

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

PROFESSIONAL INFORMATION FOR AUBAGIO

SCHEDULING STATUS: S4

PROPRIETARY NAME AND DOSAGE FORM:

AUBAGIO film-coated tablets

WARNING: HEPATOTOXICITY and RISK OF TERATOGENICITY

Hepatotoxicity:

Severe liver injury including fatal liver failure has been reported in patients treated with leflunomide, which is indicated for rheumatoid arthritis. A similar risk would be expected for AUBAGIO because recommended doses of AUBAGIO and leflunomide result in a similar range of plasma concentrations of AUBAGIO.

Obtain transaminase and bilirubin levels within 6 months before initiation of AUBAGIO and monitor alanine aminotransferase (ALT) levels at least monthly for six months. If AUBAGIO-induced liver injury is suspected, discontinue AUBAGIO and start accelerated elimination procedure.

Risk of teratogenicity:

Based on animal data, AUBAGIO may cause major birth defects if used during pregnancy. AUBAGIO is contraindicated in pregnant women or women of childbearing potential who are not using reliable contraception. Pregnancy must be avoided during AUBAGIO treatment.

COMPOSITION:

Each film-coated tablet contains 14 mg of teriflunomide.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Excipients:

Tablet core: Hydroxypropylcellulose, lactose monohydrate, magnesium stearate, maize starch, microcrystalline cellulose, sodium starch glycolate.

Tablet coating: Hypromellose, indigo carmine aluminium lake, macrogol, talc, titanium dioxide.

Contains sugar (lactose monohydrate).

CATEGORY AND CLASS:

A 32.16 Others

PHARMACOLOGICAL ACTION:

Pharmacodynamic properties:

Teriflunomide is an immunomodulatory medicine with anti-inflammatory properties that reversibly inhibits the mitochondrial enzyme dihydroorotate dehydrogenase (DHO-DH), required for the de novo pyrimidine synthesis.

As a consequence, teriflunomide blocks the activation and proliferation of stimulated lymphocytes which need de novo synthesis of pyrimidine to expand.

Slowly dividing or resting cells which rely on the salvage pathway for pyrimidine synthesis are unaffected by teriflunomide.

The exact mechanism by which teriflunomide exerts its therapeutic effect in multiple sclerosis (MS) is not fully understood but may include a reduced number of activated lymphocytes in the central nervous system (CNS).

It is likely that teriflunomide diminishes in periphery the numbers of activated lymphocytes available to migrate into the CNS.

Potential to prolong QT interval:

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

In a placebo-controlled thorough QT study performed in healthy volunteers, teriflunomide at mean steady-state concentrations did not show any potential for prolonging the QTcF interval compared with placebo: the largest time matched mean difference between teriflunomide and placebo was 3,45 ms with the upper bound of the 90 % CI being 6,45 ms. In addition, no QTcF values were ≥ 480 ms and no changes from baseline were > 60 ms.

Effect on renal tubular function:

In the placebo-controlled studies, mean decreases in serum uric acid at a range of 20 to 30 % were observed in patients treated with teriflunomide compared to placebo.

Mean decrease in serum phosphorus was around 10 % in the teriflunomide group compared to placebo.

These effects are considered to be related to increase in renal tubular excretion and not related to changes in glomerular functions.

Pharmacokinetic properties:

Absorption:

Median time to reach maximum plasma concentrations occurs between 1 to 4 hours post-dose following repeated oral administration of teriflunomide, with high bioavailability (~ 100 %).

Food does not have a clinically relevant effect on teriflunomide pharmacokinetics.

From the mean predicted pharmacokinetic parameters calculated from the population pharmacokinetic (PopPK) analysis using data from healthy volunteers and Multiple Sclerosis patients, there is a very slow approach to steady-state concentration (i.e. ~ 100 days (3,5 months) to attain 95 % of steady-state concentrations) and the estimated AUC accumulation ratio is ~ 34-fold.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Distribution:

Teriflunomide is extensively bound to plasma protein (> 99 %), probably albumin and is mainly distributed in plasma.

