

PRODUCT MONOGRAPH

PrREVOLADE[®]

Eltrombopag

12.5 mg, 25 mg, 50 mg and 75 mg Eltrombopag (as Eltrombopag Olamine) Tablets

Thrombopoietin Receptor Agonist

Novartis Pharmaceuticals Canada Inc.
385 Bouchard Blvd.
Dorval, Quebec
H9S 1A9

Date of Revision:
May 11, 2017

Submission Control No: 202335

REVOLADE is a registered trademark

TABLE OF CONTENTS

PART I: HEALTH PROFESSIONAL INFORMATION.....	3
SUMMARY PRODUCT INFORMATION.....	3
INDICATIONS AND CLINICAL USE.....	3
CONTRAINDICATIONS	4
WARNINGS AND PRECAUTIONS	4
ADVERSE REACTIONS	12
DRUG INTERACTIONS.....	25
DOSAGE AND ADMINISTRATION.....	27
OVERDOSAGE.....	36
ACTION AND CLINICAL PHARMACOLOGY.....	37
STORAGE AND STABILITY	41
DOSAGE FORMS, COMPOSITION AND PACKAGING	41
PART II: SCIENTIFIC INFORMATION	42
PHARMACEUTICAL INFORMATION.....	42
CLINICAL TRIALS.....	43
DETAILED PHARMACOLOGY	59
TOXICOLOGY	61
REFERENCES	65
PART III: CONSUMER INFORMATION	66

PrREVOLADE®

Eltrombopag Tablets
12.5 mg, 25 mg, 50 mg and 75 mg Eltrombopag (as Eltrombopag Olamine) Tablets

PART I: HEALTH PROFESSIONAL INFORMATION

SUMMARY PRODUCT INFORMATION

Route of Administration	Dosage Form / Strength	All Nonmedicinal Ingredients
Oral	Tablets/12.5 mg, 25 mg, 50 mg and 75 mg eltrombopag (as eltrombopag olamine)	Please refer to DOSAGE FORMS, COMPOSITION AND PACKAGING.

INDICATIONS AND CLINICAL USE

REVOLADE (eltrombopag) tablets are indicated for the treatment of chronic immune thrombocytopenia purpura (ITP) to increase platelet counts in adult and pediatric patients one year and older who have had an insufficient response to corticosteroids or immunoglobulins.

The median duration of treatment with REVOLADE in pediatric clinical trials was 5.6 months with a minimum duration of 0.5 months and a maximum duration of 9.0 months. The long-term safety and efficacy of REVOLADE have not been established in pediatric ITP patients.

REVOLADE is indicated to increase platelet counts in thrombocytopenic patients with chronic hepatitis C virus (HCV) infection to allow the initiation and maintenance of interferon-based therapy.

REVOLADE is indicated for the treatment of adult patients with severe aplastic anemia (SAA) who have had an insufficient response to immunosuppressive therapy.

Pediatrics (< 18 years of age):

The safety and efficacy of REVOLADE have not been established in pediatric ITP patients younger than 1 year. In pediatric clinical trials, subjects between 1 to 5 years of

age were administered REVOLADE as powder for oral suspension (see **CLINICAL TRIALS**). REVOLADE is only available as tablets and cannot be used in patients who are unable to swallow REVOLADE tablets whole (see **WARNINGS AND PRECAUTIONS**). The safety and efficacy of REVOLADE in pediatric patients with chronic HCV or SAA have not been established.

Geriatrics (≥ 65 years of age):

Clinical studies of REVOLADE did not include sufficient numbers of patients aged 65 and older to determine whether they respond differently from younger patients. In general, caution should be exercised in the administration and monitoring of REVOLADE in elderly patients, reflecting the greater frequency of decreased hepatic, renal or cardiac function and of concomitant disease or other drug therapy.

CONTRAINDICATIONS

REVOLADE (eltrombopag) is contraindicated in patients

- with severe hepatic impairment (Child-Pugh Class C) (see **WARNINGS AND PRECAUTIONS, Hepatic, Hepatic Impairment, and Hepatotoxicity**)
- who are hypersensitive to REVOLADE or to any of its excipients. For a complete listing of excipients (see **DOSAGE FORMS, COMPOSITION AND PACKAGING**)

In patients with chronic hepatitis C virus (HCV) infection, the Product Monographs for both pegylated interferon and ribavirin should be consulted for relevant contraindications associated with the use of these products.

WARNINGS AND PRECAUTIONS

Serious Warnings and Precautions

REVOLADE should be used with caution in chronic hepatitis C patients with cirrhosis as it may increase the risk of hepatic decompensation and death when administered with pegylated interferon and ribavirin. Patients with low albumin levels (<35 g/L) or Model for End-Stage Liver Disease (MELD) score ≥ 10 at baseline had a greater risk of hepatic decompensation. Patients with these characteristics should be closely monitored for signs and symptoms of hepatic decompensation (see **WARNINGS AND PRECAUTIONS, Hepatic, Hepatic Decompensation - Use with Interferon**).

REVOLADE is only available as tablets and should not be used in patients who are unable to swallow REVOLADE tablets whole (see **DOSAGE AND ADMINISTRATION, Dosing Considerations**).

General

The diagnosis of ITP in pediatric patients as well as adults and elderly patients should be confirmed by exclusion of other clinical entities presenting with thrombocytopenia. The effectiveness and safety of REVOLADE (eltrombopag) have not been established for use in other thrombocytopenic conditions including chemotherapy-induced thrombocytopenia and myelodysplastic syndromes (MDS). There is a theoretical concern that thrombopoietin receptor agonists, including REVOLADE, may stimulate the progression of existing haematopoietic malignancies such as MDS (see **Hematologic malignancies** below). Consideration should be given to performing a bone marrow aspirate and biopsy over the course of the disease and treatment, particularly in patients over 60 years of age, those with systemic symptoms or abnormal signs such as increased peripheral blast cell.

In patients with chronic hepatitis C virus (HCV) infection, the Product Monographs for both pegylated interferon and ribavirin should be consulted for relevant warnings and precautions associated with the use of these products.

The safety and efficacy of REVOLADE has not been established in combination with direct acting antiviral agents used in the treatment of chronic hepatitis C virus (see **DRUG INTERACTIONS, Drug-Drug Interactions, HCV Protease Inhibitors**).

Hematologic

Thrombotic or thromboembolic complications: Platelet counts above the normal range may present an increased risk of thrombotic complications. The risk of thromboembolic events (TEE), such as portal vein thrombosis, has been found to be increased in patients with chronic liver disease treated with 75 mg REVOLADE once daily for two weeks in preparation for invasive procedures. Therefore, REVOLADE should not be used in ITP and SAA patients with hepatic impairment (Child-Pugh Class A and B) unless the expected benefit outweighs the identified risk of portal venous thrombosis, an adverse event which may lead to death (see **DOSAGE AND ADMINISTRATION**).

In adult clinical trials with REVOLADE in ITP (n = 446), 17 subjects experienced a total of 19 TEEs, which included deep vein thrombosis (n = 6), pulmonary embolism (n = 6), acute myocardial infarction (n = 2), cerebral infarction (n = 2), and embolism (n = 1). TEEs were observed at low and normal platelet counts. Caution should be used when administering REVOLADE to patients with known risk factors for thromboembolism including but not limited to inherited (e.g. Factor V Leiden) or acquired risk factors (e.g. ATIII deficiency, antiphospholipid syndrome and systemic lupus erythematosus), advanced age, patients with prolonged periods of immobilisation, malignancies, contraceptives and hormone replacement therapy, surgery/trauma, obesity and smoking. Platelet counts should be closely monitored and consideration given to reducing the dose or discontinuing REVOLADE if the platelet count exceeds the target levels (see **DOSAGE and ADMINISTRATION**). The risk-benefit balance should be considered in patients at risk of TEEs of any aetiology.

In controlled studies in thrombocytopenic subjects with HCV receiving interferon-based therapy (n = 1439), 38 out of 955 subjects (4 %) treated with REVOLADE and 6 out of 484 subjects (1%) in the placebo group experienced TEEs. Subjects with low albumin levels (≤ 35 g/L), MELD score ≥ 10 , or age greater than 60 years demonstrated an increased risk of TEE. REVOLADE should only be administered to such patients after careful consideration of the expected benefits in comparison with the risks. Patients should be closely monitored for signs and symptoms of TEEs.

Reported thrombotic/thromboembolic complications included both venous and arterial events. The majority of TEEs were non-serious and resolved by the end of the study. Portal vein thrombosis was the most common TEE in both treatment groups (2% in subjects treated with REVOLADE versus < 1 % for placebo). No specific temporal relationship between start of treatment and occurrence of TEE was observed.

During post-market experience, cases of thrombotic microangiopathy with acute renal failure were reported in association with REVOLADE administration in ITP patients. Renal function recovered partially with discontinuation of REVOLADE and in one case renal function worsened on treatment. In some of these reported cases of thrombotic microangiopathy with acute renal failure the patients had concurrent risk factors for thromboembolism (e.g. antiphospholipid syndrome and systemic lupus erythematosus).

Re-occurrence of thrombocytopenia following discontinuation of REVOLADE: Thrombocytopenia is likely to reoccur upon discontinuation of treatment with REVOLADE in ITP patients. Following discontinuation of REVOLADE, platelet counts return to baseline levels within 2 weeks in the majority of patients (see **CLINICAL TRIALS**), which increases the bleeding risk and in some cases may lead to bleeding. This risk is increased if REVOLADE is discontinued in the presence of anticoagulants or antiplatelet agents. It is recommended that, if treatment with REVOLADE is discontinued, ITP treatment be restarted according to current treatment guidelines. Additional medical management may include cessation of anticoagulant and/or antiplatelet therapy, reversal of anticoagulation, or platelet support. Platelet counts must be monitored weekly for 4 weeks following discontinuation of REVOLADE.

Bone marrow reticulin formation and risk of bone marrow fibrosis: Thrombopoietin receptor (TPO-R) agonists, including REVOLADE, may increase the risk for development or progression of reticulin fibers within the bone marrow.

In a longitudinal 2-year bone marrow study with 162 previously treated adults with ITP, where serial bone marrow biopsies from baseline and after 1 and 2 years of treatment with eltrombopag were compared, results showed increases from baseline in bone marrow fibrosis grade and development of collagen fibres while on treatment in some subjects (see **ADVERSE REACTIONS, Bone Marrow Reticulin Formation**). In the 4 subjects who had post-treatment biopsies performed to assess the reversibility in fibrosis, 3 had post-treatment biopsies that showed a lower bone marrow fibrosis grade after discontinuation of treatment. The clinical relevance of these findings has not been established. None of the subjects had clinical symptoms typical of bone marrow

dysfunction or abnormalities of clinical concern reported in the complete blood count or peripheral blood smear.

In the adult ITP clinical trials 3 subjects discontinued eltrombopag treatment due to bone marrow reticulin deposition.

Prior to initiation of REVOLADE, examine the peripheral blood smear closely to establish a baseline level of cellular morphologic abnormalities. Following identification of a stable dose of REVOLADE, examine peripheral blood smears and complete blood counts (CBC) monthly for new or worsening morphological abnormalities (e.g., teardrop and nucleated red blood cells, immature white blood cells) or cytopenia(s). If the patient develops new or worsening morphological abnormalities or cytopenia(s), discontinue treatment with REVOLADE and consider a bone marrow biopsy, including staining for fibrosis.

Cytogenetic abnormalities: Cytogenetic abnormalities are known to occur in SAA patients. It is not known whether REVOLADE increases the risk of cytogenetic abnormalities in patients with SAA. In the phase II SAA clinical study with REVOLADE, the incidence of new cytogenetic abnormalities was observed in 19% of subjects [8/43 (where 5 of them had changes in chromosome 7)]. The median time on study to a cytogenetic abnormality was 2.9 months.

For SAA patients who have an insufficient response to immunosuppressive therapy, bone marrow examination with aspirations for cytogenetics is recommended prior to initiation of REVOLADE, at 3 months of treatment and 6 months thereafter. Discontinuation of REVOLADE should be considered if new cytogenetic abnormalities are observed.

Hematologic malignancies: TPO-R agonists are growth factors that lead to thrombopoietic progenitor cell expansion, differentiation and platelet production. The TPO-R is predominantly expressed on the surface of cells of the myeloid lineage. For TPO-R agonists there is a theoretical concern that they may stimulate the progression of existing haematopoietic malignancies such as myelodysplasia (MDS).

In clinical trials with REVOLADE in SAA, 5% of subjects (4/73) were diagnosed with MDS. The median time to diagnosis was 3 months from the start of REVOLADE treatment.

Prior to initiation of REVOLADE, examine the peripheral blood smear closely to establish a baseline level of cellular morphologic abnormalities. Following identification of a stable dose of REVOLADE, examine peripheral blood smears and complete blood counts (CBC) monthly for new or worsening morphological abnormalities (e.g., teardrop and nucleated red blood cells, immature white blood cells) or cytopenia(s). If the patient develops new or worsening morphological abnormalities or cytopenia(s), discontinue treatment with REVOLADE and consider a bone marrow biopsy.

Discontinuation of REVOLADE should be considered if hematologic malignancies develop.

Hepatic

Hepatotoxicity: REVOLADE administration can cause abnormal liver function, severe hepatotoxicity and potentially fatal liver injury.

Cases of severe drug-induced liver injury have been reported during clinical trials and post-marketing; the events resolved following discontinuation of REVOLADE.

In the controlled clinical studies in adult and pediatric subjects (aged 1 to 17 years) with chronic ITP who received REVOLADE (see **CLINICAL TRIALS**), increases in serum alanine aminotransferase (ALT), aspartate aminotransferase (AST) and bilirubin were observed. These findings were mostly mild (Grade 1-2), reversible and not accompanied by clinically significant symptoms that would indicate impaired liver function. Across three placebo-controlled studies in adults with chronic ITP, one subject in the placebo group and one subject in the REVOLADE group experienced a Grade 4 liver test abnormality. In two placebo-controlled studies in pediatric subjects (aged 1 to 17 years) with chronic ITP, ALT ≥ 3 times the upper limit of normal (\times ULN) was reported in 5 (4.7%) subjects and no (0%) subjects in the REVOLADE and placebo groups, respectively. Two of the 5 REVOLADE subjects (one White; one East Asian (defined as Japanese, East Asian or South East Asian)) had increases in ALT $\geq 5 \times$ ULN. Most hepatobiliary laboratory abnormalities and hepatobiliary adverse events occurred in subjects 6-11 years of age. Among 171 pediatric subjects who received at least one dose of REVOLADE at any time in either study (median duration of treatment of 171 days), there were an additional 7 subjects with ALT $\geq 3 \times$ ULN, among them 5 subjects (1 White; 4 East Asian) with increases in ALT $\geq 5 \times$ ULN.

