

ANNEX I
SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

Entyvio 300 mg powder for concentrate for solution for infusion

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each vial contains 300 mg of vedolizumab.

After reconstitution, each mL contains 60 mg of vedolizumab.

Vedolizumab is a humanised IgG₁ monoclonal antibody that binds to the human $\alpha_4\beta_7$ integrin and is produced using recombinant DNA technology in Chinese hamster ovary (CHO) cells.

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Powder for concentrate for solution for infusion.

White to off-white lyophilised cake or powder.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

Ulcerative colitis

Entyvio is indicated for the treatment of adult patients with moderately to severely active ulcerative colitis who have had an inadequate response with, lost response to, or were intolerant to either conventional therapy or a tumour necrosis factor-alpha (TNF α) antagonist.

Crohn's disease

Entyvio is indicated for the treatment of adult patients with moderately to severely active Crohn's disease who have had an inadequate response with, lost response to, or were intolerant to either conventional therapy or a tumour necrosis factor-alpha (TNF α) antagonist.

4.2 Posology and method of administration

Entyvio treatment should be initiated and supervised by specialist healthcare professionals experienced in the diagnosis and treatment of ulcerative colitis or Crohn's disease (see section 4.4). Patients should be given the package leaflet and the Patient Alert Card.

Posology

Ulcerative colitis

The recommended dose regimen of Entyvio is 300 mg administered by intravenous infusion at zero, two and six weeks and then every eight weeks thereafter.

Therapy for patients with ulcerative colitis should be discontinued if no evidence of therapeutic benefit is observed by week 10 (see section 5.1).

Some patients who have experienced a decrease in their response may benefit from an increase in dosing frequency to Entyvio 300 mg every four weeks.

In patients who have responded to treatment with Entyvio, corticosteroids may be reduced and/or discontinued in accordance with standard of care.

Retreatment

If therapy is interrupted and there is a need to restart treatment with Entyvio, dosing at every four weeks may be considered (see section 5.1). The treatment interruption period in clinical trials extended up to one year. Efficacy was regained with no evident increase in adverse reactions or infusion-related reactions during retreatment with vedolizumab (see section 4.8).

Crohn's disease

The recommended dose regimen of Entyvio is 300 mg administered by intravenous infusion at zero, two and six weeks and then every eight weeks thereafter.

Patients with Crohn's disease, who have not shown a response may benefit from a dose of Entyvio at week 10 (see section 4.4). Therapy should be continued every eight weeks from week 14 in responding patients. Therapy for patients with Crohn's disease should be discontinued if no evidence of therapeutic benefit is observed by week 14 (see section 5.1).

Some patients who have experienced a decrease in their response may benefit from an increase in dosing frequency to Entyvio 300 mg every four weeks.

In patients who have responded to treatment with Entyvio, corticosteroids may be reduced and/or discontinued in accordance with standard of care.

Retreatment

If therapy is interrupted and there is a need to restart treatment with Entyvio, dosing at every four weeks may be considered (see section 5.1). The treatment interruption period in clinical trials extended up to one year. Efficacy was regained with no evident increase in adverse reactions or infusion-related reactions during retreatment with vedolizumab (see section 4.8).

Special populations

Elderly patients

No dose adjustment is required in elderly patients. Population pharmacokinetic analyses showed no effect of age (see section 5.2).

Patients with renal or hepatic impairment

Entyvio has not been studied in these patient populations. No dose recommendations can be made.

Paediatric population

The safety and efficacy of vedolizumab in children aged 0 to 17 years old have not been established. No data are available.

Method of administration

Entyvio is for intravenous use only. It is to be reconstituted and further diluted prior to intravenous administration

Entyvio is administered as an intravenous infusion over 30 minutes. Patients should be monitored during and after infusion (see section 4.4).

For instructions on reconstitution and dilution of the medicinal product before administration, see section 6.6.

4.3 Contraindications

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.

Active severe infections such as tuberculosis (TB), sepsis, cytomegalovirus, listeriosis, and opportunistic infections such as Progressive Multifocal Leukoencephalopathy (PML) (see section 4.4).

4.4 Special warnings and precautions for use

Vedolizumab should be administered in a healthcare setting equipped to allow management of acute hypersensitivity reactions including anaphylaxis, if they occur. Appropriate monitoring and medical support measures should be available for immediate use when administering vedolizumab. All patients should be observed continuously during each infusion. For the first two infusions, they should also be observed for approximately 2 hours following completion of the infusion for signs and symptoms of acute hypersensitivity reactions. For all subsequent infusions, patients should be observed for approximately 1 hour following completion of the infusion.

Infusion-related reactions

In clinical studies, infusion-related reactions (IRR) and hypersensitivity reactions have been reported, with the majority being mild to moderate in severity (see section 4.8).

If a severe IRR, anaphylactic reaction, or other severe reaction occurs, administration of Entyvio must be discontinued immediately and appropriate treatment initiated (e.g., epinephrine and antihistamines) (see section 4.3).

If a mild to moderate IRR occurs, the infusion rate can be slowed or interrupted and appropriate treatment initiated. Once the mild or moderate IRR subsides, continue the infusion. Physicians should consider pre-treatment (e.g., with antihistamine, hydrocortisone and/or paracetamol) prior to the next infusion for patients with a history of mild to moderate IRR to vedolizumab, in order to minimize their risks (see section 4.8).

Infections

Vedolizumab is a gut-selective integrin antagonist with no identified systemic immunosuppressive activity (see section 5.1).

Physicians should be aware of the potential increased risk of opportunistic infections or infections for which the gut is a defensive barrier (see section 4.8). Entyvio treatment is not to be initiated in patients with active, severe infections until the infections are controlled, and physicians should consider withholding treatment in patients who develop a severe infection while on chronic treatment with Entyvio. Caution should be exercised when considering the use of vedolizumab in patients with a controlled chronic severe infection or a history of recurring severe infections. Patients should be monitored closely for infections before, during and after treatment. Entyvio is contraindicated in patients with active tuberculosis (see section 4.3). Before starting treatment with vedolizumab, patients must be screened for tuberculosis according to the local practice. If latent tuberculosis is diagnosed, appropriate treatment must be started with anti-tuberculosis treatment in accordance with local recommendations, before beginning vedolizumab. In patients diagnosed with TB whilst receiving vedolizumab therapy, then vedolizumab therapy should be discontinued until the TB infection has been resolved.

Some integrin antagonists and some systemic immunosuppressive agents have been associated with progressive multifocal leukoencephalopathy (PML), which is a rare and often fatal opportunistic infection caused by the John Cunningham (JC) virus. By binding to the $\alpha_4\beta_7$ integrin expressed on gut-homing lymphocytes, vedolizumab exerts an immunosuppressive effect specific to the gut. Although no systemic immunosuppressive effect was noted in healthy subjects the effects on systemic immune system function in patients with inflammatory bowel disease is not known.

Healthcare professionals should monitor patients on vedolizumab for any new onset or worsening of neurological signs and symptoms as outlined in physician education materials, and consider neurological referral if they occur. The patient is to be given a Patient Alert Card (see section 4.2). If PML is suspected, treatment with vedolizumab must be withheld; if confirmed, treatment must be permanently discontinued.

Malignancies

The risk of malignancy is increased in patients with ulcerative colitis and Crohn's disease. Immunomodulatory medicinal products may increase the risk of malignancy (see section 4.8).

Prior and concurrent use of biological products

No vedolizumab clinical trial data are available for patients previously treated with natalizumab or rituximab. Caution should be exercised when considering the use of Entyvio in these patients.