The volume of distribution is low (11 litres) after a single intravenous (IV) administration.

Biotransformation:

Teriflunomide is moderately metabolised and is the only component detected in plasma.

The primary biotransformation pathway for teriflunomide is hydrolysis with oxidation being a minor pathway.

Secondary pathways involve oxidation, *N*-acetylation and sulphate conjugation.

Elimination:

Teriflunomide is excreted in the gastrointestinal tract mainly through the bile as unchanged medicinal product and most likely by direct secretion.

Teriflunomide is a substrate of the efflux transporter BCRP, which could be involved in direct secretion.

Over 21 days, 60,1 % of the administered dose is excreted via faeces (37,5 %) and urine (22,6 %).

After accelerated elimination procedure with colestyramine, an additional 23,1 % was recovered (mostly in faeces).

Based on individual prediction of pharmacokinetic parameters using the PopPK model of teriflunomide in healthy volunteers and MS patients, median $t_{1/2z}$ was ~ 19 days after repeated doses of 14 mg.

After a single IV administration, the total body clearance of teriflunomide is 30,5 ml/h.

Linearity/non-linearity:

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Systemic exposure increases in a dose proportional manner after oral administration of teriflunomide from 7 to 14 mg.

Special populations:

Gender, elderly and paediatric patients:

Several sources of intrinsic variability were identified in healthy volunteers and MS patients based on the PopPK analysis: age, body weight, gender, race, and albumin and bilirubin levels.

Nevertheless, their impact remains limited ($\leq 31\%$).

Hepatic impairment:

Mild and moderate hepatic impairment had no impact on the pharmacokinetics of teriflunomide.

Therefore, no dose adjustment is anticipated in mild and moderate hepatic-impaired patients.

However, teriflunomide is contraindicated in patients with severe hepatic impairment (see CONTRAINDICATIONS).

Renal impairment:

Severe renal impairment had no impact on the pharmacokinetics of teriflunomide.

Therefore, no dose adjustment is anticipated in mild, moderate and severe renal-impaired patients.

INDICATIONS:

AUBAGIO is indicated for the treatment of adult patients with relapsing forms of multiple sclerosis (MS) to reduce the frequency of relapses and to delay the accumulation of physical disability.

CONTRAINDICATIONS:

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

- Hypersensitivity to teriflunomide, leflunomide or to any of the excipients (see COMPOSITION).
- Patients with severe hepatic impairment.
- As leflunomide is the parent compound of teriflunomide, co-administration of AUBAGIO with leflunomide is not recommended.
- AUBAGIO is contraindicated in women during pregnancy or women of childbearing potential who are not on reliable contraception during treatment with AUBAGIO and thereafter, as long as its plasma levels are above 0,02 µg/ml (see PREGNANCY AND LACTATION).

WARNINGS AND SPECIAL PRECAUTIONS:

Hepatic effects:

Elevations of liver enzymes have been observed in patients receiving AUBAGIO.

In placebo-controlled trials, alanine aminotransferase (ALT) greater than three times the upper limit of normal (ULN) occurred in 62/1 002 (6,2 %) of patients on AUBAGIO and 38/997 (3,8 %) of patients on placebo, during the treatment period. These elevations occurred mostly within the first 6 months of treatment. Half of the cases returned to normal without medicine discontinuation. In clinical trials, teriflunomide was discontinued if the ALT elevation exceeded 3 times the ULN twice. Serum transaminase levels returned to normal within approximately 2 months after discontinuation of AUBAGIO.

One additional clinically significant case of “toxic hepatitis” was reported in a 35-year-old female patient. Although the aetiology of the hepatic event remained unclear, a causal role of AUBAGIO in this case is possible.

