

## Package leaflet: Information for the user

### Ultomiris 1,100 mg/11 mL concentrate for solution for infusion ravulizumab

▼ This medicine is subject to additional monitoring. This will allow quick identification of new safety information. You can help by reporting any side effects you may get. See the end of section 4 for how to report side effects.

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

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor, pharmacist or nurse.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. See section 4.

#### **What is in this leaflet**

1. What Ultomiris is and what it is used for
2. What you need to know before you use Ultomiris
3. How to use Ultomiris
4. Possible side effects
5. How to store Ultomiris
6. Contents of the pack and other information

#### **1. What Ultomiris is and what it is used for**

##### **What is Ultomiris**

Ultomiris is a medicine that contains the active substance ravulizumab and it belongs to a class of medicines called monoclonal antibodies, that attach to a specific target in the body. Ravulizumab has been designed to attach to the C5 complement protein, which is a part of the body's defence system called the 'complement system'.

##### **What is Ultomiris used for**

Ultomiris is used to treat adult and children patients 10 kg and over with a disease called paroxysmal nocturnal haemoglobinuria (PNH), including patients untreated with complement inhibitor and patients who have received eculizumab for at least the past 6 months. In patients with PNH, the complement system is overactive and attacks their red blood cells, which can lead to low blood counts (anaemia), tiredness, difficulty in functioning, pain, abdominal pain, dark urine, shortness of breath, difficulty swallowing, erectile dysfunction and blood clots. By attaching to and blocking the C5 complement protein, this medicine can stop complement proteins from attacking red blood cells and so control symptoms of the disease.

Ultomiris is also used to treat patients 10 kg and over with a disease affecting the blood system and kidney called atypical haemolytic uremic syndrome (aHUS), including patients untreated with complement inhibitor and patients who have received eculizumab for at least 3 months. In patients with aHUS, their kidneys and blood vessels, including platelets, can be inflamed which can lead to low blood counts (thrombocytopenia and anaemia), reduced or lost kidney function, blood clots, tiredness and difficulty in functioning. Ultomiris can block the body's inflammatory response, and its ability to attack and destroy its own vulnerable blood vessels and so control symptoms of the disease including injury to the kidneys.

Ultomiris is also used to treat adult patients with a certain type of disease affecting the muscles called generalized Myasthenia Gravis (gMG). In patients with gMG, their muscles can be attacked and

damaged by the immune system which can lead to profound muscle weakness, impaired vision and mobility, shortness of breath, extreme fatigue, risk for aspiration, and markedly impaired activities of daily living. Ultomiris can block the body's inflammatory response, and its ability to attack and destroy its own muscles to improve muscle contraction, thereby reducing symptoms of the disease and impact of the disease on the activities of daily living. Ultomiris is specifically indicated for patients who remain symptomatic despite treatment with other therapies.

Ultomiris is also used to treat adult patients with a disease of the central nervous system that mainly affects the optic (eye) nerves and the spinal cord called Neuromyelitis Optica Spectrum Disorder (NMOSD). In patients with NMOSD, the optic nerves and spinal cord are attacked and damaged by the immune system working incorrectly, which can lead to loss of sight in one or both eyes, weakness or loss of movement in the legs or arms, painful spasms, loss of feeling, problems with bladder and bowel function and marked difficulties with activities of daily living. Ultomiris can block the body's abnormal immune response, and its ability to attack and destroy its own optic nerves and spinal cord, which reduces the risk of a relapse or attack of NMOSD.

## **2. What you need to know before you use Ultomiris**

### **Do not use Ultomiris:**

- If you are allergic to ravulizumab or any of the other ingredients of this medicine (listed in section 6).
- If you have not been vaccinated against meningococcal infection.
- If you have meningococcal infection.

### **Warnings and precautions**

Talk to your doctor before using Ultomiris.

#### **Meningococcal and other *Neisseria* infections symptoms**

Because the medicine blocks the complement system, which is part of the body's defences against infection, the use of Ultomiris increases your risk of meningococcal infection caused by *Neisseria meningitidis*. These are severe infections affecting the linings of the brain which can cause inflammation of the brain (encephalitis) and can spread throughout the blood and body (sepsis).

