



ITRAZOLE

1. Product Name

Itraconazole 100 mg capsules

2. Qualitative and Quantitative Composition

Each capsule contains 100 mg of itraconazole.

For the full list of excipients, see section 6.1.

3. Pharmaceutical Form

Capsule: Size 00, hard gelatin capsule with a red opaque cap and red opaque body printed axially with "MYLAN" over "IE 100" in white ink on cap and body, and containing white to off-white coloured pellets.

4. Clinical Particulars

4.1 Therapeutic indications

Itraconazole capsule is indicated for the treatment of:

- vulvovaginal candidiasis.
- pityriasis versicolor,
- dermatomycosis – including highly keratinised regions as in plantar tinea pedis and palmer tinea manus,
- fungal keratitis,
- oral candidiasis,
- onychomycosis caused by dermatophytes and/or yeasts,
- systemic mycoses, only in the following fungal infections:
 - systemic aspergillosis and candidiasis,
 - histoplasmosis,
 - histoplasmosis, maintenance therapy only in AIDS patients
 - sporotrichosis (including lymphocutaneous/cutaneous and extracutaneous),
 - paracoccidioidomycosis,
 - chromomycosis,
 - blastomycosis.

4.2 Dose and method of administration

For optimal absorption, it is essential to administer itraconazole capsules immediately after a full meal. The capsules must be swallowed whole. Treatment schedules are as follows:

Indication	Dose	Duration
Vulvovaginal candidiasis	200 mg twice daily or 200 mg once daily	1 day 3 days

Pityriasis versicolor	100 mg twice daily 200 mg once daily	5-7 days
Dermatomycosis	100 mg once daily or 200 mg once daily	15 days or 7 days
Dermatomycosis in highly keratinised regions as in plantar tinea pedis and palmar tinea manus	200 mg twice daily or 100 mg once daily	7 days or 30 days
Oral candidiasis	100 mg once daily	15 days
Fungal keratitis	200 mg once daily	21 days The duration of treatment should be adjusted to clinical response.

Onychomycosis

Pulse treatment (see table below):

A pulse treatment consists of two capsules (200 mg) twice daily for one week. Two pulse treatments are recommended for fingernail infections and three pulse treatments for toenail infections. Pulse treatments are always separated by a 3-week treatment-free interval. Clinical response will become evident as the nail regrows, following discontinuation of the treatment.

Site of onychomycosis	Week 1	Weeks 2, 3, 4	Week 5	Weeks 6, 7, 8	Week 9
Toenails with or without fingernail involvement	Pulse 1	Itraconazole-free	Pulse 2	Itraconazole-free	Pulse 3
Fingernails only	Pulse 1	Itraconazole-free	Pulse 2	Itraconazole-free	-

Continuous Treatment: 200 mg once daily for 3 months.

Elimination of itraconazole from skin and nail tissue is slower than from plasma. Optimal clinical and mycological response is thus reached 2 to 4 weeks after the cessation of treatment for skin infections and 6 to 9 months after the cessation of treatment for nail infections.

Systemic mycoses

Dosage recommendations for systemic mycoses vary according to the infection treated and are as follows:

Indication	Dose	Median duration ¹	Remarks
Aspergillosis	200 mg once daily	2-5 months	Increase dose to 200 mg twice daily in case of invasive or disseminated disease
Candidiasis	100 to 200 mg once daily	3 weeks - 7 months	Increase dose to 200 mg twice daily in case of invasive or disseminated disease
Histoplasmosis	200 mg once daily to 200 mg twice daily	8 months	
Histoplasmosis (maintenance therapy only in AIDS patients)	200 mg once or twice daily	<i>Until immune recovery²</i>	

Lymphocutaneous and cutaneous sporotrichosis	100 mg or 200 mg once daily (localised lesions) Or 200 mg twice daily (extensive lesions)	3 months to 6 months	
Extracutaneous sporotrichosis	200 mg twice daily	12 months	
Paracoccidioidomycosis	100 mg once daily	6 months	
Chromomycosis	200 mg once daily	6 months	
Blastomycosis	100 mg once daily to 200 mg twice daily	6 months	

¹ The duration of treatment should be adjusted depending on the clinical response.

² The duration of treatment should be based upon the status of the immune recovery.

Special population

Paediatric

Clinical data on the use of itraconazole capsules in paediatric patients are limited. The use of itraconazole capsules in paediatric patients is not recommended unless it is determined that the potential benefit outweighs the potential risks (see section 4.4).

Elderly

Clinical data on the use of itraconazole capsules in elderly patients are limited. It is advised to use itraconazole capsules in these patients only if it is determined that the potential benefit outweighs the potential risks. In general, it is recommended that the dose selection for an elderly patient should be taken into consideration, reflecting the greater frequency of decreased hepatic, renal or cardiac function, and of concomitant disease or other drug therapy (see section 4.4).

Hepatic impairment

Limited data are available on the use of oral itraconazole in patients with hepatic impairment. Caution should be exercised when this drug is administered in this patient population (see section 5.2).

Renal impairment

Limited data are available on the use of oral itraconazole in patients with renal impairment. The exposure of itraconazole may be lower in some patients with renal insufficiency. Caution should be exercised when this drug is administered in this patient population and adjusting the dose may be considered.

4.3 Contraindications

Itrazole capsules are contraindicated in patients who have shown hypersensitivity to itraconazole or to any of the excipients listed in section 6.1.

Itrazole capsules are contraindicated in pregnant women except for the treatment of systemic mycoses, where the potential advantages must be weighed against the potential harm to the foetus. Highly effective contraceptive precautions should be used by women of childbearing potential throughout itraconazole therapy, and continued until the next menstrual period following the end of itraconazole therapy.

Co-administration of a number of CYP3A4 substrates is contraindicated with itraconazole. Increased plasma concentrations of these drugs, caused by co-administration with itraconazole, may increase or prolong, both therapeutic and adverse effects to such an extent that a potentially serious situation may occur. For example, increased plasma concentrations of some of these drugs can lead to QT

prolongation and ventricular tachyarrhythmias including occurrences of torsades de pointes, a potentially fatal arrhythmia. Specific examples are listed in section 4.5.

Itraconazole capsules should not be administered to patients with evidence of ventricular dysfunction such as congestive heart failure (CHF) or a history of CHF except for the treatment of life-threatening or other serious infections (see section 4.4).

4.4 Special warnings and precautions for use

Itraconazole has a potential for clinically important interactions with other medicines (see section 4.5).

Congestive heart failure

In a study with itraconazole IV in healthy volunteers a transient asymptomatic decrease of the left ventricular ejection fraction, which resolved before the next infusion, was observed. The clinical relevance of these findings to the oral formulations is not known.

Itraconazole has been shown to have a negative inotropic effect. Itraconazole has been associated with reports of congestive heart failure. Heart failure was more frequently reported among spontaneous reports of 400 mg total daily dose than among those of lower total daily doses, suggesting that the risk of heart failure might increase with the total daily dose of itraconazole.

Itraconazole should not be used in patients with congestive heart failure or with a history of congestive heart failure unless the benefit clearly outweighs the risk. The risk benefit assessment should consider factors such as the severity of the indication, the dosing regimen (e.g. total daily dose) and individual risk factors for congestive heart failure. Risk factors include cardiac disease, such as ischaemic and valvular disease; significant pulmonary disease, such as chronic obstructive pulmonary disease; and renal failure and other oedematous disorders. Patients with these risk factors, who are being treated with itraconazole, should be informed of the signs and symptoms of congestive heart failure. Caution should be exercised and the patient monitored for the signs and symptoms of congestive heart failure. Itraconazole should be discontinued if such symptoms occur during treatment.

Calcium channel blockers can have negative inotropic effects which may be additive to those of itraconazole. In addition, itraconazole can inhibit the metabolism of calcium channel blockers. Therefore, caution should be used when co-administering itraconazole and calcium channel blockers due to an increased risk of CHF.

Interaction potential

Co-administration of specific drugs with itraconazole may result in changes in efficacy of itraconazole and/or the co-administered drug, life-threatening effects and/or sudden death. Drugs that are contraindicated, not recommended or recommended for use with caution in combination with itraconazole are listed in section 4.5.

Cross-hypersensitivity

There is limited information regarding cross-hypersensitivity between itraconazole and other azole antifungal agents. Caution should be used in prescribing itraconazole capsules to patients with hypersensitivity to other azoles.

Decreased gastric acidity

Absorption of itraconazole from itraconazole capsules is impaired when the gastric acidity is decreased. In patients with reduced gastric acidity, whether from disease (e.g. patients with achlorhydria) or from concomitant medication (e.g. patients taking drugs to reduce gastric acidity), it is advisable to administer itraconazole capsules with an acidic beverage (such as non-diet cola). The antifungal activity should be monitored and the itraconazole dose increased as deemed necessary (see section 4.5 and section 5.2).

Hepatic impairment

Itraconazole is predominantly metabolised in the liver. A single oral dose (100 mg capsule) was administered to 12 patients with cirrhosis and six healthy control subjects; C_{max} , AUC and terminal half-life of itraconazole were measured and compared between groups. Mean itraconazole C_{max} was reduced significantly (by 47%) in patients with cirrhosis. Mean elimination half-life was prolonged compared to that found in subjects without hepatic impairment (37 vs. 16 hours, respectively). Overall exposure to itraconazole, based on AUC was similar in cirrhotic patients and in healthy subjects. Data are not available in cirrhotic patients during long-term use of itraconazole. Dose adjustments may be considered in these patients.