Patients previously exposed to natalizumab should normally wait a minimum of 12 weeks prior to initiating therapy with Entyvio, unless otherwise indicated by the patient's clinical condition.

No clinical trial data for concomitant use of vedolizumab with biologic immunosuppressants are available. Therefore, the use of Entyvio in such patients is not recommended.

Live and oral vaccines

In a placebo-controlled study of healthy volunteers, a single 750 mg dose of vedolizumab did not lower rates of protective immunity to hepatitis B virus in subjects who were vaccinated intramuscularly with three doses of recombinant hepatitis B surface antigen. Vedolizumab-exposed subjects had lower seroconversion rates after receiving a killed, oral cholera vaccine. The impact on other oral and nasal vaccines is unknown. It is recommended that all patients be brought up to date with all immunisations in agreement with current immunisation guidelines prior to initiating Entyvio therapy. Patients receiving vedolizumab treatment may continue to receive non-live vaccines. There are no data on the secondary transmission of infection by live vaccines in patients receiving vedolizumab. Administration of the influenza vaccine should be by injection in line with routine clinical practice. Other live vaccines may be administered concurrently with vedolizumab only if the benefits clearly outweigh the risks.

Induction of remission in Crohn's disease

Induction of remission in Crohn's disease may take up to 14 weeks in some patients. The reasons for this are not fully known and are possibly related to the mechanism of action. This should be taken into consideration, particularly in patients with severe active disease at baseline not previously treated with TNF α antagonists. (see also section 5.1.)

Exploratory subgroup analyses from the clinical trials in Crohn's disease suggested that vedolizumab administered in patients without concomitant corticosteroid treatment may be less effective for induction of remission in Crohn's disease than in those patients already receiving concomitant corticosteroids (regardless of use of concomitant immunomodulators; see section 5.1).

4.5 Interaction with other medicinal products and other forms of interaction

No interaction studies have been performed.

Vedolizumab has been studied in adult ulcerative colitis and Crohn's disease patients with concomitant administration of corticosteroids, immunomodulators (azathioprine, 6-mercaptopurine, and methotrexate), and aminosalicylates. Population pharmacokinetic analyses suggest that co-administration of such agents did not have a clinically meaningful effect on vedolizumab pharmacokinetics. The effect of vedolizumab on the pharmacokinetics of commonly co-administered medicinal compounds has not been studied.

Vaccinations

Live vaccines, in particular live oral vaccines, should be used with caution concurrently with Entyvio (see section 4.4).

4.6 Fertility, pregnancy and lactation

Women of childbearing potential

Women of childbearing potential should use adequate contraception to prevent pregnancy and to continue its use for at least 18 weeks after the last treatment.

Pregnancy

There are limited amount of data from the use of vedolizumab in pregnant women.

Animal studies do not indicate direct or indirect harmful effects with respect to reproductive toxicity (see section 5.3).

As a precautionary measure, it is preferable to avoid the use of Entyvio during pregnancy unless the benefits clearly outweigh any potential risk to both the mother and foetus.

Breast-feeding

Vedolizumab has been detected in human milk. The effect of vedolizumab on infants is unknown. The use of vedolizumab in lactating women should take into account the benefit of therapy to the mother and potential risks to the infant.

Fertility

There are no data on the effects of vedolizumab on human fertility. Effects on male and female fertility have not been formally evaluated in animal studies (see section 5.3).

4.7 Effects on ability to drive and use machines

Entyvio has minor influence on the ability to drive and use machines, as dizziness has been reported in a small number of patients.

4.8 Undesirable effects

Summary of safety profile

The most commonly reported adverse reactions are infections (such as nasopharyngitis, upper respiratory tract infection, bronchitis, influenza and sinusitis), headache, nausea, pyrexia, fatigue, cough, arthralgia.

Injection site reactions (with symptoms such as dyspnea, bronchospasm, urticaria, flushing, rash, and increased blood pressure and heart rate) have also been reported in patients treated with vedolizumab.

Tabulated list of adverse reactions

The following listing of adverse reactions is based on clinical trial and post marketing experience and is displayed by system organ class. Within the system organ classes, adverse reactions are listed under headings of the following frequency categories: very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/10$), uncommon ($\geq 1/1,000$ to $< 1/100$) and very rare ($< 1/10,000$). Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness.

Table 1. Adverse Reactions

System Organ Class	Frequency	Adverse Reaction(s)
Infections and infestations	Very common	Nasopharyngitis
	Common	Bronchitis, Gastroenteritis, Upper respiratory tract infection, Influenza, Sinusitis, Pharyngitis
	Uncommon	Respiratory tract infection, Vulvovaginal candidiasis, Oral candidiasis, Herpes zoster
	Very rare	Pneumonia
Immune System Disorders	Very rare	Anaphylactic reaction, Anaphylactic shock
Nervous system disorders	Very common	Headache
	Common	Paraesthesia
Eye disorders	Very rare	Blurred vision
Vascular disorders	Common	Hypertension
Respiratory, thoracic and mediastinal disorders	Common	Oropharyngeal pain, Nasal congestion, Cough
Gastrointestinal disorders	Common	Anal Abscess, Anal fissure, Nausea, Dyspepsia, Constipation, Abdominal distension, Flatulence, Haemorrhoids
Skin and subcutaneous tissue disorders	Common	Rash, Pruritus, Eczema, Erythema, Night sweats, Acne
	Uncommon	Folliculitis
Musculoskeletal and connective tissue disorders	Very common	Arthralgia
	Common	Muscle spasms, Back pain, Muscular weakness, Fatigue, Pain in the extremity
General disorders and administration site conditions	Common	Pyrexia
	Uncommon	Infusion site reaction (including: Infusion site pain and Infusion site irritation), Infusion related reaction, Chills, Feeling cold

Description of selected adverse reactions

Infusion-related reactions

In GEMINI I and II controlled studies, 4% of vedolizumab-treated patients and 3% of placebo-treated patients experienced an adverse reaction defined by the investigator as infusion-related reaction (IRR) (see section 4.4). No individual Preferred Term reported as an IRR occurred at a rate above 1%. The majority of IRRs were mild or moderate in intensity and $< 1\%$ resulted in discontinuation of study treatment. Observed IRRs generally resolved with no or minimal intervention following the infusion. Most infusion related reactions occurred within the first 2 hours. Of those patients who had infusion related reactions, those dosed with vedolizumab had more infusion related reactions with in the first 2 hours as compared to placebo patients with infusion related reactions. Most infusion related reactions were not serious and occurred during the infusion or within the first hour after infusion is completed.

One serious adverse reaction of IRR was reported in a Crohn's disease patient during the second infusion (symptoms reported were dyspnoea, bronchospasm, urticaria, flushing, rash, and increased blood pressure and heart rate) and was successfully managed with discontinuation of infusion and treatment with antihistamine and intravenous hydrocortisone. In patients who received vedolizumab at weeks 0 and 2 followed by placebo, no increase in the rate of IRR was seen upon retreatment with vedolizumab after loss of response.

Infections

In GEMINI I and II controlled studies, the rate of infections was 0.85 per patient-year in the vedolizumab-treated patients and 0.70 per patient-year in the placebo-treated patients. The infections consisted primarily of nasopharyngitis, upper respiratory tract infection, sinusitis, and urinary tract infections. Most patients continued on vedolizumab after the infection resolved.

In GEMINI I and II controlled studies, the rate of serious infections was 0.07 per patient year in vedolizumab-treated patients and 0.06 per patient year in placebo-treated patients. Over time, there was no significant increase in the rate of serious infections.

