

# **SUMMARY OF PRODUCT CHARACTERISTICS**

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

Ropinirole SR 2mg prolonged release tablets

## **2 QUALITATIVE AND QUANTITATIVE COMPOSITION**

Each tablet contains 2 mg ropinirole (as 2.28 mg ropinirole hydrochloride)

Excipients with known effect

Each tablet contains 1.71 mg lactose (as monohydrate).

For the full list of excipients, see section 6.1.

## **3 PHARMACEUTICAL FORM**

Prolonged-release tablet.

Pink, round biconvex tablets with approximately 6.8 mm in diameter and 5.5 mm in thickness.

## **4 CLINICAL PARTICULARS**

### **4.1 Therapeutic indications**

***Ropinirole SR is indicated in adults for***

Treatment of Parkinson's disease under the following conditions:

- Initial treatment as monotherapy, in order to delay the introduction of levodopa
- In combination with levodopa, over the course of the disease, when the effect of levodopa wears off or becomes inconsistent and fluctuations in the therapeutic effect occur (“end of dose” or “on-off” type fluctuations).

## **4.2 Posology and method of administration**

### *Posology*

Individual dose titration against efficacy and tolerability is recommended.

The prolonged-release tablets should be taken once a day and at a similar time each day.

The tablets may be taken with or without food. A high fat meal may double the AUC and C<sub>max</sub> in some individuals (see section 5.2).

### *Adults*

#### *Initial titration*

The starting dose is 2 mg ropinirole once daily for the first week; this should be increased to 4 mg ropinirole once daily from the second week of treatment. A therapeutic response may be seen at a dose of 4 mg once daily of prolonged-release tablets.

Patients who initiate treatment with a dose of 2 mg/day of ropinirole prolonged-release tablets and who experience undesirable effects that they cannot tolerate, may benefit from switching to treatment with ropinirole immediate release tablets at a lower daily dose, divided into three equal doses.

#### *Therapeutic regimen*

Patients should be maintained on the lowest dose of ropinirole prolonged-release tablets that achieves symptomatic control.

If sufficient symptomatic control is not achieved or maintained at a dose of 4 mg once daily of ropinirole prolonged release tablets, the daily dose may be increased by 2 mg at weekly or longer intervals up to a dose of 8 mg once daily of prolonged-release tablets.

If sufficient symptomatic control is still not achieved or maintained at a dose of 8 mg once daily of ropinirole prolonged-release tablets, the daily dose may be increased by 2 mg to 4 mg at two weekly or longer intervals. The maximum daily dose of ropinirole prolonged-release tablets is 24 mg.

It is recommended that patients are prescribed the minimum number of ropinirole prolonged-release tablets that are necessary to achieve the required dose by utilising the highest available strengths of ropinirole prolonged-release tablets.

When ropinirole prolonged-release tablets are administered as adjunct therapy to levodopa, it may be possible to gradually reduce the levodopa dose, depending on the

clinical response. In clinical trials, the levodopa dose was reduced gradually by approximately 30% in patients receiving ropinirole prolonged-release tablets concurrently. In patients with advanced Parkinson's disease receiving ropinirole prolonged-release tablets in combination with L-dopa, dyskinesias can occur during the initial titration of ropinirole prolonged-release tablets. In clinical trials it was shown that a reduction of the L-dopa dose may ameliorate dyskinesia (see also section 4.8).

When switching treatment from another dopamine agonist to ropinirole, the marketing authorisation holder's guidance on discontinuation should be followed before initiating ropinirole.

As with the other dopamine agonists, it is necessary to discontinue ropinirole treatment gradually by reducing the daily dose over the period of one week (see section 4.4).

*Switching from ropinirole immediate release tablets to ropinirole prolonged-release tablets*

Patients may be switched overnight from ropinirole immediate release tablets to ropinirole prolonged-release tablets.

