

## **SUMMARY OF PRODUCT CHARACTERISTICS (SPC)**

### **1. NAME OF THE MEDICINAL PRODUCT**

ETULOX 30/60/90/120

### **2. QUALITATIVE AND QUANTITATIVE COMPOSITION**

Each film-coated tablet contains 30, 60, 90 or 120 mg of Etoricoxib

For the full list of excipients, see section 6.1.

### **3. PHARMACEUTICAL FORM**

Film-coated tablets (tablets).

30 mg tablets: Blue green, film-coated, round, biconvex, beveled edge tablet debossed with "E" on one side and "30" on the other side.

60 mg tablets: Green, film-coated, round, biconvex, beveled edge tablet debossed with "E" on one side and "60" on the other side.

90 mg tablets: White, film-coated, round, biconvex, beveled edge tablet debossed with "E" on one side and "90" on the other side.

120 mg tablets: Pale green, film-coated, round, biconvex, beveled edge tablet debossed with "E" on one side and "120" on the other side.

### **4. CLINICAL PARTICULARS**

#### **4.1 Therapeutic indications**

Etoricoxib is indicated in adults and adolescents 16 years of age and older for the symptomatic relief of osteoarthritis (OA), rheumatoid arthritis (RA), ankylosing spondylitis, and the pain and signs of inflammation associated with acute gouty arthritis.

Etoricoxib is indicated in adults and adolescents 16 years of age and older for the short-term treatment of moderate pain associated with dental surgery.

The decision to prescribe a selective COX-2 inhibitor should be based on an assessment of the individual patient's overall risks.

#### **4.2 Posology and Method of administration**

##### Posology

As the cardiovascular risks of etoricoxib may increase with dose and duration of exposure, the shortest duration possible and the lowest effective daily dose should be used. The patient's need for symptomatic relief and response to therapy should be re-evaluated periodically, especially in patients with osteoarthritis.

##### *Osteoarthritis*

The recommended dose is 30 mg once daily. In some patients with

insufficient relief from symptoms, an increased dose of 60 mg once daily may increase efficacy.

#### *Rheumatoid arthritis*

The recommended dose is 60 mg once daily. In some patients with insufficient relief from symptoms, an increased dose of 90 mg once daily may increase efficacy. Once the patient is clinically stabilised, down-titration to a 60 mg once daily dose may be appropriate.

#### *Ankylosing spondylitis*

The recommended dose is 60 mg once daily. In some patients with insufficient relief from symptoms, an increased dose of 90 mg once daily may increase efficacy. Once the patient is clinically stabilised, down-titration to a 60 mg once daily dose may be appropriate.

#### *Acute pain conditions*

For acute pain conditions, etoricoxib should be used only for the acute symptomatic period.

#### *Acute gouty arthritis*

The recommended dose is 120 mg once daily. In clinical trials for acute gouty arthritis, etoricoxib was given for 8 days.

#### *Postoperative dental surgery pain*

The recommended dose is 90 mg once daily, limited to a maximum of 3 days. Some patients may require other postoperative analgesia in addition to etoricoxib during the three-day treatment period. Doses greater than those recommended for each indication have either not demonstrated additional efficacy or have not been studied. Therefore:

The dose for OA should not exceed 60 mg daily.

The dose for RA and ankylosing spondylitis should not exceed 90 mg daily. The dose for acute gout should not exceed 120 mg daily, limited to a maximum of 8 days treatment.

The dose for postoperative acute dental surgery pain should not exceed 90 mg daily, limited to a maximum of 3 days.

#### Special populations

##### *Elderly patients*

No dosage adjustment is necessary for elderly patients. As with other drugs, caution should be exercised in elderly patients.

##### *Patients with hepatic impairment*

Regardless of indication, in patients with mild hepatic dysfunction (Child-Pugh score 5-6) a dose of 60 mg once daily should not be exceeded. In patients with moderate hepatic dysfunction (Child-Pugh score 7-9), regardless of indication, the dose of 30 mg once daily should not be exceeded.

##### *Patients with renal impairment*

No dosage adjustment is necessary for patients with creatinine clearance  $\geq 30$  ml/min. The use of etoricoxib in patients with creatinine clearance  $< 30$  ml/min is contra-indicated.