Very rare cases of serious hepatotoxicity, including some cases of fatal acute liver failure, have occurred with the use of itraconazole. Most of these cases involved patients who had pre-existing liver disease, were treated for systemic indications, had significant other medical conditions and/or were taking other hepatotoxic drugs. Some patients had no obvious risk factors for liver disease. Some of these cases have been observed within the first month of treatment, including some within the first week. Liver function monitoring should be considered in patients receiving itraconazole treatment. Patients should be instructed to promptly report to their physician signs and symptoms suggestive of hepatitis such as anorexia, nausea, vomiting, fatigue, abdominal pain or dark urine. In these patients treatment should be stopped immediately and liver function testing should be conducted.

Limited data are available on the use of oral itraconazole in patients with hepatic impairment. Caution should be exercised when the drug is administered in this patient population. It is recommended that patients with impaired hepatic function be carefully monitored when taking itraconazole. It is recommended that the prolonged elimination of half-life itraconazole observed in the single oral dose clinical trial with itraconazole capsules in cirrhotic patients be considered when deciding to initiate therapy with other medications metabolized by CYP3A4.

In patients with elevated or abnormal liver enzymes or active liver disease, or who have experienced liver toxicity with other drugs, treatment with itraconazole is strongly discouraged unless there is a serious or life-threatening situation where the expected benefit exceeds the risk. It is recommended that liver function monitoring be done in patients with pre-existing hepatic function abnormalities or those who have experienced liver toxicity with other medications (see section 5.2).

Renal impairment

Limited data are available on the use of oral itraconazole in patients with renal impairment. The exposure of itraconazole may be lower in some patients with renal insufficiency. Caution should be exercised when this drug is administered in this patient population and adjusting the dose may be considered.

Peripheral neuropathy

Isolated cases of peripheral neuropathy have been reported, predominantly during long-term treatment with itraconazole. If neuropathy occurs which may be attributable to itraconazole, the treatment should be discontinued.

Other azole antifungal agents

There is limited information regarding cross hypersensitivity between itraconazole and other azole antifungal agents. Caution should be used in prescribing itraconazole capsules to patients with hypersensitivity to other azoles.

Immunocompromised patients

In some immunocompromised patients (e.g. neutropenic, AIDS or organ transplant patients) the oral bioavailability of itraconazole capsules may be decreased. Therefore, the dose should be adjusted based on the clinical response in these patients.

Patients with immediately life-threatening systemic fungal infections

Due to the pharmacokinetic properties itraconazole capsules are not recommended for initiation of treatment in patients with immediately life-threatening systemic fungal infections.

Patients with AIDS

In patients with AIDS who have received treatment for a systemic fungal infection with itraconazole and who are considered at risk for relapse, the treating physician should evaluate the need for a maintenance therapy.

Cystic fibrosis

In cystic fibrosis patients, variability in therapeutic levels of itraconazole was observed with steady state dosing of itraconazole oral solution using 2.5 mg/kg twice daily. Steady state concentrations of > 250 ng/mL were achieved in approximately 50% of subjects greater than 16 years of age, but in none of the patients less than 16 years of age. If a patient does not respond to itraconazole capsules, consideration should be given to switching to alternative therapy.

Hearing loss

Transient or permanent hearing loss has been reported in patients receiving treatment with itraconazole. Several of these reports included concurrent administration of quinidine which is contraindicated (see sections 4.3 and 4.5). The hearing loss usually resolves when treatment is stopped, but can persist in some patients.

Cross-resistance

In systemic candidiasis, if fluconazole-resistant strains of *Candida* species are suspected, it cannot be assumed that these are sensitive to itraconazole, hence it is recommended to have their sensitivity tested before the start of itraconazole therapy.

Interchangeability

It is not recommended that itraconazole capsules and itraconazole oral solution be used interchangeably. This is because drug exposure is greater with oral solution than with capsules when the same dose is given.

Special population

Use in children

The efficacy and safety of itraconazole capsules have not been established in children. Since clinical data for the use of itraconazole in children is limited, the use of itraconazole capsules is not recommended unless it is determined that the potential benefit outweighs the potential risks.

Toxicological studies have shown that itraconazole, when administered to rats, can produce bone toxicity. While such toxicity has not been reported in adult patients, the long-term effect of itraconazole in children is unknown (see section 5.3).

Use in the elderly

Clinical data on the use of Itraconazole capsules in elderly patients are limited. It is advised to use itraconazole capsules in these patients only if it is determined that the potential benefit outweighs the potential risks. In general, it is recommended that the dose selection for an elderly patient should be taken into consideration, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

4.5 Interaction with other medicines and other forms of interaction

Itraconazole is a drug with high interaction potential. The various types of interaction and associated general recommendations are described below. In addition, a table is provided listing examples of drug that may interact with itraconazole, organized per drug family for each reference. The list of examples is not comprehensive and therefore the label of each drug that is co-administered with

itraconazole should be consulted for information related to the route of metabolism, interaction pathways, potential risks, and specific actions to be taken with regards co-administration.

Itraconazole is mainly metabolized through CYP3A4. Other substances that either share this metabolic pathway or modify CYP3A4 activity may influence the pharmacokinetics of itraconazole. Co-administration of itraconazole with moderate or potent CYP3A4 inducers may decrease the bioavailability of itraconazole and hydroxy-itraconazole to such an extent that efficacy may be reduced. Co-administration with moderate or potent inhibitors of CYP3A4 may increase the bioavailability of itraconazole, which may result in increased or prolonged pharmacological effects of itraconazole.

Absorption of itraconazole from the capsule formulation is reduced in subjects with reduced gastric acidity. Drugs that reduce gastric acidity impair the absorption of itraconazole from itraconazole capsules. To counteract this effect it is recommended to administer itraconazole capsules with an acidic beverage (such as non-diet cola) upon co-administration with drugs that reduce gastric acidity (see section 4.4).

Itraconazole and its major metabolite, hydroxy-itraconazole are potent CYP3A4 inhibitors. Itraconazole is an inhibitor of drug transporter P-glycoprotein and breast cancer resistance protein (BCRP). Itraconazole can inhibit the metabolism of drugs metabolized by CYP3A4 and can inhibit the drug transport by P-glycoprotein and/or BCRP, which may result in increased plasma concentration of these drugs and/or their active metabolite(s) when they are administered with itraconazole. These elevated plasma concentrations may increase or prolong both therapeutic and adverse effects of these drugs. For some drugs, co-administration with itraconazole may result in decreased plasma concentrations of the drug or of the active moiety of the drug. This may result in reduced efficacy of the drug.

Following cessation of medical treatment with itraconazole, plasma concentrations decrease below the detection limit within 7 to 14 days, depending on the dose and duration of treatment. In patients with hepatic cirrhosis or in subjects receiving CYP3A4 inhibitors the plasma concentrations decline slower. This is particularly important for consideration when initiating therapy with drugs whose metabolism is affected by itraconazole.

The following general recommendations apply, unless stated differently in table.

- 'Contraindicated': Under no circumstances is the drug to be co-administered with itraconazole. This applies to:
 - CYP3A4 substrates for which increased plasma concentrations may increase or prolong therapeutic and/or adverse effects to such an extent that a potentially serious situation may occur (see section 4.3).
- 'Not recommended': It is recommended that the use of the drug be avoided, unless the benefits outweigh the potentially increased risks. If co-administration cannot be avoided, clinical monitoring is recommended, and the dosage of itraconazole and/or the co-administered drug adapted as deemed necessary. When appropriate, it is recommended that plasma concentrations be measured. This applies to:
 - Moderate or potent CYP3A4 inducers: not recommended from 2 weeks before and during treatment with itraconazole
 - CYP3A4/P-gp/BCRP substrates for which increased or decreased plasma concentrations result in significant risk: not recommended during and up to 2 weeks after treatment with itraconazole.
- 'Use with caution': Careful monitoring is recommended when the drug is co-administered with itraconazole. Upon co-administration, it is recommended that patients be monitored closely and the dosage of itraconazole and/or the co-administered drug adapted as deemed necessary. When appropriate, it is recommended that plasma concentrations be measured. This applies to:

- Drugs that reduce gastric acidity (itra caps only)
- Moderate or potent inhibitors of CYP3A4
- CYP3A4/P-gp/BCRP substrates for which increased or decreased plasma concentrations result in a clinically relevant risk

Examples of interacting drugs are listed in the table below. The drugs listed in this table are based on either drug interaction studies or case reports, or potential interactions based on the mechanism of interaction.