The dose of ropinirole prolonged-release tablets should be based on the total daily dose of ropinirole immediate release tablets that the patient was taking. The table below shows the recommended dose of ropinirole prolonged-release tablets for patients switching from ropinirole immediate-release tablets. If patients are taking a different total daily dose of ropinirole immediate release tablets to those typically prescribed doses as shown in the table, they should be switched to the nearest available dose of ropinirole prolonged-release tablets as stated in the table:

*Switching from ropinirole immediate-release tablets to ropinirole prolonged-release tablets*

| Ropinirole immediate release tablets<br>Total daily dose (mg) | Ropinirole prolonged-release tablets<br>Total daily dose (mg) |
|---|---|
| 0.75 – 2.25   | 2   |
| 3 - 4.5   | 4   |
| 6   | 6   |
| 7.5 - 9   | 8   |
| 12  | 12  |
| 15 - 18   | 16  |
| 21  | 20  |
| 24  | 24  |

After switching to ropinirole prolonged-release tablets, the dose may be adjusted depending on the therapeutic response (see “Initial titration” and “Therapeutic regimen” above).

*Dose interruption or discontinuation*

If treatment is interrupted for one day or more, re-initiation by dose titration should be considered. If it is necessary to discontinue ropinirole treatment, this should be done gradually by reducing the daily dose over the period of one week.

*Renal impairment*

In parkinsonian patients with mild to moderate renal impairment (creatinine clearance between 30 and 50 ml/min) no change in the clearance of ropinirole was observed, indicating that no dose adjustment is necessary in this population.

A study into the use of ropinirole in patients with end stage renal disease (patients on haemodialysis) has shown that a dose adjustment in these patients is required as follows:

The recommended initial dose of ropinirole is 2 mg once daily. Further dose escalations should be based on tolerability and efficacy. The recommended maximum dose is 18 mg/day in patients receiving regular haemodialysis.

Supplemental doses after dialysis are not required

The use of ropinirole in patients with severe renal impairment (creatinine clearance less than 30 ml/min) without regular haemodialysis has not been studied.

#### Hepatic impairment

The use of ropinirole in patients with hepatic impairment has not been studied. Administration of ropinirole to such patients is not recommended.

#### ***Special populations***

##### Elderly

The clearance of ropinirole is decreased by approximately 15% in patients aged 65 years or above. Although a dose adjustment is not required, ropinirole dose should be individually titrated, with careful monitoring of tolerability, to the optimal clinical response. In patients aged 75 years and above, slower titration during treatment initiation may be considered.

##### Paediatric population

The safety and efficacy of Ropinirole SR in children and adolescents below 18 years of age have not been established. Ropinirole SR is not recommended for use in this age group.

#### Method of administration

For oral use.

The tablets must be swallowed whole and must not be chewed, crushed or divided.

### 4.3 Contraindications

- Hypersensitivity to ropinirole or to any of the excipients listed in section 6.1.
- Severe renal impairment (creatinine clearance <30 ml/min) without regular haemodialysis.
- Hepatic impairment.

### 4.4 Special warnings and precautions for use

#### **Somnolence and episodes of sudden sleep onset**

Ropinirole has been associated with somnolence and episodes of sudden sleep onset, particularly in patients with Parkinson's disease. Sudden onset of sleep during daily activities, in some cases without awareness or warning signs, has been reported (see section 4.8). Patients must be informed of this and advised to exercise caution while driving or operating machines during treatment with ropinirole. Patients who have experienced somnolence and/or an episode of sudden sleep onset must refrain from driving or operating machines. Reduction of dose or termination of therapy may be considered.

#### **Psychiatric or psychotic disorders**

Patients with a major psychotic disorders or a history of these disorders, should only be treated with dopamine agonists if the potential benefits outweigh the risks (see also section 4.5).

#### **Impulse control disorders**

Patients should be regularly monitored for the development of impulse control disorders. Patients and carers should be made aware that behavioral symptoms of impulse control disorders including pathological gambling, increased libido, hypersexuality, compulsive spending or buying, binge eating, and compulsive eating can occur in patients treated with dopamine agonists including ropinirole. Dose reduction/tapered discontinuation should be considered if such symptoms develop. Impulse control disorders were reported especially at high doses and were generally reversible upon reduction of the dose or treatment discontinuation. Risk factors such as a history of compulsive behaviours were present in some cases (see section 4.8).