Consult your doctor before you start Ultomiris to be sure that you receive vaccination against *Neisseria meningitidis* at least 2 weeks before beginning therapy. If you cannot be vaccinated 2 weeks beforehand, your doctor will prescribe antibiotics to reduce the risk of infection until 2 weeks after you have been vaccinated. Ensure that your current meningococcal vaccination is up to date. You should also be aware that vaccination may not always prevent this type of infection. In accordance with national recommendations, your doctor might consider that you need supplementary measures to prevent infection.

#### Meningococcal infection symptoms

Because of the importance of rapidly identifying and treating meningococcal infection in patients who receive Ultomiris, you will be provided a 'Patient card' to carry with you at all times, listing relevant signs and symptoms of meningococcal infection/sepsis/encephalitis.

If you experience any of the following symptoms, you should immediately inform your doctor:

- headache with nausea or vomiting
- headache and fever
- headache with a stiff neck or stiff back
- fever
- fever and rash
- confusion
- muscle aches with flu-like symptoms
- eyes sensitive to light

#### Treatment for meningococcal infection while travelling

If you are travelling in a region where you are unable to contact your doctor or will be temporarily unable to receive medical treatment, your doctor may prescribe an antibiotic against *Neisseria meningitidis* to bring with you. If you experience any of the symptoms described above, you should take the course of antibiotics as prescribed. You should bear in mind that you should still see a doctor as soon as possible, even if you feel better after having taken the antibiotics.

### **Infections**

Before starting Ultomiris, inform your doctor if you have any infections.

### **Infusion reactions**

When Ultomiris is given, you may experience reactions to the infusion (drip) (infusion reaction), such as headache, lower back pain, and infusion-related pain. Some patients may experience allergic or hypersensitivity reactions (including anaphylaxis, a serious allergic reaction which causes difficulty breathing or dizziness).

### **Children and adolescents**

Patients less than 18 years of age must be vaccinated against *Haemophilus influenzae* and pneumococcal infections.

### **Elderly**

There are no special precautions needed for the treatment of patients aged from 65 years and over, although experience with Ultomiris in elderly patients with PNH, aHUS, or NMOSD in clinical studies is limited.

### **Other medicines and Ultomiris**

Tell your doctor or pharmacist if you are using or have recently used or might use any other medicines.

### **Pregnancy, breast-feeding, and fertility**

#### Women of childbearing potential

The effects of the medicine on an unborn child are not known. Therefore, effective contraception during treatment and up to 8 months after treatment should be used in women who are able to get pregnant.

#### Pregnancy/ Breast-feeding

If you are pregnant or breast-feeding, think you may be pregnant, or are planning to have a baby, ask your doctor or pharmacist for advice before using this medicine.

Ultomiris is not recommended during pregnancy and in women of childbearing potential not using contraception.

### **Driving and using machines**

This medicine has no or negligible influence on the ability to drive and use machines.

### **Ultomiris contains sodium**

Once diluted with sodium chloride 9 mg/mL (0.9%) solution for injection, this medicine contains 0.18 g sodium (main component of cooking/table salt) in 72 mL at the maximal dose. This is equivalent to 9.1% of the recommended maximum daily dietary intake of sodium for an adult. You should take this into consideration if you are on a controlled sodium diet.

## **3. How to use Ultomiris**

At least 2 weeks before you start treatment with Ultomiris, your doctor will give you a vaccine against meningococcal infections if you have not previously had one or if your vaccination is outdated. If you cannot be vaccinated at least 2 weeks before you start treatment with Ultomiris, your doctor will prescribe antibiotics to reduce the risk of infection until 2 weeks after you have been vaccinated. If your child is less than 18 years, your doctor will administer a vaccine (if not yet done) against *Haemophilus influenzae* and pneumococcal infections according to the national vaccination recommendations for each age group.

**Instructions for proper use**

Your dose of Ultomiris will be calculated by your doctor, based on your body weight, as shown in Table 1. Your first dose is called the loading dose. Two weeks after receiving your loading dose, you will be given a maintenance dose of Ultomiris, and this will then be repeated once every 8 weeks for patient above 20 kg and every 4 weeks for patient less than 20 kg.