Medicinal products within class	Expected/Potential effect on drug levels (see footnotes for additional info)	Clinical comment (see codes above for additional info)
Alpha blockers		
Alfuzosin Silodosin Tamsulosin	Alfuzosin C_{max} (↑↑), AUC (↑↑) ^a Silodosin C_{max} (↑↑), AUC (↑↑) ^a Tamsulosin C_{max} (↑↑), AUC (↑↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of alfuzosin/silodosin/tamsulosin-related adverse reactions ^c .
Analgesics		
Alfentanil Buprenorphine (IV and sublingual) Oxycodone Sufentanil	Alfentanil AUC (↑↑ to ↑↑↑↑) ^a Buprenorphine C_{max} (↑↑), AUC (↑↑) ^a Oxycodone C_{max} ↑, AUC ↑↑ Sufentanil conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for adverse reactions related to the analgesic, dose reduction of alfentanil/buprenorphine/oxycodone/sufentanil may be necessary.
Fentanyl	Fentanyl IV AUC (↑↑) ^a Fentanyl other form. conc. increase (extent unknown) ^{a,b}	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of fentanyl-related adverse reactions ^c .
Levacetylmethadol (levomethadyl)	Levacetylmethadol C_{max} (↑↑), AUC (↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of levacetylmethadol-related adverse reactions, such as QT prolongation and TdP.
Methadone	(R)-methadone C_{max} (↑), AUC (↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of methadone-related adverse reactions, such as potentially life-threatening respiratory depression, QT prolongation and TdP.
Antiarrhythmics		
Digoxin	Digoxin C_{max} ↑, AUC ↑	Use with caution, monitor for digoxin adverse reactions, dose reduction of digoxin may be necessary ^c .
Disopyramide	Disopyramide conc. increase (↑↑) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of disopyramide-related adverse reactions, such as serious arrhythmias including TdP.
Dofetilide	Dofetilide C_{max} (↑), AUC (↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of dofetilide-related adverse reactions, such as serious ventricular arrhythmias including TdP.
Dronedarone	Dronedarone C_{max} (↑↑↑), AUC (↑↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of dronedarone-related adverse reactions, such as QT prolongation and cardiovascular death.
Quinidine	Quinidine C_{max} ↑, AUC ↑↑	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of quinidine-related adverse reactions, such as QT prolongation, TdP, hypotension, confusion and delirium.
Antibacterials		
Bedaquiline	Bedaquiline C_{max} (↔), AUC (↑) during 2 weeks of bedaquiline q.d. dosing ^a	Not recommended, co-administration for more than 2 weeks at any time during bedaquiline dosing is not recommended: increased risk of bedaquiline-related adverse reactions ^c .

Ciprofloxacin Erythromycin	Itraconazole C _{max} ↑, AUC ↑	Use with caution, monitor for itraconazole adverse reactions, dose reduction of itraconazole may be necessary.
Clarithromycin	Clarithromycin conc. increase (extent unknown) ^{a,b} Itraconazole C _{max} ↑, AUC ↑;	Use with caution, monitor for adverse reactions related to itraconazole and/or clarithromycin ^c , dose reduction of itraconazole and/or clarithromycin may be necessary.
Delamanid Trimetrexate	Delamanid conc. increase (extent unknown) ^{a,b} Trimetrexate conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for delamanid/trimetrexate adverse reactions, dose reduction may be necessary ^c .
Isoniazid Rifampicin	Isoniazid: itraconazole conc. (↓↓↓) ^{a,b} Rifampicin: itraconazole AUC ↓↓↓	Not recommended from 2 weeks before and during treatment with itraconazole, Itraconazole efficacy may be reduced.
Rifabutin	Rifabutin conc. increase (extent unknown) ^{a,b} Itraconazole: C _{max} ↓↓, AUC ↓↓	Not recommended from 2 weeks before, during and for 2 weeks after treatment with itraconazole. Itraconazole efficacy may be reduced and increased risk of rifabutin-related adverse reactions ^c
Telithromycin	In healthy subjects: telithromycin C _{max} ↑, AUC ↑ In severe renal impairment: telithromycin AUC (↑↑) ^a In severe hepatic impairment: telithromycin conc. increase (extent unknown) ^{a,b}	Contraindicated in patients with severe renal or hepatic impairment during and for 2 weeks after treatment with itraconazole, Increased risk of telithromycin-related adverse reactions, such as hepatotoxicity, QT prolongation and TdPs. Use with caution in other patients:, monitor for telithromycin adverse reactions, dose reduction of telithromycin may be necessary ^c .
Anticoagulants and antiplatelet drugs		
Apixaban Rivaroxaban Vorapaxar	Apixaban C _{max} (↑), AUC (↑) ^a Rivaroxaban C _{max} (↑), AUC (↑ to ↑↑) ^a Vorapaxar C _{max} (↑), AUC (↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of apixaban/rivaroxaban/vorapaxar-related adverse reactions ^c .
Coumarins (eg, warfarin) Cilostazol	Coumarins (eg, warfarin) conc. increase (extent unknown) ^{a,b} Cilostazol C _{max} (↑), AUC (↑↑) ^a	Use with caution, monitor for coumarins/cilostazol adverse reactions, dose reduction of coumarins/cilostazol may be necessary ^c .
Dabigatran	Dabigatran C _{max} (↑↑), AUC (↑↑) ^a	Use with caution, monitor for dabigatran adverse reactions, dose reduction of dabigatran may be necessary ^c .
Ticagrelor	Ticagrelor C _{max} (↑↑), AUC (↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of ticagrelor-related adverse reactions, such as bleeding.
Anticonvulsants		
Carbamazepine	Carbamazepine conc. (↑) ^{a,b} Itraconazole conc. (↓↓) ^{a,b}	Not recommended from 2 weeks before, during and for 2 weeks after treatment with itraconazole. Itraconazole efficacy may be reduced and increased risk for carbamazepine-related adverse reactions ^c .
Phenobarbital Phenytoin	Phenobarbital: itraconazole conc. (↓↓↓) ^{a,b} Phenytoin: itraconazole AUC ↓↓↓	Not recommended from 2 weeks before and during treatment with itraconazole. Itraconazole efficacy may be reduced.
Antidiabetics		
Repaglinide Saxagliptin	Repaglinide C _{max} ↑, AUC ↑ Saxagliptin C _{max} (↑↑), AUC (↑↑) ^a	Use with caution, monitor for repaglinide/saxagliptin adverse reactions, dose reduction of repaglinide/saxagliptin may be necessary ^c .
Anthelmintics, antifungals and antiprotozoals		
Artemether-lumefantrine Quinine	Artemether C _{max} (↑↑), AUC (↑↑) ^a Lumefantrine C _{max} (↑), AUC (↑) ^a Quinine C _{max} ↔, AUC ↑	Use with caution, monitor for artemether-lumefantrine/quinine adverse reactions ^c . Refer to the label for specific actions to be taken.
Halofantrine	Halofantrine conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of halofantrine-related adverse reactions, such as QT prolongation and fatal arrhythmias.

Isavuconazole	Isavuconazole C _{max} (↔), AUC (↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of isavuconazole-related adverse reactions, such as hepatic adverse reactions, hypersensitivity reactions and embryo-fetal toxicity.
Praziquantel	Praziquantel C _{max} (↑↑), AUC (↑) ^a	Use with caution, monitor for praziquantel adverse reactions, dose reduction of praziquantel may be necessary ^c .
Antihistamines		
Astemizole	Astemizole C _{max} (↑), AUC (↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of astemizole-related adverse reactions, such as QT prolongation, TdP and other ventricular arrhythmias.
Bilastine Ebastine Rupatadine	Bilastine C _{max} (↑↑), AUC (↑) ^a Ebastine C _{max} ↑↑, AUC ↑↑↑ Rupatadine conc. increase (↑↑↑) ^{a,b}	Use with caution, monitor for bilastine/ebastine/rupatadine adverse reactions ^c , dose reduction of bilastine/ebastine/rupatadine may be necessary.
Mizolastine	Mizolastine C _{max} (↑), AUC (↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of mizolastine-related adverse reactions, such as QT prolongation.
Terfenadine	Terfenadine conc. increase (extent unknown) ^b	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of terfenadine-related adverse reactions, such as QT prolongation, TdP and other ventricular arrhythmias.
Antimigraine drugs		
Eletriptan	Eletriptan C _{max} (↑↑), AUC (↑↑↑) ^a	Use with caution, monitor for eletriptan adverse reactions ^c , dose reduction of eletriptan may be necessary.
Ergot alkaloids (such as dihydroergotamine, ergometrine, ergotamine, methylethergometrine)	Ergot alkaloids conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of ergot alkaloid-related adverse reactions, such as ergotism.
Antineoplastics		
Bortezomib Brentuximab vedotin Busulfan Erlotinib Gefitinib Imatinib Ixabepilone Nintedanib Panobinostat Ponatinib Ruxolitinib Sonidegib Vandetanib	Bortezomib AUC (↑) ^a Brentuximab vedotin AUC (↑) ^a Busulfan C _{max} ↑, AUC ↑ Erlotinib C _{max} (↑↑), AUC (↑) ^a Gefitinib C _{max} ↑, AUC ↑ Imatinib C _{max} (↑), AUC (↑) ^a Ixabepilone C _{max} (↔), AUC (↑) ^a Nintedanib C _{max} (↑), AUC (↑) ^a Panobinostat C _{max} (↑), AUC (↑) ^a Ponatinib C _{max} (↑), AUC (↑) ^a Ruxolitinib C _{max} (↑), AUC (↑) ^a Sonidegib C _{max} (↑), AUC (↑↑) ^a Vandetanib C _{max} ↔, AUC ↑	Use with caution, monitor for adverse reactions related to the antineoplastic drug ^c , dose reduction of the antineoplastic drug may be necessary.
Idelalisib	Idelalisib C _{max} (↑), AUC (↑) ^a Itraconazole serum conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for adverse reactions related to itraconazole and/or idelalisib ^c , dose reduction of itraconazole and/or idelalisib may be necessary.