#### **Mania**

Patients should be regularly monitored for the development of mania. Patients and carers should be made aware that symptoms of mania can occur with or without the symptoms of impulse control disorders in patients treated with ropinirole. Dose reduction/tapered discontinuation should be considered if such symptoms develop.

#### **Neuroleptic malignant syndrome**

Symptoms suggestive of neuroleptic malignant syndrome have been reported with abrupt withdrawal of dopaminergic therapy. Therefore, it is recommended to taper treatment (see section 4.2).

#### **Rapid gastrointestinal transit**

Ropinirole SR prolonged release tablets are designed to release ropinirole over a 24hr period. If rapid gastrointestinal transit occurs, there may be risk of incomplete release of the active substance, and of residue of the medicinal product being passed in the stool.

#### **Hypotension**

Due to the risk of hypotension, blood pressure monitoring is recommended, particularly at the start of treatment, in patients with severe cardiovascular disease (in particular coronary insufficiency).

#### **Dopamine agonist withdrawal syndrome (DAWS)**

DAWS has been reported with dopamine agonists, including ropinirole (see section 4.8). To discontinue treatment in patients with Parkinson's disease, ropinirole should be tapered off (see section 4.2). Limited data suggests that patients with impulse control disorders and those receiving high daily dose and/or high cumulative doses of dopamine agonists may be at higher risk for developing DAWS. Withdrawal symptoms include apathy, anxiety, depression, fatigue, sweating and pain and do not respond to levodopa. Prior to tapering off and discontinuing ropinirole, patients should be informed about potential withdrawal symptoms. Patients should be closely monitored during tapering and discontinuation. In case of severe and/or persistent withdrawal symptoms, temporary re-administration of ropinirole at the lowest effective dose may be considered.

#### **Hallucinations**

Hallucinations are known as an undesirable effect of treatment with dopamine agonists and levodopa. Patients should be informed that hallucinations can occur.

#### *Ropinirole SR 2 mg and 3 mg prolonged release tablets*

The prolonged-release tablets contain lactose. Patients with rare hereditary problems of galactose intolerance, total lactase deficiency or glucose-galactose malabsorption should not take this medicinal product.

#### *Ropinirole SR 3 mg and 4 mg prolonged release tablets*

The prolonged-release tablets contain the azo colouring agent sunset yellow (E110), which may cause allergic reactions.

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

There is no pharmacokinetic interaction between ropinirole and L-dopa or domperidone which would necessitate dose adjustment of these medicinal products.

Neuroleptics and other centrally active dopamine antagonists, such as sulpiride or metoclopramide, may diminish the effectiveness of ropinirole and therefore, concomitant use of these medicinal products should be avoided.

Increased plasma concentrations of ropinirole have been observed in patients treated with high doses of oestrogens. In patients already receiving hormone replacement therapy (HRT), ropinirole treatment may be initiated in the normal manner. However, if HRT is stopped or introduced during treatment with ropinirole, dose adjustment may be required.

Ropinirole is principally metabolised by the cytochrome P450 enzyme CYP1A2. A pharmacokinetic study (with a ropinirole immediate-release tablet dose of 2 mg, three times a day) in Parkinson's disease patients, revealed that ciprofloxacin increased the C<sub>max</sub> and AUC of ropinirole by 60% and 84% respectively, with a potential risk of adverse events. Hence, in patients already receiving ropinirole, the dose of ropinirole may need to be adjusted when medicinal products known to inhibit CYP1A2, e.g. ciprofloxacin, enoxacin, cimetidine or fluvoxamine, are introduced or withdrawn.

A pharmacokinetic interaction study in patients with Parkinson's disease between ropinirole (with a ropinirole immediate-release tablet dose of 2 mg, three times a day) and theophylline, a substrate of CYP1A2, revealed no change in the pharmacokinetics of either ropinirole or theophylline.

