



## SUMMARY OF PRODUCT CHARACTERISTICS

### 1. NAME OF THE MEDICINAL PRODUCT

AZITRO 250 mg Film Coated Tablets

### 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains

**Active substance:**

Azithromycin dihydrate 262.016 mg (equivalent to 250 mg azithromycin).

**Excipient(s):**

For the full list of excipients, see section 6.1.

### 3. PHARMACEUTICAL FORM

Film coated tablet.

White, oblong, homogenous, odorless film coated tablets with “AZITRO” engraved on one side.

### 4. CLINICAL PARTICULARS

#### 4.1 Therapeutic indications

AZITRO is indicated for infections caused by susceptible organisms; in lower respiratory tract infections such as bronchitis, mild community-acquired pneumonia due to *Streptococcus pneumoniae* or *Haemophilus influenzae*; in skin and soft tissue infections; in acute otitis media and in upper respiratory tract infections including sinusitis.

It is indicated for treatment of pharyngitis/tonsillitis caused by *Streptococcus pyogenes*, in the presence of penicillin allergy.

AZITRO is indicated for treatment of sexually transmitted, uncomplicated genital infections in males and females due to *Chlamydia trachomatis*.

It is also indicated for treatment of soft tissue ulcers due to *Haemophilus ducreyi* and uncomplicated genital infections due to non-multi resistant *Neisseria gonorrhoeae*, however concurrent infection with *Treponema pallidum* should be excluded.

#### 4.2 Posology and method of administration

**Posology/frequency and duration of administration**

AZITRO should be given as a single daily dose.

The duration of treatment in each of the infectious disease are given below.

Adults:

The dosage for treatment of sexually transmitted diseases due to *Chlamydia trachomatis*, *Haemophilus ducreyi* or susceptible *Neisseria gonorrhoeae* is 1000 mg as a single oral dose.

The dosage for treatment of tonsillitis/pharyngitis due to *S. pyogenes*, is 500 mg on day 1 and 250



mg daily on days 2 through 5, the duration of therapy is 5 days.

For all other indications, total dosage is 1500 mg, taken as 500 mg daily for 3 days.

### **Method of administration**

For oral use.

AZITRO can be taken with or without meals.

The film-coated tablets should be swallowed with some liquid without chewing.

### **Additional information on special populations**

#### **Renal impairment**

No dosage adjustment is recommended for subjects with mild to moderate renal impairment (GFR 10-80 ml/min). Caution should be exercised when azithromycin is administered to subjects with severe renal impairment (GFR<10 ml/min) (see section 4.4).

#### **Hepatic impairment**

Same doses may be administered to patients with mild to moderate hepatic impairment as the patients with normal hepatic functions. As Azithromycin is metabolized in the liver and eliminated by the bile, it should not be used in patients with severe hepatic impairment. There are no available studies of Azithromycin use in patients with hepatic impairment (see section 4.4).

#### **Pediatric population**

For pediatric patients weighing over 45 kg, adult doses are administered. For indications except tonsillitis/pharyngitis, the recommended total dosage is 1500 mg which is spread over 3 days (500 mg once daily). The dosage for treatment of tonsillitis/pharyngitis due to *S. pyogenes*, is 500 mg on day 1 and 250 mg daily on days 2 through 5, the duration of therapy is 5 days.

Oral suspension forms are available for pediatric patients weighing less than 45 kg.

Efficacy and safety of Azithromycin have not been established for infants younger than 6 months of age, therefore its use is not recommended for infants younger than 6 months of age.

#### **Geriatric population:**

The same dosage as in adult patients is used in the elderly patients. As elderly patients may have persistent proarrhythmic conditions, special caution is advised for the risk of developing cardiac arrhythmias and *torsades de pointes*.

### **4.3 Contraindications**

The use of this drug is contraindicated in patients with known hypersensitivity to azithromycin, erythromycin, any macrolide or ketolide antibiotics or any of the excipients listed in section 6.1.

### **4.4 Special warnings and precautions for use**

#### **Hypersensitivity**

As with erythromycin and other macrolides, serious allergic reactions including angioneurotic edema and anaphylaxis (rarely fatal), Acute Generalized Exanthematous Pustulosis (AGEP) and Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) have been reported. Some of these reactions with azithromycin have resulted in recurrent symptoms and required a longer period of observation and treatment.