Axitinib Bosutinib Cabazitaxel Cabozantinib Ceritinib Cobimetinib Crizotinib Dabrafenib Dasatinib Docetaxel Ibrutinib Lapatinib Nilotinib Olaparib Pazopanib Sunitinib Trabectedin Trastuzumab emtansine Vinca alkaloids	Axitinib C _{max} (↑), AUC (↑↑) ^a Bosutinib C _{max} (↑↑↑), AUC (↑↑↑) ^a Cabazitaxel C _{max} (↔), AUC (↔) ^a Cabozantinib C _{max} (↔), AUC (↑) ^a Ceritinib C _{max} (↑), AUC (↑↑) ^a Cobimetinib C _{max} ↑↑, AUC ↑↑↑ Crizotinib C _{max} (↑), AUC (↑↑) ^a Dabrafenib AUC (↑) ^a Dasatinib C _{max} (↑↑), AUC (↑↑) ^a Docetaxel AUC (↔ to ↑↑) ^a Ibrutinib C _{max} (↑↑↑↑), AUC (↑↑↑↑) ^a Lapatinib C _{max} (↑↑), AUC (↑↑) ^a Nilotinib C _{max} (↑), AUC (↑↑) ^a Olaparib C _{max} ↑, AUC ↑↑ Pazopanib C _{max} (↑), AUC (↑) ^a Sunitinib C _{max} (↑), AUC (↑) ^a Trabectedin C _{max} (↑), AUC (↑) ^a Trastuzumab emtansine conc. increase (extent unknown) ^{a,b} Vinca alkaloid conc. increase (extent unknown) ^{a,b}	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of adverse reactions related to the antineoplastic drug ^c . Additionally: For cabazitaxel, even though the change in pharmacokinetic parameters did not reach statistical significance in a low-dose drug interaction study with ketoconazole, a high variability in the results was observed. For ibrutinib, refer to the label for specific actions to be taken.
Regorafenib	Regorafenib AUC (↓↓ by estimation of active moiety) ^a	Not recommended during and for 2 weeks after treatment with itraconazole. Regorafenib efficacy may be reduced.
Irinotecan	Irinotecan and its active metabolite conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of irinotecan-related adverse reactions, such as potentially life-threatening myelosuppression and diarrhoea.
Antipsychotics, anxiolytics and hypnotics		
Alprazolam Aripiprazole Brotizolam Buspirone Cariprazine Haloperidol Midazolam (iv) Perospirone Quetiapine Ramelteon Risperidone Suvorexant Zopiclone	Alprazolam C _{max} ↔, AUC ↑↑ Aripiprazole C _{max} ↑, AUC ↑ Brotizolam C _{max} ↔, AUC ↑↑ Buspirone C _{max} ↑↑↑↑, AUC ↑↑↑↑ Cariprazine ↑↑ ^{a,b} Haloperidol C _{max} ↑, AUC ↑ Midazolam (iv) conc. increase ↑↑ ^b Perospirone C _{max} ↑↑↑, AUC ↑↑↑ Quetiapine C _{max} (↑↑), AUC (↑↑↑) ^a Ramelteon C _{max} (↑), AUC (↑) ^a Risperidone conc. increase ↑ ^b Suvorexant C _{max} (↑), AUC (↑↑) ^a Zopiclone C _{max} ↑, AUC ↑	Use with caution, monitor for adverse reactions related to the antipsychotic, anxiolytic or hypnotic drug ^c , dose reduction of these drugs may be necessary.
Lurasidone	Lurasidone C _{max} (↑↑↑), AUC (↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of lurasidone-related adverse reactions, such as hypotension, circulatory collapse, severe extrapyramidal symptoms, seizures.
Midazolam (oral)	Midazolam (oral) C _{max} ↑ to ↑↑, AUC ↑↑ to ↑↑↑↑	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of midazolam-related adverse reactions, such as respiratory depression, cardiac arrest, prolonged sedation and coma.
Pimozide	Pimozide C _{max} (↑), AUC (↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of pimozide-related adverse reactions, such as cardiac arrhythmias, possibly associated with QT prolongation and TdP.
Sertindole	Sertindole conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of sertindole-related adverse reactions, such as QT prolongation and TdP.

Triazolam	Triazolam C _{max} ↑ to ↑↑, AUC ↑↑ to ↑↑↑	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of triazolam-related adverse reactions, such as seizures, respiratory depression, angioedema, apnea and coma.
Antivirals		
Asunaprevir (boosted) Tenofovir disoproxil fumarate (TDF)	Asunaprevir C _{max} (↑↑↑), AUC (↑↑↑) ^a Tenofovir conc. increase (extent unknown) ^{a,b}	Use with caution, however, refer to the label of the antiviral drug for specific actions to be taken.
Boceprevir	Boceprevir C _{max} (↑), AUC (↑↑) ^a Itraconazole conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for adverse reactions related to itraconazole and/or boceprevir ^c , dose reduction of itraconazole may be necessary. Refer to the boceprevir label for specific actions to be taken.
Cobicistat	Cobicistat conc. increase (extent unknown) ^{a,b} Itraconazole conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for adverse reactions related to itraconazole, dose reduction of itraconazole may be necessary.
Daclatasvir Vaniprevir	Daclatasvir C _{max} (↑), AUC (↑↑) ^a Vaniprevir C _{max} (↑↑↑), AUC (↑↑↑) ^a	Use with caution, monitor for daclatasvir/vaniprevir adverse reactions ^c , dose reduction of daclatasvir/vaniprevir may be necessary.
Darunavir (boosted) Fosamprenavir (ritonavir-boosted) Telaprevir	Ritonavir-boosted darunavir: itraconazole C _{max} (↑↑), AUC (↑↑) ^a Ritonavir-boosted fosamprenavir: itraconazole C _{max} (↑), AUC (↑↑) ^a Telaprevir: itraconazole C _{max} (↑), AUC (↑↑) ^a	Use with caution, monitor for itraconazole adverse reactions, dose reduction of itraconazole may be necessary.
Elvitegravir (boosted)	Elvitegravir C _{max} (↑), AUC (↑) ^a Itraconazole conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for adverse reactions related to itraconazole and/or elvitegravir (ritonavir-boosted) ^c . Dose reduction of itraconazole may be necessary; refer to the elvitegravir label for specific actions to be taken.
Efavirenz Nevirapine	Efavirenz: itraconazole C _{max} ↓, AUC ↓ Nevirapine: itraconazole C _{max} ↓, AUC ↓↓	Not recommended from 2 weeks before and during treatment with itraconazole. Itraconazole efficacy may be reduced.
Elbasvir/ Grazoprevir	Elbasvir C _{max} ↔, AUC (↑) ^a Grazoprevir C _{max} ↔, AUC (↑↑) ^a	Use with caution, monitor for adverse reactions related to the co-administered drugs ^c . Refer to the elbasvir/grazoprevir label for specific actions to be taken.
Glecaprevir/ Pibrentasvir	Glecaprevir C _{max} (↑↑), AUC (↑↑ to ↑↑↑) ^a Pibrentasvir C _{max} (↔ to ↑), AUC (↔ to ↑↑) ^a	Use with caution, monitor for adverse reactions related to the co-administered drugs ^c . Refer to the glecaprevir/pibrentasvir label for specific actions to be taken.
Indinavir	Itraconazole conc. ↑ ^b Indinavir C _{max} ↔, AUC ↑	Use with caution, monitor for adverse reactions related to itraconazole and/or indinavir ^c , dose reduction of itraconazole and/or indinavir may be necessary.
Maraviroc	Maraviroc C _{max} (↑↑), AUC (↑↑↑) ^a	Use with caution monitor for adverse reactions ^c . Dose reduction of maraviroc may be necessary.
Ombitasvir/Paritaprevir/ Ritonavir with or without Dasabuvir	Itraconazole C _{max} (↑), AUC (↑↑) ^a Ombitasvir C _{max} (↔), AUC (↑) ^a Paritaprevir C _{max} (↑), AUC (↑↑) ^a Ritonavir C _{max} (↑), AUC (↑) ^a Dasabuvir C _{max} (↑), AUC (↑) ^a	Use with caution, monitor for adverse reactions related to itraconazole and/or the antivirals ^c . dose reduction of itraconazole may be necessary. Refer to the label(s) of the co-administered drugs for specific actions to be taken.
Ritonavir	Itraconazole C _{max} (↑), AUC (↑↑) ^a Ritonavir C _{max} (↔), AUC (↑) ^a	Use with caution, monitor for adverse reactions related to itraconazole and/or ritonavir ^c , Dose reduction of itraconazole may be necessary; refer to the ritonavir label for specific actions to be taken.
Saquinavir	Saquinavir (unboosted) C _{max} ↑↑, AUC ↑↑↑ Itraconazole (with boosted saquinavir) C _{max} (↑), AUC (↑↑) ^a	Use with caution, monitor for adverse reactions related to itraconazole and/or saquinavir ^c , Dose reduction of itraconazole may be necessary; refer to the saquinavir label for specific actions to be taken.