##### *Paediatric population*

Etoricoxib is contra-indicated in children and adolescents under 16 years of

age.

#### Method of Administration

Etoricoxib is administered orally and may be taken with or without food. The onset of the effect of the medicinal product may be faster when etoricoxib is administered without food. This should be considered when rapid symptomatic relief is needed.

#### **4.3 Contraindications**

- Hypersensitivity to the active substance or to any of the excipients.
- Active peptic ulceration or active gastro-intestinal (GI) bleeding.
- Patients who, after taking acetylsalicylic acid or NSAIDs including COX-2 (cyclooxygenase-2) inhibitors, experience bronchospasm, acute rhinitis, nasal polyps, angioneurotic oedema, urticaria, or allergic-type reactions.
- Pregnancy and lactation.
- Severe hepatic dysfunction (serum albumin <25 g/l or Child-Pugh score ≥10).
- Estimated renal creatinine clearance <30 ml/min.
- Children and adolescents under 16 years of age.
- Inflammatory bowel disease.
- Congestive heart failure (NYHA II-IV).
- Patients with hypertension whose blood pressure is persistently elevated above 140/90 mmHg and has not been adequately controlled.
- Established ischaemic heart disease, peripheral arterial disease, and/or cerebrovascular disease.

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

##### *Gastrointestinal effects*

Upper gastrointestinal complications [perforations, ulcers or bleedings (PUBs)], some of them resulting in fatal outcome, have occurred in patients treated with etoricoxib.

Caution is advised with treatment of patients most at risk of developing a gastrointestinal complication with NSAIDs; the elderly, patients using any other NSAID or acetylsalicylic acid concomitantly or patients with a prior history of gastrointestinal disease, such as ulceration and GI bleeding.

##### *Cardiovascular effects*

The selective COX-2 inhibitor class of drugs may be associated with a risk of thrombotic events (especially myocardial infarction (MI) and stroke), relative to placebo and some NSAIDs. As the cardiovascular risks of etoricoxib may increase with dose and duration of exposure, the shortest duration possible and the lowest effective daily dose should be used. The patient's need for symptomatic relief and response to therapy should be re-evaluated periodically, especially in patients with osteoarthritis.

Patients with significant risk factors for cardiovascular events (e.g. hypertension, hyperlipidaemia, diabetes mellitus, smoking) should only be treated with etoricoxib after careful consideration.

COX-2 selective inhibitors are not a substitute for acetylsalicylic

acid for prophylaxis of cardiovascular thrombo-embolic diseases because of their lack of antiplatelet effect. Therefore, antiplatelet therapies should not be discontinued.

#### *Renal effects*

Renal prostaglandins may play a compensatory role in the maintenance of renal perfusion. Therefore, under conditions of compromised renal perfusion, administration of etoricoxib may cause a reduction in prostaglandin formation and, secondarily, in renal blood flow, and thereby impair renal function. Patients at greatest risk of this response are those with pre-existing significantly impaired renal function, uncompensated heart failure, or cirrhosis. Monitoring of renal function in such patients should be considered.

#### *Fluid retention, oedema and hypertension*

As with other medicinal products known to inhibit prostaglandin synthesis, fluid retention, oedema and hypertension have been observed in patients taking etoricoxib. All Nonsteroidal Anti-inflammatory Drugs (NSAIDs), including etoricoxib, can be associated with new onset or recurrent congestive heart failure. For information regarding a dose related response for etoricoxib. Caution should be exercised in patients with a history of cardiac failure, left ventricular dysfunction, or hypertension and in patients with pre-existing oedema from any other reason. If there is clinical evidence of deterioration in the condition of these patients, appropriate measures including discontinuation of etoricoxib should be taken.

Etoricoxib may be associated with more frequent and severe hypertension than some other NSAIDs and selective COX-2 inhibitors, particularly at high doses. Therefore, hypertension should be controlled before treatment with etoricoxib and special attention should be paid to blood pressure monitoring during treatment with etoricoxib. Blood pressure should be monitored within two weeks after initiation of treatment and periodically thereafter. If blood pressure rises significantly, alternative treatment should be considered.