Smoking is known to induce CYP1A2 metabolism, therefore if patients stop or start smoking during treatment with ropinirole, adjustment of dose may be required.

In patients receiving the combination of vitamin K antagonists and ropinirole, cases of unbalanced INR have been reported. Increased clinical and biological surveillance (INR) is warranted.

## **4.6 Fertility, Pregnancy and lactation**

### Pregnancy

There are no adequate data from the use of ropinirole in pregnant women. Ropinirole concentrations may gradually increase during pregnancy (see section 5.2).

Studies in animals have shown reproductive toxicity (see section 5.3). As the potential risk for humans is unknown, it is recommended that ropinirole is not used during pregnancy unless the potential benefit to the patient outweighs the potential risk to the foetus.

### Breast-feeding

Ropinirole-related material was shown to transfer into the milk of lactating rats. It is unknown whether ropinirole and its metabolites are excreted in human milk. A risk to the suckling child cannot be excluded.

Ropinirole should not be used in breast-feeding mothers as it may inhibit lactation.

### Fertility

There are no data on the effects of ropinirole on human fertility. In female fertility studies in rats, effects were seen on implantation but no effects were seen on male fertility (see section 5.3).

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

Ropinirole may have a major effect on the ability to drive and use machines.

Patients being treated with ropinirole and presenting with hallucinations, somnolence and/or sudden sleep episodes must be informed to refrain from driving or engaging in activities where impaired alertness may put themselves or others at risk of serious injury or death (e.g. operating machines) until such recurrent episodes and somnolence have resolved (see also section 4.4).

#### 4.8 Undesirable effects

Adverse events are listed below by system organ class and frequency.

Frequencies are defined as: 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 ( $<1/10,000$ ), not known (cannot be estimated from the available data).

During clinical trials, the most commonly reported undesirable effects for ropinirole prolonged-release tablets were during monotherapy and dyskinesia during adjunctive therapy with levodopa. The following adverse events were reported during clinical trials with Ropinirole prolonged-release tablet up to 24 mg/day.

|                                 | <b>In monotherapy</b>                                | <b>In adjunct therapy</b>   |
|---------------------------------|--|---|
| <i>Psychiatric disorders</i>    |  |   |
| Common                          | Hallucinations                                       | Hallucinations  |
| <i>Nervous system disorders</i> |  |   |
| Very common                     | Somnolence   | Dyskinesia<br>In patients with advanced Parkinson's disease, dyskinesias can occur during the initial titration of ropinirole. In clinical trials it was shown that a reduction of the levodopa dose may ameliorate dyskinesia (see section 4.2). |
| Common                          | Dizziness (including vertigo), sudden onset of sleep | Somnolence, dizziness (including vertigo), sudden onset of sleep  |
| <i>Vascular disorders</i>       |  |   |

|  |                                   |                                   |
|--|-----------------------------------|-----------------------------------|
| Common   |                                   | Postural hypotension, hypotension |
| Uncommon   | Postural hypotension, hypotension |                                   |
| <b><i>Gastrointestinal disorders</i></b>                           |                                   |                                   |
| Very common  | Nausea                            |                                   |
| Common   | Constipation                      | Nausea, constipation              |
| <b><i>General disorders and administration site conditions</i></b> |                                   |                                   |
| Common   | Oedema peripheral                 | Oedema peripheral                 |