Simeprevir	Simeprevir C _{max} (↑↑), AUC (↑↑↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole.
Beta blockers		
Nadolol	Nadolol C _{max} ↑↑, AUC ↑↑	Use with caution, monitor for nadolol adverse reactions ^c . Dose reduction of nadolol may be necessary.
Calcium channel blockers		
Bepridil	Bepridil conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of bepridil-related adverse reactions, such as new arrhythmias and TdP type ventricular tachycardia.
Diltiazem	Diltiazem & Itraconazole conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for adverse reactions related to itraconazole and/or diltiazem ^c , dose reduction of itraconazole and/or diltiazem maybe necessary.
Felodipine Lercanidipine Nisoldipine	Felodipine C _{max} ↑↑↑, AUC ↑↑↑ Lercanidipine AUC (↑↑↑↑) ^a Nisoldipine C _{max} (↑↑↑↑), AUC (↑↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of dihydropyridine-related adverse reactions, such as hypotension and peripheral edema.
Other dihydropyridines Verapamil	Dihydropyridine conc. increase (extent unknown) ^{a,b} Verapamil conc. increase (extent unknown) ^{a,b}	Use with caution, monitor for dihydropyridine/verapamil adverse reactions ^c , dose reduction of dihydropyridine/verapamil may be necessary.
Cardiovascular drugs, misc		
Aliskiren Riociguat Sildenafil (pulmonary hypertension) Tadalafil (pulmonary hypertension)	Aliskiren C _{max} ↑↑↑, AUC ↑↑↑ Riociguat C _{max} (↑), AUC (↑↑) ^a Sildenafil/Tadalafil conc. increase (extent unknown but effect may be greater than reported under Urological Drugs) ^{a,b}	Not recommended during and for 2 weeks after treatment with itraconazole ^c . Increased risk of adverse reactions related to the cardiovascular drug.
Bosentan Guanfacine	Bosentan C _{max} (↑↑), AUC (↑↑) ^a Guanfacine C _{max} (↑), AUC (↑↑) ^a	Use with caution, monitor for bosentan/guanfacine adverse reactions ^c , dose reduction of bosentan/guanfacine may be necessary.
Ivabradine	Ivabradine C _{max} (↑↑), AUC (↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of ivabradine-related adverse reactions, such as atrial fibrillation, bradycardia, sinus arrest and heart block.
Ranolazine	Ranolazine C _{max} (↑↑), AUC (↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of ranolazine-related adverse reactions, such as QT prolongation and renal failure.
Contraceptives*		
Dienogest Ulipristal	Dienogest C _{max} (↑), AUC (↑↑) ^a Ulipristal C _{max} (↑↑), AUC (↑↑↑) ^a	Use with caution, monitor for contraceptive adverse reactions ^c , refer to the dienogest/ulipristal label for specific actions to be taken.
Diuretics		
Eplerenone	Eplerenone C _{max} (↑), AUC (↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of eplerenone-related adverse reactions, such as hyperkalemia and hypotension.
Gastrointestinal drugs		
Aprepitant Loperamide Netupitant	Aprepitant AUC (↑↑↑) ^a Loperamide C _{max} ↑↑, AUC ↑↑ Netupitant C _{max} (↑), AUC (↑↑) ^a	Use with caution, monitor for aprepitant/loperamide/netupitant adverse reactions ^c . Dose reduction of aprepitant/loperamide/ may be necessary. Refer to the netupitant label for specific actions to be taken.
Cisapride	Cisapride conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of cisapride-related adverse reactions, such as serious cardiovascular events including QT prolongation, serious ventricular arrhythmias and TdP.

Domperidone	Domperidone C_{max} ↑↑, AUC ↑↑	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of domperidone-related adverse reactions, such as serious ventricular arrhythmias and sudden cardiac death.
Drugs that reduce gastric acidity	Itraconazole: C_{max} ↓↓, AUC ↓↓	Use with caution: Drugs that reduce gastric acidity: e.g. acid neutralising medicines such as aluminum hydroxide, or acid secretion suppressors such as H ₂ - receptor antagonists and proton pump inhibitors. When co-treatment with acid neutralising medicines (e.g. aluminum hydroxide) these should be administered at least 2 hours before or 2 hours after the intake of itraconazole capsules (see section 4.4).
Naloxegol	Naloxegol C_{max} (↑↑↑), AUC (↑↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of naloxegol-related adverse reactions, such as opioid withdrawal symptoms.
Saccharomyces boulardii	<i>S. boulardii</i> colonization decrease (extent unknown)	Not recommended during and for 2 weeks after treatment with itraconazole. <i>S. boulardii</i> efficacy may be reduced.
Immunosuppressants		
Budesonide	Budesonide (inhalation) C_{max} ↑, AUC ↑↑; Budesonide (other form.) conc. increase (extent unknown) ^{a,b}	Use with caution monitor for immunosuppressant adverse reactions ^c , dose reduction of the immunosuppressant drug may be necessary
Ciclesonide	Ciclesonide (inhalation) C_{max} (↑↑), AUC (↑↑) ^a	
Cyclosporine	Cyclosporine (iv) conc. increase ↔ to ↑ ^b Cyclosporine (other form.) conc. increase (extent unknown) ^{a,b}	
Dexamethasone	Dexamethasone C_{max} ↔ (iv) ↑ (oral), AUC ↑↑ (iv, oral)	
Fluticasone	Fluticasone (inhalation) conc. increase ↑↑ ^b	
Methylprednisolone	Fluticasone (nasal) conc. increase (↑) ^{a,b} Methylprednisolone (oral) C_{max} ↑ to ↑↑, AUC ↑↑	
Tacrolimus	Methylprednisolone (iv) AUC ↑↑ Tacrolimus (iv) conc. increase ↑ ^b	
Temsirolimus	Tacrolimus (oral) C_{max} (↑↑), AUC (↑↑) ^a Temsirolimus (iv) C_{max} (↑↑), AUC (↑↑) ^a	
Everolimus Sirolimus (rapamycin)	Everolimus C_{max} (↑↑), AUC (↑↑↑↑) ^a Sirolimus C_{max} (↑↑), AUC (↑↑↑↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole ^c . Increased risk of everolimus/ sirolimus-related adverse reactions.
Lipid regulating drugs		
Atorvastatin	Atorvastatin C_{max} ↔ to ↑↑, AUC ↑ to ↑↑	Use with caution, monitor for atorvastatin adverse reactions ^c , dose reduction of atorvastatin may be necessary.
Lomitapide	Lomitapide C_{max} (↑↑↑↑), AUC (↑↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of lomitapide-related adverse reactions, such as hepatotoxicity and severe gastrointestinal reactions.
Lovastatin Simvastatin	Lovastatin C_{max} ↑↑↑↑, AUC ↑↑↑↑ Simvastatin C_{max} ↑↑↑↑, AUC ↑↑↑↑	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of lovastatin/ simvastatin-related adverse reactions, such as myopathy, rhabdomyolysis and liver enzyme abnormalities.
Nonsteroidal anti-inflammatory drugs		

Meloxicam	Meloxicam C _{max} ↓↓, AUC ↓	Use with caution, monitor for reduced efficacy of meloxicam, dose adaption of meloxicam may be necessary.
Respiratory drugs		
Salmeterol	Salmeterol C _{max} (↑), AUC (↑↑↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of salmeterol-related adverse reactions ^c .
SSRIs, tricyclics and related antidepressants		
Reboxetine Venlafaxine	Reboxetine C _{max} (↔), AUC (↑) ^a Venlafaxine C _{max} (↑), AUC (↑) ^a	Use with caution, monitor for reboxetine/venlafaxine adverse reactions ^c , dose reduction of reboxetine/venlafaxine may be necessary.
Urologic drugs		
Avanafil	Avanafil C _{max} (↑↑), AUC (↑↑↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk avanafil-related adverse reactions, such as priapism, visual problems and sudden loss of hearing.
Dapoxetine	Dapoxetine C _{max} (↑), AUC (↑) ^a	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk for dapoxetine-related adverse reactions, such as orthostatic hypotension and ocular effects.
Darifenacin Vardenafil	Darifenacin C _{max} (↑↑↑), AUC (↑↑↑ to ↑↑↑↑) ^a Vardenafil C _{max} (↑↑), AUC (↑↑↑↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of darifenacin/vardenafil-related adverse reactions ^c .
Dutasteride Imidafenacin Oxybutynin Sildenafil (erectile dysfunction) Tadalafil (erectile dysfunction and benign prostatic hyperplasia) Tolterodine Udenafil	Dutasteride conc. increase (extent unknown) ^{a,b} Imidafenacin C _{max} ↑, AUC ↑ Oxybutynin conc. increase ↑ ^b Sildenafil C _{max} (↑↑), AUC (↑↑ to ↑↑↑) ^a Tadalafil C _{max} (↑), AUC (↑↑) ^a Tolterodine C _{max} (↑ to ↑↑), AUC (↑↑) ^a in poor metabolisers of CYP2D6 Udenafil C _{max} (↑), AUC (↑↑) ^a	Use with caution, monitor for urologic drug adverse reactions ^c , dose reduction of the urologic drug may be necessary; refer to the dutasteride label for specific actions to be taken. (For sildenafil and tadalafil, see also <i>Cardiovascular drugs, Miscellaneous drugs and other substances.</i>)
Fesoterodine	Fesoterodine C _{max} (↑↑), AUC (↑↑) ^a	Contraindicated in patients with moderate to severe renal or hepatic impairment, during and for 2 weeks after treatment with itraconazole. Increased risk of fesoterodine-related adverse reactions, such as severe anticholinergic effects. Use with caution in other patients: monitor for fesoterodine adverse reactions ^c , dose reduction of fesoterodine may be necessary.
Solifenacin	Solifenacin C _{max} (↑), AUC (↑↑) ^a	Contraindicated in patients with severe renal or moderate to severe hepatic impairment, during and for 2 weeks after treatment with itraconazole. Increased risk of solifenacin-related adverse reactions, such as anticholinergic effects and QT prolongation. Use with caution in other patients, monitor for solifenacin drug adverse reactions ^c , dose reduction of solifenacin may be necessary.
Miscellaneous drugs and other substances		
Alitretinoin (oral) Cabergoline Cannabinoids Cinacalcet	Alitretinoin C _{max} (↑), AUC (↑) ^a Cabergoline C _{max} (↑↑), AUC (↑↑) ^a Cannabinoids conc. increase, extent unknown but likely (↑↑) ^a Cinacalcet C _{max} (↑↑), AUC (↑↑) ^a	Use with caution, monitor for alitretinoin/cabergoline/cannabinoids/cinacalcet drug adverse reactions, dose reduction of alitretinoin/cabergoline/cannabinoids/cinacalcet may be necessary ^c .