In clinical trials in patients with chronic hepatitis C, 11 patients treated with REVOLADE (1%) experienced drug-induced liver injury. In two controlled clinical studies in thrombocytopenic subjects with HCV, ALT or AST $\geq 3 \times$ the upper limit of normal (ULN) were reported in 34 % and 38 % of the REVOLADE and placebo groups, respectively. REVOLADE administration in combination with peginterferon/ribavirin therapy is associated with indirect hyperbilirubinaemia. Overall, total bilirubin $\geq 1.5 \times$ ULN was reported in 76 % and 50 % of the REVOLADE and placebo groups, respectively.

In the single-arm phase II SAA study, adverse events due to transaminase increases were reported in 26% (11/43) of subjects. Concurrent ALT or AST $> 3 \times$ ULN with total (indirect) bilirubin $> 1.5 \times$ ULN were reported in 5% of subjects. ALT or AST $> 3 \times$ ULN were reported in 21% of subjects and $> 5 \times$ ULN in 9% of subjects. Total bilirubin $> 1.5 \times$ ULN occurred in 14% of subjects.

Measure serum ALT, AST and bilirubin prior to initiation of REVOLADE, every 2 weeks during the dose adjustment phase, and monthly following establishment of a stable dose. If bilirubin is elevated, perform fractionation. Evaluate abnormal serum liver tests with repeat testing within 3 to 5 days. If the abnormalities are confirmed, monitor serum liver tests until the abnormalities resolve, stabilize, or return to baseline

levels. Discontinue REVOLADE if ALT levels increase (≥ 3 x ULN) in patients with normal liver function or ≥ 3 x baseline (or > 5 x ULN, whichever is the lower) in patients with elevations in transaminases before treatment and that are:

- progressive, or
- persistent for ≥ 4 weeks, or
- accompanied by increased direct bilirubin, or
- accompanied by clinical symptoms of liver injury or evidence for hepatic decompensation.

Hepatic Impairment: Exercise caution when administering REVOLADE to patients with any degree of hepatic disease, since exposure to eltrombopag increases with increasing degrees of hepatic impairment (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions, Hepatic Impairment**). REVOLADE should not be used in ITP and SAA patients with mild or moderate hepatic impairment (Child-Pugh Class A and B) unless the expected benefit outweighs the identified risk of portal venous thrombosis, which can lead to death. Use a lower starting dose if REVOLADE is administered to these patients (see **DOSAGE AND ADMINISTRATION, Hepatic Impairment**). No dosage adjustment is necessary for HCV patients with mild or moderate hepatic impairment.

REVOLADE is contraindicated in patients with severe hepatic impairment (see **CONTRAINDICATIONS**). Due to limited data in patients with severe hepatic impairment (Child-Pugh Class C), a risk-benefit profile could not be established in this patient population.

Hepatic Decompensation – Use with Interferon: Chronic hepatitis C virus infected patients with cirrhosis may be at risk of hepatic decompensation and death when receiving therapy with pegylated interferon and ribavirin. In subjects with low albumin levels (< 35 g/L) or Model for End-Stage Liver Disease (MELD) score ≥ 10 at baseline, there was a 3-fold greater risk of hepatic decompensation, and an increase in the risk of a fatal adverse event compared to those without advanced liver disease.

In two controlled clinical trials in subjects with chronic hepatitis C virus infection and thrombocytopenia, adverse events related to hepatic decompensation (ascites, hepatic encephalopathy, variceal haemorrhage, and spontaneous bacterial peritonitis) were reported more frequently in the REVOLADE arm (11%) than in the placebo arm (6%).

REVOLADE should only be administered to such patients after careful consideration of the expected benefits compared to the associated risks. Patients with these characteristics should be closely monitored for signs and symptoms of hepatic decompensation.

Ophthalmologic

Cataracts: In two controlled clinical studies in thrombocytopenic adult subjects with HCV (n=1439), receiving interferon therapy, progression of pre-existing baseline

cataract(s) or incident cataract was reported in 8 % of subjects treated with REVOLADE and 5 % of subjects treated with placebo. In one uncontrolled extension study in adult subjects with chronic ITP, cataract developed in 9% of subjects and was considered a serious adverse event in 5% of subjects. Cataracts were observed in toxicology studies of eltrombopag in rodents (see **TOXICOLOGY, Repeat Dose Toxicity**).

In two placebo-controlled studies in pediatric subjects (aged 1 to 17 years) with chronic ITP, two cataract events occurred in subjects who received at least one dose of REVOLADE at any time on study. In studies in pre-weaning juvenile rats treated with non-tolerated doses and younger mice treated with tolerated doses, ocular opacities have been observed (see **TOXICOLOGY, Juvenile Toxicity**).

Perform a baseline ocular examination prior to administration of REVOLADE, and regularly monitor patients for signs and symptoms of cataracts during therapy with REVOLADE.

Renal

Renal Impairment: Patients with renal impairment may have decreased exposure to eltrombopag (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions, Renal Impairment**).

REVOLADE should be used with caution in patients with impaired renal function, and close monitoring performed, for example, by testing serum creatinine and/or urine analysis (see **DOSAGE AND ADMINISTRATION, Renal Impairment**).

There are limited data with the use of REVOLADE in patients with severe renal impairment (creatinine clearance < 30mL/min), therefore it is generally not recommended for use in these patients.

Reproduction

Eltrombopag did not affect female or male fertility in rats at doses 2 and 3 times respectively, the human clinical exposure based on AUC (see **TOXICOLOGY, Reproductive and Developmental Toxicity**).

Special Populations

Pregnant Women: REVOLADE has not been studied in pregnant women. REVOLADE should only be used during pregnancy if the expected benefit justifies the potential risk to the fetus.

Eltrombopag was studied in pregnant rats and rabbits, and caused a low incidence of cervical ribs (a fetal variation) along with reduced fetal body weight at doses that were maternally toxic (see **TOXICOLOGY, Reproductive and Developmental Toxicity**).

In patients with chronic hepatitis C virus infection, REVOLADE must be used in combination with pegylated interferon and ribavirin. Teratogenic and/or embryocidal

effects have been demonstrated in all animal species exposed to ribavirin, while interferons have been shown to have abortifacient effects in animals. Refer to the prescribing information for pegylated interferon and ribavirin for full details.

Nursing Women: It is not known whether eltrombopag is excreted in human milk. Studies in animals have shown that eltrombopag is likely secreted into milk (see **TOXICOLOGY**); therefore a risk to the suckling child cannot be excluded. REVOLADE is not recommended for nursing mothers unless the expected benefit justifies the potential risk to the infant.

Pediatrics (<18 years of age): The safety and efficacy of REVOLADE have not been established in pediatric ITP patients younger than 1 year. Data are very limited for pediatric patients with chronic ITP between 1 and 2 years of age. Cataracts were observed in clinical trials with pediatric ITP patients and in juvenile rodents in an age-dependant manner with the youngest animals having the highest incidence. There are insufficient clinical data to determine whether pediatric patients are at an increased risk of Revolade-induced cataracts. For all patients, regardless of age, perform a baseline ocular examination prior to administration of REVOLADE, and regularly monitor for signs and symptoms of cataracts during therapy with REVOLADE.

The safety and efficacy of REVOLADE in pediatric patients with chronic HCV or SAA have not been established.

Geriatrics (>65 years of age): Clinical studies of REVOLADE did not include sufficient numbers of patients aged 65 and older to determine whether they respond differently from younger patients. In general, caution should be exercised in the administration and monitoring of REVOLADE in elderly patients, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of concomitant disease or other drug therapy.

East Asian Patients: A reduced dose of REVOLADE is recommended in East Asian patients with SAA and ITP but not in East Asian patients with chronic HCV (see **DOSAGE AND ADMINISTRATION**).

Monitoring and Laboratory Tests

Complete Blood Counts (CBC): Monitor CBC, including platelet counts and peripheral blood smears, prior to initiation, throughout, and following discontinuation of therapy with REVOLADE. Prior to the initiation of REVOLADE, examine the peripheral blood differential to establish the extent of red and white blood cell abnormalities. Obtain CBC, including platelet counts and peripheral blood smears, weekly during the dose adjustment phase of therapy with REVOLADE and then monthly following establishment of a stable dose of REVOLADE. The dose of REVOLADE may need to be modified based on platelet counts (see **DOSAGE AND ADMINISTRATION**). Examine the monthly peripheral blood smears and CBC for new or worsening morphologic abnormalities or cytopenia(s); if present, discontinue treatment with REVOLADE and consider a bone marrow biopsy, including staining for fibrosis. Obtain

CBC, including platelet counts, weekly for 4 weeks following discontinuation of REVOLADE.

Liver Tests: Monitor serum liver tests (ALT, AST, and bilirubin) prior to initiation of REVOLADE, then every 2 weeks during the dose adjustment phase, and monthly following establishment of a stable dose. If bilirubin is elevated, perform fractionation. If abnormal levels are detected, repeat the tests within 3 to 5 days. If the abnormalities are confirmed, monitor serum liver tests weekly until the abnormalities resolve, stabilize, or return to baseline levels. Discontinue REVOLADE if important liver test abnormalities occur (see **DOSAGE AND ADMINISTRATION**).

Bone Marrow Examination: For ITP patients, consideration should be given to performing a bone marrow aspirate and biopsy over the course of the disease and treatment, particularly in patients over 60 years of age, those with systemic symptoms or abnormal signs such as increased peripheral blast cell. For SAA patients who have an insufficient response to immunosuppressive therapy, bone marrow examination with aspirations for cytogenetics is recommended prior to initiation of REVOLADE, at 3 months of treatment and 6 months thereafter. Discontinuation of REVOLADE should be considered if new cytogenetic abnormalities are observed.

Refer to the pegylated interferon and ribavirin Product Monographs for directions regarding dose reduction or discontinuation, as well as pregnancy testing requirements.

ADVERSE REACTIONS

Adverse Drug Reaction Overview

In the adult ITP clinical studies, hemorrhage was the most common serious adverse reaction and most hemorrhage reactions followed discontinuation of REVOLADE (eltrombopag). Other serious adverse reactions included liver test abnormalities and thromboembolic complications.

Based on an analysis of adult chronic ITP subjects receiving REVOLADE in 3 controlled and 2 uncontrolled clinical studies, the median duration of exposure to REVOLADE was 379 days and patient year's exposure was 584 in this study population. Based on a final analysis of adult chronic ITP subjects receiving REVOLADE in one uncontrolled extension study, the median daily dose was 51 mg and the median duration of exposure was 865 days. The safety of REVOLADE in pediatric subjects (aged 1 to 17 years) with previously treated chronic ITP has been demonstrated in a pooled safety population of 157 subjects, 107 treated with REVOLADE and 50 treated with placebo. The median exposure to REVOLADE in the randomized period was 91 days. The most common adverse reactions observed with REVOLADE ($\geq 10\%$ and greater than placebo) were upper respiratory tract infection and nasopharyngitis. The number of subjects with adverse events leading to discontinuation from study treatment was 1.9% versus 2.0%, REVOLADE versus placebo, respectively.

In the HCV clinical studies, the safety of REVOLADE in combination with interferon and ribavirin is supported by a clinical database of 1576 eltrombopag-treated adult subjects enrolled in two pivotal, placebo-controlled, phase III studies and one supportive phase II study. The total patient years of exposure to eltrombopag in this study population was 674.06. The most commonly reported adverse events were fatigue, headache, myalgia, fever, and rigors. The Product Monographs for both pegylated interferon and ribavirin should be consulted for relevant safety information.

In the SAA pivotal phase II study (n=43), nausea, fatigue, cough, diarrhea, and headache were the most common adverse events reported. The most common serious adverse events reported were febrile neutropenia, sepsis and viral infection.

Clinical Trial Adverse Drug Reactions

Because clinical trials are conducted under very specific conditions the adverse reaction rates observed in the clinical trials may not reflect the rates observed in practice and should not be compared to the rates in the clinical trials of another drug. Adverse drug reaction information from clinical trials is useful for identifying drug-related adverse events and for approximating rates.

Adult Chronic Immune Thrombocytopenia Purpura (ITP)

The safety of REVOLADE has been demonstrated in two randomised, double-blind, placebo controlled studies in 211 adults with previously treated chronic ITP. Most adverse reactions associated with REVOLADE were mild to moderate in severity, early in onset and rarely treatment limiting. The most common adverse events were nausea, vomiting, diarrhea and headache. The drug-related adverse events occurring in $\geq 1\%$ of adult subjects, and which were more common in the treatment group as compared to placebo in the Phase III, double-blind, placebo-controlled 6 week study, TRA100773B, and 6 month study, RAISE (TRA102537), are presented in Table 1 and Table 2, respectively.

The safety of REVOLADE over long-term dosing was evaluated in one single arm, open-label, extension study, EXTEND (TRA105325), in 302 adult subjects with previously treated chronic ITP who were previously enrolled in an eltrombopag study. Overall, the safety data from this study reflect the known safety profile of REVOLADE. Drug-related adverse events occurring in $\geq 3\%$ of subjects are presented in Table 3.

Table 1 Drug-Related Adverse Events $\geq 1\%$ in Adult ITP Subjects over 6 weeks (Study TRA100773B)

Body System/Adverse Event	Treatment Group, n (%)	
	REVOLADE N=76	Placebo N=38
Cardiac disorders		
Sinus tachycardia	1(1)	0
Gastrointestinal		
Nausea	4(5)	0
Vomiting	2(3)	0
Abdominal distension	1(1)	0
Constipation	1(1)	0
Diarrhea	1(1)	0
Hemorrhoids	1(1)	0
Hepatobiliary disorders		
Hepatic function abnormal	1(1)	0
General disorders and administration site conditions		
Fatigue	2(3)	0
Malaise	1(1)	0
Investigations		
Protein total increased	3(4)	1(3)
ALT increased	2(3)	0
AST increased	2(3)	0
Metabolism and nutrition disorders		
Hypokalemia	1(1)	0
Musculoskeletal and connective tissue disorders		
Myalgia	3(4)	0
Arthralgia	1(1)	0
Bone pain	1(1)	0
Nervous system disorders		
Headache	4(5)	1(3)
Psychiatric disorders		
Sleep disorder	1(1)	0
Skin and subcutaneous tissue disorders		
Alopecia	1(1)	0
Night sweats	1(1)	0

Table 2 Drug-Related Adverse Events \geq 1% in Adult ITP Subjects over 6 months (RAISE)

Body System/Adverse Event	Treatment Group, n (%)	
	REVOLADE N=135	Placebo N=61
Eye disorders		
Dry eye	2(1)	0
Gastrointestinal		
Nausea	6(4)	0
Constipation	3(2)	1(2)
Diarrhea	4(3)	0
Dry mouth	3(2)	0
Vomiting	2(1)	0
General Disorders and Administration Site Conditions		
Feeling hot	2(1)	0
Hepatobiliary disorders		
Hepatic function abnormal	2(1)	0
Investigations		
ALT increased	6(4)	2(3)
Hemoglobin increased	2(1)	0
Transaminases increased	2(1)	0
Musculoskeletal and connective tissue disorders		
Arthralgia	2(1)	0
Nervous system disorder		
Headache	15(11)	5(8)
Paraesthesia	3(2)	0
Skin and subcutaneous tissue disorders		
Hyperhidrosis	3(2)	0
Rash	2(1)	0

Clinical Trial Adverse Drug Reactions occurring in <1% of Adult ITP Subjects

The drug-related adverse events occurring in <1% of REVOLADE treated subjects (with a higher incidence compared to placebo) in the phase III, double-blind, placebo-controlled studies are presented below. The events are categorized by body system.