If you were previously receiving another medicine for PNH, aHUS, gMG, or NMOSD called eculizumab, the loading dose should be given 2 weeks after the last eculizumab infusion.

**Table 1: Ultomiris weight-based dosing regimen**

Body weight range (kg)	Loading dose (mg)	Maintenance dose (mg)
10 to less than 20 <sup>a</sup>	600	600
20 to less than 30 <sup>a</sup>	900	2,100
30 to less than 40 <sup>a</sup>	1,200	2,700
40 to less than 60	2,400	3,000
60 to less than 100	2,700	3,300
above 100	3,000	3,600

<sup>a</sup> For patients with PNH and aHUS only.

Ultomiris is given by infusion (drip) into a vein. The infusion will take approximately 45 min.

**If you receive more Ultomiris than you should**

If you suspect that you have been accidentally given a higher dose of Ultomiris than prescribed, please contact your doctor for advice.

**If you forget an appointment to receive Ultomiris**

If you forget an appointment, please contact your doctor immediately for advice and see section below “If you stop using Ultomiris”.

**If you stop using Ultomiris for PNH**

Interrupting or ending treatment with Ultomiris may cause your PNH symptoms to return with greater severity. Your doctor will discuss the possible side effects with you and explain the risks. Your doctor will want to monitor you closely for at least 16 weeks.

The risks of stopping Ultomiris include an increase in the destruction of your red blood cells, which may cause:

- An increase in your lactate dehydrogenase (LDH) levels, a laboratory marker of destruction of red blood cells,
- A significant fall in your red blood cell counts (anaemia),
- Dark urine,
- Fatigue,
- Abdominal pain,
- Shortness of breath,
- Difficulty swallowing,
- Erectile dysfunction (impotence),
- Confusion or change in how alert you are,
- Chest pain, or angina,
- An increase in your serum creatinine level (problems with your kidneys), or
- Thrombosis (blood clotting).

If you have any of these symptoms, contact your doctor.

#### **If you stop using Ultomiris for aHUS**

Interrupting or ending treatment with Ultomiris may cause your aHUS symptoms to come back. Your doctor will discuss the possible side effects with you and explain the risks. Your doctor will want to monitor you closely.

The risks of stopping Ultomiris include an increase in small blood vessel damage, which may cause:

- A significant fall in your platelets (thrombocytopenia),
- A significant rise in destruction of your red blood cells,
- An increase in your lactate dehydrogenase (LDH) levels, a laboratory marker of destruction of red blood cells,
- Decreased urination (problems with your kidneys),
- An increase in your serum creatinine level (problems with your kidneys),
- Confusion or change in how alert you are,
- Change in your vision
- Chest pain, or angina,
- Shortness of breath,
- Abdominal pain, diarrhoea, or
- Thrombosis (blood clotting).

If you have any of these symptoms, contact your doctor.

#### **If you stop using Ultomiris for gMG**

Interrupting or stopping treatment with Ultomiris may cause your gMG symptoms to occur. Please speak to your doctor before stopping Ultomiris. Your doctor will discuss the possible side effects and risks with you. Your doctor will also want to monitor you closely.

#### **If you stop using Ultomiris for NMOSD**

Interrupting or stopping treatment with Ultomiris may cause NMOSD relapse to occur. Please speak to your doctor before stopping Ultomiris. Your doctor will discuss the possible side effects and risks with you. Your doctor will also want to monitor you closely.

If you have any further questions on the use of this medicine, ask your doctor.

## **4. Possible side effects**

Like all medicines, this medicine can cause side effects, although not everybody gets them.

Your doctor will discuss the possible side effects with you and explain the risks and benefits of Ultomiris with you prior to treatment.

The most serious side effect is meningococcal infection including meningococcal sepsis and encephalitis meningococcal.

If you experience any of the meningococcal infection symptoms (see section 2 Meningococcal infection symptoms), you should immediately inform your doctor.

If you are not sure what the side effects below are, ask your doctor to explain them to you.