If an allergic reaction occurs, the drug should be discontinued and appropriate therapy initiated. The physician should be aware of the possibility of recurrence of allergic symptoms after



discontinuation of therapy.

### **Hepatotoxicity**

Since the liver is the principal route of elimination for azithromycin, the use of azithromycin should be undertaken with caution in patients with significant hepatic disease. Cases of fulminant hepatitis potentially leading to life-threatening liver failure have been reported with azithromycin (see section 4.8). Some patients may have had pre-existing hepatic disease or may have been taking other hepatotoxic medicinal products.

In case of signs and symptoms of liver dysfunction, such as rapid developing asthenia associated with jaundice, dark urine, bleeding tendency or hepatic encephalopathy, liver function tests / investigations should be performed immediately. Azithromycin administration should be stopped if liver dysfunction has emerged.

### **Ergot derivatives**

In patients receiving ergot derivatives, ergotism has been precipitated by co-administration of some macrolide antibiotics. There are no data concerning the possibility of an interaction between ergot and azithromycin. However, because of the theoretical possibility of ergotism, azithromycin and ergot derivatives should not be co-administered.

### **Superinfection**

As with any antibiotic preparation, observation for signs of superinfection with non-susceptible organisms including fungi is recommended. In case of superinfection, it may be necessary to discontinue azithromycin therapy and initiate appropriate therapy.

### ***Clostridium difficile* associated diarrhea**

*Clostridium difficile* associated diarrhea (CDAD) has been reported with the use of nearly all antibacterial agents, including azithromycin, and may range in severity from mild diarrhea to fatal colitis. Strains of *C. difficile* producing hypertoxin A and B contribute to the development of CDAD. Hypertoxin producing strains of *C. difficile* cause increased morbidity and mortality, as these infections can be refractory to antimicrobial therapy and may require colectomy. Therefore, CDAD must be considered in patients who present with diarrhea during or subsequent to the administration of any antibiotics. Careful medical history is necessary since CDAD has been reported to occur over 2 months after the administration of antibacterial agents. Discontinuation of therapy with azithromycin and the administration of specific treatment for *C. difficile* should be considered.

### **Renal impairment**

In patients with severe renal impairment (GFR <10 ml/min) a 33% increase in systemic exposure to azithromycin was observed (see section 5.2).

### **Streptococcal infections**

Penicillin is usually the first choice for treatment of pharyngitis/tonsillitis due to *Streptococcus pyogenes* and also for prophylaxis of acute rheumatic fever. Azithromycin is in general effective against streptococcus in the oropharynx, but no data are available that demonstrate the efficacy of azithromycin in preventing acute rheumatic fever.

### **Prolongation of the QT interval**

**Prolonged cardiac repolarization and QT interval, imparting a risk of developing cardiac arrhythmia and torsades de pointes, have been seen in treatment with macrolides including azithromycin (see section 4.8). Therefore as the following situations may lead to an increased**



risk for ventricular arrhythmias (including torsade de pointes) which can lead to cardiac arrest, azithromycin should be used with caution in patients with ongoing proarrhythmic conditions (especially women and elderly patients) such as patients:

- Patients with known prolongation of the QT interval, a history of torsades de pointes, congenital long QT syndrome, bradyarrhythmias or uncompensated heart failure
- Patients on drugs known to prolong the QT interval
- Currently receiving treatment with other active substances known to prolong QT interval such as antiarrhythmics of class IA (quinidine and procainamide ) and class III (dofetilide, amiodarone and sotalol), cisapride and terfenadine; antipsychotic agents such as pimozide; antidepressants such as citalopram; and fluoroquinolones such as moxifloxacin and levofloxacin
- With clinically relevant bradycardia, cardiac arrhythmia or severe cardiac insufficiency
- Female and elderly patients with existing proarrhythmia

### Myasthenia gravis

Exacerbations of the symptoms of myasthenia gravis and new onset of myasthenia syndrome have been reported in patients receiving azithromycin therapy (see section 4.8).

### Sucrose content

This product contains sucrose. Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrase-isomaltase insufficiency should not take this medicine.

