

WHO-PQ RECOMMENDED PATIENT INFORMATION LEAFLET

*This patient information leaflet focuses on uses of the medicine covered by WHO's Prequalification Team - Medicines. The recommendations for use are based on WHO guidelines and on information from stringent regulatory authorities.**

The medicine may be authorised for additional or different uses by national medicines regulatory authorities.

* https://extranet.who.int/prequal/sites/default/files/document_files/75%20SRA%20clarification_Feb2017_newtempl.pdf

Information for the patient

[HA467 trade name][†]

Ritonavir

If you are a carer or parent looking after the person who takes this medicine, use this leaflet to give the medicine correctly and take note of the warnings and side effects.

Read all of this leaflet carefully before you start taking this medicine because it contains important information for you.

- Keep this leaflet. You may need to read it again.
- If you have questions about the medicine, ask your health care provider.
- This medicine is for you only. Do not pass it on to others. It may harm them, even if their illness seems to be the same as yours.
- If you are concerned about any side effects, talk to your health care provider. This includes unwanted effects not listed in this leaflet. See section 4.

What is in this leaflet

1. What [HA467 trade name] is and what it is used for
2. What you need to know before you take [HA467 trade name]
3. How to take [HA467 trade name]
4. Possible side effects
5. How to store [HA467 trade name]
6. Contents of the pack and other information

1. What [HA467 trade name] is and what it is used for

[HA467 trade name] is an antiretroviral medicine used in the treatment of HIV. It contains the active substance ritonavir.

[HA467 trade name] is taken in combination with protease inhibitors and acts as a booster (pharmacokinetic enhancer) to help improve their effect. It does this by slowing down the breakdown of the protease inhibitors which will make them stay in the body for longer.

Your health care provider will discuss with you the best combination of medicines for you.

To control your HIV infection, and to stop your illness from getting worse, you must take all your HIV medicines regularly, unless your health care provider tells you to stop taking any.

2. What you need to know before you take [HA467 trade name]

Do not take [HA467 trade name]

- if you are **allergic** to ritonavir, or any of the other ingredients of this medicine (listed in section 6).
- if you have **severe liver disease**.
- if you are currently taking any of the following medicines:

[†] Trade names are not prequalified by WHO. This is the national medicines regulatory agency's responsibility.

** Previously known as Matrix Laboratories Limited.

Medicine	Purpose of the medicine
<i>Astemizole, terfenadine</i>	to treat allergy symptoms – these medicines may be available without prescription
<i>Amiodarone, bepridil, dronedarone, encainide, flecainide, propafenone, quinidine</i>	to correct irregular heartbeats
<i>Ergotamine, dihydroergotamine</i>	to treat migraine and headaches
<i>Ergonovine, methylergonovine</i>	to stop excessive bleeding that may occur following childbirth or an abortion
<i>Clorazepate, diazepam, estazolam, flurazepam, triazolam, midazolam</i> taken by mouth	to help you sleep and/or relieve anxiety
<i>Lurasidone, clozapine, pimozide, quetiapine</i>	to treat psychiatric conditions
<i>Ranolazine</i>	to treat chronic chest pain [angina]
<i>Pethidine, piroxicam, propoxyphene</i>	to relieve pain
<i>Cisapride</i>	to treat some stomach conditions
<i>Lovastatin, simvastatin, lomitapide</i>	to lower cholesterol levels
<i>Neratinib, venetoclax</i>	to treat cancers. You should not take this medicine when starting venetoclax but your health care provider may recommend its use if you have been taking venetoclax for some time – see the section on Other medicines and [HA467 trade name] , below
<i>Alfuzosin</i>	to treat enlarged prostate
<i>Fusidic acid</i>	to treat bacterial infections
<i>Sildenafil</i>	to treat high blood pressure in the lungs if you suffer from a lung disease called pulmonary arterial hypertension that makes breathing difficult. Patients without this disease may use sildenafil for impotence (erectile dysfunction) under their doctor's supervision (see the section on Other medicines and [HA467 trade name])
<i>Avanafil or vardenafil</i>	to treat erectile dysfunction
<i>Colchicine</i>	to treat gout or familial Mediterranean fever. You must not take [HA467 trade name] with colchicine if you have kidney and/or liver problems; see the section on Other medicines and [HA467 trade name] for information on patients without kidney and liver problems.
products that contain <i>St John's wort</i> (<i>Hypericum perforatum</i>)	often used in herbal medicines that you can buy without prescription.