Blood and lymphatic system disorders: bone marrow reticulin increased

Cardiac Disorders: tachycardia

Ear and labyrinth disorders: vertigo

Eye Disorders: eye pain, lacrimation increased, lenticular opacities, retinal depigmentation hemorrhage, visual acuity reduced

Gastrointestinal: abdominal pain, abdominal pain upper, dyspepsia, feces discoloured, glossodynia, oral discomfort

General disorders and administration site conditions: asthenia, inflammation of wound, sensation of foreign body

Hepatobiliary disorders: hepatic lesions, hyperbilirubinemia

Infections and infestations: oral herpes, pharyngitis, sinusitis

Investigations: blood albumin increased, blood alkaline phosphatase increased, blood creatinine increased, hepatic enzyme increased

Metabolism and nutrition disorder: decreased appetite,

Neoplasms, benign, malignant and unspecified (incl. cysts and polyps):
Rectosigmoid cancer

Nervous system disorder: dysaesthesia, dysgeusia, hypoesthesia, somnolence

Skin and subcutaneous tissue disorders: cold sweat, pruritus, pruritus generalized, skin exfoliation, swelling face, urticaria

Respiratory, thoracic and mediastinal disorder: oropharyngeal blistering, pulmonary embolism, pulmonary infarction, sinus disorder

Vascular disorders: deep vein thrombosis, hot flush, thrombophlebitis superficial

In an additional clinical trial in subjects with chronic ITP, one subject treated with REVOLADE (<1%) experienced drug-induced liver injury.

Bone Marrow Reticulin Formation:

Serial bone marrow biopsies were collected in a longitudinal 2-year bone marrow study with 162 previously treated adults with ITP. Results showed increases in bone marrow fibrosis grade from baseline in 34% of subjects and the presence of collagen in 6 subjects after 1 or 2 years of eltrombopag treatment. The shifts from baseline in subjects with available biopsies are presented in Table 3. Collagen was not present in any subjects at baseline. Four subjects had post-treatment biopsies performed to assess the reversibility in fibrosis. Three of the 4 post-treatment biopsies showed a lower bone marrow fibrosis grade after discontinuation of treatment and 1 showed no change in bone marrow fibrosis grade.

Table 3 Shifts From Baseline To On-Treatment Assessment of European Consensus Scale

Time interval	n	Baseline grade	Maximum grade during time interval (N=162)				Total
			MF-0	MF-1	MF-2	MF-3	
1-year	127	MF-0	82 (65)	33 (26)	2 (2)	2 (2)	119 (94)
		MF-1	3 (2)	2 (2)	1 (<1)	0	6 (5)
		MF-2	0	0	0	0	0
		MF-3	0	0	0	0	0
		Missing	2 (2)	0	0	0	2 (2)
		Total	87 (69)	35 (28)	3 (2)	2 (2)	127 (100)
2-year	93	MF-0	79 (85)	9 (10)	0	0	88 (95)
		MF-1	2 (2)	1 (1)	0	0	3 (3)
		MF-2	0	0	0	0	0
		MF-3	0	0	0	0	0
		Missing	2 (2)	0	0	0	2 (2)
		Total	83 (89)	10 (11)	0	0	93 (100)

European Consensus scale, MF. MF-0: Scattered linear reticulin with no intersections corresponding to normal bone marrow; MF-1: Loose network of reticulin with many intersections, especially in perivascular areas; MF- 2: Diffuse and dense increase in reticulin with extensive intersections, occasionally only focal bundles of collagen and/or focal osteosclerosis; MF-3: Diffuse and dense increase in reticulin with extensive intersections with coarse bundles of collagen, often associated with significant osteosclerosis.

EXTEND (TRA105325)

Table 4 Drug-Related Adverse Events ≥ 3% in Adult Chronic ITP Subjects in EXTEND (Safety Population)

Preferred Term	Eltrombopag N=302
Any AE; n (%)	133 (44)
Headache	30 (10)
Alanine aminotransferase increased	16 (5)
Aspartate aminotransferase increased	15 (5)
Cataract	15 (5)
Fatigue	14 (5)
Blood bilirubin increased	12 (4)
Nausea	11 (4)
Hyperbilirubinaemia	9 (3)
Diarrhoea	8 (3)

Pediatric Chronic Immune Thrombocytopenia Purpura (ITP)

PETIT2 (TRAI15450)

The data described below reflect median exposure to REVOLADE of 91 days for 92 pediatric subjects (aged 1 to 17 years) with chronic ITP in the Randomized Period of the randomized, placebo-controlled Phase III PETIT2 trial.

The overall incidence of adverse events (AEs) was higher in REVOLADE subjects (81%) than in placebo subjects (72%). The incidence of Grade 3 AEs was 13% versus 7% in the REVOLADE group versus the placebo group, respectively. Grade 3 events were predominantly hepatobiliary AEs in the REVOLADE group and bleeding AEs in the placebo group.

Table 5 presents the most common adverse reactions (experienced by greater than or equal to 3% of pediatric subjects one year and older) in study PETIT2, with a higher incidence for REVOLADE versus placebo.

Table 5 Adverse Reactions ($\geq 3\%$) with a Higher Incidence for REVOLADE versus Placebo in Pediatric Subjects 1 Year and Older with Chronic ITP in Study PETIT2 (Randomized Period Safety Population)

Body System/Adverse Reaction	Treatment Group, n (%)	
	REVOLADE N= 63	Placebo N= 29
Gastrointestinal		
Abdominal pain	6 (9.5)	0
Diarrhea	3 (4.8)	0
Toothache	3 (4.8)	0
General disorders and administration site conditions		
Pyrexia	4 (6.3)	1 (3.4)
Infections and Infestations		
Nasopharyngitis	11 (17.5)	2 (6.9)
Rhinitis	10 (15.9)	2 (6.9)
Upper respiratory tract infection	7 (11.1)	1 (3.4)
Investigations		
AST increased	4 (6.3)	0
ALT increased	3 (4.8)	0
Metabolism and Nutrition Disorders		
Decreased appetite	3 (4.8)	0
Vitamin D deficiency	3 (4.8)	0
Respiratory, thoracic, and mediastinal disorders		
Cough	7 (11.1)	0
Oropharyngeal pain	3 (4.8)	0
Skin and subcutaneous tissue disorders		
Rash	3 (4.8)	0

Clinical Trial Adverse Reactions occurring in <3% of Pediatric Subjects

The adverse reactions occurring in <3% of pediatric subjects (with a higher incidence on REVOLADE compared to placebo) in study PETIT2 are presented below. The events are categorized by body system.

Blood and lymphatic system disorders: anemia

Ear and labyrinth disorders: motion sickness

Eye Disorders: retinal vascular disorder

Gastrointestinal disorders and administration site conditions: constipation, dyspepsia, lip hemorrhage, mouth hemorrhage, nausea

General disorders and administration site conditions: pain, asthenia, non-cardiac chest pain

Immune system disorders: allergy to chemicals

Infections and infestations: bronchitis, cellulitis, furuncle, influenza, lice infestation, meningitis aseptic, pharyngitis, pneumonia, pneumonia fungal, subcutaneous abscess, viral pharyngitis

Injury, poisoning and procedural complications: contusion, excoriation, joint injury, soft tissue injury

Investigations: activated partial thromboplastin time prolonged, blood alkaline phosphatase increased, alanine aminotransferase abnormal, aspartate aminotransferase abnormal, platelet count increased

Musculoskeletal and connective tissue disorders: back pain, groin pain, osteoporosis

Nervous system disorders: paresthesia, somnolence

Psychiatric disorders: bulimia nervosa

Skin and subcutaneous tissue disorders: dermatitis allergic, rash pruritic

Respiratory, thoracic and mediastinal disorders: bronchospasm, rhinorrhea, tonsillar hypertrophy

Chronic Hepatitis C Virus Infection

ENABLE 1 (N=716) and ENABLE 2 (N=805) were randomized, double-blind, placebo-controlled, multicentre studies to assess the efficacy and safety of REVOLADE in thrombocytopenic subjects with HCV infection who were otherwise eligible to initiate antiviral therapy (see CLINICAL TRIALS).

In the HCV studies, the safety population consisted of all randomized subjects who received double-blind study drug during Part 2 of ENABLE 1 (REVOLADE N=449, placebo N=232) and ENABLE 2 (REVOLADE N=506, placebo N=252).

Table 6 presents the most common adverse reactions, as determined by higher incidence in the eltrombopag arm and reported during the double-blind phase of ENABLE 1 and ENABLE 2 (experienced by ≥ 3 % of subjects receiving REVOLADE, compared to placebo).

Table 6 Adverse Drug Reactions (Grades 2-4) ≥ 3 % in Two Placebo-Controlled Studies in Adults with Chronic Hepatitis C Virus (ENABLE 1 and ENABLE 2)

Body System/Adverse Event	Eltrombopag (N=955)	Placebo (N=484)
ANY EVENT	769 (81%)	392 (81%)

Body System/Adverse Event	Eltrombopag (N=955)	Placebo (N=484)
Blood and lymphatic system disorders		
Anaemia	236 (25%)	112 (23%)
Lymphopenia	26 (3%)	10 (2%)
General disorders and administration site conditions		
Fatigue	104 (11%)	45 (9%)
Pyrexia	71 (7%)	33 (7%)
Asthenia	54 (6%)	16 (3%)
Influenza like illness	52 (5%)	23 (5%)
Oedema peripheral	38 (4%)	5 (1%)
Irritability	25 (3%)	6 (1%)
Chills	24 (3%)	10 (2%)
Gastrointestinal disorders		
Diarrhea	60 (6%)	15 (3%)
Ascites	51 (5%)	14 (3%)
Abdominal pain	30 (3%)	11 (2%)
Vomiting	22 (2%)	8 (2%)
Abdominal pain upper	18 (2%)	6 (1%)
Investigations		
Blood bilirubin increased	58 (6%)	11 (2%)
White blood cell count decreased	44 (5%)	21 (4%)
Weight decreased	43 (5%)	14 (3%)
Haemoglobin decreased	41 (4%)	16 (3%)
Infections and infestations		
Urinary tract infection	34 (4%)	12 (2%)
Bronchitis	19 (2%)	6 (1%)
Pneumonia	15 (2%)	8 (2%)
Psychiatric disorders		
Insomnia	51 (5%)	22 (5%)
Depression	38 (4%)	18 (4%)
Nervous system disorders		
Headache	54 (6%)	24 (5%)
Hepatic encephalopathy	21 (2%)	1 (<1%)
Skin and subcutaneous tissues disorders		
Pruritus	26 (3%)	7 (1%)

Body System/Adverse Event	Eltrombopag (N=955)	Placebo (N=484)
Rash	26 (3%)	9 (2%)
Hepatobiliary disorders		
Hyperbilirubinaemia	68 (7%)	14 (3%)
Musculoskeletal and connective tissue disorders		
Arthralgia	27 (3%)	14 (3%)
Myalgia	26 (3%)	5 (1%)
Back pain	21 (2%)	4 (<1%)
Respiratory, thoracic and mediastinal disorders		
Cough	30 (3%)	7 (1%)
Dyspnea	21 (2%)	7 (1%)
Metabolism and nutrition disorders		
Decreased appetite	30 (3%)	15 (3%)
Neoplasms benign, malignant and unspecified (incl cysts and polyps)		
Hepatic neoplasm, malignant	34 (4%)	13 (3%)

In ENABLE 1 and ENABLE 2, progression of pre-existing baseline cataract(s) or new case of cataract were reported in 8 % of subjects treated with REVOLADE and 5 % of subjects treated with placebo during the double blind-phase.

The most common adverse events occurring during open-label treatment with REVOLADE in Part 1 of ENABLE 1 and 2 (see **CLINICAL TRIALS**) were headache, fatigue, nausea, diarrhea, and insomnia.

Severe Aplastic Anemia (SAA)

In the single-arm phase II study, 43 subjects with severe aplastic anemia received REVOLADE with 11 subjects (26%) treated for >6 months and 7 subjects (16%) treated for >1 year. The most common adverse reactions ($\geq 20\%$) were nausea, fatigue, cough, diarrhea, and headache.

Table 7 Adverse Reactions (>5%) From the Single Arm Phase II Study in Adults with Severe Aplastic Anemia (Study ELT112523)

Adverse Reaction	REVOLADE (n = 43) (%)
Gastrointestinal disorders	
Nausea	33
Diarrhea	21
Abdominal pain	12
Abdominal discomfort	9
Gingival bleeding	9
Oral mucosal blistering	9
Oral pain	7
Vomiting	7
General disorders and administrative conditions	
Fatigue	28
Febrile neutropenia	14
Pyrexia	14
Asthenia	9
Chills	9
Edema peripheral	7
Respiratory, thoracic and mediastinal disorders	
Cough	23
Dyspnea	14
Oropharyngeal pain	14
Rhinorrhea	12
Dyspnea exertional	9
Epistaxis	9
Nervous System Disorders	
Headache	21
Dizziness	14
Musculoskeletal and connective tissue disorders	
Pain in extremity	19
Arthralgia	12
Muscle spasms	12
Back pain	9
Investigations	
Transaminases increased	12
Liver function test abnormal	9
Alanine aminotransferase increased	7
Aspartate aminotransferase increased	7
Blood creatine phosphokinase increased	7
Skin and subcutaneous tissue disorders	
Ecchymosis	12
Petechiae	7
Rash	7
Eye disorders	
Dry eye	9

Adverse Reaction	REVOLADE (n = 43) (%)
Psychiatric disorders	
Insomnia	9
Anxiety	7
Depression	7
Metabolism and nutrition disorders	
Iron overload	7

The most common serious adverse events reported were febrile neutropenia, sepsis and viral infection.