In controlled and open-label studies in adults with vedolizumab, serious infections have been reported, which include tuberculosis, sepsis (some fatal), salmonella sepsis, listeria meningitis, and cytomegaloviral colitis.

Malignancy

Overall, results from the clinical program to date do not suggest an increased risk for malignancy with vedolizumab treatment; however, the number of malignancies was small and long-term exposure was limited. Long-term safety evaluations are ongoing.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via **the national reporting system** listed in [Appendix V](#).

4.9 Overdose

Doses up to 10 mg/kg (approximately 2.5 times the recommended dose) have been administered in clinical trials. No dose-limiting toxicity was seen in clinical trials.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: immunosuppressants, selective immunosuppressants, ATC code: L04AA33

Mechanism of action

Vedolizumab is a gut-selective immunosuppressive biologic. It is a humanised monoclonal antibody that binds specifically to the $\alpha_4\beta_7$ integrin, which is preferentially expressed on gut homing T helper lymphocytes. By binding to $\alpha_4\beta_7$ on certain lymphocytes, vedolizumab inhibits adhesion of these cells to mucosal addressin cell adhesion molecule-1 (MAdCAM-1), but not to vascular cell adhesion molecule-1 (VCAM-1). MAdCAM-1 is mainly expressed on gut endothelial cells and plays a critical role in the homing of T lymphocytes to tissues within the gastrointestinal tract. Vedolizumab does not bind to, nor inhibit function of, the $\alpha_4\beta_1$ and $\alpha_E\beta_7$ integrins.

The $\alpha_4\beta_7$ integrin is expressed on a discrete subset of memory T helper lymphocytes which preferentially migrate into the gastrointestinal (GI) tract and cause inflammation that is characteristic of ulcerative colitis and Crohn's disease, both of which are chronic inflammatory immunologically mediated conditions of the GI tract. Vedolizumab reduces gastrointestinal inflammation in UC and CD patients. Inhibiting the interaction of $\alpha_4\beta_7$ with MAdCAM-1 with vedolizumab prevents transmigration of gut-homing memory T helper lymphocytes across the vascular endothelium into parenchymal tissue in nonhuman primates and induced a reversible 3-fold elevation of these cells in peripheral blood. The murine precursor of vedolizumab alleviated gastrointestinal inflammation in colitic cotton-top tamarins, a model of ulcerative colitis.

In healthy subjects, ulcerative colitis patients, or Crohn's disease patients, vedolizumab does not elevate neutrophils, basophils, eosinophils, B-helper and cytotoxic T lymphocytes, total memory T helper lymphocytes, monocytes or natural killer cells, in the peripheral blood with no leukocytosis observed.

Vedolizumab did not affect immune surveillance and inflammation of the central nervous system in Experimental Autoimmune Encephalomyelitis in non-human primates, a model of multiple sclerosis. Vedolizumab did not affect immune responses to antigenic challenge in the dermis and muscle (see section 4.4). In contrast, vedolizumab inhibited an immune response to a gastrointestinal antigenic challenge in healthy human volunteers (see section 4.4).

Immunogenicity

Antibodies to vedolizumab may develop during vedolizumab treatment most of which are neutralising. The formation of anti-vedolizumab antibodies is associated with increased clearance of vedolizumab and lower rates of clinical remission.

Infusion related reactions after vedolizumab infusion are reported in subjects with anti-vedolizumab antibodies.

Pharmacodynamic effects

In clinical trials with vedolizumab at doses ranging from 2 to 10 mg/kg, > 95% saturation of $\alpha_4\beta_7$ receptors on subsets of circulating lymphocytes involved in gut immune surveillance was observed in patients.

Vedolizumab did not affect CD4⁺ and CD8⁺ trafficking into the CNS as evidenced by the lack of change in the ratio of CD4⁺/CD8⁺ in cerebrospinal fluid pre- and post-vedolizumab administration in healthy human volunteers. These data are consistent with investigations in nonhuman primates which did not detect effects on immune surveillance of the CNS.

Clinical efficacy

Ulcerative colitis

The efficacy and safety of vedolizumab for the treatment of adult patients with moderately to severely active ulcerative colitis (Mayo score 6 to 12 with endoscopic sub score ≥ 2) was demonstrated in a randomised, double-blind, placebo-controlled study evaluating efficacy endpoints at week 6 and week 52 (GEMINI I). Enrolled patients had failed at least one conventional therapy, including corticosteroids, immunomodulators, and/or the TNF α antagonist infliximab (including primary non-responders). Concomitant stable doses of oral aminosalicylates, corticosteroids and/or immunomodulators were permitted.

For the evaluation of the week 6 endpoints, 374 patients were randomised in a double-blind fashion (3:2) to receive vedolizumab 300 mg or placebo at week 0 and week 2. Primary endpoint was the proportion of patients with clinical response (defined as reduction in complete Mayo score of

≥ 3 points and ≥ 30% from baseline with an accompanying decrease in rectal bleeding subscore of ≥ 1 point or absolute rectal bleeding subscore of ≤ 1 point) at week 6. Table 2 shows the results from the primary and secondary endpoints evaluated.

Table 2. Week 6 Efficacy Results of GEMINI I

Endpoint	Placebo n = 149	Vedolizumab n = 225
Clinical response	26%	47% *
Clinical remission [§]	5%	17% †
Mucosal healing [¶]	25%	41% ‡

*p < 0.0001

†p ≤ 0.001

‡p < 0.05

§Clinical remission: Complete Mayo score of ≤ 2 points and no individual subscore > 1 point

¶Mucosal healing: Mayo endoscopic subscore of ≤ 1 point

The beneficial effect of vedolizumab on clinical response, remission and mucosal healing was observed both in patients with no prior TNFα antagonist exposure as well as in those who had failed prior TNFα antagonist therapy.

In GEMINI I, two cohorts of patients received vedolizumab at week 0 and week 2: cohort 1 patients were randomised to receive either vedolizumab 300 mg or placebo in a double-blind fashion, and cohort 2 patients were treated with open-label vedolizumab 300 mg. To evaluate efficacy at week 52, 373 patients from cohort 1 and 2 who were treated with vedolizumab and had achieved clinical response at week 6 were randomised in a double-blind fashion (1:1:1) to one of the following regimens beginning at week 6: vedolizumab 300 mg every eight weeks, vedolizumab 300 mg every four weeks, or placebo every four weeks. Beginning at week 6, patients who had achieved clinical response and were receiving corticosteroids were required to begin a corticosteroid-tapering regimen. Primary endpoint was the proportion of patients in clinical remission at week 52. Table 3 shows the results from the primary and secondary endpoints evaluated.

Table 3. Week 52 Efficacy Results of GEMINI I

Endpoint	Placebo n = 126*	Vedolizumab Every 8 weeks n = 122	Vedolizumab Every 4 weeks n = 125
Clinical remission	16%	42% †	45% †
Durable clinical response [¶]	24%	57% †	52% †
Mucosal healing	20%	52% †	56% †
Durable clinical remission [#]	9%	20% §	24% ‡
Corticosteroid-free clinical remission [♦]	14%	31% §	45% †

*The placebo group includes those subjects who received vedolizumab at week 0 and week 2, and were randomised to receive placebo from week 6 through week 52.