Colchicine	Colchicine C _{max} (↑), AUC (↑↑) ^a	Contraindicated in patients with renal or hepatic impairment, during and for 2 weeks after treatment with itraconazole. Increased risk of colchicine-related adverse reactions, such as decreased cardiac output, cardiac arrhythmias, respiratory distress and bone marrow depression. Not recommended in other patients, during and for 2 weeks after treatment with itraconazole. Increased risk of colchicine-related adverse reactions ^c .
Eliglustat	CYP2D6 EMs: Eliglustat C _{max} (↑↑), AUC (↑↑) ^a Higher increases are expected in CYP2D6 IMs/PMs and upon co-administration with a CYP2D6 inhibitor.	Contraindicated in CYP2D6 EMs taking a strong or moderate CYP2D6 inhibitor / CYP2D6 IMs and PMs, during and for 2 weeks after treatment with itraconazole. Increased risk of eliglustat-related AEs such as prolongation of the PR, QTc, and/or QRS cardiac interval, and cardiac arrhythmias. Use with caution in CYP2D6 EMs, monitor for eliglustat adverse reactions ^c , dose reduction of eliglustat may be necessary.
Ergot alkaloids	Ergot alkaloids conc. increase (extent unknown) ^{a,b}	Contraindicated during and for 2 weeks after treatment with itraconazole. Increased risk of ergot alkaloid-related adverse reactions, such as ergotism (see also <i>Antimigraine drugs</i>).
Galantamine	Galantamine C _{max} ↑, AUC ↑ ^a	Use with caution, monitor for galantamine adverse reactions ^c . Dose reduction of galantamine may be necessary
Ivacaftor	Ivacaftor C _{max} (↑↑), AUC (↑↑↑) ^a	Use with caution, monitor for ivacaftor adverse reactions ^c , dose reduction of ivacaftor may be necessary.
Lumacaftor/Ivacaftor	Ivacaftor C _{max} (↑↑), AUC (↑↑) ^a Lumacaftor C _{max} (↔), AUC (↔) ^a Itraconazole conc. decrease, extent unknown but likely ↓↓↓	Not recommended from 2 weeks before, during and for 2 weeks after treatment with itraconazole. Itraconazole efficacy may be reduced and increased risk of ivacaftor-related adverse reactions ^c .
Vasopressin receptor antagonists		
Conivaptan Tolvaptan	Conivaptan C _{max} (↑↑), AUC (↑↑↑↑) ^a Tolvaptan C _{max} (↑↑), AUC (↑↑↑) ^a	Not recommended during and for 2 weeks after treatment with itraconazole. Increased risk of conivaptan/ tolvaptan-related adverse reactions ^c .
Mozavaptan	Mozavaptan C _{max} ↑, AUC ↑↑	Use with caution, monitor for mozavaptan adverse reactions ^c , dose reduction of mozavaptan may be necessary.

* CYP3A4 inhibitors (including itraconazole) may increase systemic contraceptive hormone concentrations.

EMs: extensive metabolisers; IMs: intermediate metabolisers, PMs: poor metabolisers; TdP: Torsade de Pointes.

Note:

Average increase:

- ↑: <100% (i.e. <2-fold);
- ↑↑: 100-400% (i.e. ≥2-fold to <5-fold);
- ↑↑↑: 400-900% (i.e. ≥5-fold and <10-fold)
- ↑↑↑↑: ≥10-fold

Average decrease:

- ↓: <40%;
- ↓↓: 40-80%;
- ↓↓↓: >80%;

No effect: ↔;

For the effect (middle column) the name of the parent drug is stated, even when the effect is related to the active moiety or the active metabolite of a prodrug.

^a For drugs with arrows between brackets, the assessment was based on the mechanism of interaction and clinical drug interaction information with ketoconazole or other strong CYP3A4 inhibitors and/or inhibitors of P-glycoprotein or BCRP, modelling techniques, case reports and/or in vitro data. For the other drugs listed, the assessment was based on clinical drug interaction information with itraconazole.

^b Pharmacokinetic parameters were not available.

° Please consult the corresponding label for information on drug-related adverse events

Paediatric population

Interaction studies have only been performed in adults.

4.6 Fertility, pregnancy and lactation

Use in pregnancy

Category B3.

Teratogenic effects

Itraconazole was found to cause a dosage related increase in maternal toxicity, embryotoxicity and teratogenicity in rats at dosage levels of approximately 40-160 mg/kg/day and in mice at dosage levels of approximately 80 mg/kg/day. In rats, the teratogenicity consisted of major skeletal defects and in mice it consisted of encephaloceles and/or macroglossia.

Itraconazole capsules should not be used during pregnancy except in life threatening cases where the potential benefit to the mother outweighs the potential harm to the foetus (see section 4.3).

There is limited information on the use of itraconazole during pregnancy. During post-marketing experience, cases of congenital abnormalities have been reported. These cases included skeletal, genitourinary tract, cardiovascular and ophthalmic malformations as well as chromosomal and multiple malformations. A causal relationship with itraconazole has not been established.

Epidemiological data on exposure to itraconazole during the first trimester of pregnancy (mostly in patients receiving short-term treatment for vulvovaginal candidiasis) did not show an increased risk of malformations as compared to control subjects not exposed to any known teratogens. Itraconazole has been shown to cross the placenta in a rat model.

Women of childbearing potential

Women of childbearing potential taking itraconazole should use contraceptive precautions. Highly effective contraception should be continued until the menstrual period following the end of itraconazole therapy.

Breast-feeding

Based on the determination of itraconazole concentration in the breast milk of lactating mothers who received a single daily dose of 400 mg itraconazole (200 mg twice daily), it was calculated that the exposure in the infant to itraconazole would be around 450 times lower than in the mother. The expected benefits of itraconazole therapy should therefore be weighed against the potential risk of breast-feeding. In case of doubt the patient should not breast-feed.

Fertility

Refer to section 5.3 for further information.

4.7 Effects on ability to drive and use machines

No studies on the effects on the ability to drive or to use machinery have been performed. When driving vehicles and operating machinery the possibility of adverse reactions such as dizziness, visual disturbances and hearing loss (see section 4.8), which may occur in some instances, must be taken into account.

4.8 Undesirable effects

Throughout this section, adverse reactions are presented. Adverse reactions are adverse events that were considered to be reasonably associated with the use of itraconazole based on the comprehensive assessment of the available adverse event information. A causal relationship with itraconazole cannot be reliably established in individual cases. Further, because clinical trials are

conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in clinical practice.

Clinical trial data

The safety of itraconazole capsules was evaluated in 8499 patients who participated in 107 open-label and double-blind clinical trials. Of the 8499 patients treated with itraconazole capsules, 2104 patients were treated with itraconazole capsules during double-blind trials. All 8499 patients received at least one dose of itraconazole capsules for the treatment of dermatomycoses or onychomycosis and provided safety data. Adverse drug reactions (ADRs) reported for $\geq 1\%$ of patients treated with itraconazole capsules in these clinical trials are shown in Table 1.

Table 1. Adverse drug reactions reported by $\geq 1\%$ of patients treated with itraconazole capsules in 107 clinical trials.	
System organ class Adverse drug reaction	Itraconazole capsules % (N= 8499)
Nervous system disorders Headache	1.6
Gastrointestinal disorders Nausea Abdominal pain	1.6 1.3

Adverse drug reactions that occurred in $< 1\%$ of patients treated with itraconazole capsules in these clinical trials are listed in Table 2.