Four subjects (9%) discontinued treatment with REVOLADE due to cataract, abdominal discomfort, acute hepatitis B and sepsis.

Clinical Trial Adverse Drug Reactions occurring in ≤5% of SAA Subjects

The drug-related adverse events occurring in ≤5% of REVOLADE treated severe aplastic anemia subjects in the single arm phase II study in adults with severe aplastic anemia are presented below.

Blood and lymphatic system disorders: neutropenia, splenic infarction

Eye Disorders: cataract, ocular icterus, vision blurred, visual impairment, vitreous floaters

Gastrointestinal: constipation, abdominal distension, dysphagia, feces discolored, flatulence, gastrointestinal motility disorder, swollen tongue

General disorders and administration site conditions: malaise, pain

Hepatobiliary disorders: hyperbilirubinemia, jaundice

Investigations: blood bilirubin increased

Metabolism and nutrition disorder: decreased appetite, hypoglycemia, increased appetite

Musculoskeletal and connective tissue disorders: bone pain, myalgia

Nervous system disorder: dizziness postural, syncope

Psychiatric disorders: middle insomnia

Skin and subcutaneous tissue disorders: pruritus, urticaria, rash macular, skin lesion

Renal and urinary disorders: chromaturia

In the single-arm phase II study in SAA, subjects had bone marrow aspirates evaluated for cytogenetic abnormalities. Eight subjects had a new cytogenetic abnormality reported, including 5 subjects who had changes in chromosome 7. Three subjects were diagnosed with MDS following treatment with REVOLADE.

Post-Market Adverse Drug Reactions

The following adverse reactions have been reported during post-approval use of REVOLADE. These include spontaneous case reports as well as serious adverse events from registries, investigator sponsored studies, clinical pharmacology studies and exploratory studies in unapproved indications.

Vascular disorders: There have been reports of thrombotic microangiopathy with acute renal failure. In some of these cases, the patients had concurrent risk factors for thromboembolism (e.g. antiphospholipid syndrome and systemic lupus erythematosus).

Skin and subcutaneous tissue disorders: Skin discoloration (In patients taking eltrombopag reversible skin discoloration including hyperpigmentation and skin yellowing was observed at eltrombopag doses as low as 50 mg per day; scleral discoloration was also reported in association with skin discoloration in some patients. Skin discoloration was particularly observed in patients taking eltrombopag for unapproved indications where doses higher than 100 mg per day were administered).

DRUG INTERACTIONS

Overview

Clinically significant drug interactions involving glucuronidation are not anticipated due to limited contribution of individual UGT enzymes in the glucuronidation of eltrombopag and potential co-medications. No clinically significant interactions are expected when REVOLADE (eltrombopag) and CYP450 substrates, inducers or inhibitors are co-administered (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**).

Drug-Drug Interactions

HMG CoA reductase inhibitors/OATP1B1 and BCRP substrates: *In vitro* studies demonstrated that eltrombopag is not a substrate for the organic anion transporter polypeptide, OATP1B1, but is an inhibitor of this transporter. *In vitro* studies also demonstrated that eltrombopag is a breast cancer resistance protein (BCRP) substrate and inhibitor. When REVOLADE and rosuvastatin were co-administered in a clinical drug interaction study (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**) there was increased plasma rosuvastatin exposure. Interactions are also expected with other HMG CoA reductase inhibitors, including pravastatin, simvastatin and lovastatin, however, clinically significant interactions are not expected between eltrombopag and atorvastatin or fluvastatin. When co-administered with REVOLADE, a reduced dose of statins should be considered and careful monitoring should be undertaken. In clinical trials with eltrombopag, a dose reduction of rosuvastatin by 50% was recommended for co-administration of rosuvastatin and eltrombopag. Concomitant

administration of REVOLADE and other OATP1B1 and BCRP substrates should be undertaken with caution.

Cyclosporine: Co-administration of REVOLADE with cyclosporine may cause a decrease in the concentration of eltrombopag (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**), though the exact mechanism is unknown. Therefore, caution should be used when co-administration of REVOLADE with cyclosporine takes place. Platelet count should be monitored at least weekly for 2 to 3 weeks in order to ensure appropriate medical management of the dose of eltrombopag when cyclosporine therapy is initiated or discontinued.

Lopinavir/ritonavir: Co-administration of REVOLADE with lopinavir/ritonavir (LPV/RTV) may cause a decrease in the concentration of eltrombopag (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**). Therefore, caution should be used when co-administration of REVOLADE with LPV/RTV takes place. Platelet count should be monitored at least weekly for 2 to 3 weeks in order to ensure appropriate medical management of the dose of eltrombopag when lopinavir/ritonavir therapy is initiated or discontinued.

Polyvalent cations (chelation): Eltrombopag chelates with polyvalent cations such as aluminium, calcium, iron, magnesium, selenium and zinc (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**). REVOLADE should be taken at least two hours before or four hours after any products such as antacids, dairy products, or mineral supplements containing polyvalent cations to avoid significant reduction in REVOLADE absorption (see **DOSAGE AND ADMINISTRATION**, and **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**).

Peginterferon alfa-2a/b and ribavirin therapy: Co-administration of peginterferon alfa 2a (PEGASYS[®]) or 2b (PEGETRON[®]) and ribavirin did not affect eltrombopag exposure in 2 randomized, double-blind, placebo-controlled trials with adult subjects with chronic hepatitis C.

HCV protease inhibitors: A study in 56 healthy volunteers was conducted with eltrombopag and the HCV protease inhibitors boceprevir and telaprevir. Co-administration of eltrombopag with either telaprevir or boceprevir did not alter plasma concentrations of eltrombopag. Eltrombopag did not affect plasma concentrations of telaprevir. Eltrombopag did not affect the AUC or C_{max} of boceprevir, but reduced the C_τ by 32% (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**).

Drug-Food Interactions

Administration of a single 50 mg-dose of REVOLADE tablet with a standard high-calorie, high-fat breakfast that included dairy products reduced plasma eltrombopag concentrations. Food low in calcium (<50 mg calcium) did not significantly impact plasma eltrombopag exposure, regardless of calorie or fat content (see **DOSAGE AND ADMINISTRATION**, and **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**).

DOSAGE AND ADMINISTRATION

Chronic Immune Thrombocytopenia Purpura (ITP)

Dosing Considerations

REVOLADE (eltrombopag) treatment should be initiated and maintained by a physician who is experienced in the treatment of haematological diseases, who understands the benefits and risks associated with the treatment of ITP, and who is experienced in counselling patients for whom REVOLADE is indicated.

Prior to prescribing REVOLADE, physicians should:

- Ensure the eligibility of patients to meet the above criteria,
- Counsel each patient on the risks and benefits of REVOLADE, and
 - Ensure patients are able to swallow the REVOLADE tablets whole (see **All indications, Administration** below).

REVOLADE dosing regimens must be individualised based on the patient's platelet counts. The objective of treatment with REVOLADE should not be to normalise platelet counts but to maintain platelet counts above the level for hemorrhagic risk ($>50 \times 10^9/L$), and generally below $150 - 200 \times 10^9/L$. Use the lowest effective dosing regimen to maintain platelet counts, as clinically indicated.

In most patients, measurable elevations in platelet counts take 1-2 weeks to occur (see **CLINICAL TRIALS**).

Recommended Dose and Dosage Adjustment

Initial Dose Regimen

Adults and Pediatric Patients Aged 6 years and above:

The recommended starting dose of REVOLADE is 50 mg once daily. For ITP patients of East Asian/Southeast Asian ancestry (such as Chinese, Japanese, Taiwanese, Korean, or Thai) aged 6 and above, initiate REVOLADE at a reduced dose of 25 mg once daily (see **DOSAGE AND ADMINISTRATION, East Asian / Southeast Asian Patients**).

Pediatric Patients Aged 1 to <6 years:

The recommended starting dose of eltrombopag is 25 mg once daily.

Monitoring and Dose Adjustment

Adults and Pediatric Patients Aged 1 to <18 years:

If after 2 to 3 weeks of initial therapy, the platelet counts are below the clinically indicated levels (e.g. $50 \times 10^9/L$), the dose may be increased to a maximum of 75 mg once daily (see Table).

A dose reduction should be considered with platelet counts increasing to over $150 \times 10^9/L$. At platelet counts over $200 \times 10^9/L$ dose reduction is recommended (see Table 8).

REVOLADE should be interrupted if platelet counts increase to $>300 \times 10^9/L$. Once the platelet count is $<150 \times 10^9/L$; reinstate therapy at a reduced dose. If platelet counts remain at $>300 \times 10^9/L$ after 2 weeks of therapy of the lowest dose of REVOLADE, discontinue treatment (see Table).

Table 8 Dose Adjustments of REVOLADE in ITP patients

Platelet Count Result	Dose Adjustment or Response
<50 x 10 ⁹ /L following at least 2 weeks of REVOLADE	Increase daily dose by 25 mg to a maximum of 75 mg/day For patients taking 25 mg once every other day, increase dose to 25 mg once daily. For patients taking 12.5 mg once daily, increase the dose to 25 mg once daily before increasing the dose amount by 25 mg.
≥50 x 10 ⁹ /L to ≤200 x 10 ⁹ /L	Use lowest dose of REVOLADE and/or concomitant ITP treatment to maintain platelet counts that avoid or reduce bleeding.
>200 x 10 ⁹ /L to ≤300 x 10 ⁹ /L at any time	Decrease the daily dose by 25 mg. Wait 2 weeks to assess the effects of this and any subsequent dose adjustments For patients taking 25 mg once daily, consideration should be given to dosing at 12.5 mg once daily or alternatively a dose of 25 mg once every other day.
>300 x 10 ⁹ /L	Stop REVOLADE. Increase the frequency of platelet monitoring to twice weekly. Once the platelet count is <150 x 10 ⁹ /L, reinitiate therapy at a daily dose reduced by 25 mg. For patients taking 25 mg once daily, consideration should be given to reinitiating therapy at 12.5 mg once daily or alternatively a dose of 25 mg once every other day.
>300 x 10 ⁹ /L after 2 weeks of therapy at lowest dose of REVOLADE	Discontinue REVOLADE

The standard dose adjustment, whether decreased or increased, would be 25 mg once daily. However, in a few patients an alternate dosing of different tablet strengths on different days may be required.

After any REVOLADE dose adjustment, platelet counts should be monitored at least once weekly for 2 to 3 weeks. Wait for at least two (2) weeks to see the effect of any dose increase on the patient's platelet response prior to considering another dose adjustment. **In patients with liver disease, wait at least three (3) weeks before considering dose adjustment (see Hepatic Impairment, below).**

Monitor clinical hematology and liver tests regularly throughout therapy with REVOLADE and modify the dose of REVOLADE based on platelet counts as outlined in Table . During therapy with REVOLADE, assess complete blood counts (CBC), including platelet count and peripheral blood smears, weekly until a stable platelet count ($\geq 50 \times 10^9/L$ for at least 4 weeks) has been achieved. Obtain CBC including platelet count and peripheral blood smears, monthly thereafter.

REVOLADE can be administered in addition to other ITP medicinal products. Modify the dose regimen of concomitant ITP medicinal products, as medically appropriate, to avoid excessive increases in platelet counts during therapy with REVOLADE.

Discontinuation

Discontinue REVOLADE if the platelet count does not increase to a level sufficient to avoid clinically important bleeding after 4 weeks of therapy with REVOLADE at the maximum daily dose of 75 mg. Excessive platelet count responses, as outlined in Table , or important liver test abnormalities also necessitate discontinuation of REVOLADE (see **WARNINGS AND PRECAUTIONS**).

The reoccurrence of thrombocytopenia is possible upon discontinuation of treatment.

Chronic Hepatitis C-related Thrombocytopenia

Dosing Considerations

REVOLADE is given in combination with pegylated interferon and ribavirin. Reference should be made to the full Product Monographs for each respective co-administered medicinal product for comprehensive details of administration. The directions regarding the dosage, dose adjustment guidelines in the event of toxicity and other relevant safety information or contraindications for pegylated interferon and ribavirin should be followed.

REVOLADE should be used only in patients with chronic hepatitis C whose degree of thrombocytopenia prevents the initiation of interferon-based therapy and limits the ability to maintain interferon-based therapy.

Use the lowest dose of REVOLADE to achieve and maintain a platelet count necessary to initiate and maintain antiviral therapy. Dose adjustments are based

upon the patient’s platelet count response, see Table , below. Do not use REVOLADE to normalize platelet counts. In clinical studies, platelet counts generally increased within 1 week of starting REVOLADE.

The safety and efficacy of REVOLADE have not been established in combination with direct acting antiviral agents used in the treatment of chronic hepatitis C virus infection.

Recommended Dose and Dosage Adjustment

Adults (≥18 years of age):

Initiate REVOLADE at a dose of 25 mg once daily. No dosage adjustment is necessary for HCV patients of East Asian / Southeast Asian ancestry or patients with mild hepatic impairment.

Adjust the dose of REVOLADE in 25 mg increments every 2 weeks as necessary to achieve the target platelet count required to initiate antiviral therapy (see Table). Monitor platelet counts every week prior to starting antiviral therapy.

During antiviral therapy, adjust the dose of REVOLADE as necessary to avoid dose reduction of peginterferon. Monitor platelet counts weekly during antiviral therapy until a stable platelet count is achieved. CBC’s, including platelet counts and peripheral blood smears should be obtained monthly thereafter.

Do not exceed a dose of 100 mg REVOLADE once daily.

For specific dosage instructions for peginterferon alfa or ribavirin, refer to their respective Product Monographs.

Table 9 Dose adjustments of REVOLADE in HCV patients during antiviral therapy

Platelet Count Result	Dose Adjustment or Response
<50 x 10 ⁹ /L following at least 2 weeks of therapy	Increase daily dose by 25 mg increments every 2 weeks as necessary to a maximum of 100 mg / day. For patients taking 25 mg once every other day, increase the dose to 25 mg once daily before increasing the dose amount by 25 mg. For patients taking 12.5 mg once daily, increase the dose to 25 mg once daily before increasing the dose amount by 25 mg.
≥50 x 10 ⁹ /L to ≤150 x 10 ⁹ /L	Maintain the lowest dose of REVOLADE to achieve these values so as to avoid dose reductions of peginterferon.
>150 x 10 ⁹ /L to ≤ 200 x 10 ⁹ /L	Decrease the daily dose by 25 mg. Wait 2 weeks to assess the effects of this and any subsequent dose adjustments.