If you are currently taking any of these medicines, ask your health care provider about switching to a different medicine while you are taking [HA467 trade name]. Also read the list of medicines under '**Other medicines and [HA467 trade name]**' for use with certain other medicines which require special care.

Warnings and precautions

Talk to your health care provider before taking [HA467 trade name].

Important information

- It is important that you also carefully read the leaflets that are provided with the other medicines you are taking with [HA467 trade name]. There may be additional information in those leaflets about situations when ritonavir should be avoided. If you have any further questions about this medicine or the other medicines prescribed, please ask your doctor or pharmacist.

- People taking ritonavir in combination with other HIV medicines may still develop infections or other illnesses associated with HIV infection or AIDS. It is therefore important that you remain under the supervision of your health care provider while taking this medicine.
- You can still pass on HIV when taking this medicine, although the risk is lowered by effective antiretroviral therapy. Discuss with your health care provider the precautions needed to avoid infecting other people.

Tell your healthcare provider if you have/had:

- A history of **liver disease**.
- **Hepatitis B or C** and are being treated with a combination of antiretroviral agents, as you are at a greater risk of a severe and potentially life-threatening reaction because of the effect on the liver. Regular blood tests may be required to check your liver is working properly.
- **Haemophilia**, as there have been reports of increased bleeding in patients with haemophilia who are taking this type of medicine (protease inhibitors). The reason for this is not known. You may need to take additional medicines to help your blood clot (factor VIII), in order to control any bleeding.
- **Erectile dysfunction**, as the medicines used to treat erectile dysfunction can cause low blood pressure (hypotension) and prolonged erection.
- **Diabetes**, as there have been reports of worsening of or the development of diabetes (diabetes mellitus) in some patients taking protease inhibitors.
- **Kidney (renal) disease**, since your healthcare provider may need to check the dose of your other medicines (such as protease inhibitors).

Tell your healthcare provider if you experience:

- **Diarrhoea** or **vomiting** that is not improving (persistent), as this may reduce how well the medicines you are taking work.
- **Feeling sick** (nausea), **vomiting** or have **stomach pain**, because these may be signs of inflammation of the pancreas (pancreatitis). Some patients taking ritonavir can develop serious problems with their pancreas. Tell your health care provider as soon as possible if this applies to you.
- **Symptoms of infection** – inform your health care provider immediately. Some patients with advanced HIV infection (AIDS) who then start anti-HIV treatment may develop the symptoms of infections they have had in the past even if they didn't know they had had them. It is believed that this happens because the body's immune response improves and helps the body to fight these infections. In addition to these opportunistic infections, autoimmune disorders (a condition that occurs when the immune system attacks healthy body tissue) may also occur after you start taking medicines for the treatment of your HIV infection. Autoimmune disorders may occur many months after the start of treatment. If you notice any symptoms of infection or other symptoms such as muscle weakness, weakness beginning in the hands and feet and moving up towards the trunk of the body, palpitations, tremor or hyperactivity, please inform your health care provider immediately to seek necessary treatment.
- **Joint stiffness, aches and pains** (especially of the hip, knee and shoulder) and difficulty moving, as this may be a sign of a problem that can destroy bone (osteonecrosis). Some patients taking a number of antiretroviral medicines may develop this disease.
- **Muscle pain, tenderness or weakness**, particularly in combination with antiretroviral therapy including protease inhibitors and nucleoside analogues. On rare occasions these muscle disorders have been serious (See section 4, Possible side effects).
- **Dizziness, lightheadedness, fainting spells or abnormal heartbeat**. Some patients taking ritonavir may experience changes in the electrocardiogram (ECG). Tell your health care provider if you have a heart defect or conduction defect.
- If you have any other health concerns, discuss these with your health care provider as soon as you can.

Children and adolescents

[HA467 trade name] is not recommended in children below 2 years of age.

Other medicines and [HA467 trade name]

Tell your health care provider if you are taking or have recently taken or might take any other medicines, including medicines without a prescription.

There are some medicines that you cannot take at all with [HA467 trade name]. These are mentioned above under 'Do not take [HA467 trade name]'.

The following warnings apply when ritonavir is taken at higher doses. However, these warnings may also apply when it is used in lower doses (a booster) with other medicines. Tell your health care provider if you are taking any of the medicines listed below, as special care should be taken.