**Very common** (may affect more than 1 in 10 people):

- Headache
- Diarrhoea, nausea, abdominal pain
- Fever (pyrexia), feeling tired (fatigue)
- Upper respiratory tract infection
- Common cold (nasopharyngitis)
- Back pain, joint pain (arthralgia)

**Common** (may affect up to 1 in 10 people):

- Dizziness
- Vomiting, stomach discomfort after meals (dyspepsia)
- Hives, rash, itchy skin (pruritus)
- Muscle pain (myalgia) and muscle spasms
- Influenza like illness, chills, weakness (asthenia)
- Infusion related reaction
- Allergic reaction (hypersensitivity)
- Urinary tract infection

**Uncommon** (may affect up to 1 in 100 people):

- Meningococcal infection
- Serious allergic reaction which causes difficulty in breathing or dizziness (anaphylactic reaction)
- Gonococcal infection

### Reporting of side effects

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the national reporting system listed below.

Yellow Card Scheme

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

Adverse events should also be reported to Alexion Pharma UK Ltd on [uk.adverseevents@alexion.com](mailto:uk.adverseevents@alexion.com), Freephone (UK): 0800321 3902.

By reporting side effects, you can help provide more information on the safety of this medicine.

## 5. How to store Ultomiris

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

Do not use this medicine after the expiry date which is stated on the carton after “EXP”. The expiry date refers to the last day of that month.

Store in a refrigerator (2 °C–8 °C).

Do not freeze.

Store in the original package in order to protect from light.

After dilution with sodium chloride 9 mg/mL (0.9 %) solution for injection, the medicine should be used immediately, or within 24 hours if refrigerated or within 4 hours at room temperature.

Do not throw away any medicines via wastewater. Ask your pharmacist 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 Ultomiris contains**

- The active substance is ravulizumab. Each vial of solution contains 1,100 mg of ravulizumab.
- The other ingredients are: sodium phosphate dibasic heptahydrate, sodium phosphate monobasic monohydrate, polysorbate 80, arginine, sucrose, water for injections

This medicine contains sodium (see section 2 “Ultomiris contains sodium”).

### **What Ultomiris looks like and contents of the pack**

Ultomiris is presented as a concentrate for solution for infusion (11 mL in a vial – pack size of 1).  
Ultomiris is a translucent, clear to yellowish colour, practically free from particles solution.

### **Marketing Authorisation Holder**

Alexion Europe SAS  
103-105, rue Anatole France  
92300 Levallois-Perret  
France

### **Manufacturer**

Alexion Pharma International Operations Limited  
Alexion Dublin Manufacturing Facility  
College Business and Technology Park  
Blanchardstown Road North  
Dublin 15, D15 R925  
Ireland

Almac Pharma Services (Ireland) Limited  
Finnabair Industrial Estate  
Dundalk  
Co. Louth A91 P9KD  
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Almac Pharma Services Limited  
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Craigavon, Armagh BT63 5QD  
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The following information is intended for healthcare professionals only:

### **Instructions for Use for Healthcare Professionals Handling Ultomiris**

#### **1- How is Ultomiris supplied?**

Each vial of Ultomiris contains 1,100 mg of active substance in 11 mL of product solution.

In order to improve the traceability of biological medicinal products, the name and the batch number of the administered product should be clearly recorded.

#### **2- Before administration**

Dilution should be performed in accordance with good practices rules, particularly for the respect of asepsis.

Ultomiris should be prepared for administration by a qualified healthcare professional using aseptic technique.

- Visually inspect Ultomiris solution for particulate matter and discoloration.
- Withdraw the required amount of Ultomiris from the vial(s) using a sterile syringe.
- Transfer the recommended dose to an infusion bag.
- Dilute Ultomiris to a final concentration of 50 mg/mL (initial concentration divided by 2) by adding the appropriate amount of sodium chloride 9 mg/mL (0.9%) solution for injection to the infusion as per the instructions provided in table below.