	For patients taking 25 mg REVOLADE once daily, consideration should be given to dosing at 12.5 mg once daily or alternatively a dose of 25 mg once every other day.
>200 x 10 ⁹ /L	Stop REVOLADE; increase the frequency of platelet monitoring to twice weekly. Once the platelet count is < 150 x 10 ⁹ /L, reinstitute therapy at a lower daily dose. For patients taking 25 mg REVOLADE once daily, consideration should be given to reinitiating therapy at 12.5 mg once daily or alternatively a dose of 25 mg once every other day
>200 x 10 ⁹ /L after 2 weeks of therapy at lowest dose of REVOLADE	Discontinue REVOLADE

Discontinuation

When REVOLADE is given in combination with antiviral therapies reference should be made to the full Product Monograph of the respective co-administered medicinal products for comprehensive details of administration. The directions regarding the dose, dose adjustment guidelines in the event of toxicity and other relevant safety information or contraindications for the respective antiviral medicinal products should be followed.

In patients with HCV genotype 1/4/6, independent of the decision to continue interferon therapy, discontinuation of REVOLADE therapy should be considered in patients who do not achieve virological response at week 12. If HCV-RNA remains detectable after 24 weeks of treatment, REVOLADE therapy should be discontinued.

REVOLADE treatment should be terminated when antiviral therapy is discontinued. Excessive platelet count responses, as outlined in Table 9 or important liver test abnormalities may also necessitate discontinuation of REVOLADE (see **WARNINGS AND PRECAUTIONS**).

Severe Aplastic Anemia (SAA)

Dosing Considerations

Use the lowest dose of REVOLADE to achieve and maintain a hematologic response. Dose adjustments are based upon the platelet count. Do not use REVOLADE to normalize platelet counts (see **WARNINGS AND PRECAUTIONS, Thrombotic or thromboembolic complications**). Hematologic response requires dose titration, generally up to 150 mg, and may take up to 16 weeks after starting REVOLADE (See **CLINICAL TRIALS, Severe Aplastic Anemia**).

Recommended Dose and Dosage Adjustment

Adults (≥18 years of age):

Initiate REVOLADE at a dose of 50 mg once daily. For severe aplastic anemia in patients of East Asian/Southeast Asian ancestry or those with mild or moderate hepatic impairment (Child-Pugh Class A, B), initiate REVOLADE at a reduced dose of 25 mg once daily (See DOSAGE AND ADMINISTRATION, East Asian / Southeast Asian ancestry and Hepatic Impairment).

Adjust the dose of REVOLADE in 50 mg increments every 2 weeks as necessary to achieve the target platelet count $\geq 50 \times 10^9/L$. For patients with mild or moderate hepatic impairment or patients of East Asian/Southeast Asian ancestry, increase the dose initially by 25 mg to achieve a 50 mg daily dose before considering further dose increases. Do not exceed a dose of 150 mg daily. Monitor clinical haematology and liver tests regularly throughout therapy with REVOLADE and modify the dosage regimen of REVOLADE based on platelet counts as outlined in Table 10.

Table 10 Dose adjustments of REVOLADE in patients with SAA

Platelet Count Result	Dose Adjustment or Response
<50 x 10 ⁹ /L following at least 2 weeks of REVOLADE	Increase daily dose by 50 mg every two weeks as necessary to a maximum of 150 mg/day. For patients taking 25 mg once daily, increase the dose to 50 mg daily before increasing the dose amount by 50 mg.
≥50 x 10 ⁹ /L to ≤200 x 10 ⁹ /L	Maintain the lowest dose of REVOLADE to achieve these values.
>200 x 10 ⁹ /L to ≤300 x 10 ⁹ /L at any time	Decrease the daily dose by 50 mg (or by 25 mg if these values are achieved with a 50 mg daily dose -i.e. in the East/South Asian population or in patients with liver disease). Wait 2 weeks to assess the effects of this and any subsequent dose adjustments.
>300 x 10 ⁹ /L	Stop REVOLADE for at least one week. Once the platelet count is <150 x 10 ⁹ /L, reinitiate therapy at a dose reduced by 50 mg.
>300 x 10 ⁹ /L after 2 weeks of therapy at lowest dose of REVOLADE	Discontinue REVOLADE.

Tapering for Tri-lineage (white blood cells, red blood cells, and platelets) Responders: Once platelet count >50 x 10⁹/L, hemoglobin >100 g/L in the absence of red blood cell (RBC) transfusions, and absolute neutrophil count (ANC) >1 x 10⁹/L for more than

8 weeks, the dose of REVOLADE should be reduced by up to 50%. If counts stay stable after 8 weeks at the reduced dose, then discontinue REVOLADE and monitor blood counts as clinically indicated. If platelet counts drop to $<30 \times 10^9/L$, hemoglobin to $<90 \text{ g/L}$, or ANC to $<0.5 \times 10^9/L$, REVOLADE may be reinitiated at the previous dose.

Discontinuation

If no hematologic response has occurred after 16 weeks of therapy with REVOLADE, discontinue therapy. Consider discontinuation of REVOLADE if new cytogenetic abnormalities are observed (see **ADVERSE REACTIONS, Severe Aplastic Anemia, Clinical Trial Adverse Drug Reactions**). Excessive platelet count responses (as outlined in Table 10) or important liver test abnormalities also necessitate discontinuation of REVOLADE (see **WARNINGS AND PRECAUTIONS, Hepatic, Hepatotoxicity**).

All indications

Recommended Dose and Dosage Adjustment

Pediatrics (<18 years of age): The safety and efficacy of REVOLADE have not been established in pediatric ITP patients younger than 1 year. The safety and efficacy of REVOLADE in pediatric patients with chronic HCV or SAA have not been established.

Hepatic Impairment: REVOLADE is contraindicated in patients with severe hepatic impairment (Child-Pugh Class C) (See **CONTRAINDICATIONS**) and caution should be exercised when administering REVOLADE to patients with mild or moderate hepatic impairment, since exposure to eltrombopag increases with increasing degrees of hepatic dysfunction (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions, Hepatic Impairment**).

The risk of thromboembolic events of the portal venous system has been found to be increased in patients with chronic liver disease treated with 75 mg REVOLADE once daily for two weeks in preparation for invasive procedures. REVOLADE therefore should not be used in ITP or SAA patients with hepatic impairment (Child-Pugh Class A and B) unless the expected benefit outweighs the identified risk of portal venous thrombosis (see **WARNINGS AND PRECAUTIONS**).

If the use of REVOLADE is deemed necessary in adult ITP or SAA patients with liver impairment (Child-Pugh Class A and B), the starting dose must be 25 mg once daily. Attempts to maintain platelet counts below $200 \times 10^9/L$ should be carried out in these patient populations. There are no data in pediatric patients with hepatic impairment.

After initiating REVOLADE or following any dose increase in ITP patients with liver impairment (Child-Pugh Class A and B) wait a minimum of 3 weeks before increasing the dose.

Thrombocytopenic patients with chronic HCV should initiate REVOLADE at the usual dose of 25 mg once daily (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**).

Renal Impairment: No dose adjustment is generally necessary in patients with renal impairment. REVOLADE should be used in patients having impaired renal function with caution and close monitoring, for example by testing serum creatinine and/or performing urine analysis (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions, Renal Impairment**).

There are limited data with the use of REVOLADE in patients with severe renal impairment (creatinine clearance < 30mL/min), therefore it is generally not recommended for use in these patients (see **WARNINGS AND PRECAUTIONS, Renal, Renal Impairment**, and **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions, Renal Impairment**).

East Asian/Southeast Asian Patients: Initiation of REVOLADE at a reduced dose of 25 mg once daily is recommended for SAA and adult and pediatric (aged 6 to <18 years) ITP patients of East Asian / Southeast Asian ancestry (such as Chinese, Japanese, Taiwanese, Thai or Korean) (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions, Race**).

No dosage adjustment is necessary for chronic HCV patients of East Asian / Southeast Asian ancestry. Initiate REVOLADE at the recommended dose of 25 mg once daily (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions**).

Patient platelet count should continue to be monitored and the standard criteria for further dose modification followed.

Elderly: There are limited data on the use of REVOLADE in patients aged 65 years and older and no clinical experience in patients aged over 85 years. In the clinical studies of REVOLADE, overall no clinically significant differences in the safety of REVOLADE were observed between subjects aged at least 65 years and younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out (see **ACTION AND CLINICAL PHARMACOLOGY, Special Populations and Conditions**).

Food Interactions: REVOLADE should be taken at least **two hours before or four hours** after antacids, dairy products, or mineral supplements, or any other products containing polyvalent cations (e.g. aluminium, calcium, iron, magnesium, selenium and zinc).

REVOLADE may be taken with food containing little (< 50 mg) or preferably no calcium (see **DETAILED PHARMACOLOGY, Pharmacokinetic Interactions**).

Missed Dose

If a dose of REVOLADE is missed, the patient should be advised to take it as soon as they remember, and then continue with the next dose at the regular interval. Two doses should not be taken at the same time to make up for a missed dose.

Administration

Patients should swallow the tablets whole, with some water. They should NOT crush tablets and then mix with food or liquids.

OVERDOSAGE

For management of suspected drug overdose, contact your regional Poison Control Centre.

Signs and Symptoms

In the clinical trials, there was one report of overdose where the subject ingested 5,000 mg of REVOLADE (eltrombopag). Reported adverse events included mild rash, transient bradycardia, fatigue and elevated transaminases. Liver enzymes measured between Days 2 and 18 after ingestion peaked at a 1.6-fold ULN in AST, a 3.9-fold ULN in ALT, and a 2.4-fold ULN in total bilirubin. The subject's platelet count increased to a maximum of $929 \times 10^9/L$ at 13 days following the ingestion. After 2 months follow-up, all events resolved without sequelae.

Treatment

In the event of overdose, platelet counts may increase excessively and result in thrombotic/thromboembolic complications. In case of an overdose, consider oral administration of a metal cation-containing preparation, such as calcium, aluminium or magnesium preparation at the earliest possible opportunity, to chelate eltrombopag and thus limit absorption. Closely monitor platelet counts. Reinitiate treatment with REVOLADE in accordance with dosing and administration recommendations (see **DOSAGE AND ADMINISTRATION**).

Because eltrombopag is not significantly renally excreted and is highly bound to plasma proteins, hemodialysis would not be expected to be an effective method to enhance the elimination of eltrombopag.

ACTION AND CLINICAL PHARMACOLOGY

Mechanism of Action

Thrombopoietin (TPO) is the main cytokine involved in regulation of megakaryopoiesis and platelet production, and is the endogenous ligand for the thrombopoietin receptor (TPO-R). REVOLADE (eltrombopag) interacts with the transmembrane domain of the human TPO-R and initiates signaling cascades similar but not identical to that of endogenous TPO, inducing proliferation and differentiation of megakaryocytes from bone marrow progenitor cells.

Pharmacodynamics

Eltrombopag differs from TPO with respect to the effects on platelet aggregation. Unlike TPO, eltrombopag treatment of normal human platelets does not enhance adenosine diphosphate (ADP)-induced aggregation or induce P-selectin expression, nor does it antagonise platelet aggregation induced by ADP or collagen.

Pharmacokinetics

The pharmacokinetic (PK) parameters of eltrombopag after administration of an oral dose to adult subjects with ITP are shown in Table 11.

Table 11 Geometric Mean (95% CI) Steady–State Plasma Eltrombopag, Pharmacokinetic Parameters in Adults with Idiopathic Thrombocytopenic Purpura

Regimen of REVOLADE	C _{max} (µg/mL)	AUC _(0-τ) (µg.hr/mL)
50 mg once daily (n=34)	8.01 (6.73, 9.53)	108 (88, 134)
75 mg once daily (n=26)	12.7 (11.0, 14.5)	168 (143, 198)

Plasma eltrombopag concentration-time data collected in 590 subjects with HCV enrolled in Phase III studies TPL103922/ENABLE 1 and TPL108390/ENABLE 2 were combined with data from subjects with HCV enrolled in the Phase II study TPL102357 and healthy adult subjects in a population PK analysis.

Plasma eltrombopag C_{max} and AUC_(0-τ) estimates for subjects with HCV enrolled in the Phase III studies are presented for each dose studied in Table 12.

Table 12 Geometric Mean (95 % CI) Steady-State Plasma Eltrombopag Pharmacokinetic Parameters in Patients with Chronic HCV

Eltrombopag Dose (once daily)	N	C_{max} (µg/mL)	AUC_(0-τ) (µg.h/mL)
25 mg	330	6.40 (5.97, 6.86)	118 (109, 128)
50 mg	119	9.08 (7.96, 10.35)	166 (143, 192)
75 mg	45	16.71 (14.26, 19.58)	301 (250, 363)
100 mg	96	19.19 (16.81, 21.91)	354 (304, 411)

Data presented as geometric mean (95%CI). AUC_(0-τ) and C_{max} based on population PK post-hoc estimates at the highest dose in the data for each subject.

Absorption: Eltrombopag is absorbed with a peak concentration occurring 2 to 6 hours after oral administration. Administration of REVOLADE concomitantly with antacids, dairy products, mineral supplements or other products containing polyvalent cations significantly reduces eltrombopag exposure (see **DRUG INTERACTIONS**). The absolute oral bioavailability of eltrombopag after administration to humans has not been established. Based on urinary excretion and metabolites eliminated in faeces, the oral absorption of drug-related material following administration of a single 75 mg eltrombopag solution dose was estimated to be at least 52%.

Distribution: Eltrombopag is highly bound to human plasma proteins (>99%). Eltrombopag is not a substrate for P-glycoprotein or OATP1B1.

Metabolism: Eltrombopag is primarily metabolized through cleavage, oxidation and conjugation with glucuronic acid, glutathione, or cysteine. In a human radiolabel study, eltrombopag accounted for approximately 64% of plasma radiocarbon AUC_(0-∞). Minor metabolites, each accounting for <10% of the plasma radioactivity, arising from glucuronidation and oxidation were also detected. Based on a human study with radiolabeled eltrombopag, it is estimated that approximately 20% of a dose is metabolised by oxidation. *In vitro* studies identified CYP1A2 and CYP2C8 as the isoenzymes responsible for oxidative metabolism, uridine diphosphoglucuronyl transferase UGT1A1 and UGT1A3 as the isozymes responsible for glucuronidation, and that bacteria in the lower gastrointestinal tract may be responsible for the cleavage pathways.