†p < 0.0001

‡p < 0.001

§p < 0.05

¶Durable clinical response: Clinical response at weeks 6 and 52

#Durable clinical remission: Clinical remission at weeks 6 and 52

♦Corticosteroid-free clinical remission: Patients using oral corticosteroids at baseline who had discontinued corticosteroids beginning at week 6 and were in clinical remission at week 52. Patient numbers were n = 72 for placebo, n = 70 for vedolizumab every eight weeks, and n = 73 for vedolizumab every four weeks

Exploratory analyses provide additional data on key subpopulations studied. Approximately one-third of patients had failed prior TNFα antagonist therapy. Among these patients, 37% receiving

vedolizumab every eight weeks, 35% receiving vedolizumab every four weeks, and 5% receiving placebo achieved clinical remission at week 52. Improvements in durable clinical response (47%, 43%, 16%), mucosal healing (42%, 48%, 8%), durable clinical remission (21%, 13%, 3%) and corticosteroid-free clinical remission (23%, 32%, 4%) were seen in the prior TNF α antagonist failure population treated with vedolizumab every eight weeks, vedolizumab every four weeks and placebo, respectively.

Patients who failed to demonstrate response at week 6 remained in the study and received vedolizumab every four weeks. Clinical response using partial Mayo scores was achieved at week 10 and week 14 by greater proportions of vedolizumab patients (32% and 39%, respectively) compared with placebo patients (15% and 21%, respectively).

Patients who lost response to vedolizumab when treated every eight weeks were allowed to enter an open-label extension study and receive vedolizumab every four weeks. In these patients, clinical remission was achieved in 25% of patients at week 28 and week 52.

Patients who achieved a clinical response after receiving vedolizumab at week 0 and 2 and were then randomised to placebo (for 6 to 52 weeks) and lost response were allowed to enter the open-label extension study and receive vedolizumab every four weeks. In these patients, clinical remission was achieved in 45% of patients by 28 weeks and 36% of patients by 52 weeks.

In this open-label extension study, the benefits of vedolizumab treatment as assessed by partial Mayo score, clinical remission, and clinical response were shown for up to 196 weeks.

Health-related quality of life (HRQOL) was assessed by Inflammatory Bowel Disease Questionnaire (IBDQ), a disease specific instrument, and SF-36 and EQ-5D, which are general measures. Exploratory analysis show clinically meaningful improvements were observed for vedolizumab groups, and the improvements were significantly greater as compared with the placebo group at week 6 and week 52 on EQ-5D and EQ-5D VAS scores, all subscales of IBDQ (bowel symptoms, systemic function, emotional function and social function), and all subscales of SF-36 including the Physical Component Summary (PCS) and Mental Component Summary (MCS).

Crohn's disease

The efficacy and safety of vedolizumab for the treatment of adult patients with moderately to severely active Crohn's disease (Crohn's Disease Activity Index [CDAI] score of 220 to 450) were evaluated in two studies (GEMINI II and III). Enrolled patients have failed at least one conventional therapy, including corticosteroids, immunomodulators, and/or TNF α antagonists (including primary non-responders). Concomitant stable doses of oral corticosteroids, immunomodulators, and antibiotics were permitted.

The GEMINI II Study was a randomised, double-blind, placebo-controlled study evaluating efficacy endpoints at week 6 and week 52. Patients (n = 368) were randomised in a double-blind fashion (3:2) to receive two doses of vedolizumab 300 mg or placebo at week 0 and week 2. The two primary endpoints were the proportion of patients in clinical remission (defined as CDAI score \leq 150 points) at week 6 and the proportion of patients with enhanced clinical response (defined as a \geq 100-point decrease in CDAI score from baseline) at week 6 (see Table 4).

GEMINI II contained two cohorts of patients that received vedolizumab at weeks 0 and 2: cohort 1 patients were randomised to receive either vedolizumab 300 mg or placebo in a double-blind fashion, and cohort 2 patients were treated with open-label vedolizumab 300 mg. To evaluate efficacy at week 52, 461 patients from cohorts 1 and 2, who were treated with vedolizumab and had achieved clinical response (defined as a \geq 70-point decrease in CDAI score from baseline) at week 6, were randomised in a double-blind fashion (1:1:1) to one of the following regimens beginning at week 6: vedolizumab 300 mg every eight weeks, vedolizumab 300 mg every four weeks, or placebo every four weeks. Patients showing clinical response at week 6 were required to begin corticosteroid

tapering. Primary endpoint was the proportion of patients in clinical remission at week 52 (see Table 5).

The GEMINI III Study was a second randomised, double-blind, placebo-controlled study that evaluated efficacy at week 6 and week 10 in the subgroup of patients defined as having failed at least one conventional therapy and failed TNF α antagonist therapy (including primary non-responders) as well as the overall population, which also included patients who failed at least one conventional therapy and were naïve to TNF α antagonist therapy. Patients (n = 416), which included approximately 75% TNF α antagonist failures patients, were randomised in a double-blind fashion (1:1) to receive either vedolizumab 300 mg or placebo at weeks 0, 2, and 6. The primary endpoint was the proportion of patients in clinical remission at week 6 in the TNF α antagonist failure subpopulation. As noted in Table 4, although the primary endpoint was not met, exploratory analyses show that clinically meaningful results were observed.

Table 4. Efficacy Results for GEMINI II and III Studies at week 6 and week 10

Study Endpoint	Placebo	Vedolizumab
GEMINI II Study		
Clinical remission, week 6		
Overall	7% (n = 148)	15%* (n = 220)
TNF α Antagonist(s) Failure	4% (n = 70)	11% (n = 105)
TNF α Antagonist(s) Naïve	9% (n = 76)	17% (n = 109)
Enhanced clinical response, week 6		
Overall	26% (n = 148)	31% [†] (n = 220)
TNF α Antagonist(s) Failure	23% (n = 70)	24% (n = 105)
TNF α Antagonist(s) Naïve	30% (n = 76)	42% (n = 109)
Serum CRP change from baseline to week 6, median (mcg/mL)		
Overall [‡]	-0.5 (n = 147)	-0.9 (n = 220)
GEMINI III Study		
Clinical remission, week 6		
Overall [‡]	12% (n = 207)	19% (n = 209)
TNF α Antagonist(s) Failure [¶]	12% (n = 157)	15% [§] (n = 158)
TNF α Antagonist(s) Naïve	12% (n = 50)	31% (n = 51)
Clinical remission, week 10		
Overall	13% (n = 207)	29% (n = 209)
TNF α Antagonist(s) Failure ^{¶,‡}	12% (n = 157)	27% (n = 158)
TNF α Antagonist(s) Naïve	16% (n = 50)	35% (n = 51)
Sustained clinical remission ^{#,¶}		
Overall	8% (n = 207)	15% (n = 209)
TNF α Antagonist(s) Failure ^{¶,‡}	8% (n = 157)	12% (n = 158)
TNF α Antagonist(s) Naïve	8% (n = 50)	26% (n = 51)
Enhanced clinical response, week 6		
Overall [^]	23% (n = 207)	39% (n = 209)
TNF α Antagonist(s) Failure [‡]	22% (n = 157)	39% (n = 158)
TNF α Antagonist(s) Naïve [^]	24% (n = 50)	39% (n = 51)

*p < 0.05

[†]not statistically significant[‡]secondary endpoint to be viewed as exploratory by pre-specified statistical testing procedure[§]not statistically significant, the other endpoints were therefore not tested statistically[¶]n = 157 for placebo and n = 158 for vedolizumab[#]Sustained clinical remission: clinical remission at weeks 6 and 10[^]Exploratory Endpoint

Table 5. Efficacy Results for GEMINI II at week 52

	Placebo n = 153*	Vedolizumab Every 8 weeks n = 154	Vedolizumab Every 4 weeks n = 154
Clinical remission	22%	39% [†]	36% [‡]
Enhanced clinical response	30%	44% [‡]	45% [‡]
Corticosteroid-free clinical remission [§]	16%	32% [‡]	29% [‡]
Durable clinical remission [¶]	14%	21%	16%

*The placebo group includes those subjects who received vedolizumab at week 0 and week 2, and were randomised to receive placebo from week 6 through week 52.