Table 2. Adverse drug reactions reported by $< 1\%$ of patients treated with itraconazole capsules in 107 clinical trials	
System organ class Adverse drug reaction	
Infections and infestations Rhinitis Sinusitis Upper respiratory tract infection	
Blood and lymphatic system disorders Leukopenia	
Immune system disorders Hypersensitivity	
Nervous system disorders Dysgeusia Hypoesthesia Paresthesia	
Ear and labyrinth disorders Tinnitus	
Gastrointestinal disorders Constipation Diarrhoea Dyspepsia Flatulence Vomiting	

Hepatobiliary disorders Hepatic function abnormal Hyperbilirubinemia
Skin and subcutaneous tissue disorders Pruritus Rash Urticaria
Renal and urinary disorders Pollakiuria
Reproductive system and breast disorders Erectile dysfunction Menstrual disorder
General disorders and administration site conditions Oedema

Paediatrics

The safety of itraconazole capsules was evaluated in 165 paediatric patients aged 1 to 17 years who participated in 14 clinical trials (4 double-blind, placebo controlled trials; 9 open-label trials; and 1 trial had an open-label phase followed by a double-blind phase). These patients received at least one dose of itraconazole capsules for the treatment of fungal infections and provided safety data.

Based on pooled safety data from these clinical trials, the commonly reported adverse drug reactions (ADRs) in paediatric patients were Headache (3.0%), Vomiting (3.0%), Abdominal pain (2.4%), Diarrhoea (2.4%), Hepatic function abnormal (1.2%), Hypotension (1.2%), Nausea (1.2%), and Urticaria (1.2%). In general, the nature of ADRs in paediatric patients is similar to that observed in adult subjects, but the incidence is higher in the paediatric patients.

Post-marketing data

Adverse drug reactions first identified during post-marketing experience with itraconazole (all formulations) are included in Table 3. In the table the frequencies are provided according to the following convention:

Very common	($\geq 1/10$)
Common	($\geq 1/100$ and $< 1/10$)
Uncommon	($\geq 1/1,000$ and $< 1/100$)
Rare	($\geq 1/10,000$ and $< 1/1000$)
Very rare	($< 1/10,000$), including isolated reports.

In Table 3, ADRs are presented by frequency category based on spontaneous reporting rates.

Table 3. Adverse drug reactions identified during post-marketing experience with itraconazole by frequency category estimated from spontaneous reporting rates	
Immune system disorders <i>Very rare</i>	Serum sickness, Angioneurotic edema, Anaphylactic reaction
Metabolism and nutrition disorders <i>Very rare</i>	Hypertriglyceridemia
Nervous system disorders <i>Very rare</i>	Tremor
Eye disorders <i>Very rare</i>	Visual disturbances (including diplopia and blurred vision)

Ear and labyrinth Disorders <i>Very rare</i>	Transient or permanent hearing loss
Cardiac disorders <i>Very rare</i>	Congestive heart failure
Respiratory, thoracic and mediastinal disorders <i>Very rare</i>	Dyspnea
Gastrointestinal disorders <i>Very rare</i>	Pancreatitis
Hepatobiliary disorders <i>Very rare</i>	Serious hepatotoxicity (including some cases of fatal acute liver failure)
Skin and subcutaneous tissue disorders <i>Very rare</i>	Toxic epidermal necrolysis, Stevens-Johnson syndrome, Acute generalised exanthematous pustulosis, Erythema multiforme, Exfoliative dermatitis, Leukocytoclastic vasculitis, Alopecia, Photosensitivity
Investigations <i>Very rare</i>	Blood creatine phosphokinase increased

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare professionals are asked to report any suspected adverse reactions <https://nzphvc.otago.ac.nz/reporting/>.

4.9 Overdose

Symptoms and signs

In general, adverse events reported with overdose have been consistent with those reported for itraconazole use (see section 4.8).

Treatment

In the event of accidental overdosage, supportive measures should be employed. Activated charcoal may be given if considered appropriate. Itraconazole cannot be removed by haemodialysis. No specific antidote is available.

For further advice on management of overdose please contact the National Poisons Information Centre (**0800 POISON** or **0800 764 766**).

5. Pharmacological Properties

5.1 Pharmacodynamic properties

Pharmacotherapeutic classification: Antimycotics for systemic use, triazole derivatives.
ATC code: J02AC02

Mechanism of action

Itraconazole is a synthetic triazole derivative. When administered orally, it has shown fungistatic activity against superficial dermatophytes and *Candida* species including *C. albicans* and *C. glabrata*.

Itraconazole has shown *in vitro* antifungal activity against a variety of fungi and yeasts. This spectrum includes superficial dermatophytes (*Trichophyton* spp., *Microsporum* spp., *Epidermophyton floccosum*), yeasts (*Cryptococcus neoformans*, *Pityrosporum* spp., *Candida* spp. including

C. albicans, *C. glabrata* and *C. krusei*), *Aspergillus* spp., *Histoplasma* spp., *Paracoccidioides brasiliensis*, *Sporothrix schenckii*, *Fonsecaea* spp., *Cladosporium* spp., *Blastomyces dermatitidis*.

In vitro studies have demonstrated that itraconazole inhibits cytochrome P450-dependent synthesis of ergosterol, which is a vital component of fungal cell membranes.

5.2 Pharmacokinetic properties

Peak plasma concentrations of itraconazole are reached within 2 to 5 hours following oral administration. As a consequence of non-linear pharmacokinetics, itraconazole accumulates in plasma during multiple dosing. Steady-state concentrations are generally reached within about 15 days, with C_{max} values of 0.5 µg/ml, 1.1 µg/ml and 2.0 µg/ml after oral administration of 100 mg once daily, 200 mg once daily and 200 mg twice daily respectively. The terminal half-life of itraconazole generally ranges from 16 to 28 hours after single dose and increases to 34 to 42 hours with repeated dosing. Once treatment is stopped, itraconazole plasma concentrations decrease to an almost undetectable concentration within 7 to 14 days, depending on the dose and duration of treatment. Itraconazole mean total plasma clearance following intravenous administration is 278 ml/min. Itraconazole clearance decreases at higher doses due to saturable hepatic metabolism.

Absorption

Itraconazole is rapidly absorbed after oral administration. Peak plasma concentrations of the unchanged drug are reached within 2 to 5 hours following an oral capsule dose. The observed absolute oral bioavailability of itraconazole is about 55%. Oral bioavailability is maximal when the capsules are taken immediately after a full meal.

Absorption of itraconazole capsules is reduced in subjects with reduced gastric acidity, such as subjects taking medications known as gastric acid secretion suppressors (e.g. H₂-receptor antagonists, proton pump inhibitors) or subjects with achlorhydria caused by certain diseases (see sections 4.4 and 4.5). Absorption of itraconazole under fasted conditions in these subjects is increased when the capsules are administered with an acidic beverage (such as a non-diet cola). When itraconazole capsules were administered as a single 200 mg dose under fasted conditions with non-diet cola after ranitidine pretreatment, a H₂-receptor antagonist, itraconazole absorption was comparable to that observed when itraconazole capsules were administered alone (see section 4.5).

Itraconazole exposure is lower with capsule formulation than with the oral solution when the same dose of drug is given (see section 4.4).

Distribution

Most of the itraconazole in plasma is bound to protein (99.8%), with albumin being the main binding component (99.6% for the hydroxy-metabolite). It has also a marked affinity for lipids. Only 0.2% of the itraconazole in plasma is present as free drug. Itraconazole is distributed in a large apparent volume in the body (> 700 L), suggesting extensive distribution into tissues. Concentrations in lung, kidney, liver, bone, stomach, spleen and muscle were found to be two to three times higher than corresponding concentrations in plasma, and the uptake into keratinous tissues, skin in particular, up to four times higher. Concentrations in the cerebrospinal fluid are much lower than in plasma, but efficacy has been demonstrated against infections present in the cerebrospinal fluid.

Metabolism

Itraconazole is extensively metabolized by the liver into a large number of metabolites. *In vitro* studies have shown that CYP3A4 is the major enzyme involved in the metabolism of itraconazole. The main metabolite is hydroxy-itraconazole, which has *in vitro* antifungal activity comparable to itraconazole; trough plasma concentrations of this metabolite are about twice those of itraconazole.

Excretion

Itraconazole is excreted mainly as inactive metabolites in urine (35%) and in faeces (54%) within one week of an oral solution dose. Renal excretion of itraconazole and the active metabolite

hydroxy-itraconazole account for less than 1% of an intravenous dose. Based on an oral radiolabeled dose, faecal excretion of unchanged drug ranges from 3% to 18% of the dose.

As re-distribution of itraconazole from keratinous tissues appears to be negligible, elimination of itraconazole from these tissues is related to epidermal regeneration. Contrary to plasma, the concentration in skin persists for 2 to 4 weeks after discontinuation of a 4-week treatment and in nail keratin - where itraconazole can be detected as early as 1 week after start of treatment - for at least six months after the end of a 3-month treatment period.