## 4.5 Interactions with other medicinal products and other forms of interaction

**Antacids:** In a pharmacokinetic study investigating the effects of simultaneous administration of antacid with azithromycin, no effect on overall bioavailability was seen, although peak serum concentrations were reduced by approximately 24%. In patients receiving both azithromycin and antacids, the drugs should not be taken simultaneously.

**Cetirizine:** In healthy volunteers, co-administration of a 5-day regimen of azithromycin with 20 mg cetirizine at steady-state resulted in no pharmacokinetic interaction and no significant changes in the QT interval.

**Didanosine (*Dideoxyinosine*):** Co-administration of 1200 mg/day azithromycin with 400 mg/day didanosine in six HIV-positive subjects did not appear to affect the steady-state pharmacokinetics of didanosine as compared to placebo.

**Digoxin and colchicine:** concomitant administration of macrolide antibiotics, including azithromycin, with P-glycoprotein substrates such as digoxin and colchicine, has been reported to result in increased serum levels of the P-glycoprotein substrate. Therefore, if azithromycin and P-glycoprotein substrates such as digoxin are administered concomitantly, the possibility of elevated serum digoxin concentrations should be considered. Clinical monitoring, and possibly serum digoxin levels, during treatment with azithromycin and after its discontinuation are necessary.

**Zidovudine:** Single 1000 mg doses and multiple 1200 mg or 600 mg doses of azithromycin had little effect on the plasma pharmacokinetics or urinary excretion of zidovudine or its glucuronide metabolite. However, administration of azithromycin increased the concentrations of phosphorylated zidovudine, the clinically active metabolite, in peripheral blood mononuclear cells. The clinical significance of this finding is unclear, but it may be of benefit to patients.



Azithromycin does not interact significantly with the hepatic cytochrome P450 system. It is not believed to undergo the pharmacokinetic drug interactions as seen with erythromycin and other macrolides. Hepatic cytochrome P450 induction or inactivation via cytochrome-metabolite complex does not occur with azithromycin.

**Ergot derivatives:** Due to the theoretical possibility of ergotism, the concurrent use of azithromycin with ergot derivatives is not recommended (see section 4.4).

Pharmacokinetic studies have been conducted between azithromycin and the following drugs known to undergo significant cytochrome P450 mediated metabolism.

**HMG-CoA reductase inhibitor (statins):** Coadministration of atorvastatin (10 mg daily) and azithromycin (500 mg daily) did not alter the plasma concentrations of atorvastatin (based on a HMG CoA-reductase inhibition assay). However, post-marketing cases of rhabdomyolysis in patients receiving azithromycin with statins have been reported.

**Carbamazepine:** In a pharmacokinetic interaction study in healthy volunteers, no significant effect was observed on the plasma levels of carbamazepine or its active metabolite in patients receiving concomitant azithromycin.

**Cimetidine:** In a pharmacokinetic study investigating the effects of a single dose of cimetidine, given 2 hours before azithromycin, on the pharmacokinetics of azithromycin, no alteration of azithromycin pharmacokinetics was seen.

**Ciclosporin:** In a pharmacokinetic study with healthy volunteers who were administered a 500 mg/day oral dose of azithromycin for 3 days and were then administered a single 10 mg/kg oral dose of ciclosporin, the resulting ciclosporin  $C_{max}$  and  $AUC_{0-5}$  were found to be significantly elevated (by 24% and 21% respectively), however no significant changes were seen in  $AUC_{0-\infty}$ . Consequently, caution should be exercised before considering concurrent administration of these drugs. If co-administration of these drugs is necessary, ciclosporin levels should be monitored and the dose adjusted accordingly.

**Efavirenz:** Co-administration of a single dose of 600mg azithromycin and 400 mg efavirenz daily for 7 days did not result in any clinically significant pharmacokinetic interactions.

**Fluconazole:** Co-administration of a single dose of 1200 mg azithromycin did not alter the pharmacokinetics of a single dose of 800 mg fluconazole. Total exposure and half-life of azithromycin were unchanged by the co-administration of fluconazole, however, a clinically insignificant decrease in  $C_{max}$  (18%) of azithromycin was observed.

**Indinavir:** Co-administration of a single dose of 1200 mg azithromycin had no statistically significant effect on the pharmacokinetics of indinavir administered as 800 mg three times daily for 5 days.