[†]p < 0.001

[‡]p < 0.05

[§]Corticosteroid-free clinical remission: Patients using oral corticosteroids at baseline who had discontinued corticosteroids beginning at week 6 and were in clinical remission at week 52. Patient numbers were n = 82 for placebo, n = 82 for vedolizumab every eight weeks, and n = 80 for vedolizumab every four weeks

[¶]Durable clinical remission: Clinical remission at ≥ 80% of study visits including final visit (week 52)

Exploratory analyses examined the effects of concomitant corticosteroids and immunomodulators on induction of remission with vedolizumab. Combination treatment, most notably with concomitant corticosteroids, appeared to be more effective in inducing remission in Crohn's disease than vedolizumab alone or with concomitant immunomodulators, which showed a smaller difference from placebo in the rate of remission. Clinical remission rate in GEMINI II at week 6 was 10% (difference from placebo 2%, 95% CI: -6, 10) when administered without corticosteroids compared to 20% (difference from placebo 14%, 95% CI: -1, 29) when administered with concomitant corticosteroids. In GEMINI III at week 6 and 10 the respective clinical remission rates were 18% (difference from placebo 3%, 95% CI: -7, 13) and 22% (difference from placebo 8%, 95% CI: -3, 19) when administered without corticosteroids compared to 20% (difference from placebo 11%, 95% CI: 2, 20) and 35% (difference from placebo 23%, 95% CI: 12, 33) respectively when administered with concomitant corticosteroids. These effects were seen whether or not immunomodulators were also concomitantly administered.

Exploratory analyses provide additional data on key subpopulations studied. In GEMINI II, approximately half of patients had previously failed TNF α antagonist therapy. Among these patients, 28% receiving vedolizumab every eight weeks, 27% receiving vedolizumab every four weeks, and 13% receiving placebo achieved clinical remission at week 52. Enhanced clinical response was achieved in 29%, 38%, 21%, respectively, and corticosteroid-free clinical remission was achieved in 24%, 16%, 0%, respectively.

Patients who failed to demonstrate response at week 6 in GEMINI II were retained in the study and received vedolizumab every four weeks. Enhanced clinical response was observed at week 10 and week 14 for greater proportions of vedolizumab patients 16% and 22%, respectively, compared with placebo patients 7% and 12%, respectively. There was no clinically meaningful difference in clinical remission between treatment groups at these time points. Analyses of week 52 clinical remission in patients who were non-responders at week 6 but achieved response at week 10 or week 14 indicate that non-responder CD patients may benefit from a dose of vedolizumab at week 10.

Patients who lost response to vedolizumab when treated every eight weeks in GEMINI II were allowed to enter an open-label extension study and received vedolizumab every four weeks. In these patients, clinical remission was achieved in 23% of patients at week 28 and 32% of patients at week 52.

Patients who achieved a clinical response after receiving vedolizumab at week 0 and 2 and were then randomised to placebo (for 6 to 52 weeks) and lost response were allowed to enter the open-label extension study and receive vedolizumab every four weeks. In these patients, clinical remission was achieved in 46% of patients by 28 weeks and 41% of patients by 52 weeks.

In this open-label extension study, clinical remission and clinical response were observed in patients for up to 196 weeks.

Exploratory analysis showed clinically meaningful improvements were observed for the vedolizumab every four weeks and every eight weeks groups in GEMINI II and the improvements were significantly greater as compared with the placebo group from baseline to week 52 on EQ-5D and EQ-5D VAS scores, total IBDQ score, and IBDQ subscales of bowel symptoms and systemic function.

Paediatric population

The European Medicines Agency has deferred the obligation to submit the results of studies with vedolizumab in one or more subsets of the paediatric population in ulcerative colitis and Crohn's disease (see section 4.2 for information on paediatric use).

5.2 Pharmacokinetic properties

The single and multiple dose pharmacokinetics of vedolizumab have been studied in healthy subjects and in patients with moderate to severely active ulcerative colitis or Crohn's disease.

In patients administered 300 mg vedolizumab as a 30 minute intravenous infusion on weeks 0 and 2, mean serum trough concentrations at week 6 were 27.9 mcg/mL (SD ± 15.51) in ulcerative colitis and 26.8 mcg/mL (SD ± 17.45) in Crohn's disease. Starting at week 6, patients received 300 mg vedolizumab every eight or four weeks. In patients with ulcerative colitis, mean steady-state serum trough concentrations were 11.2 mcg/mL (SD ± 7.24) and 38.3 mcg/mL (SD ± 24.43), respectively. In patients with Crohn's disease mean steady-state serum trough concentrations were 13.0 mcg/mL (SD ± 9.08) and 34.8 mcg/mL (SD ± 22.55), respectively.

Distribution

Population pharmacokinetic analyses indicate that the distribution volume of vedolizumab is approximately 5 litres. The plasma protein binding of vedolizumab has not been evaluated. Vedolizumab is a therapeutic monoclonal antibody and is not expected to bind to plasma proteins.

Vedolizumab does not pass the blood brain barrier after intravenous administration. Vedolizumab 450 mg administered intravenously was not detected in the cerebrospinal fluid of healthy subjects.

Elimination

Population pharmacokinetic analyses indicate that vedolizumab has a total body clearance of approximately 0.157 L/day and a serum half-life of 25 days. The exact elimination route of vedolizumab is not known. Population pharmacokinetic analyses suggest that while low albumin, higher body weight and prior treatment with anti-TNF drugs may increase vedolizumab clearance, the magnitude of their effects is not considered to be clinically relevant.

Linearity

Vedolizumab exhibited linear pharmacokinetics at serum concentrations greater than 1 mcg/mL.

Special populations

Age does not impact the vedolizumab clearance in ulcerative colitis and Crohn's disease patients based on the population pharmacokinetic analyses. No formal studies have been conducted to examine the effects of either renal or hepatic impairment on the pharmacokinetics of vedolizumab.

5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on conventional studies of safety pharmacology, repeated dose toxicity, genotoxicity, carcinogenic potential, toxicity to reproduction and development.

Long-term animal studies with vedolizumab to assess its carcinogenic potential have not been conducted because pharmacologically responsive models to monoclonal antibodies do not exist. In a pharmacologically responsive species (cynomolgus monkeys), there was no evidence of cellular hyperplasia or systemic immunomodulation that could potentially be associated with oncogenesis in 13- and 26-week toxicology studies. Furthermore, no effects were found of vedolizumab on the proliferative rate or cytotoxicity of a human tumour cell line expressing the $\alpha_4\beta_7$ integrin *in vitro*.

No specific fertility studies in animals have been performed with vedolizumab. No definitive conclusion can be drawn on the male reproductive organs in cynomolgus monkey repeated dose toxicity study. Given the lack of binding of vedolizumab to male reproductive tissue in monkey and human, and the intact male fertility observed in β_7 integrin-knockout mice, it is not expected that vedolizumab will affect male fertility.