- **Sildenafil or tadalafil** for impotence (erectile dysfunction). The dose and/or frequency of use of these medicines may need to be reduced to avoid low blood pressure (hypotension) and prolonged erection. You must not take ritonavir with sildenafil if you suffer from pulmonary arterial hypertension (see also '**Do not take [HA467 trade name]**' above). Tell your health care provider if you are taking tadalafil for pulmonary arterial hypertension.
- **Colchicine** (for gout) in patients who do not have kidney and/or liver problems. Ritonavir may raise the blood levels of this medicine. Your health care provider may need to reduce the dose of colchicine or temporarily stop your treatment with colchicine. You must not take ritonavir with colchicine if you have kidney and/or liver problems (see also '**Do not take [HA467 trade name]**' above).
- **Digoxin** (heart medicine). Your health care provider may need to adjust the dose of digoxin and monitor you while you are taking digoxin and [HA467 trade name] in order to avoid heart problems.
- **Hormonal contraceptives** containing ethinyl oestradiol as ritonavir may reduce the effectiveness of these medicines. It is recommended that a condom or other non-hormonal method of contraception is used instead. You may also notice irregular uterine bleeding if you are taking this type of hormonal contraceptive with ritonavir.
- **Atorvastatin or rosuvastatin** (for high cholesterol) as ritonavir may raise the blood levels of these medicines. Talk to your health care provider before you take any cholesterol-reducing medicines with [HA467 trade name] (see also '**Do not take [HA467 trade name]**' above).
- **Steroids** (e.g., dexamethasone, fluticasone propionate, prednisolone, triamcinolone) as ritonavir may raise the blood levels of these medicines which may lead to Cushing's syndrome (development of a rounded face) and reduce production of the hormone cortisol. Your health care provider may wish to reduce the steroid dose or monitor your side effects more closely.
- **Trazodone** (a medicine for depression) as unwanted effects like nausea, dizziness, low blood pressure and fainting can occur when taken with ritonavir.
- **Rifampicin and saquinavir** (used for tuberculosis and HIV, respectively) as serious liver damage can occur when taken with ritonavir.
- **Bosentan, riociguat** (used for pulmonary arterial hypertension) as ritonavir may increase the blood levels of this medicine.

There are medicines that may not be mixed with [HA467 trade name] because their effects could increase or decrease when taken together. In some cases your doctor may need to perform certain tests, change the dose or monitor you regularly. This is why you should tell your health care provider if you are taking any medicines, including those you have bought yourself or herbal products, but it is especially important to mention these:

- amphetamine or amphetamine derivatives;
- antibiotics (e.g., erythromycin, clarithromycin);
- anticancer treatments (e.g., abemaciclib; afatinib, apalutamide, ceritinib, encorafenib, dasatinib, ibritinib, nilotinib, venetoclax (for patients who are already on stable venetoclax dose), vincristine, vinblastine);
- medicines used to treat low blood platelet count (e.g., fostamatinib);
- anticoagulants (e.g., rivaroxaban, vorapaxar, warfarin);
- antidepressants (e.g., amitriptyline, desipramine, fluoxetine, imipramine, nefazodone, nortriptyline, paroxetine, sertraline, trazodone);

- antifungals (e.g. ketoconazole, itraconazole);
- antihistamines (e.g. loratidine, fexofenadine);
- antiretroviral medicines including HIV-protease inhibitors (amprenavir, atazanavir, darunavir, fosamprenavir, indinavir, nelfinavir, saquinavir, tipranavir) non-nucleoside reverse transcriptase inhibitors (NNRTI) (delavirdine, efavirenz, nevirapine), and others (didanosine, maraviroc, raltegravir, zidovudine);
- anti-tuberculosis medicines (bedaquiline, delamanid);
- antiviral medicine used to treat chronic hepatitis C virus (HCV) infection in adults (e.g., glecaprevir/pibrentasvir, simeprevir);
- anxiety medicine: buspirone;
- asthma medicine: theophylline, salmeterol;
- atovaquone, a medicine used to treat a certain type of pneumonia and malaria;
- buprenorphine, a medicine used for the treatment of chronic pain;
- bupropion, a medicine used to help you stop smoking;
- epilepsy medicines (e.g., carbamazepine, divalproex, lamotrigine, phenytoin);
- heart medicines (e.g., disopyramide, mexiletine and calcium channel antagonists such as amlodipine, diltiazem, and nifedipine);
- immune system suppressant (e.g., cyclosporine, tacrolimus, everolimus);
- levothyroxine (used to treat thyroid problems);
- morphine and morphine-like medicines used to treat severe pain (e.g., methadone, fentanyl);
- sleeping pills (e.g., alprazolam, zolpidem) and also midazolam administered by injection;
- tranquillisers (e.g., haloperidol, risperidone, thioridazine).