#### *Hepatic effects*

Elevations of alanine aminotransferase (ALT) and/or aspartate aminotransferase (AST) (approximately three or more times the upper limit of normal) have been reported in approximately 1% of patients in clinical trials treated for up to one year with etoricoxib 30, 60 and 90 mg daily.

Any patients with symptoms and/or signs suggesting liver dysfunction, or in whom an abnormal liver function test has occurred, should be monitored. If signs of hepatic insufficiency occur, or if persistently abnormal liver function tests (three times the upper limit of normal) are detected, etoricoxib should be discontinued.

#### *General*

If during treatment, patients deteriorate in any of the organ system functions described above, appropriate measures should be taken and discontinuation of etoricoxib therapy should be considered. Medically appropriate supervision should be maintained when using etoricoxib in the elderly and in patients with renal, hepatic, or cardiac dysfunction.

Caution should be used when initiating treatment with etoricoxib in patients with dehydration. It is advisable to rehydrate patients prior to starting therapy with etoricoxib.

Serious skin reactions, some of them fatal, including exfoliative dermatitis, Stevens-Johnson syndrome, and toxic epidermal necrolysis, have been reported very rarely in association with the use of NSAIDs and some selective COX-2 inhibitors during post-marketing surveillance. Patients appear to be at highest risk for these reactions early in the course of therapy with the onset of the reaction occurring in the majority of cases within the first month of treatment. Serious hypersensitivity reactions (such as anaphylaxis and angioedema) have been reported in patients receiving etoricoxib. Some selective COX-2 inhibitors have been associated with an increased risk of skin reactions in patients with a history of any drug allergy. Etoricoxib should be discontinued at the first appearance of skin rash, mucosal lesions, or any other sign of hypersensitivity.

Etoricoxib may mask fever and other signs of inflammation.

Caution should be exercised when co-administering etoricoxib with warfarin or other oral anticoagulants. The use of etoricoxib, as with any medicinal product known to inhibit cyclooxygenase / prostaglandin synthesis, is not recommended in women attempting to conceive.

Etoricoxib tablets contain lactose. Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

#### **4.5 Interaction with other medicinal products and other forms of interaction**

##### *Pharmacodynamic interactions*

*Oral anticoagulants:* In subjects stabilised on chronic warfarin therapy, the administration of etoricoxib 120 mg daily was associated with an approximate 13% increase in prothrombin time International Normalised Ratio (INR). Therefore, patients receiving oral anticoagulants should be closely monitored for their prothrombin time INR, particularly in the first few days when therapy with etoricoxib is initiated or the dose of etoricoxib is changed.

*Diuretics, ACE inhibitors and Angiotensin II Antagonists:* NSAIDs may reduce the effect of diuretics and other antihypertensive drugs. In

some patients with compromised renal function (e.g. dehydrated patients or elderly patients with compromised renal function) the co-administration of an ACE inhibitor or Angiotensin II antagonist and agents that inhibit cyclo-oxygenase may result in further deterioration of renal function, including possible acute renal failure, which is usually reversible. These interactions should be considered in patients taking etoricoxib concomitantly with ACE inhibitors or angiotensin II antagonists. Therefore, the combination should be administered with caution, especially in the elderly. Patients should be adequately hydrated and consideration should be given to monitoring of renal function after initiation of concomitant therapy, and periodically thereafter.

*Acetylsalicylic Acid:* Etoricoxib can be used concomitantly with acetylsalicylic acid at doses used for cardiovascular prophylaxis (low-dose acetylsalicylic acid). However, concomitant administration of low-dose acetylsalicylic acid with etoricoxib may result in an increased rate of GI ulceration or other complications compared to use of etoricoxib alone. Concomitant administration of etoricoxib with doses of acetylsalicylic acid above those for cardiovascular prophylaxis or with other NSAIDs is not recommended.

*Cyclosporin and tacrolimus:* Although this interaction has not been studied with etoricoxib, coadministration of cyclosporin or tacrolimus with any NSAID may increase the nephrotoxic effect of cyclosporin or tacrolimus. Renal function should be monitored when etoricoxib and either of these drugs is used in combination.