In addition to the above adverse drug reactions, the following events have been reported with Ropinirole film-coated (immediate-release) tablets in patients during clinical trials (at doses up to 24 mg/day) and/or post-marketing reports

|  | <b>In monotherapy</b>   | <b>In adjunct therapy</b>   |
|--|---|---|
| <b><i>Immune system disorders</i></b>  |   |   |
| Not known  | Hypersensitivity reactions (including urticaria, angioedema, rash, pruritus).   |   |
| <b><i>Psychiatric disorders</i></b>  |   |   |
| Common   |   | Confusion   |
| Uncommon   | Psychotic reactions (other than hallucinations) including delirium, delusion, paranoia.   | Psychotic reactions (other than hallucinations) including delirium, delusion, paranoia. |
| Not known  | Aggression*   |   |
|  | Dopamine dysregulation syndrome   |   |
| * Aggression has been associated with psychotic reactions as well as compulsive symptoms |   |   |
| Not known  | Impulse control disorders: pathological gambling, compulsive shopping, binge eating, hypersexuality and increased libido, have been reported in post marketing reports (see section 4.4). |   |
|  | Mania (see section 4.4)   |   |
| <b><i>Nervous system disorders</i></b>   |   |   |
| Very common  | Syncope   | Somnolence  |
| Uncommon   | Sudden onset of sleep, excessive daytime somnolence   | Sudden onset of sleep, excessive daytime somnolence                                     |

|  |  |           |
|--|--|-----------|
|  | Ropinirole is associated with somnolence and has been associated uncommonly with excessive daytime somnolence and sudden sleep onset episodes. |           |
| <b><i>Vascular disorders</i></b>                                   |  |           |
| Uncommon   | Postural hypotension or hypotension is rarely severe   |           |
| <b><i>Gastrointestinal disorders</i></b>                           |  |           |
| Very common  |  | Nausea    |
| Common   | Heartburn, Vomiting, abdominal pain  | Heartburn |
| <b><i>Hepatobiliary disorders</i></b>                              |  |           |
| Not known  | Hepatic reactions, mainly increased liver enzymes  |           |
| <b><i>General disorders and administration site conditions</i></b> |  |           |
| Common   | Leg oedema   |           |
| Not known  | Dopamine agonist withdrawal syndrome (including apathy, anxiety, depression, fatigue, sweating and pain)                                       |           |
| <b><i>Reproductive system and breast disorders</i></b>             |  |           |
| Not known  | Spontaneous penile erection  |           |
| <b><i>Respiratory, thoracic and mediastinal disorders</i></b>      |  |           |
| Uncommon   | Hiccups  |           |

#### **Dopamine agonist withdrawal syndrome**

Non-motor adverse effects may occur when tapering or discontinuing dopamine agonists including ropinirole (see section 4.4).

#### **Impulse control disorders**

Pathological gambling, increased libido, hypersexuality, compulsive spending or buying, binge eating and compulsive eating can occur in patients treated with dopamine agonists including Ropinirole SR prolonged release tablets. (see section 4.4).

#### **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 via Yellow Card Scheme at: [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard) or search for MHRA Yellow Card in the Google Play or Apple App Store.

## **4.9 Overdose**

The symptoms of ropinirole overdose are generally related to its dopaminergic activity. These symptoms may be alleviated by appropriate treatment with dopamine antagonists such as neuroleptics or metoclopramide.

## 5 PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

*Pharmacotherapeutic group:* Anti-Parkinson drugs; dopaminergic agents; Dopamine agonist.

ATC code: N04BC04

#### ***Mechanism of action***

Parkinson's disease is characterised by a marked dopamine deficiency in the nigral striatal system. Ropinirole is a non-ergoline D2/D3 dopamine agonist that alleviates this deficiency by stimulating striatal dopamine receptors.

Ropinirole acts in the hypothalamus and pituitary to inhibit the secretion of prolactin.

#### ***Clinical efficacy***

A 36-week, double-blind, three-period crossover study, in monotherapy with a primary end point of change from period baseline in Unified Parkinson's Disease Rating Scale (UPDRS) total motor score was conducted in 161 patients with early phase Parkinson's disease. A subgroup analysis of patients initiated on monotherapy treatment with ropinirole immediate release tablets and switched overnight to the nearest equivalent dose of ropinirole prolonged-release tablets was consistent with similar efficacy from equivalent mg for mg doses. The adjusted mean difference between ropinirole prolonged-release tablets and ropinirole immediate-release tablets at study endpoint was 0.7 points (95% CI: [-1.51, 0.10], p=0.0842).