Obtain serum aminotransaminase and bilirubin levels within 6 months before initiation of AUBAGIO therapy. Monitor ALT levels at least monthly for six months after starting AUBAGIO. Consider monitoring when AUBAGIO is given with other potentially hepatotoxic medicines. Consider discontinuing AUBAGIO if serum transaminase increase (greater than three times the

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

ULN) is confirmed. Monitor serum transaminase and bilirubin on AUBAGIO therapy, particularly in patients who develop symptoms suggestive of hepatic dysfunction, such as unexplained nausea, vomiting, abdominal pain, fatigue, anorexia, or jaundice and/or dark urine. If liver injury is suspected to be AUBAGIO-induced, discontinue AUBAGIO and start an accelerated elimination procedure (see KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT) and monitor liver tests weekly until normalised.

If teriflunomide-induced liver injury is unlikely because some other probable cause has been found, resumption of AUBAGIO therapy may be considered.

Usage in women of childbearing potential / during pregnancy:

Animal data suggest risks to the fetus. Women of childbearing potential must use effective contraception to avoid pregnancy while taking AUBAGIO.

If AUBAGIO is stopped, women should continue contraception until teriflunomide plasma concentrations have been checked to be equal to 0,02 µg/ml or lower.

Women who are pregnant or planning to become pregnant, should be advised that an accelerated elimination procedure can be used to quickly decrease the plasma concentration of teriflunomide.

Without the accelerated elimination procedure, on average it takes 8 months to reach plasma concentrations less than or equal to 0,02 µg/ml. However due to individual variation in clearance it may take up to 2 years.

The accelerated elimination could be used at any time after discontinuation of AUBAGIO (see KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT).

Blood pressure effects:

In placebo-controlled studies, mean change from baseline to endpoint value in systolic blood pressure was 2,7 mmHg for AUBAGIO and 0,6 mmHg for the placebo. The change from baseline

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

in diastolic blood pressure was 1,9 mmHg for AUBAGIO and -0,3 mmHg for the placebo.

Hypertension was reported as an adverse reaction in 4,3 % of patients treated with AUBAGIO, compared with 1,8 % on the placebo. Check blood pressure before the start of AUBAGIO treatment and periodically thereafter.

Blood pressure elevation should be appropriately managed during treatment with AUBAGIO.

Infections:

In placebo-controlled studies of AUBAGIO, no overall increase in the risk of serious infections was observed with teriflunomide (2,7 %) compared to placebo (2,2 %). However, one fatal case of *Klebsiella pneumoniae* sepsis occurred in a patient taking AUBAGIO for 1,7 years. In clinical studies with AUBAGIO, cytomegalovirus hepatitis reactivation and tuberculosis have been observed.

However, based on the immunomodulatory effect of AUBAGIO, if a patient develops a serious infection, consider suspending treatment with AUBAGIO and reassess the benefits and risks prior to re-initiation of therapy. Due to the prolonged half-life, accelerated elimination with colestyramine or charcoal may be considered.

Instruct patients receiving AUBAGIO to report symptoms of infections to a medical practitioner.

Patients with active acute or chronic infections should not start treatment with AUBAGIO until the infection(s) is resolved. AUBAGIO is not recommended with severe immunodeficiency, bone marrow disease, or severe uncontrolled infections.

The safety of AUBAGIO in individuals with latent tuberculosis infection is unknown, as tuberculosis screening was not systematically performed in clinical studies. Patients testing positive in tuberculosis screening, should be treated according to standard medical practice prior to therapy with AUBAGIO.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Respiratory effects:

Interstitial lung disease, including acute interstitial pneumonitis, has been reported with AUBAGIO in the post-marketing setting.

Interstitial lung disease and worsening of pre-existing interstitial lung disease have been reported during treatment with leflunomide. Interstitial lung disease may occur acutely at any time during therapy, with a variable clinical presentation. Interstitial lung disease may be fatal. New onset or worsening pulmonary symptoms, such as cough and dyspnoea, with or without associated fever, may be a reason for discontinuation of the therapy and for further investigation as appropriate. If discontinuation of AUBAGIO therapy is necessary, consider initiation of an accelerated elimination procedure (see KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT).