#### *Pharmacokinetic interactions*

The effect of etoricoxib on the pharmacokinetics of other drugs.

*Lithium:* NSAIDs decrease lithium renal excretion and therefore increase lithium plasma levels. If necessary, monitor blood lithium closely and adjust the lithium dosage while the combination is being taken and when the NSAID is withdrawn.

*Methotrexate:* Adequate monitoring for methotrexate-related toxicity is recommended when etoricoxib and methotrexate are administered concomitantly.

*Oral contraceptives:* Etoricoxib 60 mg given concomitantly with an oral contraceptive containing 35 micrograms ethinyl estradiol (EE) and 0.5 to 1 mg norethindrone for 21 days increased the steady state AUC<sub>0-24hr</sub> of EE by 37%. Etoricoxib 120 mg given with the same oral contraceptive concomitantly or separated by 12 hours, increased the steady state AUC<sub>0-24hr</sub> of EE by 50 to 60%. This increase in EE concentration should be considered when selecting an oral contraceptive for use with etoricoxib. An increase in EE exposure can increase the incidence of adverse events associated with oral contraceptives (e.g., venous thrombo-embolic events in women at risk).

*Hormone Replacement Therapy (HRT):* Administration of etoricoxib 120 mg with hormone replacement therapy consisting of conjugated estrogens (0.625 mg PREMARINTM) for 28 days, increased the mean steady state AUC0-24hr of unconjugated estrone (41%), equilin (76%), and 17- $\beta$ -estradiol (22%).

*Prednisone/prednisolone:* In drug-interaction studies, etoricoxib did not have clinically important effects on the pharmacokinetics of prednisone/prednisolone.

*Digoxin:* Etoricoxib 120 mg administered once daily for 10 days to healthy volunteers did not alter the steady-state plasma AUC0-24hr or renal elimination of digoxin. There was an increase in digoxin Cmax (approximately 33%). This increase is not generally important for most patients. However, patients at high risk of digoxin toxicity should be monitored for this when etoricoxib and digoxin are administered concomitantly.

*Effect of etoricoxib on drugs metabolised by sulfotransferases:* Etoricoxib is an inhibitor of human sulfotransferase activity, particularly SULT1E1, and has been shown to increase the serum concentrations of ethinyl estradiol. While knowledge about effects of multiple sulfotransferases is presently limited and the clinical consequences for many drugs are still being examined, it may be prudent to exercise care when administering etoricoxib concurrently with other drugs primarily metabolised by human sulfotransferases (e.g., oral salbutamol and minoxidil).

*Effect of etoricoxib on drugs metabolised by CYP isoenzymes:* Daily administration of etoricoxib 120 mg did not alter hepatic CYP3A4 activity as assessed by the erythromycin breath test.

*Effects of other drugs on the pharmacokinetics of etoricoxib:* The main pathway of etoricoxib metabolism is dependent on CYP enzymes. CYP3A4 appears to contribute to the metabolism of etoricoxib in vivo. In vitro studies indicate that CYP2D6, CYP2C9, CYP1A2 and CYP2C19 also can catalyse the main metabolic pathway, but their quantitative roles have not been studied in vivo.

*Ketoconazole:* Ketoconazole, a potent inhibitor of CYP3A4, dosed at 400 mg once a day for 11 days to healthy volunteers, did not have any clinically important effect on the single-dose pharmacokinetics of 60 mg etoricoxib (43% increase in AUC).

*Voriconazole and Miconazole:* Co-administration of either oral voriconazole or topical miconazole oral gel, strong CYP3A4 inhibitors, with etoricoxib caused a slight increase in exposure to etoricoxib, but is not considered to be clinically meaningful based on published data.

*Rifampicin:* Co-administration of etoricoxib with rifampicin, a potent

inducer of CYP enzymes, produced a 65% decrease in etoricoxib plasma concentrations. This interaction may result in recurrence of symptoms when etoricoxib is co-administered with rifampicin. While this information may suggest an increase in dose, doses of etoricoxib greater than those listed for each indication have not been studied in combination with rifampicin and are therefore not recommended.