**Methylprednisolone:** In a pharmacokinetic interaction study in healthy volunteers, azithromycin had no significant effect on the pharmacokinetics of methylprednisolone.

**Midazolam:** In healthy volunteers, co-administration of 500 mg/day azithromycin for 3 days did not cause clinically significant changes in the pharmacokinetics and pharmacodynamics of a single dose of 15 mg midazolam.



**Nelfinavir:** Co-administration of azithromycin (1200 mg) and nelfinavir at steady state (750 mg three times daily) resulted in increased azithromycin concentrations. No clinically significant adverse effects were observed and no dose adjustment was required.

**Rifabutin:** Co-administration of azithromycin and rifabutin did not affect the serum concentrations of either drug. Neutropenia was observed in subjects receiving concomitant treatment of azithromycin and rifabutin. Although neutropenia has been associated with the use of rifabutin, a causal relationship to combination with azithromycin has not been established (see section 4.8.).

**Sildenafil:** In normal healthy male volunteers, there was no evidence of an effect of azithromycin (500 mg daily for 3 days) on the AUC and  $C_{max}$ , of sildenafil or its major circulating metabolite.

**Terfenadine:** Pharmacokinetic studies have reported no evidence of an interaction between azithromycin and terfenadine. There have been rare cases reported where the possibility of such an interaction could not be entirely excluded; however there was no specific evidence that such an interaction had occurred.

**Theophylline:** There is no evidence of a clinically significant pharmacokinetic interaction when azithromycin and theophylline are co-administered to healthy volunteers.

**Triazolam:** In 14 healthy volunteers, co-administration of 500mg azithromycin on Day 1 and 250 mg on Day 2 with 0.125 mg triazolam on Day 2 had no significant effect on any of the pharmacokinetic variables for triazolam compared to triazolam and placebo.

**Trimethoprim/sulfamethoxazole:** Co-administration of trimethoprim/sulfamethoxazole DS (160 mg/800 mg) for 7 days with 1200mg azithromycin on Day 7 had no significant effect on peak concentrations, total exposure or urinary excretion of either trimethoprim or sulfamethoxazole. Azithromycin serum concentrations were similar to those seen in other studies.

**Coumarin-type oral anticoagulants:** In a pharmacokinetic interaction study, azithromycin did not alter the anticoagulant effect of a single dose of 15mg warfarin administered to healthy volunteers. There have been reports received in the post-marketing period of potentiated anticoagulation subsequent to co-administration of azithromycin and coumarin-type oral anticoagulants. Although a causal relationship has not been established, consideration should be given to the frequency of monitoring prothrombin time when azithromycin is used in patients receiving coumarin-type oral anticoagulants.

**Additional information on special populations:**

There is no sufficient data regarding drug interactions on special populations.

**Pediatric population:**

There is no sufficient data regarding drug interactions on the pediatric population.

**4.6 Fertility, pregnancy and lactation**

**General principles**

Pregnancy category is B



### **Women of child-bearing potential/Contraception**

Animal studies performed at mild to moderate maternally toxic dose concentrations are insufficient with respect to direct or indirect harmful effects on pregnancy, embryonal/fetal development, parturition or postnatal development. Therefore, appropriate contraceptive methods should be used in women planning to get pregnant or being uncertain about pregnancy while using this drug.

### **Pregnancy**

There are no adequate data from the use of azithromycin in pregnant women. In reproduction toxicity studies in animals azithromycin was shown to pass the placenta, but no teratogenic effects were observed (see section 5.3). The safety of azithromycin has not been confirmed with regard to the use of the active substance during pregnancy. Therefore azithromycin should only be used during pregnancy if the benefit outweighs the risk.

### **Breast-feeding**

Azithromycin has been reported to be secreted into human breast milk. Limited information available from published literature indicates that azithromycin is present in human milk at an estimated highest median daily dose of 0.1 to 0.7 mg/kg/day. No serious adverse effects of azithromycin on the breast-fed infants were observed. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from azithromycin therapy taking into account the benefit of breast-feeding for the child and the benefit of therapy for the woman.

### **Fertility**

In fertility studies conducted in rat, reduced pregnancy rates were noted following administration of azithromycin. The relevance of this finding to humans is unknown.