Special populations

Hepatic Impairment

Itraconazole is predominantly metabolized in the liver. A pharmacokinetic study was conducted in 6 healthy and 12 cirrhotic subjects who were administered a single 100 mg dose of itraconazole as a capsule. A statistically significant reduction in mean C_{max} (47%) and a twofold increase in the elimination half-life (37 ± 17 hours vs. 16 ± 5 hours) of itraconazole were noted in cirrhotic subjects compared with healthy subjects. However, overall exposure to itraconazole, based on AUC, was similar in cirrhotic patients and in healthy subjects. Data are not available in cirrhotic patients during long-term use of itraconazole (see sections 4.2 and 4.4).

Renal Impairment

Limited data are available on the use of oral itraconazole in patients with renal impairment. A pharmacokinetic study using a single 200 mg dose of itraconazole (four x 50 mg capsules) was conducted in three groups of patients with renal impairment (uremia: n=7; hemodialysis: n=7; and continuous ambulatory peritoneal dialysis: n=5). In uremic subjects with a mean creatinine clearance of 13 ml/min. x 1.73 m^2 , the exposure, based on AUC, was slightly reduced compared with normal population parameters. This study did not demonstrate any significant effect of hemodialysis or continuous ambulatory peritoneal dialysis on the pharmacokinetics of itraconazole (T_{max} , C_{max} , and AUC_{0-8h}). Plasma concentration-versus-time profiles showed wide inter-subject variation in all three groups.

After a single intravenous dose, the mean terminal half-lives of itraconazole in patients with mild (defined in this study as CrCl 50 - 79 ml/min), moderate (defined in this study as CrCl 20 - 49 ml/min), and severe renal impairment (defined in this study as CrCl < 20 ml/min) were similar to that in healthy subjects, (range of means 42-49 hours vs 48 hours in renally impaired patients and healthy subjects, respectively). Overall exposure to itraconazole, based on AUC, was decreased in patients with moderate and severe renal impairment by approximately 30% and 40%, respectively, as compared with subjects with normal renal function.

Data are not available in renally impaired patients during long-term use of itraconazole. Dialysis has no effect on the half-life or clearance of itraconazole or hydroxy-itraconazole (see also sections 4.2 and 4.4).

Paediatrics

Limited pharmacokinetic data are available on the use of itraconazole in the paediatric population. Clinical pharmacokinetic studies in children and adolescents aged between 5 months and 17 years were performed with itraconazole capsules, oral solution or intravenous formulation. Individual doses with the capsule and oral solution formulation ranged from 1.5 to 12.5 mg/kg/day, given as once daily or twice daily administration. The intravenous formulation was given either as a 2.5 mg/kg single infusion, or a 2.5 mg/kg infusion given once daily or twice daily. For the same daily dose, twice daily dosing compared to single daily dosing yielded peak and trough concentrations comparable to adult single daily dosing. No significant age dependence was observed for itraconazole AUC and total body clearance, while weak associations between age and itraconazole distribution volume, C_{max} and terminal elimination rate were noted. Itraconazole apparent clearance and distribution volume seemed to be related to weight.

5.3 Preclinical safety data

Carcinogenesis, mutagenicity, impairment of fertility

Itraconazole showed no evidence of carcinogenicity potential in mice treated orally for 23 months at dosage levels of up to 80 mg/kg/day. Male rats treated with 25 mg/kg/day had a slightly increased incidence of soft tissue sarcoma. These sarcomas may have been a consequence of hypercholesterolaemia, which is a response of rats, but not dogs or humans to chronic itraconazole administration. Female rats treated with 50 mg/kg/day had an increased incidence of squamous cell carcinoma of the lung (2/50) as compared to the untreated group. Although the occurrence of squamous cell carcinoma in the lung is extremely uncommon in untreated rats, the increase in this study was not statistically significant.

Itraconazole produced no mutagenic effects when assayed in appropriate bacterial, non-mammalian and mammalian test systems.

Itraconazole did not affect the fertility of male or female rats treated orally with dosage levels of up to 40 mg/kg/day even though parental toxicity was present at this dosage level.

Toxicology

In three toxicology studies using rats, itraconazole induced bone defects at dosage levels as low as 20 mg/kg/day. The induced defects included reduced bone plate activity, thinning of the zona compacta of the large bones and increased bone fragility. At a dosage level of 80 mg/kg/day over one year or 160 mg/kg/day for six months, itraconazole induced small tooth pulp with hypocellular appearance in some rats.

Increased relative adrenal weights and swollen adrenals (reversible) were seen in rats and dogs where plasma levels were comparable to those of human therapeutic doses. Adrenocortical function was not affected in studies in humans after the recommended daily doses; with higher doses (600 mg/day for 3 months), adrenal cortex response to ACTH stimulation was reduced in 1 of 8 patients, but returned to normal when the dosage was reduced.

Microbiology

In vitro studies have demonstrated that itraconazole impairs the synthesis of ergosterol in fungal cells. Ergosterol is a vital cell membrane component in fungi. Impairment of its synthesis ultimately results in an antifungal effect.

For itraconazole, breakpoints have only been established for *Candida* spp. from superficial mycotic infections (CLSI M27-A2, breakpoints have not been established for EUCAST methodology). The CLSI breakpoints are as follows: susceptible ≤ 0.125 ; susceptible, dose-dependent 0.25 - 0.5 and resistant ≥ 1 $\mu\text{g}/\text{ml}$. Interpretive breakpoints have not been established for the filamentous fungi.

In vitro studies demonstrate that itraconazole inhibits the growth of a broad range of fungi pathogenic for humans at concentrations usually ≤ 1 $\mu\text{g}/\text{ml}$. These include:

dermatophytes (*Trichophyton* spp., *Microsporum* spp., *Epidermophyton floccosum*); yeasts (*Candida* spp., including *C. albicans*, *C. tropicalis*, *C. parapsilosis* and *C. Krusei* *Cryptococcus neoformans*, *Malassezia* spp., *Trichosporon* spp., *Geotrichum* spp.); *Aspergillus* spp.; *Histoplasma* spp. including *H. caosulatum*; *Paracoccidioides brasiliensis*; *Sporothrix schenckii*; *Fonsecaea* spp.; *Cladosporium* spp.; *Blastomyces dermatitidis*; *Coccidioides immitis*; *Pseudallescheria boydii*; *Penicillium marneffeii*; and various other yeasts and fungi.

Candida krusei, *Candida glabrata* and *Candida tropicalis* are generally the least susceptible *Candida* species, with some isolates showing unequivocal resistance to itraconazole *in vitro*.

The principal fungus types that are not inhibited by itraconazole are *Zygomycetes* (e.g. *Rhizopus* spp., *Rhizomucor* spp., *Mucor* spp. and *Absidia* spp.), *Fusarium* spp., *Scedosporium* spp. and *Scopulariopsis* spp.

Azole resistance appears to develop slowly and is often the result of several genetic mutations. Mechanisms that have been described are overexpression of ERG11, which encodes the target enzyme 14 α -demethylase, point mutations in ERG11 that lead to decreased target affinity and/or transporter overexpression resulting in increased efflux. Cross-resistance between members of the azole class has been observed within *Candida* spp., although resistance to one member of the class does not necessarily confer resistance to other azoles. Itraconazole-resistant strains of *Aspergillus fumigatus* have been reported.

6. Pharmaceutical Particulars

6.1 *List of excipients*

Capsule contents:

- Sugar spheres
- Hypromellose
- Silica, colloidal hydrated
- Sorbitan stearate.

Capsule shell:

- Gelatin
- Titanium dioxide (E171)
- Red iron oxide (E172)
- White printing ink S-1-7078.

White printing ink S-1-7078:

- Shellac
- Ethanol
- Titanium dioxide (E171)
- Isopropyl alcohol
- Propylene glycol
- n-Butyl alcohol
- Ammonium hydroxide
- Simeticone

Itrazole is gluten and lactose free.

6.2 *Incompatibilities*

Not applicable.

6.3 *Shelf life*

3 years

6.4 *Special precautions for storage*

Store at or below 25°C.

6.5 *Nature and contents of container*

PVC/PVDC- aluminium blister pack. Pack-sizes of 4, 6, 7, 8, 14, 15, 18, 28, 30, 50, 60, 84, 100, 140, 150, 280, 300 capsules.

Not all pack sizes may be marketed.

6.6 *Special precautions for disposal*

Any unused medicine should be disposed of in accordance with local requirements.

7. Medicines Schedule

Prescription Medicine

8. Sponsor Details

Mylan New Zealand Ltd
PO Box 11-183
Ellerslie
AUCKLAND
Telephone 09-579-2792

9. Date of First Approval

28 September 2006

10. Date of Revision of the Text

18 March 2019

Section	Summary of change
4.1	Indications revised
4.2	Dosage revised
4.3	Women of childbearing potential receiving itraconazole should use 'highly' effective contraception until the menstrual period following the end of therapy.
4.4	Revised information regarding immunocompromised patients and patients with AIDs
4.5	Addition of Cariprazine, Glecaprevir/Pibrentasvir, Ombitasvir/Paritaprevir/Ritonavir (with or without dasabuvir), Grazoprevir/elbasvir and galantamine. Addition of contraceptive foot note (CYP3A4 inhibitors (including itraconazole) may increase systemic contraceptive concentrations).
4.6	Women of childbearing potential receiving itraconazole should use 'highly' effective contraception until the menstrual period following the end of therapy