Excretion: Absorbed eltrombopag is extensively metabolised. The predominant route of eltrombopag excretion is via faeces (59%) with 31% of the dose found in the urine as metabolites. Unchanged parent compound (eltrombopag olamine) is not detected in urine. Unchanged eltrombopag olamine excreted in faeces accounts for approximately 20% of the dose. The plasma elimination half-life of eltrombopag is approximately 21-32 hours.

Special Populations and Conditions

Renal Impairment: The pharmacokinetics of eltrombopag have been studied after administration of REVOLADE to adult subjects with renal impairment. Following administration of a single 50 mg-dose, the $AUC_{(0-\infty)}$ of eltrombopag was 32% to 36% lower in subjects with mild to moderate renal impairment, and 60% lower in subjects with severe renal impairment compared with healthy volunteers. There was substantial variability and significant overlap in exposures between subjects with renal impairment and healthy volunteers. Unbound eltrombopag (active) concentrations for this highly protein bound medicinal product were not measured.

Pediatrics: The pharmacokinetics of eltrombopag have been evaluated in a population pharmacokinetic analysis which included 168 pediatric ITP subjects dosed once daily in two studies, TRA108062 (PETIT) and TRA115450 (PETIT 2). Plasma eltrombopag apparent clearance following oral administration (CL/F) increased with increasing body weight. The effects of race and sex on plasma eltrombopag CL/F estimates were consistent between pediatric and adult patients. East Asian pediatric ITP patients had approximately 43% higher plasma eltrombopag $AUC_{(0-\tau)}$ values (30% lower CL/F) as compared to non-East Asian patients. Female pediatric ITP patients had approximately 25% higher plasma eltrombopag $AUC_{(0-\tau)}$ values (20% lower CL/F) as compared to male patients.

The pharmacokinetic parameters of eltrombopag in pediatric subjects with ITP are shown in Table 13.

Table 13 Geometric Mean (95% CI) Steady-State Plasma Eltrombopag Pharmacokinetic Parameters in Pediatric Subjects with ITP (50 mg Once Daily Dosing Regimen)

Age	C_{max} ($\mu\text{g/mL}$)	$AUC_{(0-\tau)}$ ($\mu\text{g}\cdot\text{hr/mL}$)
12 to 17 years (n = 62)	6.80 (6.17, 7.50)	103 (91.1, 116)
6 to 11 years (n =68)	10.3 (9.42, 11.2)	153 (137, 170)
1 to 5 years (n = 38)	11.6 (10.4, 12.9)	162 (139, 187)

Data presented as geometric mean (95%CI). $AUC_{(0-\tau)}$ and C_{max} based on population PK post-hoc estimates for a 50 mg once daily dose.

Geriatrics: The age difference of eltrombopag pharmacokinetics was evaluated using population PK analysis in 28 healthy subjects and 635 subjects with HCV ranging from 19 to 74 years old. Based on model estimate, elderly (> 60 years) subjects had approximately 36% higher plasma eltrombopag $AUC_{(0-\tau)}$ as compared to younger subjects (see **DOSAGE AND ADMINISTRATION**).

Hepatic Impairment: The pharmacokinetics of eltrombopag have been studied after administration of REVOLADE to adult subjects with liver cirrhosis (hepatic impairment).

Following the administration of a single 50 mg dose, the $AUC_{(0-\infty)}$ of eltrombopag was 41% higher in subjects with mild hepatic impairment and 80% to 93% higher in subjects with moderate to severe hepatic impairment, compared with healthy volunteers. There was substantial variability and significant overlap in exposures between subjects with hepatic impairment and healthy volunteers. Unbound eltrombopag (active) concentrations for this highly protein bound medicinal product were not measured.

The influence of hepatic impairment on the PK of eltrombopag following repeat administration was evaluated using a population PK analysis in 28 healthy adults and 714 subjects with hepatic impairment (673 subjects with HCV and 41 subjects with chronic liver disease of other aetiology). Of the 714 subjects, 642 were with mild hepatic impairment, 67 with moderate hepatic impairment, and 2 with severe hepatic impairment. Compared to healthy volunteers, subjects with mild hepatic impairment had approximately 111% (95% CI: 45% to 283%) higher plasma eltrombopag $AUC_{(0-\tau)}$ values and subjects with moderate hepatic impairment had approximately 183% (95% CI: 90% to 459%) higher plasma eltrombopag $AUC_{(0-\tau)}$ values.

The population PK/PD analysis of data collected in subjects with chronic liver disease determined that the rate of platelet production was linearly related to plasma eltrombopag concentrations. In subjects with chronic liver disease, the time to peak platelet count was approximately 3 weeks from the start of dosing.

Race: The influence of East Asian ethnicity on the pharmacokinetics of eltrombopag was evaluated using a population PK analysis in 111 healthy adults (31 East Asians) and 88 subjects with ITP (18 East Asians). Based on estimates from the population PK analysis, East Asian (i.e. Japanese, Chinese, Taiwanese and Korean) ITP subjects had approximately 87% higher plasma eltrombopag $AUC_{(0-\tau)}$ values as compared to non-East Asian subjects who were predominantly Caucasian, without adjustment for body weight differences (see **DOSAGE AND ADMINISTRATION**).

The influence of East Asian and Southeast Asian ethnicity on the pharmacokinetics of eltrombopag was evaluated using a population PK analysis in 635 subjects with HCV (145 East Asians and 69 Southeast Asians). Based on estimates from the population PK analysis, East Asian and Southeast Asian subjects had similar pharmacokinetics of eltrombopag. On average, East/Southeast Asian subjects had approximately 55 % higher plasma eltrombopag $AUC_{(0-\tau)}$ values as compared to subjects of other races who were predominantly Caucasian, without adjustment for body weight differences (see **DOSAGE AND ADMINISTRATION**).

Gender: The influence of gender on the pharmacokinetics of eltrombopag was evaluated using a population PK analysis in 111 healthy adults (14 females) and 88 subjects with ITP (57 females). Based on estimates from the population PK analysis, female ITP subjects had approximately 50% higher plasma eltrombopag $AUC_{(0-\tau)}$ as compared to male subjects, without adjustment for body weight differences.

The influence of gender on eltrombopag pharmacokinetics was evaluated using population PK analysis in 635 subjects with HCV (260 females). Based on model

estimate, female HCV subjects had approximately 41 % higher plasma eltrombopag $AUC_{(0-\tau)}$ as compared to male subjects.

STORAGE AND STABILITY

Store below 30°C, protect from freezing.

DOSAGE FORMS, COMPOSITION AND PACKAGING

REVOLADE (eltrombopag) tablets are available as round, biconvex, film-coated tablets available in blister packs of 14 or 28 as 12.5 mg-white, 25 mg-white, 50 mg-brown and 75mg-pink tablets. The 12.5 mg tablets are debossed with 'GS MZ1' and '12.5', 25 mg tablets are debossed with 'GS NX3' and '25', the 50 mg tablets are debossed with 'GS UFU' and '50' and the 75 mg tablets are debossed with 'GS FFS' and '75'.

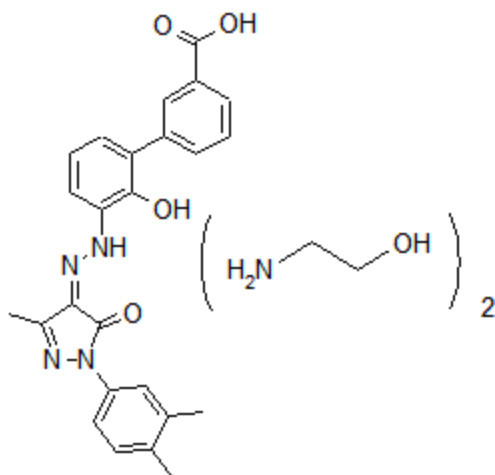
Each tablet contains either 12.5 mg, 25 mg, 50 mg or 75 mg of eltrombopag as eltrombopag olamine. The tablet also contains the following nonmedicinal ingredients: magnesium stearate, mannitol, microcrystalline cellulose, povidone, sodium starch glycolate, hypromellose, macrogol and titanium dioxide. REVOLADE 12.5 mg and 25 mg tablets also contain polysorbate. REVOLADE 50 mg tablets also contain iron oxide yellow and iron oxide red. REVOLADE 75 mg tablets also contain iron oxide red and iron oxide black.

PART II: SCIENTIFIC INFORMATION

PHARMACEUTICAL INFORMATION

Drug Substance

Common name:	Eltrombopag olamine
Chemical name:	3'-{(2Z)-2-[1-(3,4-dimethyl-phenyl)-3-methyl-5-oxo-1,5-dihydro-4H-pyrazol-4-ylidene]hydrazino}-2'-hydroxy-3-biphenylcarboxylic acid-2-aminoethanol (1-2)
Molecular formula:	C ₂₅ H ₂₂ N ₄ O ₄ . 2 (C ₂ H ₇ N O),
Molecular mass	564.65 (eltrombopag olamine) 442.48 (eltrombopag)
Structural formula:	



Physicochemical properties: Eltrombopag olamine is a red to brown solid, practically insoluble in aqueous buffer across a pH range of 1 to 7.4, and is sparingly soluble in water.

CLINICAL TRIALS

Chronic Immune Thrombocytopenia Purpura (ITP)

Study demographics and trial design

One Phase II, randomised, double blind, placebo-controlled study, TRA100773A, two Phase III, randomised, double blind, placebo-controlled studies RAISE (TRA102537) and TRA100773B and two open-label studies REPEAT (TRA108057) and EXTEND (TRA105325) evaluated the safety and efficacy of REVOLADE (eltrombopag) in adult patients with previously treated chronic ITP (see Table 14). Overall, eltrombopag was administered to a total of 446 patients, 280 patients for at least 6 months and 228 patients for at least 1 year.

Table 14 Summary of Trial Design and Patient Demographics for Clinical Trials in ITP

Study #	Trial design	Dosage, route of administration and duration	Study subjects (N=number)	Mean age (Range)	Gender (%)
RAISE (TRA102537)	Phase III, double-blind, randomized, placebo-controlled.	Eltrombopag 50 mg or matching Placebo; Daily oral dosing for 6 months; Dose modification (to 25 mg or 75 mg) allowed based on individual platelet counts.	N= 197 Placebo: 62 Eltrombopag: 135	Placebo: 52.5 years (18 -77) Eltrombopag: 47 years (18-85)	Female: 69 Male: 31 Female: 69 Male: 31
TRA100773A	Phase II, double-blind, randomized, placebo-controlled.	Eltrombopag 30, 50, or 75 mg or matching Placebo; Daily oral dosing for 6 weeks.	Total N = 118 Placebo: 29 Eltrombopag: 30mg: 30 50mg: 30 75mg: 29	Placebo: 43 years (18-85) Eltrombopag: 30mg: 53 years (23-79) 50mg: 47 years (23-81) 75mg: 54 years (18-85)	Female: 55 Male: 45 Female: 53 Male: 47 Female: 70 Male: 30 Female: 71 Male: 29

Study #	Trial design	Dosage, route of administration and duration	Study subjects (N=number)	Mean age (Range)	Gender (%)
TRA100773B	Phase III, double-blind, randomized, placebo-controlled.	Eltrombopag 50 mg or matching Placebo; Daily oral dosing for 6 weeks; Dose escalation to 75 mg allowed for non-responders.	N = 114 Placebo: 38 Eltrombopag: 76	Placebo: 51 years (21-79) Eltrombopag: 47 years (19-84)	Female: 71 Male: 29 Female: 57 Male: 43
REPEAT (TRA108057)	Single arm, open-label, intermittent dose.	Eltrombopag 50 mg; Daily oral dosing for up to 6 weeks, off-therapy for up to 4 weeks for 3 cycles; Dose escalation to 75 mg after Day 21 allowed.	N = 66 (Completed = 48)	Eltrombopag: 50 years (20-79)	Female: 68 Male: 32
EXTEND (TRA105325)	Single arm, open-label, extension study, previously enrolled in an eltrombopag study.	Eltrombopag 50 mg Daily oral dosing Dose modification (to 25 mg or 75 mg once daily) allowed based on individual platelet counts.	N = 299 (Received treatment = 298 Ongoing = 154 Withdrawn = 122)	Eltrombopag: 50 years (18-86)	Female: 198 Male: 101

Study Results

RAISE (TRA102537): In RAISE, the primary efficacy endpoint was the odds of achieving a platelet count $\geq 50 \times 10^9/L$ and $\leq 400 \times 10^9/L$, during the 6 month treatment period, for subjects receiving eltrombopag relative to placebo. One hundred and ninety seven subjects were randomized and were stratified based upon splenectomy status, use of ITP medication at baseline, and baseline platelet count. Subjects received study medication for up to 6 months, during which time the dose of eltrombopag could be adjusted based on individual platelet counts. In addition, subjects could have tapered off concomitant ITP medications and received rescue treatments as dictated by local standard of care.

A summary of baseline disease characteristics and key efficacy results is provided in Table 15. One week after treatment with study medication, platelet counts rose to between $50-400 \times 10^9/L$ in 37% of eltrombopag-treated subjects compared to 7% of placebo-treated subjects. The proportion of responders in the eltrombopag group was between 37% and 56% for all nominal on-therapy visits, with a minimum of 37% at Day 8 and a maximum of 56% at Day 36. In comparison, the proportion of responders in the placebo group was between 7% and 19% for all nominal on-therapy visits, with a

minimum of 7% at Day 8 and a maximum of 19% at Week 22 (see Figure 1). One week after discontinuation of treatment, more than 40% of subjects treated with eltrombopag maintained platelet counts between $50\text{-}400 \times 10^9/\text{L}$, compared to placebo (15%). Two weeks after the end of treatment, the proportion of responders in the eltrombopag was similar to the placebo group.