### **4.7 Effects on ability to drive and use machines**

There is no evidence to suggest that azithromycin may have an effect on patient's ability to drive and use machines.

### **4.8 Undesirable effects**

Undesirable effects are listed according to these categories:

Very common ( $\geq 1/10$ ); common ( $\geq 1/100$  to  $< 1/10$ ); uncommon ( $\geq 1/1.000$  to  $< 1/100$ ); rare ( $\geq 1/10.000$  to  $< 1/1.000$ ); very rare ( $< 1/10.000$ ); unknown: cannot be estimated from the available data.

### **Infections and infestations**

*Uncommon* : Candidiasis, oral candidiasis, vaginal infection

*Unknown* : Pseudomembranous colitis (see section 4.4)

### **Blood and lymphatic system disorders**

*Uncommon* : Leukopenia, neutropenia

*Unknown* : Thrombocytopenia, hemolytic anemia

### **Immunity system disorders**

*Uncommon* : Angioedema, hypersensitivity

*Unknown* : Anaphylactic reactions (see section 4.4)

### **Metabolism and nutrition disorders**

*Common* : Anorexia



### Psychiatric disorders

*Uncommon* : Nervousness  
*Rare* : Agitation  
*Unknown* : Aggression and anxiety

### Nervous system disorders

*Common* : Drowsiness, headache, paresthesia, dysgeusia  
*Uncommon* : Hypoesthesia, somnolence, insomnia  
*Unknown* : Syncope, convulsion, psychomotor hyperactivity, anosmia, ageusia, parosmia, Myasthenia gravis (see section 4.4)

### Eye disorders

*Common* : Visual impairment

### Ear and labyrinth disorders

*Common* : Deafness  
*Uncommon* : Hearing impaired, tinnitus  
*Rare* : Vertigo

### Cardiac disorders

*Uncommon* : Palpitation  
*Unknown* : *Torsades de pointes*, arrhythmias including ventricular tachycardia (see section 4.4)

### Vascular disorders

*Unknown* : Hypotension

### Respiratory, thoracic and mediastinal disorders

*Uncommon*: Dyspnea, epistaxis

### Gastrointestinal disorders

*Very common* : Diarrhea, abdominal pain, nausea, flatulence  
*Common* : Vomiting, dyspepsia  
*Uncommon* : Gastritis, constipation  
*Unknown* : Tongue discoloration, pancreatitis

### Hepatobiliary disorders

*Uncommon* : Hepatitis  
*Rare* : Hepatic function abnormalities  
*Unknown* : Hepatic failure\*\* (which has rarely resulted in death) (see section 4.4), hepatitis fulminant, hepatic necrosis, cholestatic jaundice

### Skin and subcutaneous tissue disorders

*Common* : Pruritus, rash  
*Uncommon* : Stevens Johnson Syndrome, photosensitivity reactions, urticaria  
*Rare* : Acute Generalized Exanthematous Pustulosis (AGEP)\*§, Drug reaction with eosinophilia and systemic symptoms (DRESS)\*§  
*Unknown* : Toxic epidermal necrolysis, erythema multiforme

### Musculoskeletal, connective tissue disorders

*Common* : Arthralgia



### Renal and urinary disorders

*Unknown* : Interstitial nephritis and acute renal failure

### General disorders and administration site disorders

*Common* : Fatigue

*Uncommon* : Edema, chest pain, malaise, asthenia

### Investigations

*Common* : Decreased lymphocyte count, increased eosinophil count, decreased blood bicarbonate

*Uncommon* : Increased aspartate aminotransferase, increased alanine aminotransferase, increased blood bilirubin, increased blood urea, increased blood creatinine, abnormal blood potassium

*Unknown* : Electrocardiogram QT prolonged (see section 4.4)

\*ADR identified post-marketing

§ADR frequency represented by the estimated upper limit of the 95% confidence interval calculated using the "Rule of 3".

### Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorization of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions to Turkey Pharmacovigilance Center (TÜFAM). (www.titck.gov.tr; e-mail: tufam@titck.gov.tr; phone number: +90 800 314 00 08; fax: +90 312 218 35 99)

### 4.9 Overdose

Adverse events experienced in higher than recommended doses were similar to those seen at normal doses. The typical symptoms of an overdose with macrolide antibiotics include reversible loss of hearing, severe nausea, vomiting and diarrhea. In the event of overdose, the administration of medicinal charcoal and general symptomatic treatment and supportive measures are indicated as required.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

**Pharmacotherapeutic group:** Antibacterials for systemic use, macrolides

**ATC code:** J01FA10

### **Mechanism of action**

Azithromycin is a macrolide antibiotic belonging to the azalide group. The molecule is constructed by adding a nitrogen atom to the lactone ring of erythromycin A. The chemical name of azithromycin is 9-deoxy-9a-aza-9a-methyl-9a-homoerythromycin A. The molecular weight is 749.0. The mechanism of action of azithromycin is based upon the suppression of bacterial protein synthesis by means of binding to the ribosomal 50S sub-unit and inhibition of peptide translocation.

### ***Mechanism of Resistance***

Resistance to azithromycin may be inherent or acquired. There are three main mechanisms of resistance in bacteria: target site alteration, alteration in antibiotic transport and modification of the



antibiotic.

Azithromycin demonstrates cross resistance with erythromycin resistant gram positive isolates. A decrease in macrolide susceptibility over time has been noted particularly in *Streptococcus pneumoniae* and *Staphylococcus aureus*. Similarly, decreased susceptibility has been observed among *Streptococcus viridans* and *Streptococcus agalactiae* (Group B) streptococcus against other macrolides and lincosamides.

**Breakpoints**

Azithromycin susceptibility breakpoints for typical bacterial pathogens published by EUCAST are:

Organism	MIC breakpoints (mg/L)	
	Susceptible (S≤)	Resistant (R>)
<i>Staphylococcus</i> spp.	1	2
<i>Streptococcus</i> groups A, B, C and G	0.25	0.5
<i>Streptococcus pneumoniae</i>	0.25	0.5
<i>Haemophilus influenzae</i>	0.12	4
<i>Moraxella catarrhalis</i>	0.25	0.5
<i>Neisseria gonorrhoeae</i>	0.25	0.5

**Susceptibility**

The prevalence of acquired resistance may vary geographically and with time for selected species and local information on resistance is desirable, particularly when treating severe infections. As necessary, expert advice should be sought when the local prevalence of resistance is such that the utility of the agent in at least some types of infections is questionable.

Table: Antibacterial spectrum of Azithromycin

<b>Commonly susceptible species</b>
<b>Aerobic Gram-positive microorganisms</b>
<i>Staphylococcus aureus</i> Methycillin-susceptible
<i>Streptococcus pneumoniae</i> Penicillin-susceptible
<i>Streptococcus pyogenes</i> (Group A)
<b>Aerobic Gram-negative microorganisms</b>
<i>Haemophilus influenzae</i> <i>Haemophilus parainfluenzae</i>
<i>Legionella pneumophila</i>
<i>Moraxella catarrhalis</i>
<i>Neisseria gonorrhoeae</i>
<i>Pasteurella multocida</i>
<b>Anaerobic microorganisms</b>
<i>Clostridium perfringens</i>
<i>Fusobacterium</i> spp.
<i>Prevotella</i> spp.
<i>Porphyromonas</i> spp.
<b>Other microorganisms</b>
<i>Chlamydia trachomatis</i>
<b>Species for which acquired resistance may be a problem</b>
<b>Aerobic Gram-positive microorganisms</b>
<i>Streptococcus pneumoniae</i> Penicillin-intermediate Penicillin-resistant



<b>Inherently resistant organisms</b>
<b>Aerobic Gram-positive microorganisms</b>
<i>Enterococcus faecalis</i>
Staphylococci MRSA, MRSE*
<b>Anaerobic microorganisms</b>
Bacteroides fragilis group

\* Methicillin-resistant staphylococci have a very high prevalence of acquired resistance to macrolides and have been placed here because they are rarely susceptible to azithromycin.

### ***Pediatric population***

Following the assessment of studies conducted in children, the use of azithromycin is not recommended for the treatment of malaria, neither as monotherapy nor combined with chloroquine or artemisinin based drugs, as non-inferiority to anti-malarial drugs recommended in the treatment of uncomplicated malaria was not established.