**Table 1: Loading dose administration reference table**

<b>Body weight range (kg)<sup>a</sup></b>	<b>Loading dose (mg)</b>	<b>Ultomiris volume (mL)</b>	<b>Volume of NaCl diluent<sup>b</sup> (mL)</b>	<b>Total volume (mL)</b>	<b>Minimum infusion duration minutes (hours)</b>
≥ 10 to < 20 <sup>c</sup>	600	6	6	12	45 (0.8)
≥ 20 to < 30 <sup>c</sup>	900	9	9	18	35 (0.6)
≥ 30 to < 40 <sup>c</sup>	1,200	12	12	24	31 (0.5)
≥ 40 to < 60	2,400	24	24	48	45 (0.8)
≥ 60 to < 100	2,700	27	27	54	35 (0.6)
≥ 100	3,000	30	30	60	25 (0.4)

<sup>a</sup> Body weight at time of treatment

<sup>b</sup> Ultomiris should only be diluted using sodium chloride 9 mg/mL (0.9 %) solution for injection

<sup>c</sup> For PNH and aHUS indications only.

**Table 2: Maintenance dose administration reference table**

<b>Body weight range (kg)<sup>a</sup></b>	<b>Maintenance dose (mg)</b>	<b>Ultomiris volume (mL)</b>	<b>Volume of NaCl diluent<sup>b</sup> (mL)</b>	<b>Total volume (mL)</b>	<b>Minimum infusion duration minutes (hours)</b>
≥ 10 to < 20 <sup>c</sup>	600	6	6	12	45 (0.8)
≥ 20 to < 30 <sup>c</sup>	2,100	21	21	42	75 (1.3)
≥ 30 to < 40 <sup>c</sup>	2,700	27	27	54	65 (1.1)
≥ 40 to < 60	3,000	30	30	60	55 (0.9)
≥ 60 to < 100	3,300	33	33	66	40 (0.7)
≥ 100	3,600	36	36	72	30 (0.5)

<sup>a</sup> Body weight at time of treatment

<sup>b</sup> Ultomiris should be only diluted using sodium chloride 9 mg/mL (0.9 %) solution for injection

<sup>c</sup> For PNH and aHUS indications only.

**Table 3: Supplemental dose administration reference table**

Body weight range (kg) <sup>a</sup>	Supplemental dose (mg)	ULTOMIRIS volume (mL)	Volume of NaCl diluent <sup>b</sup> (mL)	Total volume (mL)	Minimum infusion duration minutes (hr)
≥ 40 to < 60	600	6	6	12	15 (0.25)
	1,200	12	12	24	25 (0.42)
	1,500	15	15	30	30 (0.5)
≥ 60 to < 100	600	6	6	12	12 (0.20)
	1,500	15	15	30	22 (0.36)
	1,800	18	18	36	25 (0.42)
≥ 100	600	6	6	12	10 (0.17)
	1,500	15	15	30	15 (0.25)
	1,800	18	18	36	17 (0.28)

<sup>a</sup> Body weight at time of treatment

<sup>b</sup> Ultomiris should be only diluted using sodium chloride 9 mg/mL (0.9 %) solution for injection

- Gently agitate the infusion bag containing the diluted Ultomiris solution to ensure thorough mixing of the medicinal product and diluent. Ultomiris should not be shaken.
- The diluted solution should be allowed to warm to room temperature (18 °C–25 °C) prior to administration by exposure to ambient air during approximately 30 min.
- The diluted solution must not be heated in a microwave or with any heat source other than the prevailing room temperature.
- Discard any unused portion left in a vial as the medicinal product contains no preservatives.
- The prepared solution should be administered immediately following preparation. Infusion must be administered through a 0.2 µm filter.
- If the medicinal product is not used immediately after dilution, storage times must not exceed 24 hours at 2 °C–8 °C or 4 hours at room temperature taking into account the expected infusion time.

### 3- Administration

- Do not administer Ultomiris as an intravenous push or bolus injection.
- Ultomiris should only be administered via intravenous infusion.
- The diluted solution of Ultomiris should be administered by intravenous infusion over approximately 45 min using a syringe-type pump or an infusion pump. It is not necessary to protect the diluted solution of Ultomiris from light during administration to the patient.

The patient should be monitored for one hour following infusion. If an adverse event occurs during the administration of Ultomiris, the infusion may be slowed or stopped at the discretion of the physician.

### 4- Special handling and storage

Store in a refrigerator (2 °C–8 °C). Do not freeze. Store in the original package in order to protect from light.

Do not use this medicine after the expiry date which is stated on the carton after ‘EXP’. The expiry date refers to the last day of that month.

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