	23-30
<i>Streptococcus pneumoniae</i> ATCC 49619	0.06-0.5 <sup>a</sup>	13-19 <sup>b</sup>

266 NA = Not applicable.

267 <sup>a</sup> This quality control range is applicable using cation-adjusted Mueller-Hinton broth with 2-5%  
 268 lysed horse blood.

269 <sup>b</sup> This quality control limit is applicable using Mueller-Hinton agar with 5% sheep blood.

270 **13 NONCLINICAL TOXICOLOGY**

271 **13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

272 Long-term studies in animals to evaluate carcinogenic potential have not been conducted  
 273 with retapamulin.

274 Retapamulin showed no genotoxicity when evaluated in vitro for gene mutation and/or  
 275 chromosomal effects in the mouse lymphoma cell assay, in cultured human peripheral blood  
 276 lymphocytes, or when evaluated in vivo in a rat micronucleus test.

277 No evidence of impaired fertility was found in male or female rats given retapamulin 50,  
 278 150, or 450 mg/kg/day orally.

279 **14 CLINICAL STUDIES**

280 ALTABAX was evaluated in a placebo-controlled study that enrolled adult and pediatric  
 281 patients 9 months of age and older for treatment of impetigo up to 100 cm<sup>2</sup> in total area (up to 10  
 282 lesions) or a total body surface area not exceeding 2%. The majority of patients enrolled  
 283 (164/210, 78%) were under the age of 13. The study was a double-blind, randomized, multi-  
 284 center, parallel-group comparison of the safety of ALTABAX and placebo ointment, both  
 285 applied twice daily for 5 days. Patients were randomized to ALTABAX or placebo (2:1).  
 286 Patients with underlying skin disease (e.g., preexisting eczematous dermatitis) or skin trauma,  
 287 with clinical evidence of secondary infection were excluded from these studies. In addition,  
 288 patients with any systemic signs and symptoms of infection (such as fever) were excluded from  
 289 the study. Clinical success was defined as the absence of treated lesions, or treated lesions had  
 290 become dry without crusts with or without erythema compared to baseline, or had improved  
 291 (defined as a decline in the size of the affected area, number of lesions or both) such that no  
 292 further antimicrobial therapy was required. The intent-to-treat clinical (ITTC) population  
 293 consisted of all randomized patients who took at least 1 dose of study medication. The clinical  
 294 per protocol (PPC) population included all ITTC patients who satisfied the inclusion/exclusion  
 295 criteria and subsequently adhered to the protocol. The intent-to-treat bacteriological (ITTB)  
 296 population consisted of all randomized patients who took at least one dose of study medication  
 297 and had a pathogen identified at study entry. The bacteriological per protocol (PPB) population

298 included all ITTB patients who satisfied the inclusion/exclusion criteria and subsequently  
 299 adhered to the protocol.

300 Table 4 presents the results for clinical response at end of therapy (2 days after treatment)  
 301 and follow-up (9 days after treatment), by analysis population.

302  
 303

**Table 4. Clinical Response at End of Therapy and at Follow-Up by Analysis Population**

Analysis Population	ALTABAX		Placebo		Difference in Success Rates (%)	95% CI (%)
	n/N	Success Rate (%)	n/N	Success Rate (%)		
End of Therapy						
PPC	111/124	89.5	33/62	53.2	36.3	(22.8, 49.8)
ITTC	119/139	85.6	37/71	52.1	33.5	(20.5, 46.5)
PPB	96/107	89.7	26/52	50.0	39.7	(25.0, 54.5)
ITTB	101/114	88.6	28/57	49.1	39.5	(25.2, 53.7)
Follow-Up						
PPC	98/119	82.4	25/58	43.1	39.2	(24.8, 53.7)
ITTC	105/139	75.5	28/71	39.4	36.1	(22.7, 49.5)
PPB	86/102	84.3	18/48	37.5	46.8	(31.4, 62.2)
ITTB	91/114	79.8	19/57	33.3	46.5	(32.2, 60.8)

304 n = number with clinical success outcome, N = number in analysis population, PPC = Clinical  
 305 Per Protocol Population, ITTC = Clinical Intent to Treat Population, PPB = Bacteriological  
 306 Per Protocol Population, ITTB = Bacteriological Intent to Treat Population

307  
 308  
 309  
 310

Table 5 presents the clinical success at end of therapy and follow-up by baseline pathogen.