[HA467 trade name] with food and drink

[HA467 trade name] tablets should be taken with food.

Pregnancy and breast-feeding

Pregnancy

If you become pregnant, or are planning to become pregnant, you must contact your health care provider to discuss the potential adverse effects and the benefits and risks of your antiretroviral therapy to you and your child.

Breastfeeding

If you are interested in breastfeeding your baby, you should discuss the risks and benefits with your health care provider.

Driving and using machines

Do not operate machines or drive if you feel dizzy after taking [HA467 trade name].

This medicine contains sodium

This medicine contains 87.76 mg sodium (main component of cooking/table salt) in each tablet. This is equivalent to about 4% of the recommended maximum daily dietary intake of sodium for an adult, which is 2 g.

3. How to take [HA467 trade name]

Always take [HA467 trade name] exactly as your health care provider has told you. You should check with your health care provider if you are not sure.

It is important that the tablets are swallowed whole and not chewed, broken or crushed.

The usual dose of [HA467 trade name] depends on the age and weight of the person taking it, and what other medicines are being given. Your health care provider will tell you the correct number of tablets to take.

This medicine should be taken with food. For more detailed dose recommendations, see the Patient Information Leaflets of the other HIV medicines that are being taken.

This medicine should only be taken by people who can swallow tablets whole. Other, more suitable formulations may be available for children weighing less than 25 kg or people not able to swallow tablets whole.

You should take [HA467 trade name] with other HIV medicines every day to help control your HIV, no matter how much better you feel. If a side effect is preventing you from taking the tablets as directed, tell your health care provider straight away. During episodes of diarrhoea your health care provider may decide that extra monitoring is needed.

Always keep enough of this medicine on hand so you don't run out. When you travel or when you need to stay in the hospital, make sure you have enough [HA467 trade name] to last until you can get a new supply.

If you take more [HA467 trade name] than you should

Numbness, tingling, or a “pins and needles” sensation may occur if someone takes too much ritonavir. If you realise you have taken more [HA467 trade name] than you were supposed to, contact your health care provider or the Emergency Department of your nearest hospital straight away.

If you forget to take [HA467 trade name]

If you forget to take a dose, take the missed dose as soon as possible. If it is nearly time for the next dose, just take that one. Do not take a double dose to make up for a forgotten dose.

If you stop taking [HA467 trade name]

Even if you feel better, do not stop taking this medicine without talking to your health care provider. Taking [HA467 trade name] as recommended should give you the best chance of delaying resistance to the medicines.

4. Possible side effects

Like all medicines, [HA467 trade name] can cause side effects, although not everybody gets them. Also, the side effects of [HA467 trade name] when used with other antiretroviral medicines are dependent on the other medicines. It is important that you carefully read the side effects section of the leaflets that are provided with these other medicines.

Allergic reactions

Inform your health care provider as soon as possible if you experience any symptoms that suggest an allergic reaction after taking [HA467 trade name] such as rash, hives or breathing difficulties.

Very common side effects (which affects more than 1 in 10 people)

- Upper or lower stomach ache
- Vomiting
- Diarrhoea (may be severe)
- Feeling sick (nausea)
- Headache
- Flushing, feeling hot
- Dizziness
- Pain in the throat
- Cough
- Upset stomach or indigestion
- A tingling sensation or numbness in the hands, feet or around the lips and mouth
- Feeling weak/tired
- Bad taste in the mouth
- Damage to the nerves that can cause weakness and pain
- Itching
- Rash
- Joint pain and back pain

Common side effects (which may affect up to 1 in 10 people)

- Allergic reactions including skin rashes (may be
- Loss of appetite

- red, raised, itchy), severe swelling of the skin and other tissues
- Inability to sleep (insomnia)
- Anxiety
- Increase in cholesterol
- Increase in triglycerides
- Gout
- Stomach bleeding
- Inflammation of the liver and yellowing of skin or whites of the eyes
- Increase in urination
- Reduced kidney function
- Low level of blood platelets
- Seizures (fits)
- Thirst (dehydration)
- Abnormally heavy periods)
- Wind (flatulence)
- Mouth ulcer
- Muscle aches (pain), tenderness or weakness
- Fever
- Weight loss
- Laboratory test results (such as blood chemistry and blood count)
- Confusion
- Difficulty paying attention
- Fainting
- Blurred vision
- Swelling of the hands and feet
- High blood pressure
- Low blood pressure and feeling faint when getting up
- Coldness in the hands and feet
- Acne