*Antacids:* Antacids do not affect the pharmacokinetics of etoricoxib to a clinically relevant extent.

#### **4.6 Fertility, pregnancy and lactation**

##### *Pregnancy*

No clinical data on exposed pregnancies are available for etoricoxib. Studies in animals have shown reproductive toxicity. The potential for human risk in pregnancy is unknown. Etoricoxib, as with other medicinal products inhibiting prostaglandin synthesis, may cause uterine inertia and premature closure of the ductus arteriosus during the last trimester. Etoricoxib is contraindicated in pregnancy. If a woman becomes pregnant during treatment, etoricoxib must be discontinued.

##### *Lactation*

It is not known whether etoricoxib is excreted in human milk. Women who use etoricoxib must not breast feed.

##### *Fertility*

The use of etoricoxib, as with any drug substance known to inhibit COX-2, is not recommended in women attempting to conceive.

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

Patients who experience dizziness, vertigo or somnolence while taking etoricoxib should refrain from driving or operating machinery.

#### **4.8 Undesirable effects**

##### *Summary of the safety profile*

In a cardiovascular safety outcomes programme of pooled data from three active comparator controlled trials, 17, 412 patients with OA or RA were treated with etoricoxib (60 mg or 90 mg) for a mean duration of approximately 18 months. The safety data and details from this programme are presented.

##### *Tabulated list of adverse reactions*

The following undesirable effects were reported at an incidence greater than placebo in patients with OA, RA, chronic low back pain or ankylosing spondylitis treated with etoricoxib 30 mg, 60 mg or 90 mg up to the recommended dose for up to 12 weeks.

| System Organ Class | Adverse Reactions | Frequency |
|--------------------|-------------------|-----------|
|--------------------|-------------------|-----------|

|                                                 |                                                                                                                                                   | <b>Category*</b> |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Infections and infestations                     | alveolar osteitis                                                                                                                                 | Common           |
|                                                 | gastroenteritis, upper respiratory infection, urinary tract infection                                                                             | Uncommon         |
| Blood and lymphatic system disorders            | anaemia (primarily associated with gastrointestinal bleeding), leukopenia, thrombocytopenia                                                       | Uncommon         |
| Immune system disorders                         | hypersensitivity‡ §                                                                                                                               | Uncommon         |
|                                                 | angioedema/anaphylactic /anaphylactoid reactions including shock‡                                                                                 | Rare             |
| Metabolism and nutrition disorders              | oedema/fluid retention                                                                                                                            | Common           |
|                                                 | appetite increase or decrease, weight gain                                                                                                        | Uncommon         |
| Psychiatric disorders                           | anxiety, depression, mental acuity decreased, hallucinations‡                                                                                     | Uncommon         |
|                                                 | confusion‡, restlessness‡                                                                                                                         | Rare             |
| Nervous system disorders                        | dizziness, headache                                                                                                                               | Common           |
|                                                 | dysgeusia, insomnia, paresthaesia/hypaesthesia, somnolence                                                                                        | Uncommon         |
| Eye disorders                                   | blurred vision, conjunctivitis                                                                                                                    | Uncommon         |
| Ear and labyrinth disorders                     | tinnitus, vertigo                                                                                                                                 | Uncommon         |
| Cardiac disorders                               | palpitations, arrhythmia‡                                                                                                                         | Common           |
|                                                 | atrial fibrillation, tachycardia‡, congestive heart failure, non-specific ECG changes, angina pectoris‡, myocardial infarction§                   | Uncommon         |
| Vascular disorders                              | hypertension                                                                                                                                      | Common           |
|                                                 | flushing, cerebrovascular accident§, transient ischaemic attack, hypertensive crisis‡, vasculitis‡                                                | Uncommon         |
| Respiratory, thoracic and mediastinal disorders | bronchospasm‡                                                                                                                                     | Common           |
|                                                 | cough, dyspnoea, epistaxis                                                                                                                        | Uncommon         |
| Gastrointestinal disorders                      | abdominal pain                                                                                                                                    | Very common      |
|                                                 | Constipation, flatulence, gastritis, heartburn/acid reflux, diarrhea, dyspepsia/epigastric discomfort, nausea, vomiting, oesophagitis, oral ulcer | Common           |