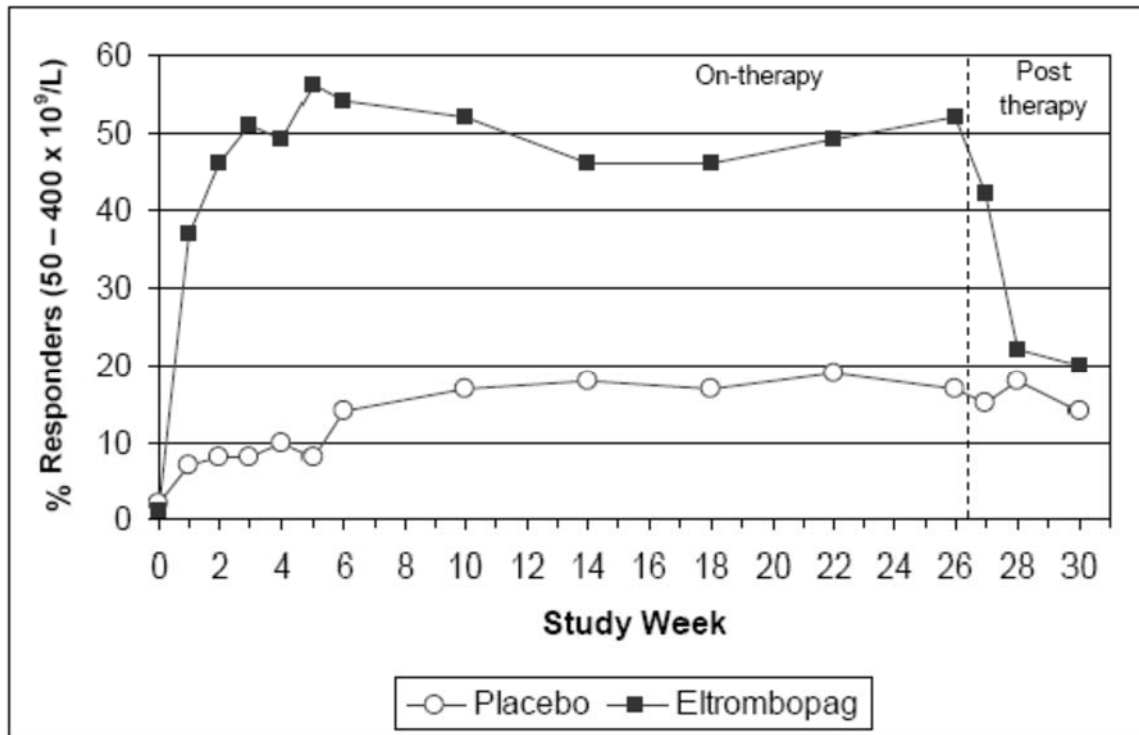
The odds of achieving a platelet count between $50 \times 10^9/\text{L}$ and $400 \times 10^9/\text{L}$ during the 6 month treatment period were 8 times higher for eltrombopag treated subjects than for placebo-treated subjects.

Median platelet counts were maintained above $50 \times 10^9/\text{L}$ at all on-therapy visits starting at Day 15 in the eltrombopag group; in contrast, median platelet counts in the placebo group remained below $30 \times 10^9/\text{L}$ throughout the study.

At baseline, 77% of subjects in the placebo group and 73% of subjects in the eltrombopag group reported any bleeding (WHO Grades 1-4); clinically significant bleeding (WHO Grades 2-4) at baseline was reported in 28% and 22% of subjects in the placebo and eltrombopag groups, respectively. The proportion of subjects with any bleeding (Grades 1-4) and clinically significant bleeding (Grades 2-4) was reduced from baseline by approximately 50% throughout the 6 month treatment period in eltrombopag-treated subjects. When compared to the placebo group, the odds of any bleeding (Grades 1-4) and the odds of clinically significant bleeding (Grades 2-4) were 76% and 65% lower in the eltrombopag-treated subjects compared to the placebo-treated subjects.

Significantly fewer eltrombopag-treated subjects required rescue treatment compared to placebo-treated subjects.

Figure 1 Summary of Responders (Platelet Counts $\geq 50 \times 10^9/L$ and $\leq 400 \times 10^9/L$). Day 8 to 4-weeks post treatment discontinuation, Primary Dataset (ITT Population)



Eltrombopag therapy allowed significantly more subjects to reduce or discontinue baseline ITP therapies compared to placebo.

Four placebo and 14 eltrombopag subjects had at least 1 haemostatic challenge (defined as an invasive diagnostic or surgical procedure) during the study. However, fewer eltrombopag-treated subjects (29%) required rescue treatment to manage their haemostatic challenge, compared to placebo-treated subjects (50%).

In terms of improvements in health related quality of life, statistically significant improvements from baseline were observed in the eltrombopag group with fatigue, including severity and impact on thrombocytopenia-impacted daily activities and concerns (as measured by the vitality subscale of the SF36, the motivation and energy inventory, and the 6-item extract from the thrombocytopenia subscale of the FACIT-Th). Comparing the eltrombopag group to the placebo group, statistically significant improvements were observed with thrombocytopenia impacted activities and concerns specifically regarding motivation, energy and fatigue, as well as physical and emotional role and overall mental health. The odds of meaningful improvement in health related quality of life while on therapy was significantly greater among subjects treated with eltrombopag than placebo.

In RAISE the response to eltrombopag relative to placebo was similar irrespective of ITP medication use, splenectomy status and baseline platelet count ($\leq 15 \times 10^9/L$, $>15 \times 10^9/L$) at randomization.

Table 15 Summary of Efficacy Results for the RAISE Study

	Eltrombopag N=135	Placebo (PBO) N=62
Baseline Disease Characteristics		
Subjects with baseline platelet count $\leq 15 \times 10^9/L^a$, n (%)	67 (50)	30 (48)
Subjects with baseline platelet count $> 15 \times 10^9/L$, n (%)	68 (50)	31 (50)
Proportion of subjects that used ITP medication at randomization, n (%)	63 (47)	31 (50)
Splenectomised subjects, n (%)	50 (37)	21 (34)
Non-Splenectomised subjects, n (%)	85 (63)	41 (66)
Primary Endpoint		
Odds ratio (OR) for responding to treatment, Eltrombopag/Placebo ^{b, c}	8.2	
99% CI	3.59, 18.73	
p-value (two-sided vs. PBO)	<0.001	
Key Secondary Endpoints		
Analysis of Any Bleeding (WHO Grades 1-4)		
OR bleeding throughout 6 months, Eltrombopag/Placebo ^c	0.24	
95% CI	0.16, 0.38	
p-value (two-sided vs. PBO)	<0.001	
Subjects with bleeding at any time during 6 months, n (%)	106 (79)	56 (93)
OR bleeding at any time in 6 months, Eltrombopag/Placebo ^d	0.21	
95% CI	0.06, 0.71	
p-value (two-sided vs. PBO)	0.012	
Analysis of Clinically Significant Bleeding (WHO Grades 2-4)		
OR bleeding throughout 6 months, Eltrombopag/Placebo ^c	0.35	
95% CI	0.19, 0.64	
p-value (two-sided, vs. PBO)	<0.001	
Subjects with bleeding at any time during 6 months, n (%)	44 (33)	32 (53)
OR bleeding at any time in 6 months, Eltrombopag/Placebo ^d	0.30	
95% CI	0.14, 0.66	
p-value (two-sided vs. PBO)	0.002	
Concomitant Medication Reduction/Use of Rescue Medications		
Proportion of subjects receiving rescue treatment, n (%) ^d	25 (19)	25 (40)
OR Eltrombopag/Placebo ^d	0.33	
95% CI	0.16, 0.64	
p-value (two-sided vs. PBO)	0.001	
Subjects who reduced/discontinued ≥ 1 baseline ITP Medication, n (%) ^e	37 (59)	10 (32)
OR Eltrombopag/Placebo ^d	3.10	
95% CI	1.24, 7.75	
p-value (two-sided vs. PBO)	0.016	

- One subject in the placebo group has a missing baseline platelet count
- Responders defined as subjects achieving platelet count between 50 to 400 x 10⁹/L,
- Repeated measures model for binary data adjusted for use of ITP medication at baseline, splenectomy status, baseline platelet count $\leq 15 \times 10^9/L$ and baseline dichotomized WHO Bleeding Scale for any bleeding and Clinically Significant Bleeding) using GEE methodology.
- Logistic regression model adjusted for use of ITP medication at baseline, splenectomy status, baseline platelet count $\leq 15 \times 10^9/L$ (and baseline dichotomized WHO Bleeding Scale for Any bleeding and Clinically Significant Bleeding).
- Denominator is number of subject taking an ITP medication at baseline.

TRA100773B: In TRA100773B, the primary efficacy endpoint was the proportion of responders, defined as subjects who had an increase in platelet counts to $\geq 50 \times 10^9/L$ at Day 43 from a baseline $< 30 \times 10^9/L$; subjects who withdrew prematurely due to a platelet count $> 200 \times 10^9/L$ were considered responders, those discontinued for any other reason were considered non-responders irrespective of platelet count.

A summary of baseline disease characteristics and key efficacy results is provided in Table 16. Fifty-nine percent of subjects on eltrombopag responded, compared to 16% of subjects on placebo. The odds of responding were 9 times higher for eltrombopag treated subjects compared to placebo. At baseline, 61% of subjects in the eltrombopag group and 66% of subjects in the placebo group reported any bleeding (Grade 1-4). At Day 43, 39% of subjects in the eltrombopag treatment group had bleeding compared with 60% in the placebo group. Analysis over the treatment period using a repeated measures model for binary data confirmed that a lower proportion of eltrombopag subjects had bleeding (Grade 1-4) at any point in time over the course of their treatment (Day 8 up to Day 43) compared to subjects in the placebo group (see Table 16). Two placebo and one eltrombopag subject had at least one haemostatic challenge during the study.

In TRA100773B the response to eltrombopag relative to placebo was similar irrespective of ITP medication use, splenectomy status and baseline platelet count ($\leq 15 \times 10^9/L$, $> 15 \times 10^9/L$) at randomization.

Table 16 Summary Efficacy Results for Study TRA100773B

	Eltrombopag N=76	Placebo N=38
Baseline Disease Characteristics		
Subjects with baseline platelet count $\leq 15 \times 10^9/L$, n (%)	38 (50)	17 (45)
Subjects with baseline platelet count $> 15 \times 10^9/L$, n (%)	38 (50)	21 (55)
Proportion of subjects that used ITP medication at randomization, n (%)	32 (42)	17 (45)
Splenectomised subjects, n (%)	31 (41)	14 (37)
Non-Splenectomised subjects, n (%)	45 (59)	24 (63)
Primary Endpoint		
Proportion of subjects who responded to treatment, n (%)	43(59) ^a	6 (16) ^a
Odds ratio (OR) for responding to treatment, Eltrombopag/Placebo ^b	9.61	
99% CI	(3.31, 27.86)	
p-value (two-sided vs. PBO)	<0.001	
Key Secondary Endpoint		
Analysis of Any Bleeding (WHO Grades 1-4)		
OR bleeding at any time during 6 weeks, Eltrombopag/Placebo	0.49	
95% CI	(0.26, 0.89)	
p-value (two-sided, vs. PBO)	0.021	

a One subject did not have a platelet count at 6 weeks

b Responder defined as subjects who had an increase in platelet counts to $\geq 50 \times 10^9/L$ from baseline $< 30 \times 10^9/L$ after up to 6-weeks of dosing

REPEAT (TRA108057): REPEAT evaluated the efficacy, safety and consistency of response following repeated, intermittent, short-term dosing of eltrombopag over 3 cycles of therapy in adults with previously treated chronic ITP. A cycle was defined as an up to 6-week on-therapy period followed by an up to 4-week off-therapy period. The primary endpoint in REPEAT was the proportion of subjects who achieved a platelet count $\geq 50 \times 10^9/L$ and at least 2x baseline in Cycle 2 or 3, given this response in Cycle 1.

Of the 52 subjects who responded in Cycle 1, 33 (63%) achieved a platelet count of $\geq 50 \times 10^9/L$ and at least 2x baseline on Day 8 in Cycle 1; on Day 15, 37 (79%) of 47 evaluable subjects achieved this level of response (see Table 17).

Table 17 Analysis of Responders in Cycle 1 and Cycle 2 or 3 (ITT Populations)

	Eltrombopag 50 mg (N=66)
Evaluable in Cycle 1, n	65*
Responders in Cycle 1, n (%)	52 (80)
Evaluable in Cycle 2 or 3, n	52
Responders in Cycle 1 and in Cycle 2 or 3, n (%)	45 (87)
Proportion	0.87
95 % CI for Proportion (Exact Methods)	(0.74, 0.94)

*1 subject was not evaluable for Cycle 1 due to a missing platelet count assessment at Day 43.

A reduction in any bleeding (WHO Grade 1-4) and clinically significant bleeding (WHO Grade 2-4) during the treatment phases was demonstrated in each cycle. At the baseline visit of Cycle 1, 50% and 19% of subjects reported any bleeding and clinically significant bleeding, respectively. At the Day 43 Visit of Cycle 1, the proportion of subjects bleeding was reduced; 12% and 0% of subjects reported any bleeding and clinically significant bleeding, respectively. Similar results were found during the subsequent treatment cycles.

Eight subjects successfully managed 10 haemostatic challenges without need for additional therapy to elevate platelet counts and without unexpected bleeding.

EXTEND (TRA105325): EXTEND evaluated the safety and efficacy of eltrombopag in subjects (n=299) with chronic ITP who were previously enrolled in an eltrombopag trial. In this study, subjects were permitted to modify their dose of study medication as well as decrease or eliminate concomitant ITP medications.

Two hundred and forty-nine subjects completed ≥ 6 months of treatment, 210 completed ≥ 12 months of treatment, 138 subjects completed ≥ 2 years of treatment, and 24 subjects completed ≥ 3 years of treatment. The median follow up was 100 weeks. The majority of subjects had baseline platelet counts of $< 30 \times 10^9/L$ (70%). The median daily dose of eltrombopag following at least 6 months (Day 182) of therapy was 50 mg (n = 252).

At baseline, 56% of subjects had any bleeding (WHO Bleeding Grades 1–4) and 16% had clinically significant bleeding. The proportion of subjects with any bleeding and clinically significant bleeding decreased from baseline by approximately 50% for the majority of assessments up to 1 year.

Sixty-five percent of subjects who reduced a baseline medication permanently discontinued or had a sustained reduction of their baseline ITP medication and did not require any subsequent rescue treatment. Ninety-six percent of these subjects maintained this discontinuation or reduction for at least 24 weeks. Fifty-four percent of subjects completely discontinued at least one baseline ITP medication, and 49% of subjects permanently discontinued all baseline ITP medications, without subsequent rescue treatment.

Fifty-six subjects experienced at least one haemostatic challenge during the study. No subject experienced unexpected bleeding complications related to the procedure while on study.