311 **Table 5. Clinical Response at End of Therapy and Follow-Up for Patients With**  
 312 ***Staphylococcus aureus* and *Streptococcus pyogenes* at Baseline in the Per Protocol**  
 313 **Bacteriological Population (PPB)**

Pathogen	ALTABAX		Placebo	
	n/N	Success Rate (%)	n/N	Success Rate (%)
End of Therapy				
<i>Staphylococcus aureus</i> (Methicillin-susceptible)	79/88	89.8	25/48	52.1
<i>Streptococcus pyogenes</i>	29/32	90.6	3/7	42.9
Follow-Up				
<i>Staphylococcus aureus</i> (Methicillin-susceptible)	71/84	84.5	19/44	43.2
<i>Streptococcus pyogenes</i>	29/32	90.6	2/6	33.3

314 n/N = number of clinical successes/number of pathogens isolated at baseline.

315  
 316 Examination of age and gender subgroups did not identify differences in response to  
 317 ALTABAX among these groups. The majority of patients entered into this study were classified  
 318 as White/Caucasian or of Asian heritage; when response rates by racial subgroups were viewed  
 319 across studies, differences in response to ALTABAX were not identified.

320 **15 REFERENCES**

- 321 1. Clinical and Laboratory Standards Institute (CLSI) Methods for Dilution Antimicrobial  
 322 Susceptibility Tests for Bacteria that Grow Aerobically: Approved Standard-Eighth  
 323 Edition. CLSI Document M07-A9, Vol. 32, No. 2. CLSI, Wayne, PA, Jan. 2012.
- 324 2. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for  
 325 Antimicrobial Susceptibility Testing: Nineteenth Informational Supplement. CLSI  
 326 Document M100-S22. Vol. 32, No. 3. CLSI, Wayne, PA, Jan. 2012.
- 327 3. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for  
 328 Antimicrobial Disk Susceptibility Tests. Approved Standard-Tenth Edition. CLSI  
 329 Document M02-A11, Vol. 32, No. 1. CLSI, Wayne, PA, Jan. 2012.

331 **16 HOW SUPPLIED/STORAGE AND HANDLING**

332 ALTABAX is supplied in 15-gram and 30-gram tubes.  
 333 NDC 0007-5180-22 (15-gram tube)  
 334 NDC 0007-5180-25 (30-gram tube)  
 335 Store at 25°C (77°F) with excursions permitted to 15°-30°C (59°-86°F).

336 **17 PATIENT COUNSELING INFORMATION**

337 Patients using ALTABAX and/or their guardians should receive the following

338 information and instructions:

- 339 • Use ALTABAX as directed by the healthcare practitioner. As with any topical medication,  
340 patients and caregivers should wash their hands after application if the hands are not the area  
341 for treatment.
- 342 • ALTABAX is for external use only. Do not swallow ALTABAX or use it in the eyes, on the  
343 mouth or lips, inside the nose, or inside the female genital area.
- 344 • The treated area may be covered by a sterile bandage or gauze dressing, if desired. This may  
345 also be helpful for infants and young children who accidentally touch or lick the lesion site.  
346 A bandage will protect the treated area and avoid accidental transfer of ointment to the eyes  
347 or other areas.
- 348 • Use the medication for the full time recommended by the healthcare practitioner, even  
349 though symptoms may have improved.
- 350 • Notify the healthcare practitioner if there is no improvement in symptoms within 3 to 4 days  
351 after starting use of ALTABAX.
- 352 • ALTABAX may cause reactions at the site of application of the ointment. Inform the  
353 healthcare practitioner if the area of application worsens in irritation, redness, itching,  
354 burning, swelling, blistering, or oozing.

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360 Research Triangle Park, NC 27709

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364 December 2012

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