|                                                      |                                                                                                                                                                                                  |          |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                                      | abdominal distention, bowel movement pattern change, dry mouth, gastroduodenal ulcer, peptic ulcers including gastrointestinal perforation and bleeding, irritable bowel syndrome, pancreatitis‡ | Uncommon |
| Hepatobiliary disorders                              | ALT increased, AST increased                                                                                                                                                                     | Common   |
|                                                      | hepatitis‡                                                                                                                                                                                       | Rare     |
|                                                      | hepatic failure‡, jaundice‡                                                                                                                                                                      | Rare†    |
| Skin and subcutaneous tissue disorders               | ecchymosis                                                                                                                                                                                       | Common   |
|                                                      | facial oedema, pruritus, rash, erythema‡, urticaria‡                                                                                                                                             | Uncommon |
|                                                      | Stevens-Johnson syndrome‡, toxic epidermal necrolysis‡, fixed drug eruption‡                                                                                                                     | Rare†    |
| Musculoskeletal and connective tissue disorders      | muscular cramp/spasm, musculoskeletal pain/stiffness                                                                                                                                             | Uncommon |
| Renal and urinary disorders                          | proteinuria, serum creatinine increased, renal failure/renal insufficiency‡                                                                                                                      | Uncommon |
| General disorders and administration site conditions | asthenia/fatigue, flu-like disease                                                                                                                                                               | Common   |
|                                                      | chest pain                                                                                                                                                                                       | Uncommon |
| Investigations                                       | blood urea nitrogen increased, creatine phosphokinase increased, hyperkalaemia, uric acid increased                                                                                              | Uncommon |
|                                                      | blood sodium decreased                                                                                                                                                                           | Rare     |

Frequency Category: Defined for each Adverse Experience Term by the incidence reported in the clinical trials data base: Very Common ( $\geq 1/10$ ), Common ( $\geq 1/100$  to  $< 1/10$ ), Uncommon ( $\geq 1/1000$  to  $< 1/100$ ), Rare ( $\geq 1/10,000$  to  $< 1/1000$ ), Very Rare ( $< 1/10,000$ ).

‡ This adverse reaction was identified through post-marketing surveillance. Its reported frequency has been estimated based upon the highest frequency observed across clinical trial data pooled by indication and approved dose.

†The frequency category of "Rare" was defined per the Summary of Product Characteristics (SmPC) guidance (rev. 2, Sept 2009) on the basis of an estimated upper bound of the 95% confidence interval for 0 events given the number of subjects treated with ARCOXIA in the analysis of the Phase III data pooled by dose and indication (n=15,470).

§ Hypersensitivity includes the terms "allergy", "drug allergy", "drug hypersensitivity", "hypersensitivity", "hypersensitivity NOS", "hypersensitivity reaction" and "nonspecific allergy".

§Based on analyses of long-term placebo and active controlled clinical trials, selective COX-2 inhibitors have been associated with

an increased risk of serious thrombotic arterial events, including myocardial infarction and stroke. The absolute risk increase for such events is unlikely to exceed 1% per year based on existing data (uncommon).

The following serious undesirable effects have been reported in association with the use of NSAIDs and cannot be ruled out for etoricoxib: nephrotoxicity including interstitial nephritis and nephrotic syndrome.

### **Reporting of suspected adverse reactions**

Reporting suspected adverse reactions after Authorisation 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 the National Regulatory Authority via Pharmacovigilance Electronic Reporting System (PvERS) <https://pv.pharmacyboardkenya.org/>

### **4.9 Overdose**

Administration of single doses of etoricoxib up to 500 mg and multiple doses up to 150 mg/day for 21 days did not result in significant toxicity. There have been reports of acute overdosage with etoricoxib, although adverse experiences were not reported in the majority of cases. The most frequently observed adverse experiences were consistent with the safety profile for etoricoxib (e.g. gastrointestinal events, cardiorenal events).