## **5.2 Pharmacokinetic properties**

### Absorption

Bioavailability after oral administration is approximately 37%. Peak plasma concentrations are attained 2 to 3 hours after taking the medicinal product.

### Distribution

Orally administered azithromycin is widely distributed throughout the body. In pharmacokinetic studies it has been demonstrated that the concentrations of azithromycin measured in tissues are noticeably higher (as much as 50 times) than those measured in plasma, which indicates that the agent strongly binds to tissues.

Binding to serum proteins varies according to plasma concentration and ranges from 12% at 0.5 µ/ml up to 52% at 0.05 µg azithromycin/ml serum. The mean volume of distribution at steady state (VV<sub>ss</sub>) has been calculated to be 31.1 l/kg.

### Biotransformation:

Particularly high concentrations of unchanged azithromycin have been found in human bile. Also in bile, ten metabolites were detected, which were formed through N- and O- demethylation, hydroxylation of desosamine and aglycone rings and cleavage of cladinose conjugate. Comparison of the results of liquid chromatography and microbiological analyses has shown that the metabolites of azithromycin are not microbiologically active.

In animal tests, high concentrations of azithromycin have been found in phagocytes. It has also been established that during active phagocytosis higher concentrations of azithromycin are released from inactive phagocytes. In animal models this results in high concentrations of azithromycin being delivered to the site of infection.

### Elimination

The terminal plasma elimination half-life closely reflects the elimination half-life from tissues of 2 to 4 days.

Approximately 12% of an intravenously administered dose of azithromycin is excreted unchanged in urine within the following 3 days.

## **5.3 Preclinical safety data**

Phospholipidosis (intracellular phospholipid accumulation) has been observed in several tissues



(e.g. eye, dorsal root ganglia, liver, gallbladder, kidney, spleen, and/or pancreas) of mice, rats, and dogs given multiple doses of azithromycin. Phospholipidosis has been observed to a similar extent in the tissues of neonatal rats and dogs. The effect has been shown to be reversible after cessation of azithromycin treatment. The significance of the finding for animals and humans is unknown.

Carcinogenic potential:

Long-term studies in animals have not been performed to evaluate carcinogenic potential as the drug is indicated for short-term treatment only and there were no signs indicative of carcinogenic activity.

Mutagenic potential:

There was no evidence of a potential for genetic and chromosome mutations in in-vivo and in-vitro test models.

Reproductive toxicity:

In animal studies for embryotoxic effects of the substance, no teratogenic effect was observed in mice and rats. In rats, azithromycin doses of 100 and 200 mg/kg bodyweight/day led to mild retardation of fetal ossification and in maternal weight gain. In peri- and postnatal studies in rats, mild retardation following treatment with 50 mg/kg/day azithromycin and above was observed.

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

Tablet core:

Anhydrous dibasic calcium phosphate  
Sodium carboxymethyl cellulose 150  
Microcrystalline cellulose PH 102  
Sodium lauryl sulphate  
Magnesium stearate

Film coating material (Opadry OY-D-7233 white):

Hypromellose  
Titanium dioxide  
Talc  
Polyethylene glycol/Macrogol  
Sodium lauryl sulphate

### **6.2 Incompatibilities**

None known

### **6.3 Shelf life**

48 months

### **6.4 Special precautions for storage**

Keep at room temperature below 25°C.

### **6.5 Nature and contents of packaging**

Blister consisting transparent PVDC on one side and printed aluminum folio on the other side.  
Each package contains 6 film coated tablets.



## **6.6 Special precautions for disposal and other handling**

Any unused material should be disposed according to local disposal regulations.

## **7. MARKETING AUTHORIZATION HOLDER**

DEVA Holding A.Ş.  
Halkalı Merkez Mah. Basın Ekspres Cad. No: 1  
34303 Küçükçekmece - Istanbul/TURKEY

## **8. MARKETING AUTHORIZATION NUMBER**

176/31

## **9. DATE OF FIRST AUTHORIZATION /RENEWAL OF THE AUTHORIZATION**

Date of first Authorization : 28.11.1995  
Date of last renewal : 22.06.2011

## **10. DATE OF REVISION OF THE TEXT**

15.10.2021