Uncommon side effects (which may affect up to 1 in 100 people)

- Heart attack
- Kidney failure
- Diabetes

Rare side effects (which may affect up to 1 in 1000 people)

- Severe or life threatening skin reaction including blisters (Stevens Johnson syndrome, toxic epidermal necrolysis)
- Serious allergic reaction (anaphylaxis)
- High levels of sugar in the blood

Not known (frequency cannot be estimated from the available data)

- Kidney stones

Tell your health care provider if you feel sick (nauseous), if you are vomiting, or have stomach pain, because these may be signs of an inflamed pancreas. Also tell your health care provider if you experience joint stiffness, aches and pains (especially of the hip, knee and shoulder) and difficulty moving, as this may be a sign of osteonecrosis. See also section 2, **What you need to know before you take [HA467 trade name]**.

In patients with haemophilia type A and B, there have been reports of increased bleeding while taking this treatment or another protease inhibitor. Should this happen to you, seek immediate advice from your health care provider.

Abnormal liver function tests, hepatitis (inflammation of the liver), and rarely jaundice, have been reported in patients taking [HA467 trade name]. Some people had other illnesses or were taking other medicines. People with liver disease or hepatitis may have worsening of liver disease.

There have been reports of muscle pain, tenderness or weakness, particularly when taking medicines to lower cholesterol in combination with antiretroviral therapy, including protease inhibitors and nucleoside analogues. On rare occasions these muscle disorders have been serious (rhabdomyolysis). In the event of unexplained or continual muscle pain, tenderness, weakness or cramps, stop giving the medicine, contact your health care provider as soon as possible or go to the Emergency Department of your nearest hospital.

Weight, blood lipid and blood glucose effects

During HIV therapy there may be an increase in weight and in levels of blood lipids and glucose. This is partly linked to restored health and lifestyle, and in the case of blood lipids sometimes to the HIV medicines themselves. Your health care provider will test for these changes.

Reporting of side effects

If you get a side effect, talk to your health care provider. This includes side effects not listed in this leaflet. You may also be able to report such effects directly to your national reporting system if one is available. By reporting side effects, you can help to improve the available information on this medicine.

5. How to store [HA467 trade name]

Do not store above 30°C. Store in original container.

Keep this medicine out of the sight and reach of children.

Do not use this medicine after the expiry date stated on the label. The expiry date refers to the last day of that month.

Do not throw away any medicines in wastewater or household waste. Ask your health care provider how to throw away medicines you no longer use. These measures will help protect the environment.

6. Contents of the pack and other information

What [HA467 trade name] contains

The active ingredient is ritonavir. Each film-coated tablet contains 100 mg ritonavir.

The other ingredients of [HA467 trade name] are:

- Core tablet: colloidal silicon dioxide, copovidone, sodium chloride, sodium stearyl fumarate, sorbitan monolaurate.
- Film coating: colloidal anhydrous silica, hypromellose, hydroxypropyl cellulose, iron oxide yellow, polyethylene glycol, polysorbate 80, talc and titanium dioxide.

What [HA467 trade name] looks like and contents of the pack

[HA467 trade name] tablets are yellow, capsule-shaped, film-coated tablets. The tablets have 'M163' debossed (stamped into) one side and are plain on the other side. There is no score line.

The tablets are supplied in:

- White, plastic (HDPE) bottle with an opaque white cap with an inbuilt drying agent. Pack sizes: 30 and 120 tablets.
- White, plastic (HDPE) bottle with an opaque white, plastic (polypropylene) screw closure and an aluminium induction sealing liner and a 1g silica gel desiccant canister. Pack size: 30 tablets.
- White, plastic (HDPE) bottle with an opaque white, plastic (polypropylene) screw closure and an aluminium induction sealing liner and a 2g silica gel desiccant canister. Pack size: 120 tablets.
- Aluminium foil blister card containing 10 tablets. One such blister is packed in a carton box.

Supplier and Manufacturer

Supplier

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For any information about this medicine, contact the supplier.

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Detailed information on this medicine is available on the World Health Organization (WHO) website: <https://extranet.who.int/prequal/medicines/prequalified/finished-pharmaceutical-products>