In the event of overdose, it is reasonable to employ the usual supportive measures, e.g., remove unabsorbed material from the GI tract, employ clinical monitoring, and institute supportive therapy, if required.

Etoricoxib is not dialysable by haemodialysis; it is not known whether etoricoxib is dialysable by peritoneal dialysis.

## **5. PHARMACOLOGICAL PROPERTIES**

### **5.1 Pharmacodynamic properties**

*Pharmacotherapeutic group:* Anti-inflammatory and antirheumatic products, non-steroids, coxibs, ATC Code: M01 AH05

Namibia Pharmacological classification: 3.1 Antirheumatics

(anti-inflammatory agents). Mechanism of Action

Etoricoxib is an oral, selective cyclo-oxygenase-2 (COX-2) inhibitor within the clinical dose range. Across clinical pharmacology studies, etoricoxib produced dose-dependent inhibition of COX-2 without inhibition of COX-1 at doses up to 150 mg daily. Etoricoxib did not inhibit gastric prostaglandin synthesis and had no effect on platelet function.

Cyclooxygenase is responsible for generation of prostaglandins. Two isoforms, COX-1 and COX-2, have been identified. COX-2 is the isoform of the enzyme that has been shown to be induced by pro-inflammatory stimuli and has been postulated to be primarily responsible for the synthesis of prostanoid mediators of pain, inflammation, and fever. COX-2 is also involved in ovulation, implantation and closure of the ductus arteriosus, regulation of renal function, and central nervous system functions (fever induction, pain perception and cognitive function). It may also play a role in ulcer healing. COX-2 has been identified in tissue around gastric ulcers in man but its relevance to ulcer healing has not been established.

## **5.2 Pharmacokinetic properties**

### *Absorption*

Orally administered etoricoxib is well absorbed. The absolute bioavailability is approximately 100%. Following 120 mg once-daily dosing to steady state, the peak plasma concentration (geometric mean  $C_{max}$  = 3.6  $\mu\text{g/ml}$ ) was observed at approximately 1 hour ( $T_{max}$ ) after administration to fasted adults. The geometric mean area under the curve ( $AUC_{0-24\text{hr}}$ ) was 37.8  $\mu\text{g hr/ml}$ .

Dosing with food (a high-fat meal) had no effect on the extent of absorption of etoricoxib after administration of a 120-mg dose. The rate of absorption was affected, resulting in a 36% decrease in  $C_{max}$  and an increase in  $T_{max}$  by 2 hours. These data are not considered clinically significant. In clinical trials, etoricoxib was administered without regard to food intake.

### *Distribution*

Etoricoxib is approximately 92% bound to human plasma protein over the range of concentrations of 0.05 to 5  $\mu\text{g/ml}$ . The volume of distribution at steady state ( $V_{dss}$ ) was approximately 1,20l in humans.

### *Biotransformation*

Etoricoxib is extensively metabolised with <1% of a dose recovered in urine as the parent drug. The major route of metabolism to form the 6'-hydroxymethyl derivative is catalyzed by CYP enzymes. CYP3A4 appears to contribute to the metabolism of etoricoxib in vivo. In vitro studies indicate that CYP2D6, CYP2C9, CYP1A2 and CYP2C19 also can catalyse the main metabolic pathway, but their quantitative roles in vivo have not been studied.

### *Elimination*

Following administration of a single 25-mg radiolabeled intravenous dose of etoricoxib to healthy subjects, 70% of radioactivity was recovered in urine and 20% in faeces, mostly as metabolites. Less than 2% was recovered as unchanged drug.

Elimination of etoricoxib occurs almost exclusively through metabolism followed by renal excretion.

### **Characteristics in patients:**

*Elderly patients:* Pharmacokinetics in the elderly (65 years of age and older) are similar to those in the young.

*Gender:* The pharmacokinetics of etoricoxib are similar between men and women.

*Hepatic impairment:* Patients with mild hepatic dysfunction (Child-Pugh score 5-6) administered etoricoxib 60 mg once daily had an approximately 16% higher mean AUC as compared to healthy subjects given the same regimen. Patients with moderate hepatic dysfunction (Child-Pugh score 7-9) administered etoricoxib 60 mg every other day had similar mean AUC to the healthy subjects given etoricoxib 60 mg once daily; etoricoxib 30 mg once daily has not been studied in this population. There are no clinical or pharmacokinetic data in patients with severe hepatic dysfunction (Child-Pugh score  $\geq 10$ ).