Following the overnight switch to a similar dose of the alternative tablet formulation, there was no difference in the adverse event profile and less than 3% of patients required a dose adjustment (all dose adjustments were increases by one dose level. No patients required a dose decrease).

A 24-week, double-blind, placebo-controlled, parallel group study in patients with Parkinson's disease who were not optimally controlled on levodopa demonstrated that adjunctive therapy of ropinirole prolonged-release tablets results in clinically relevant and statistically significant superiority over placebo in a change from baseline in awake time "off" (adjusted mean treatment difference -1.7 hours (95% CI: [-2.34, -1.09], p<0.0001). This was supported by secondary efficacy parameters of change from baseline in total awake time "on" (+1.7 hours (95% CI [1.06, 2.33], p<0.0001) and total awake time "on" without troublesome dyskinesias (+1.5 hours (95% CI: [0.85, 2.13], p<0.0001). Importantly, there was no indication of an increase from baseline in awake time "on" with troublesome dyskinesias, either from diary card data or from the UPDRS items.

#### ***Study of the effect of ropinirole on cardiac repolarisation***

A thorough QT study conducted in male and female healthy volunteers who received doses of 0.5, 1, 2 and 4 mg of ropinirole (immediate release tablets once daily showed a maximum increase of the QT interval duration at the 1 mg dose of 3.46 milliseconds (point estimate) as compared to placebo. The upper bound of the one sided 95% confidence interval for the largest mean effect was less than 7.5 milliseconds. The effect of ropinirole at higher doses has not been systematically evaluated.

The available clinical data from a thorough QT study do not indicate a risk of QT prolongation at doses of ropinirole up to 4 mg/day. A risk of QT prolongation cannot be excluded as a thorough QT study at doses up to 24 mg/day has not been conducted.

## 5.2 Pharmacokinetic properties

### Absorption

Bioavailability of ropinirole is approximately 50% (36–57%). Following oral administration of ropinirole prolonged release tablets, plasma concentrations increase slowly, with a median time to C<sub>max</sub> generally achieved between 6 and 10 hours.

In a steady-state study in 25 Parkinson's disease patients receiving 12 mg of ropinirole prolonged release tablets once daily, a high fat meal increased the systemic exposure to ropinirole as shown by an average 20% increase in AUC and an average 44% increase in C<sub>max</sub> (90% CI[1.34, 1.56]). T<sub>max</sub> was delayed by 3.0 hours.

However, in the studies that established the safety and efficacy of ropinirole prolonged release tablets, patients were instructed to take study medication without regard to food intake

The systemic exposure to ropinirole is comparable for ropinirole prolonged-release tablets and ropinirole immediate-release tablets based on the same daily dose.

### Distribution

Plasma protein binding of the active substance is low (10–40%). Consistent with its high lipophilicity, ropinirole exhibits a large volume of distribution (approximately 7 l/kg).

### Biotransformation

Ropinirole is primarily cleared by CYP1A2 metabolism and its metabolites are mainly excreted in the urine. The major metabolite is at least 100-times less potent than ropinirole in animal models of dopaminergic function.

### Elimination

Ropinirole is cleared from the systemic circulation with an average elimination half-life of about 6 hours. The increase in systemic exposure (C<sub>max</sub> and AUC) to ropinirole is approximately proportional over the therapeutic dose range. No change in the oral clearance of ropinirole is observed following single and repeated oral administration.

Wide inter-individual variability in the pharmacokinetic parameters has been observed. Following steady-state administration of ropinirole prolonged-release tablets, the inter-individual variability of C<sub>max</sub> was between 30% and 55% and for AUC was between 40% and 70%.

### Special Populations

Renal impairment: There was no change observed in the pharmacokinetics of ropinirole in Parkinson's disease patients with mild to moderate renal impairment. In patients with end stage renal disease receiving regular dialysis, oral clearance of ropinirole is reduced by approximately 30%. Oral clearance of the metabolites SKF-104557 and SKF-89124 were also reduced by approximately 80% and 60%, respectively. Therefore, the recommended maximum dose is limited to 18 mg/day in these patients with Parkinson's disease (see section 4.2).