Administration of vedolizumab to pregnant cynomolgus monkeys during most of gestation resulted in no evidence of effects on teratogenicity, prenatal or postnatal development in infants up to 6 months of age. Low levels (< 300 mcg/L) of vedolizumab were detected on post-partum day 28 in the milk of 3 of 11 cynomolgus monkeys treated 100 mg/kg of vedolizumab dosed every 2 weeks and not in any animals that received 10 mg/kg.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

L-histidine
L-histidine monohydrochloride
L-arginine hydrochloride
sucrose
polysorbate 80

6.2 Incompatibilities

In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

6.3 Shelf life

3 years

In-use stability of the reconstituted solution in the vial has been demonstrated for 8 hours at 2°C-8°C. In-use stability of the diluted solution in sodium chloride 9 mg/mL (0.9%) solution for injection in infusion bag has been demonstrated for 12 hours at 20°C-25°C or 24 hours at 2°C-8°C. The combined in-use stability of Entyvio in the vial and infusion bag with sodium chloride 9 mg/mL (0.9%) solution for injection is a total of 12 hours at 20°C-25°C or 24 hours at 2°C-8°C. A 24 hour period may include up to 8 hours at 2°C-8°C for reconstituted solution in the vial and up to 12 hours at 20°C-25°C for diluted solution in the infusion bag but the infusion bag must be stored in the refrigerator (2°C-8°C) for the rest of the 24 hour period. Do not freeze the reconstituted solution in the vial or the diluted solution in the infusion bag.

	Storage Condition	
	Refrigerator (2°C-8°C)	20°C-25°C
Reconstituted solution in the vial	8 hours	Do not hold ¹
Diluted solution in sodium chloride 9 mg/mL (0.9%) solution for injection	24 hours ^{2,3}	12 hours ²

¹ Up to 30 minutes are allowed for reconstitution

² This time assumes the reconstituted solution is immediately diluted in the sodium chloride 9 mg/mL (0.9%) solution for injection and held in the infusion bag only. Any time that the reconstituted solution was held in the vial should be subtracted from the time the solution may be held in the infusion bag.

³ This period may include up to 12 hours at 20 °C-25 °C.

6.4 Special precautions for storage

Store in a refrigerator (2 °C-8 °C). Keep the vial in the outer carton in order to protect from light.

For storage conditions after reconstitution and dilution of the medicinal product, see section 6.3.

6.5 Nature and contents of container

Powder for concentrate for solution for infusion in Type 1 glass vial (20 mL) fitted with rubber stopper and aluminium crimp protected by a plastic cap.

Each pack contains 1 vial.

6.6 Special precautions for disposal and other handling

Instructions for reconstitution and infusion

1. Use aseptic technique when preparing Entyvio solution for intravenous infusion.
2. Remove flip-off cap from the vial and wipe with alcohol swab. Reconstitute vedolizumab with 4.8 mL of sterile water for injections at room temperature (20 °C-25 °C), using a syringe with a 21-25 gauge needle.
3. Insert the needle into the vial through the centre of the stopper and direct the stream of liquid to the wall of the vial to avoid excessive foaming.
4. Gently swirl the vial for at least 15 seconds. Do not vigorously shake or invert.
5. Let the vial sit for up to 20 minutes at room temperature (20 °C-25 °C), to allow for reconstitution and for any foam to settle; the vial can be swirled and inspected for dissolution during this time. If not fully dissolved after 20 minutes, allow another 10 minutes for dissolution.
6. Inspect the reconstituted solution visually for particulate matter and discoloration prior to dilution. Solution should be clear or opalescent, colourless to light yellow and free of visible particulates. Reconstituted solution with uncharacteristic colour or containing particulates must not be administered.
7. Once dissolved, gently invert vial 3 times.
8. Immediately withdraw 5 mL (300 mg) of reconstituted Entyvio using a syringe with a 21-25 gauge needle.
9. Add the 5 mL (300 mg) of reconstituted Entyvio to 250 mL of sterile sodium chloride 9 mg/mL (0.9%) solution for injection, and gently mix the infusion bag (5 mL of sodium chloride 9 mg/mL (0.9%) solution for injection does not have to be withdrawn from the infusion bag prior to adding Entyvio). Do not add other medicinal products to the prepared infusion solution or intravenous infusion set. Administer the infusion solution over 30 minutes (see section 4.2).

Once reconstituted, the infusion solution should be used as soon as possible.

Do not store any unused portion of the reconstituted solution or infusion solution for reuse.

Each vial is for single-use only.

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

7. MARKETING AUTHORISATION HOLDER

Takeda Pharma A/S
Dybendal Alle 10
2630 Taastrup
Denmark

8. MARKETING AUTHORISATION NUMBER(S)

EU/1/14/923/001

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 22 May 2014
Date of latest renewal: 12 December 2018

10. DATE OF REVISION OF THE TEXT

Detailed information on this medicinal product is available on the website of the European Medicines Agency <http://www.ema.europa.eu>

ANNEX II

- A. MANUFACTURERS OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE**
- B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE**
- C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION**
- D. CONDITIONS OR RESTRICTIONS WITH REGARD TO THE SAFE AND EFFECTIVE USE OF THE MEDICINAL PRODUCT**

A. MANUFACTURERS OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE

Name and address of the manufacturers of the biological active substance

AbbVie Bioresearch Center
100 Research Drive
Worcester, MA
01605-4314
USA

Abbvie Biotechnology, Ltd
Road #2 Km 59.2
PO Box 2191
Barceloneta
Puerto Rico 00617

Lonza Biologics, Inc.
101 International Drive
Portsmouth
NH 03801
USA

Name and address of the manufacturers responsible for batch release

Delpharm Novara S.r.l.
Via Crosa, 86
28065 Cerano (NO)
Italy

Takeda Austria GmbH
St. Peter-Straße 25
4020 Linz
Austria

The printed package leaflet of the medicinal product must state the name and address of the manufacturer responsible for the release of the concerned batch.

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

Medicinal product subject to restricted medical prescription. (see Annex I: Summary of Product Characteristics, section 4.2).

C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION

• **Periodic Safety Update Reports**

The requirements for submission of periodic safety update reports for this medicinal product are set out in the list of Union reference dates (EURD list) provided for under Article 107c(7) of Directive 2001/83/EC and any subsequent updates published on the European medicines web-portal.

D. CONDITIONS OR RESTRICTIONS WITH REGARD TO THE SAFE AND EFFECTIVE USE OF THE MEDICINAL PRODUCT

• Risk Management Plan (RMP)

The MAH shall perform the required pharmacovigilance activities and interventions detailed in the agreed RMP presented in Module 1.8.2 of the Marketing Authorisation and any agreed subsequent updates of the RMP.

An updated RMP should be submitted:

- At the request of the European Medicines Agency;
- Whenever the risk management system is modified, especially as the result of new information being received that may lead to a significant change to the benefit/risk profile or as the result of an important (pharmacovigilance or risk minimisation) milestone being reached.

If the dates for submission of a PSUR and the update of a RMP coincide, they can be submitted at the same time.

• Additional risk minimisation measures

The Marketing Authorisation Holder (MAH) shall ensure that, prior to launch, all physicians who are expected to prescribe/use Entyvio are provided with a physician pack containing the following:

- Summary of Product Characteristics and Package Leaflet
- Physician's Educational Material
- Patient alert card,

The Physician's Educational Material should contain the following key messages:

- Consider the patient's full medical history, including any prior or concurrent biological medicine use
- There is no clinical trial experience with Entyvio in patients previously treated with natalizumab. Given the known risk of PML development in patients with previous natalizumab exposure, physicians should normally wait 12 weeks after the last natalizumab dose prior to initiating Entyvio treatment.
- Patients treated with Entyvio should be monitored for any new onset or worsening of neurological signs and symptoms such as those listed below:
 - Progressive weakness on one side of the body or clumsiness of limbs
 - Disturbance of vision
 - Changes in thinking, memory, and orientation, leading to confusion and personality changes
- Any patients with new onset or worsening signs and symptoms suggestive of PML should be considered for neurological referral at a center equipped to diagnose PML.