Haematological effects:

A mean decrease in white blood cell (WBC) count of approximately 15 % (mainly neutrophils and lymphocytes) and in platelet counts of approximately 10 % was observed in placebo-controlled trials with AUBAGIO as compared to baseline. The decrease in mean WBC count occurred during the first 6 weeks and WBC count remained low during treatment. In placebo-controlled studies, neutrophil count $< 1,5 \times 10^9/L$ was observed in 16 % of patients on AUBAGIO, compared with 7 % of patients on placebo; lymphocyte count $< 0,8 \times 10^9/L$ was observed in 12 % of patients on AUBAGIO compared with 6 % of patients on placebo.

At baseline, a recent blood cell count should be available before the initiation of treatment with AUBAGIO and assessed during AUBAGIO therapy. Further monitoring should be based on signs and symptoms suggestive of infection.

Vaccination:

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Two clinical studies have shown that vaccinations with inactivated neoantigen (first vaccination) or recall antigen (re-exposure) were safe and effective during AUBAGIO treatment. The use of live attenuated vaccines may carry a risk of infections and should therefore be avoided.

Skin reactions:

No cases of severe skins reactions have been reported with teriflunomide in clinical trials. Cases have been reported rarely in the post-marketing setting (including Stevens-Johnson syndrome and toxic epidermal necrolysis).

In patients treated with leflunomide, the parent compound, very rare cases of drug reaction with eosinophilia and systemic symptoms (DRESS) have also been reported.

In case of ulcerative stomatitis, AUBAGIO administration should be discontinued. If skin and/or mucosal reactions are observed which raise the suspicion of severe generalised major skin reactions (Stevens-Johnson syndrome, or toxic epidermal necrolysis – Lyell’s syndrome), AUBAGIO and any other possibly associated treatment must be discontinued, and an accelerated elimination procedure initiated immediately. In such cases patients should not be re-exposed to teriflunomide.

Peripheral neuropathy:

Cases of peripheral neuropathy have been reported in patients receiving AUBAGIO. Most patients improved after discontinuation of AUBAGIO. However, there was a wide variability in final outcome, i.e. in some patients the neuropathy resolved, and some patients had persistent symptoms. If a patient taking AUBAGIO develops a confirmed peripheral neuropathy, consider discontinuing AUBAGIO therapy and performing the accelerated elimination procedure.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Immunosuppressive and immunomodulating therapies:

As leflunomide is the parent compound of teriflunomide, co-administration of AUBAGIO with leflunomide is contraindicated.

Co-administration with antineoplastic or immunosuppressive therapies used for treatment of MS has not been evaluated.

Safety studies, in which AUBAGIO was concomitantly administered with other immune modulating therapies for up to one year (interferon beta, glatiramer acetate) did not reveal any specific safety concerns. The long-term safety of these combinations in the treatment of multiple sclerosis has not been established.

Elimination procedure:

Teriflunomide is slowly eliminated from the plasma.

When desired, an accelerated elimination procedure can be used (see KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT).

Effects on ability to drive and use machinery:

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

Lactose:

Since AUBAGIO tablets contain lactose, patients with rare hereditary problems of galactose intolerance e.g. galactosaemia, the Lapp lactase deficiency or glucose-galactose malabsorption, should not take AUBAGIO.

INTERACTIONS:

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

The primary biotransformation pathway for teriflunomide is hydrolysis, with oxidation being a minor pathway, with limited involvement of cytochrome P450 (CYP) or flavin monoamine oxidase enzymes.

Potential for other medicines to affect AUBAGIO:

Based on *in vitro* studies, teriflunomide is a substrate of the efflux transporter BCRP. BCRP inhibitors (such as ciclosporin, eltrombopag, gefitinib) may increase exposure of teriflunomide.

Potent cytochrome P450 (CYP) and transporter inducers:

Co-administration of repeated doses (600 mg once daily for 22 days) of rifampicin (a CYP2B6, 2C8, 2C9, 2C19, 3A inducer), as well as an inducer of the efflux transporters P-glycoprotein [P-gp] and breast cancer resistant protein [BCRP] and AUBAGIO (70 mg single dose) resulted in an approximately 40 % decrease in teriflunomide exposure.

Rifampicin and other known potent CYP and transporter inducers such as carbamazepine, phenobarbitone, phenytoin and St John's Wort should be used with caution during the treatment with AUBAGIO.