### Pregnancy

Physiological changes in pregnancy (including decreased CYP1A2 activity) are predicted to gradually lead to an increased maternal systemic exposure of ropinirole (see also section 4.6).

## **5.3 Preclinical safety data**

### ***Reproductive toxicity***

In fertility studies in female rats, effects were seen on implantation due to the prolactin-lowering effect of ropinirole. It should be noted that prolactin is not essential for implantation in humans.

Administration of ropinirole to pregnant rats at maternally toxic doses resulted in decreased foetal body weight at 60 mg/kg/day (approximately twice the highest AUC at the Maximum Recommended Human Dose (MRHD)), increased foetal death at 90 mg/kg/day (mean AUC in rats is approximately 3 times the highest AUC at the MRHD) and digit malformations at 150 mg/kg/day (approximately 5 times the highest AUC at the MRHD). There were no teratogenic effects in the rat at 120 mg/kg/day (approximately 4 times the highest AUC at the MRHD) and no indication of an effect during organogenesis in the rabbit when given alone at 20 mg/kg (9.5 times the mean human C<sub>max</sub> at the MRHD). However, ropinirole at 10 mg/kg (4.8 times the mean human C<sub>max</sub> at the MRHD) administered to rabbits in combination with oral L-dopa produced a higher incidence and severity of digit malformations than L-dopa alone.

### ***Toxicology***

The toxicology profile is principally determined by the pharmacological activity of ropinirole behavioural changes, hypoprolactinaemia, decrease in blood pressure and heart rate, ptosis and salivation. In the albino rat only, retinal degeneration was observed in a long term study at the highest dose (50 mg/kg/day), and was probably associated with an increased exposure to light.

### ***Genotoxicity***

Genotoxicity was not observed in a battery of in vitro and in vivo tests.

### ***Carcinogenicity***

From two-year studies conducted in the mouse and rat at doses up to 50 mg/kg there was no evidence of any carcinogenic effect in the mouse. In the rat, the only ropinirole-related lesions were Leydig cell hyperplasia and testicular adenoma resulting from the hypoprolactinaemic effect of ropinirole. These lesions are considered to be a species specific phenomenon and do not constitute a hazard with regard to the clinical use of ropinirole.

### ***Safety pharmacology***

*In vitro* studies have shown that ropinirole inhibits hERG-mediated currents. The IC<sub>50</sub> is 5-fold higher than the expected maximum plasma concentration in patients treated at the highest recommended dose (24 mg/day), see section 5.1.

## **6 PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

#### **Tablet core**

Ammonio Methacrylate Copolymer, Type B

Hydroxypropylmethyl cellulose

Sodium Lauryl Sulfate

Copovidone K25.2 -30.8

Magnesium stearate

#### **Film coating**

Lactose monohydrate, Hypromellose, Titanium dioxide (E171), Triacetin, Iron oxide red (E172)

### **6.2 Incompatibilities**

Not applicable.

### **6.3 Shelf life**

3 years

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

Store below 25°C.

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

White opaque PVC/PCTFE blisters with Aluminum foil

White opaque HDPE bottle with white cylindrical caps of polypropylene with three break points on the tamper-evident ring and aperture of desiccant (Silica Gel) insert.

Pack sizes: 28 or 84 prolonged-release tablets

Not all pack sizes may be marketed.

## **6.6 Special precautions for disposal**

No special requirements for disposal.

## **7 MARKETING AUTHORISATION HOLDER**

Crescent Pharma  
Ltd., Key House,  
Sarum Hill,  
Basingstoke, RG21  
8SR, United  
Kingdom

## **8 MARKETING AUTHORISATION NUMBER(S)**

PL 20416/1176

**9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE  
AUTHORISATION**

28/09/2020

**10 DATE OF REVISION OF THE TEXT**

24/04/2026