ANNEX III
LABELLING AND PACKAGE LEAFLET

A. LABELLING

PARTICULARS TO APPEAR ON THE OUTER PACKAGING

CARTON

1. NAME OF THE MEDICINAL PRODUCT

Entyvio 300 mg powder for concentrate for solution for infusion
vedolizumab

2. STATEMENT OF ACTIVE SUBSTANCE(S)

Each vial contains 300 mg of vedolizumab.
After reconstitution each mL contains 60 mg of vedolizumab.

3. LIST OF EXCIPIENTS

Excipients: Sucrose, L-histidine, L-histidine monohydrochloride, L-arginine hydrochloride,
polysorbate 80.

4. PHARMACEUTICAL FORM AND CONTENTS

Powder for concentrate for solution for infusion
1 vial

5. METHOD AND ROUTE(S) OF ADMINISTRATION

Read the package leaflet before use.
For intravenous use after reconstitution and dilution.

6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN

Keep out of the sight and reach of children.

7. OTHER SPECIAL WARNING(S), IF NECESSARY

8. EXPIRY DATE

EXP

9. SPECIAL STORAGE CONDITIONS

Store in a refrigerator. Keep the vial in the outer carton in order to protect from light.

10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE

11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

Takeda Pharma A/S
Dybendal Alle 10
2630 Taastrup
Denmark

12. MARKETING AUTHORISATION NUMBER(S)

EU/1/14/923/001

13. BATCH NUMBER

Lot

14. GENERAL CLASSIFICATION FOR SUPPLY

15. INSTRUCTIONS ON USE

16. INFORMATION IN BRAILLE

Justification for not including Braille accepted.

17. UNIQUE IDENTIFIER – 2D BARCODE

2D barcode carrying the unique identifier included.

18. UNIQUE IDENTIFIER - HUMAN READABLE DATA

PC:
SN:
NN:

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

VIAL LABEL

1. NAME OF THE MEDICINAL PRODUCT AND ROUTE(S) OF ADMINISTRATION

Entyvio 300 mg powder for concentrate for solution for infusion
vedolizumab
For intravenous use after reconstitution and dilution.

2. METHOD OF ADMINISTRATION

For intravenous use after reconstitution and dilution.

3. EXPIRY DATE

EXP

4. BATCH NUMBER

Lot

5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT

300 mg

6. OTHER

B. PACKAGE LEAFLET

Package leaflet: Information for the patient

Entyvio 300 mg powder for concentrate for solution for infusion vedolizumab

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 or nurse.
- If you get any side effects, talk to your doctor or nurse. This includes any possible side effects not listed in this leaflet. See section 4.
- Your doctor will also give you a Patient Alert Card for you to keep with you at all times.

What is in this leaflet

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

1. What Entyvio is and what it is used for

Entyvio contains the active substance vedolizumab. Vedolizumab belongs to a group of biological medicines called monoclonal antibodies (MAbs). Vedolizumab blocks a protein on the surface of white blood cells that cause the inflammation in ulcerative colitis and Crohn's disease, and so the amount of inflammation is reduced.

Entyvio is used to treat the signs and symptoms in adults of:

- moderately to severely active ulcerative colitis
- moderately to severely active Crohn's disease.

Ulcerative colitis

Ulcerative colitis is an inflammatory disease of the large bowel. If you have ulcerative colitis, you will first be given other medicines. If you do not respond well enough or are intolerant to these medicines, your doctor may give you Entyvio to reduce the signs and symptoms of your disease.

Crohn's disease

Crohn's disease is an inflammatory disease of the gastrointestinal tract. If you have Crohn's disease you will first be given other medicines. If you do not respond well enough or are intolerant to these medicines, your doctor may give you Entyvio to reduce the signs and symptoms of your disease.

2. What you need to know before you are given Entyvio

You must not be given Entyvio:

- if you are allergic to vedolizumab or any of the other ingredients of this medicine (listed in section 6).
- if you have an active severe infection, for example, tuberculosis, blood poisoning, severe gastroenteritis, nervous system infection.

Warnings and precautions

Talk to your doctor or nurse before being given Entyvio.

Tell your doctor or nurse immediately when you first receive this medicine, during treatment, and between doses:

- if you experience blurred, loss of or double vision, difficulty speaking, weakness in an arm or a leg, a change in the way you walk or problems with your balance, persistent numbness, decreased sensation or loss of sensation, memory loss or confusion. These may all be symptoms of a **serious and potentially fatal brain condition** known as progressive multifocal leukoencephalopathy (PML).
- if you have an **infection**, or think you have an infection, if you develop chills, shivering, persistent cough or a high fever. Some infections may become serious and possibly even life-threatening if left untreated.
- if you experience signs of **an allergic reaction or other reaction to the infusion** such as wheezing, difficulty breathing, hives, itching, swelling or dizziness. These could occur during or after the infusion. For more detailed information, see infusion and allergic reactions in section 4.
- if you are going to receive any **vaccination** or have recently had a vaccination. Entyvio may affect the way you respond to a vaccination.
- if you have cancer, tell your doctor. Your doctor will have to decide if you can still be given Entyvio.
- if you are not feeling any better as vedolizumab may take up to 14 weeks to work in some patients with very active Crohn's disease.

Children and adolescents

Entyvio is not recommended for use in children or adolescents (under 18 years of age) due to the lack of information regarding the use of this medicine in this age group.

Other medicines and Entyvio

Tell your doctor or nurse if you are taking, have recently taken or might take any other medicines.

Entyvio should not be given with other biologic medicines that suppress your immune system as the effect of this is not known.

If you have previously taken natalizumab (a medicine used to treat multiple sclerosis) or rituximab (a medicine used to treat certain types of cancer and rheumatoid arthritis), tell your doctor, who will decide if you can be given Entyvio.

Pregnancy and breast-feeding

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

The effects of Entyvio in pregnant women are not known. Therefore, this medicine is not recommended for use during pregnancy unless you and your doctor decide that the benefit to you clearly outweighs the potential risk to yourself and your baby.

If you are a woman of childbearing potential, you are advised to avoid becoming pregnant while using Entyvio. You should use adequate contraception during treatment and for at least 4.5 months after the last treatment.

Tell your doctor if you are breast-feeding or planning to breast-feed. Entyvio passes into breast milk. There is insufficient information on what effect this may have on your baby. A decision must be made whether to discontinue breast-feeding or to discontinue/abstain from Entyvio therapy taking into account the benefit of breast feeding for the child and the benefit of therapy for the woman.

Driving and using machines

This medicine has a minor influence on your ability to drive or use tools or machines. A small number of patients have felt dizzy after receiving Entyvio. If you feel dizzy, do not drive or use tools or machines.

3. How Entyvio will be given

Dose and frequency

Treatment with Entyvio is the same for ulcerative colitis and Crohn's disease.

The recommended dose is 300 mg of Entyvio given as follows (see table below):

Treatment (infusion) number	Timing of treatment (infusion)
Treatment 1	0 weeks
Treatment 2	2 weeks after Treatment 1
Treatment 3	6 weeks after Treatment 1
Further treatments	Every 8 weeks

Your doctor may decide to alter this treatment schedule depending on how well Entyvio works for you.

- The infusion will be given to you, by your doctor or nurse, through a drip in one of the veins in your arm (intravenous infusion) over about 30 minutes.
- For your first 2 infusions, your doctor or nurse will monitor you closely during the infusion and for approximately 2 hours after you have completed the infusion. For all subsequent infusions (after the first two), you will be monitored during the infusion and for approximately 1 hour after you have completed the infusion.