Potential for AUBAGIO to affect other medicines:

Effect of AUBAGIO on CYP2C8 substrates:

There was an increase in mean repaglinide C_{max} and AUC (1,7- and 2,4-fold, respectively) following repeated doses of AUBAGIO, suggesting that teriflunomide is an inhibitor of CYP2C8 *in vivo*.

The magnitude of interaction could be higher at the recommended repaglinide dose. Therefore, monitoring patients with concomitant use of medicines metabolised by CYP2C8, such as repaglinide, paclitaxel, pioglitazone or rosiglitazone is recommended as they may have higher exposure.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Effect of AUBAGIO on oral contraceptives:

There was an increase in mean ethinylestradiol C_{max} and AUC₀₋₂₄ (1,58- and 1,54-fold, respectively) and levonorgestrel C_{max} and AUC₀₋₂₄ (1,33- and 1,41-fold, respectively) following repeated doses of AUBAGIO.

While this interaction of AUBAGIO is not expected to adversely impact the efficacy of oral contraceptives, consideration should be given to the type or dose of oral contraceptives used in combination with AUBAGIO.

Effect of AUBAGIO on CYP1A2 substrates:

Repeated doses of AUBAGIO decreased mean C_{max} and AUC of caffeine (CYP1A2 substrate) by 18 % and 55 %, respectively, suggesting that AUBAGIO may be a weak inducer of CYP1A2 *in vivo*.

Therefore, medicines metabolised by CYP1A2 (such as duloxetine, theophylline and tizanidine) should be used with caution during treatment with AUBAGIO, as it could lead to the reduction of efficacy of these medicines.

Effect of AUBAGIO on warfarin:

A 25 % decrease in peak international normalised ratio (INR) was observed when AUBAGIO was co-administered with warfarin as compared with warfarin alone.

Therefore, when warfarin is co-administered with AUBAGIO, close INR follow-up and monitoring is recommended.

Effect of AUBAGIO on organic anion transporter 3 (OAT3) substrates:

There was an increase in mean cefaclor C_{max} and AUC (1,43- and 1,54-fold, respectively), following repeated doses of teriflunomide, suggesting that teriflunomide is an inhibitor of OAT3 *in*

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

vivo. Therefore, when AUBAGIO is co-administered with substrates of OAT3, such as cefaclor, penicillin G, ciprofloxacin, indometacin, ketoprofen, furosemide, cimetidine, methotrexate or zidovudine, caution should be observed.

Effect of AUBAGIO on BCRP and/or organic anion transporting polypeptide B1 and B3

(OATP1B1/B3) substrates:

There was an increase in mean rosuvastatin C_{max} and AUC (2,65- and 2,51-fold, respectively) following repeated doses of AUBAGIO. However, there was no apparent impact of this increase in plasma rosuvastatin exposure on the HMG-CoA reductase activity. If used together, the dose of rosuvastatin should not exceed 10 mg once daily. For other substrates of BCRP (e.g. methotrexate, topotecan, sulfasalazine, daunorubicin, doxorubicin) and the OATP family especially HMG-Co reductase inhibitors (e.g. simvastatin, atorvastatin, pravastatin, methotrexate, nateglinide, repaglinide, rifampin) concomitant administration of AUBAGIO should also be undertaken with caution. Monitor patients closely for signs and symptoms of excessive exposure to these medicines and consider reduction of the dose of these medicines.

Effect of AUBAGIO on CYP2B6, CYP3A, CYP2C9, CYP2C19 and CYP2D6 substrates:

AUBAGIO did not affect the pharmacokinetics of bupropion (a CYP2B6 substrate), midazolam (a CYP3A substrate), S-warfarin (a CYP2C9 substrate), omeprazole (a CYP2C19 substrate) and metoprolol (a CYP2D6 substrate).

PREGNANCY AND LACTATION:

Pregnancy:

There are no adequate and well-controlled studies of AUBAGIO in pregnant women. However, based on animal studies, AUBAGIO may increase the risk of fetal death or teratogenic effects when administered to pregnant women.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

AUBAGIO is contraindicated during pregnancy and in women of childbearing potential not using reliable contraception (see CONTRAINDICATIONS).