*Renal impairment:* The pharmacokinetics of a single dose of etoricoxib 120 mg in patients with moderate to severe renal insufficiency and patients with end-stage renal disease on haemodialysis were not significantly different from those in healthy subjects. Haemodialysis contributed negligibly to elimination (dialysis clearance approximately 50 ml/min).

*Paediatric patients:* The pharmacokinetics of etoricoxib in paediatric patients (<12 years old) have not been studied.

### **5.3 Preclinical safety data**

In preclinical studies, etoricoxib has been demonstrated not to be genotoxic. Etoricoxib was not carcinogenic in mice. Rats developed hepatocellular and thyroid follicular cell adenomas at >2-times the daily human dose [90 mg] based on systemic exposure when dosed daily for approximately two years. Hepatocellular and thyroid follicular cell adenomas observed in rats are considered to be a consequence of rat-specific mechanism related to hepatic CYP enzyme induction. Etoricoxib has not been shown to cause hepatic CYP3A enzyme induction in humans.

In the rat, gastrointestinal toxicity of etoricoxib increased with dose and exposure time. In the 14-week toxicity study etoricoxib caused gastrointestinal ulcers at exposures greater than those seen in man at the therapeutic dose. In the 53- and 106-week toxicity study, gastrointestinal ulcers were also seen at exposures comparable to those seen in man at the therapeutic dose. In dogs, renal and

gastrointestinal abnormalities were seen at high exposures.

Etoricoxib was not teratogenic in reproductive toxicity studies conducted in rats at 15 mg/kg/day (this represents approximately 1.5 times the daily human dose [90 mg] based on systemic exposure). In rabbits, a treatment related increase in cardiovascular malformations was observed at exposure levels below the clinical exposure at the daily human dose (90 mg). However no treatment-related external or skeletal foetal malformations were observed. In rats and rabbits, there was a dose dependent increase in post implantation loss at exposures greater than or equal to 1.5 times the human exposure.

Etoricoxib is excreted in the milk of lactating rats at concentrations approximately two-fold those in plasma. There was a decrease in pup body weight following exposure of pups to milk from dams administered etoricoxib during lactation.

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

Core:

Calcium hydrogen phosphate anhydrous

Cellulose microcrystalline

Croscarmellose sodium

Silica colloidal anhydrous

Magnesium stearate.

Coating:

Hypromellose

Lactose monohydrate

Titanium dioxide

Triacetin

Carnauba wax, 30 mg: Brilliant blue FCF Aluminum lake

Iron oxide black

Iron oxide yellow. 60 mg and 120 mg:

Iron oxide yellow, Indigo carmine Aluminum lake.

### **6.2 Incompatibilities**

Not applicable

### **6.3 Shelf life**

2 years

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

Do not store above 30°C. Store in the original pack.

### **6.5 Nature and contents of container**

Blister packs of 30 and 100 tablets. Not all pack sizes may be marketed.

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

No special requirements.

Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

**7.0 MARKETING AUTHORISATION HOLDER AND MANUFACTURING ADDRESS**

Marketing Authorisation Holder:

Mylan Pharmaceuticals

Private Limited Plot No.

1-A/2, MIDC Industrial

Estate, Taloja, Panvel,

District Raigad

Tal: PANVEL (RAIGAD), Pin: 410 208,

Maharashtra, India.

**Manufacturer:**

M/s Fourrts (India)

Laboratories Pvt. Limited

No:23, Venkatamangalam,

(Off Vandalur - Kelam Bakkam

Road), Kandigai, Chennai -

600 127

**8.0 MARKETING AUTHORIZATION NUMBER:**

H2024/CTD7584/14766

**9.0 DATE OF FIRST AUTHORIZATION /RENEWAL OF THE AUTHORIZATION**

2025 September 16

**10.0 DATE OF REVISION OF TEXT**

August 2017