If you forget or miss your Entyvio infusion

If you forget or miss an appointment to receive the infusion, make another appointment as soon as possible.

If you stop using Entyvio

You should not stop using Entyvio without talking with your doctor first.

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

4. Possible side effects

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

Possible serious side effects include infusion reactions or allergic reactions (may affect up to 1 in 100 people) and infections (may affect up to 1 in 10 people).

Tell your doctor **immediately** if you notice any of the following:

- wheezing or difficulty breathing
- hives
- itching of the skin
- swelling
- feeling sick
- pain at the infusion site
- redness of skin
- chills or shivering
- high fever or rash

Other side effects that you may experience while taking Entyvio are listed below. Tell your doctor **as soon as possible** if you notice any of the following:

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

- common cold
- joint pain
- headache

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

- fever
- chest infection
- tiredness
- cough
- flu (influenza)
- back pain
- throat pain
- sinus infection
- itching / itchiness
- rash and redness
- pain in the limb
- muscle cramps
- muscle weakness
- throat infection
- stomach flu
- anal infection
- anal sore
- hard faeces
- bloated stomach
- passing gas
- high blood pressure
- prickling or tingling
- heart burn
- haemorrhoids
- blocked nose
- eczema
- night sweats
- acne (pimples)

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

- redness and tenderness of hair follicle
- throat and mouth yeast infection
- vaginal infection
- shingles (herpes zoster)

Very rare side effects (may affect up to 1 in 10,000 people)

- pneumonia
- blurred vision (loss of sharpness of eyesight)
- sudden, severe allergic reaction which can cause breathing difficulty, swelling, fast heartbeat, sweating, drop in blood pressure, light-headedness, loss of consciousness and collapse (anaphylactic reaction and anaphylactic shock)

Reporting of side effects

If you get any side effects, talk to your doctor 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 in [Appendix V](#). By reporting side effects you can help provide more information on the safety of this medicine.

5. How to store Entyvio

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.

Entyvio is given by a doctor or nurse and patients should not need to store or handle Entyvio.

Entyvio is for single-use only.

Unopened vial: Store in a refrigerator (2 °C-8 °C). Keep the vial in the original carton in order to protect from light.

Reconstituted and diluted solutions: Use immediately. If this is not possible, reconstituted solution in the vial can be stored for up to 8 hours at 2 °C-8 °C. Diluted solution in sodium chloride 9 mg/mL (0.9%) solution for injection can be stored up to 12 hours at a room temperature of not above 25 °C, or up to 24 hours in a refrigerator (2 °C-8 °C), or for up to 12 hours at room temperature and in a refrigerator (2 °C-8 °C), up to a combined total of 24 hours. A 24 hour period may include up to 8 hours at 2 °C-8 °C for reconstituted solution in the vial and up to 12 hours at 20 °C-25 °C for diluted solution in the infusion bag but the infusion bag must be stored in the refrigerator (2 °C-8 °C) for the rest of the 24 hour period. Any time that the reconstituted solution was held in the vial should be subtracted from the time the solution may be held in the infusion bag.

Do not freeze.

Do not use this medicine if you notice any particles in the liquid or discolouration prior to administration.

Do not throw away any medicines via wastewater or household waste. 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 Entyvio contains

The **active substance** is vedolizumab. Each vial contains 300 mg of vedolizumab.

The **other ingredients** are L-histidine, L-histidine monohydrochloride, L-arginine hydrochloride, sucrose, and polysorbate 80.

What Entyvio looks like and contents of the pack

Entyvio is a white to off-white powder for concentrate for solution for infusion provided in a glass vial with a rubber stopper and a plastic cap.

Each pack of Entyvio consists of one vial.

Marketing Authorisation Holder

Takeda Pharma A/S
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2630 Taastrup
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Manufacturer

Delpharm Novara S.r.l.
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28065 Cerano (NO)
Italy

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St. Peter-Straße 25
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Other sources of information

This leaflet is available in formats suitable for the blind or partially sighted patient and can be requested from respective local representative of the Marketing Authorisation Holder.

Detailed information on this medicine is available on the European Medicines Agency web site:
<http://www.ema.europa.eu>.

The following information is intended for healthcare professionals only:

Instructions for reconstitution and infusion

1. Use aseptic technique when preparing Entyvio solution for intravenous infusion.
2. Remove flip-off cap from the vial and wipe with alcohol swab. Reconstitute vedolizumab with 4.8 mL of sterile water for injections at room temperature (20 °C-25 °C), using a syringe with a 21-25 gauge needle.
3. Insert needle into the vial through the centre of the stopper and direct the stream of liquid to the wall of the vial to avoid excessive foaming.
4. Gently swirl the vial for at least 15 seconds. Do not vigorously shake or invert.
5. Let the vial sit for up to 20 minutes at room temperature (20 °C-25 °C), to allow for reconstitution and for any foam to settle; the vial can be swirled and inspected for dissolution during this time. If not fully dissolved after 20 minutes, allow another 10 minutes for dissolution.
6. Inspect the reconstituted solution visually for particulate matter and discolouration prior to dilution. Solution should be clear or opalescent, colourless to light yellow and free of visible particulates. Reconstituted solution with uncharacteristic colour or containing particulates must not be administered.
7. Once dissolved, gently invert vial 3 times.
8. Immediately withdraw 5 mL (300 mg) of reconstituted Entyvio using a syringe with a 21-25 gauge needle.
9. Add the 5 mL (300 mg) of reconstituted Entyvio to 250 mL of sterile sodium chloride 9 mg/mL (0.9%) solution for injection, and gently mix the infusion bag (5 mL of sodium chloride 9 mg/mL (0.9%) solution for injection does not have to be withdrawn from the infusion bag prior to adding Entyvio). Do not add other medicinal products to the prepared infusion solution or intravenous infusion set. Administer the infusion solution over 30 minutes.

Once reconstituted, the infusion solution should be used as soon as possible.

	Storage Condition	
	Refrigerator (2 °C-8 °C)	20 °C-25 °C
Reconstituted solution in the vial	8 hours	Do not hold ¹
Diluted solution in sodium chloride 9 mg/mL (0.9%) solution for injection	24 hours ^{2, 3}	12 hours ²

¹ Up to 30 minutes are allowed for reconstitution

² This time assumes the reconstituted solution is immediately diluted in the sodium chloride 9 mg/mL (0.9%) solution for injection and held in the infusion bag only. Any time that the reconstituted solution was held in the vial should be subtracted from the time the solution may be held in the infusion bag.

³ This period may include up to 12 hours at 20 °C-25 °C.

Do not freeze. Do not store any unused portion of the reconstituted solution or infusion solution for reuse.

Each vial is for single-use only.

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

ANNEX IV

**SCIENTIFIC CONCLUSIONS AND GROUNDS FOR THE VARIATION TO THE TERMS
OF THE MARKETING AUTHORISATION(S)**

Scientific conclusions

Taking into account the PRAC Assessment Report on the PSUR(s) for vedolizumab, the scientific conclusions of the CHMP are as follows:

Based on plausible mechanism and available number of spontaneous reports of herpes zoster, the PRAC concluded that the product information should be updated with herpes zoster as a new adverse drug reaction with frequency uncommon.

The CHMP agrees with the scientific conclusions made by the PRAC.

Grounds for the variation to the terms of the Marketing Authorisation(s)

On the basis of the scientific conclusions for vedolizumab the CHMP is of the opinion that the benefit-risk balance of the medicinal product(s) containing vedolizumab is unchanged subject to the proposed changes to the product information.

The CHMP recommends that the terms of the Marketing Authorisation(s) should be varied.