Human teriflunomide plasma concentration less than 0,02 µg/ml is expected to have minimal risk based on available animal data. If AUBAGIO is to be discontinued, an accelerated elimination procedure is recommended (see WARNINGS AND SPECIAL PRECAUTIONS and KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT).

Use in males:

The risk of male-mediated embryo-fetal toxicity through AUBAGIO treatment is considered low, however patients should be advised to use barrier contraception.

Lactation:

Mothers must not breastfeed their infants while taking AUBAGIO.

Animal studies have shown excretion of AUBAGIO in breast milk.

DOSAGE AND DIRECTIONS FOR USE:

The treatment should be initiated and supervised by a doctor experienced in multiple sclerosis.

The recommended dose of AUBAGIO is 14 mg orally once daily.

AUBAGIO can be taken with or without food.

Special populations:

Elderly:

AUBAGIO has not been specifically studied in the elderly.

Renal impairment:

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

No dosage adjustment is necessary for patients with mild, moderate or severe renal impairment.

Hepatic impairment:

No dosage adjustment is necessary for patients with mild and moderate hepatic impairment.

AUBAGIO is contraindicated in patients with severe hepatic impairment.

Paediatric population:

The safety and efficacy of AUBAGIO in children aged 0 to 18 years have not yet been established. Use in this age group is not recommended.

SIDE EFFECTS:

A total of 525 patients were exposed to teriflunomide 14 mg once daily for a median duration of about 2 years in two placebo-controlled studies (415 patients) and one active comparator study (110 patients) in patients with relapsing forms of MS (RMS).

Within this safety population, the most commonly reported adverse reactions in the teriflunomide 14 mg group versus placebo were: influenza (11,8 % versus 9,3 %), upper respiratory tract infection (10,8 % versus 9,0 %), urinary tract infection (10,6 % versus 9,5 %), paraesthesia (10,6 % versus 7,8 %), diarrhoea (17,3 % versus 8,3 %), ALT increased (14,0 % versus 7,1 %), nausea (14,2 % versus 6,9 %), and alopecia (14,7 % versus 4,3 %).

Adverse reactions reported with AUBAGIO 14 mg in placebo-controlled studies are shown below.

Frequencies were defined using the following convention: very common ($\geq 1/10$); common ($\geq 1/100$ to $< 1/10$); uncommon ($\geq 1/1\ 000$ to $< 1/100$); rare ($\geq 1/10\ 000$ to $< 1/1\ 000$); very rare ($< 1/10\ 000$); including isolated reports.

Within each frequency grouping, adverse reactions are ranked in order of decreasing seriousness.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

System organ class	Very common ($\geq 1/10$)	Common ($\geq 1/100$ to $< 1/10$)
Infections and infestations	Influenza, upper respiratory tract infection, urinary tract infection	Bronchitis, sinusitis, pharyngitis, cystitis, viral gastroenteritis, oral herpes, tooth infection, laryngitis, tinea pedis
Blood and lymphatic system disorders		Neutropenia
Immune system disorders		Seasonal allergy
Psychiatric disorders		Anxiety
Nervous system disorders	Paraesthesia, headache	Sciatica, carpal tunnel syndrome, hyperaesthesia, neuralgia
Cardiac disorders		Palpitations
Vascular disorders		Hypertension
Gastrointestinal disorders	Diarrhoea, nausea	Vomiting, upper abdominal pain, toothache
Skin and subcutaneous tissue disorders	Alopecia*	Rash, acne
Musculoskeletal and connective tissue disorders		Musculoskeletal pain, arthralgia, myalgia
Renal and urinary disorders		Pollakiuria
Reproductive system and breast disorders		Menorrhagia

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

General disorders and administration site conditions		Pain
Investigations	Increased alanine aminotransferase (ALT)	Increased gamma-glutamyltransferase, increased aspartate aminotransferase, decreased weight, decreased neutrophil count, decreased white blood cell count
Injury, poisoning and procedural complications		Post-traumatic pain

**Alopecia:*

Alopecia was reported as hair thinning, decreased hair density, hair loss, associated or not with hair texture change, in 15,2 % of patients treated with 14 mg AUBAGIO versus 4,3 % in patients treated with placebo.

Most cases were described as diffuse or generalised over the scalp and were more likely to occur during the first 6 months.

Polyneuropathy:

In placebo-controlled studies, peripheral neuropathy, including both polyneuropathy and mononeuropathy (e.g. carpal tunnel syndrome), was reported more frequently in patients taking AUBAGIO than in patients taking placebo. In the pivotal, placebo-controlled studies, the incidence of peripheral neuropathy confirmed by nerve conduction studies was 1,9 % (17 patients) on doses

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

of 14 mg of AUBAGIO, compared with 0,4 % on placebo (4 patients). Treatment was discontinued in 5 patients with confirmed neuropathy. Recovery following treatment discontinuation was reported in 4 of these patients.

Post-marketing experience (spontaneous reports):

In post-marketing experience with AUBAGIO, the following adverse reactions have been identified:

Immune system disorders:

Hypersensitivity reactions (immediate or delayed), some of which were severe, such as anaphylaxis, and angioedema.

Skin and subcutaneous tissue disorders:

Severe skin reactions, including toxic epidermal necrolysis and Stevens-Johnson syndrome.

Respiratory, thoracic and mediastinal disorders:

Interstitial lung disease (ILD).

Gastrointestinal disorders:

Stomatitis (such as aphthous or ulcerative) and pancreatitis.

KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT:

There is no experience regarding AUBAGIO overdose or intoxication in humans.

In the event of relevant overdose or toxicity, colestyramine or activated charcoal is recommended to accelerate elimination.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

Accelerated elimination procedure: colestyramine and activated charcoal:

Teriflunomide is eliminated slowly from the plasma. Without an accelerated elimination procedure, it takes on average 6 months to reach plasma concentrations less than 0,25 µg/ml. Due to individual variations in medicine clearance, it may take as long as 2 years. An accelerated elimination procedure could be used at any time after discontinuation of AUBAGIO. Elimination can be accelerated by either of the following procedures:

- Administration of colestyramine 8 g every 8 hours for 11 days. If colestyramine 8 g three times a day is not well tolerated, colestyramine 4 g three times a day can be used.
- Administration of 50 g oral activated charcoal powder every 12 hours for 11 days.

If either elimination procedure is poorly tolerated, treatment days do not need to be consecutive unless there is a need to lower teriflunomide plasma concentration rapidly.

At the end of 11 days, both regimens successfully accelerated teriflunomide elimination, leading to more than 98 % decrease in teriflunomide plasma concentrations.

Use of the accelerated elimination procedure may potentially result in return of disease activity if the patient had been responding to AUBAGIO treatment.

IDENTIFICATION:

Pale blue to pastel blue, pentagonal film-coated tablets with imprint on one side (dose strength given as number 14) and engraved with corporate logo on other side.

PRESENTATION:

Thermoformed PA/aluminium/PVC-aluminium blisters inserted in wallets and packed in cartons containing 28 and 84 film-coated tablets.

This amendment: Safety-related package insert notification (SR-PINs) in line with CCDS (version 4)
Notification of implementation of Regulation 9 and revised PI Guidelines

Date of submission: 2 October 2017

STORAGE INSTRUCTIONS:

Store at or below 30 °C.

Keep the blister stored in the carton/wallet until required for use.

KEEP OUT OF REACH OF CHILDREN.

REGISTRATION NUMBER:

47/32.16/0859

NAME AND BUSINESS ADDRESS OF THE HOLDER OF THE CERTIFICATE OF

REGISTRATION:

sanofi-aventis south africa (pty) ltd

2 Bond Street

Midrand 1685

South Africa

DATE OF PUBLICATION OF THE PROFESSIONAL INFORMATION:

Date of registration: 30 September 2016

Date of revision: 02 January 2018