Pediatric Chronic Immune Thrombocytopenia Purpura (ITP)

PETIT2 (TRA115450)

Study demographics and trial design

The efficacy of eltrombopag in pediatric subjects (aged 1 to 17 years) with chronic ITP for at least 12 months was evaluated in a Phase III double-blind, placebo-controlled study (Table 18). Overall, eltrombopag was administered to 63 pediatric subjects with median exposure of 91 days during the Randomized Period. During the study, doses could be increased every 2 weeks, based on individual platelet counts, to a maximum of 75 mg once daily. The dose of eltrombopag was reduced if the platelet count exceeded $200 \times 10^9/L$ and interrupted if it exceeded $400 \times 10^9/L$.

Table 18 Summary of Trial Design and Patient Demographics for Study PETIT2 (TRA115450) in Pediatric ITP (Randomized Phase)

Study #	Trial design	Dosage, route of administration and duration	Study subjects	Mean age (Range)	Gender (%)
PETIT2 (TRA115450)	Phase III, two-part double-blind, randomized, placebo-controlled and open-label.	<p>Cohort 1 (12-17 years) and 2 (6-11 years) starting dose*: Eltrombopag 50 mg (if weighing ≥ 27 kg) or 37.5 mg (if weighing < 27 kg) or matching Placebo; Daily oral tablet dosing</p> <p>Cohort 3 (1-5 years) starting dose#: 1.2 mg/kg or matching Placebo; Daily oral suspension dosing</p> <p>Part 1 (Randomized): 13 weeks</p> <p>Part 2 (Open-label): 24 weeks</p>	Cohort 1 N=33	Cohort 1	Cohort 1
			Placebo: 10	Placebo: 14.3 years (12-17)	Female: 30 Male: 70
			Eltrombopag: 23	Eltrombopag: 14.0 years (12-17)	Female: 39.1 Male: 60.9
			Cohort 2 N=39	Cohort 2	Cohort 2
			Placebo: 13	Placebo: 8.7 years (6-11)	Female: 53.8 Male: 46.2
			Eltrombopag: 26	Eltrombopag: 8.3 years (6-16)	Female: 50.0 Male: 50.0
			Cohort 3 N=20	Cohort 3	Cohort 3
			Placebo: 6	Placebo: 4.7 years (4-5)	Female: 66.7 Male: 33.3
			Eltrombopag: 14	Eltrombopag: 3.6 years (1-5)	Female: 57.1 Male: 42.9

* A reduced dose of 25 mg once daily was used for East Asian subjects aged 6 to 17 years, regardless of weight.

The starting dose for East Asian subjects aged 1 to 5 years was 0.8 mg/kg once daily administered as oral suspension.

Subjects who were refractory or relapsed to at least one prior ITP therapy or unable to continue other ITP treatments for a medical reason, and had a platelet count < 30 x 10⁹/L (n = 92) were stratified by age and randomized (2:1) to eltrombopag (n = 63) or placebo (n = 29).

Across the three cohorts, the median age of the subjects was 9 years; 48% were female; the majority were White (64%), and the remainder were primarily of East Asian ancestry (defined as Japanese, East Asian or South East Asian). Approximately 63% of subjects had a baseline platelet count less than or equal to 15 x 10⁹/L. Seventy-three percent in the group treated with REVOLADE and 90% in the group treated with placebo had received at least two prior ITP therapies (predominantly corticosteroids and immunoglobulins). Four (6%) subjects in the group treated with eltrombopag had undergone splenectomy.

The primary efficacy endpoint was a sustained response, defined as the proportion of subjects achieving platelet counts $\geq 50 \times 10^9/L$ for at least 6 out of 8 weeks (in the absence of rescue therapy), between Weeks 5 to 12 during the double-blind period.

Overall, a significantly greater proportion of eltrombopag subjects (40 %) compared with placebo subjects (3 %) achieved the primary endpoint ($p < 0.001$) which was similar across the three age cohorts (Table19).

Table 19 Summary of Efficacy Results for the PETIT2 study

	Eltrombopag n/N (%)	Placebo n/N (%)
Overall	25/63 (40)*	1/29 (3)
Cohort 1	9/23 (39)	1/10 (10)
Cohort 2	11/26 (42)	0/13 (0)
Cohort 3	5/14 (36)	0/6 (0)

*P-value < 0.001 for eltrombopag versus placebo

A greater proportion of subjects treated with eltrombopag (75 %) compared with placebo (21 %) had a platelet response (at least one platelet count $> 50 \times 10^9/L$ during the first 12 weeks of randomized treatment in absence of rescue therapy). The median of the maximum duration for which a platelet count $\geq 50 \times 10^9/L$ was continuously maintained during the first 12 weeks of the Randomized Period was 3.0 weeks (range: 0-12) for REVOLADE compared to 0 week (range: 0-8) for placebo.

Fewer eltrombopag subjects required rescue treatment during the randomized period compared to placebo subjects (19 % [12/63] vs. 24 % [7/29]).

Subjects were permitted to reduce or discontinue baseline ITP therapy only during the open-label phase of the study and 53 % (8/15) of subjects were able to reduce ($n = 1$) or discontinue ($n = 7$) baseline ITP therapy, mainly corticosteroids, without needing rescue therapy.

Chronic Hepatitis C-related Thrombocytopenia

Study demographics and trial design

The efficacy and safety of eltrombopag (REVOLADE) for the treatment of thrombocytopenia in subjects with HCV infection were evaluated in two randomized, double-blind, placebo-controlled studies. ENABLE 1 utilized peginterferon alfa-2a (PEGASYS*) plus ribavirin for antiviral treatment and ENABLE 2 utilized peginterferon alfa-2b (PEGETRON*) plus ribavirin.

Table 20 Summary of Trial Design and Patient Demographics for Clinical Trials in HCV

Study #	Trial design	Dosage, route of administration and duration	Study subjects (N=number)	Mean age (Range)	Gender N (%)
ENABLE 1 (TPL103922)	Phase III, double-blind, randomized, placebo-controlled	Pre-antiviral treatment phase: 25 mg once daily, increased in 25 mg increments, up to 100 mg	Pre-antiviral treatment phase: Eltrombopag N=715	Pre-antiviral treatment phase: Eltrombopag 51.8 yrs (19-76 yrs)	Pre-antiviral treatment phase: F: 269 (38%) M: 446 (62%)
		Antiviral treatment phase: Same dose as pre-treatment phase or placebo	Treatment phase: Placebo N=232 Eltrombopag N=450	Treatment phase: Placebo 51.4 yrs (23-72 yrs) Eltrombopag 52.1 yrs (19-76 yrs)	Treatment phase: Placebo F: 73 (31%) M: 159 (69%) Eltrombopag F: 186 (41%) M: 264 (59%)
ENABLE 2 (TPL108390)	Phase III, double-blind, randomized, placebo-controlled	Pre-antiviral treatment phase: 25 mg once daily, increased in 25 mg increments, up to 100 mg	Pre-antiviral treatment phase: Eltrombopag N=805	Pre-antiviral treatment phase: Eltrombopag 52.2 yrs (22-83 yrs)	Pre-antiviral treatment phase: F: 295 (37%) M: 510 (63%)
		Antiviral treatment phase: Same dose as pre-treatment phase or placebo	Treatment phase: Placebo N=253 Eltrombopag N=506	Treatment phase: Placebo 52.0 yrs (26-74 yrs) Eltrombopag 52.4 yrs (22-83 yrs)	Treatment phase: Placebo F: 93 (37%) M: 160 (63%) Eltrombopag F: 185 (37%) M: 321 (63%)

Study Results

ENABLE 1 and ENABLE 2 were global, multicenter, two-part studies that used a randomized withdrawal design. The studies were identical in design and differed only in the pegylated interferon/ribavirin used (ENABLE 1 utilized peginterferon alfa-2a (PEGASYS[®]) plus ribavirin for antiviral treatment and ENABLE 2 utilized peginterferon alfa-2b (PEGETRON[®]) plus ribavirin.

They consisted of two phases: an open-label (OL) pre-antiviral treatment phase (Part 1) and randomized, double-blind (DB), placebo-controlled antiviral treatment phase (Part2). In the pre-antiviral treatment phase (Part 1), all subjects received open-label REVOLADE to increase the platelet count to $\geq 90 \times 10^9/L$ for ENABLE 1 and $\geq 100 \times 10^9/L$ for ENABLE 2. Median baseline platelet counts (approximately $60 \times 10^9/L$) were similar among all treatment groups.

In both studies, REVOLADE was administered at an initial dose of 25 mg once daily for 2 weeks. Dose escalations could occur every 2 weeks, in 25 mg increments up to a maximum of 100 mg eltrombopag daily, as needed to reach target platelet counts required to enter Part 2 of the study. The maximal time subjects could receive open-label eltrombopag in Part 1 was 9 weeks.

Once eligible for Part 2, subjects were randomized (2:1) to the same dose of eltrombopag received at the end of the pre-treatment phase (Part 1) or to placebo. REVOLADE or placebo was administered in combination with pegylated interferon/ribavirin antiviral treatment for up to 48 weeks (actual duration depending on HCV genotype). All subjects in ENABLE 1 and ENABLE 2 were to attend post-treatment follow-up visits up to 24 weeks.

In both ENABLE 1 and ENABLE 2, subjects with a platelet count of $< 75 \times 10^9/L$ were enrolled and stratified by platelet count ($< 50 \times 10^9/L$ and $\geq 50 \times 10^9/L$ to $< 75 \times 10^9/L$), screening HCV RNA ($< 800,000$ IU/mL and $\geq 800,000$ IU/mL), and HCV genotype (genotype 2/3, and genotype 1/4/6).

The primary efficacy endpoint for both studies was sustained virologic response (SVR) defined as the percentage of subjects with non-detectable e HCV-RNA at 24 weeks after completion of the planned treatment period.

Baseline disease characteristics are described in Table 21 below.

Table 21 Baseline Disease Characteristics (Pooled Data, Intent-to-Treat Population)

	Eltrombopag (N=956)	Placebo (N=485)
HCV genotype, n (%)	n=953	n=484
1	612 (64)	309 (64)
2	67 (7)	50 (10)
3	228 (24)	101 (21)
4	41 (4)	22 (5)
6	5 (<1)	2 (<1)
HCV RNA, n (%)	n=954	n=483
<800,000 IU/mL	502 (53)	244 (51)
≥800, 000 IU/mL	452 (47)	239 (49)
Prior Antiviral Medications, n (%)	n=956	n=485
Naive	654 (68)	334 (69)
Experienced	302 (32)	151 (31)
Child-Pugh Classification, n (%)	n=953	n=485
A (score 5-6)	911 (96)	459 (95)
B (score 7-9)	42 (4)	26 (5)
ALT, n(%)	n=956	n=485
Normal	216 (23)	103(21)
Elevated	740(77)	382(79)
Baseline Platelet Count (Gi/L), n(%)	n=956	n=485
< 50	264 (28)	139(29)
≥50	692 (72)	346(71)
MELD Score n(%)	n=941	n=477
< 10	541 (57)	264 (55)
≥10	400 (43)	213 (45)
Baseline Albumin (g/L), n(%)	n=955	n=484
≤35	275 (29)	139(29)
>35	680 (71)	345(71)
FibroSURE Score; n (%)	n=842	n=426
0/1/2	83 (10)	42 (10)
3/4	759 (90)	384 (90)

Note: n represents subjects with evaluable data.

In the pre-antiviral phase (Part 1) of ENABLE 1 and ENABLE 2, platelet counts began to rise within the first week of treatment with eltrombopag, and the median time to achieve the target platelet count $\geq 90 \times 10^9/L$ was approximately 2 weeks. Ninety-five percent of subjects were able to initiate antiviral therapy, with over 80% of subjects receiving 25 mg or 50 mg eltrombopag at randomization into the antiviral treatment phase (Part 2).

In both studies, a significantly greater proportion of subjects treated with eltrombopag achieved SVR (see Table 22). A greater proportion of subjects on eltrombopag achieved SVR regardless of baseline platelet count ($< 50 \times 10^9/L$ versus $\geq 50 \times 10^9/L$) compared to placebo. In subjects with high viral loads ($> 800,000$), the SVR rate was reported at 18% for eltrombopag versus 8% for placebo. Significantly more subjects reached the antiviral

milestones of early virologic response (EVR), complete EVR, end-of-treatment response (ETR), and SVR at 12 weeks when treated with eltrombopag.

Table 22 ENABLE 1 and ENABLE 2 Virologic and Platelet Response in Adults With Chronic Hepatitis C Virus

	ENABLE 1^a		ENABLE 2^b		Pooled Data	
Pre-antiviral Treatment Phase	N = 715		N = 805		N = 1520	
% Subjects who achieved target platelet counts and initiated antiviral therapy ^c	95%		94%		95%	
Antiviral Treatment Phase	Eltrombopag N = 450 %	Placebo N = 232 %	Eltrombopag N = 506 %	Placebo N = 253 %	Eltrombopag N=956 %	Placebo N = 485 %
Overall SVR24^d	23	14	19	13	21	13
HCV Genotype 2,3	35	24	34	25	35	25
HCV Genotype 1,4,6	18	10	13	7	15	8
Platelet count <50 Gi/L	23	16	18	6	20	11
Platelet count ≥50 Gi/L	23	14	20	15	21	14
HCV RNA <800,000 IU/mL	28	20	20	17	24	18
HCV RNA ≥800,000 IU/mL	18	9	18	8	18	8

^a Eltrombopag given in combination with peginterferon alfa-2a (180 mcg once weekly for 48 weeks for genotypes 1 or 4; 24 weeks for genotype 2 or 3) plus ribavirin (800 to 1,200 mg daily in 2 divided doses orally).

^b Eltrombopag given in peginterferon alfa-2b (1.5 mcg/kg once weekly for 48 weeks for genotype 1; 24 weeks for genotype 2 or 3) plus ribavirin (800 to 1,400 mg orally).

^c Target platelet count was ≥90 x 10⁹/L for ENABLE 1 and ≥100 x 10⁹/L for ENABLE 2.

^d SVR: sustained viral response at 24 weeks following commencement of anti-viral therapy, p value < 0.05 for both ENABLE 1 and ENABLE 2

Results of secondary endpoint analyses showed the following: Significantly fewer subjects treated with eltrombopag prematurely discontinued antiviral therapy compared to placebo (45% versus 60%, *P* = 0.0001). A greater proportion of subjects on eltrombopag were reported to not require any antiviral dose reduction as compared to placebo (45% versus 27%), while the majority of subjects treated with eltrombopag (76%) maintained a platelet count ≥50 x 10⁹/L, compared to 19% for placebo. A greater proportion of subjects in the placebo group (20%) were seen to have had a platelet count nadir less than 25 x 10⁹/L during treatment, compared to subjects treated with eltrombopag (3%).

Median platelet counts observed at the start of antiviral therapy were similar in both eltrombopag and placebo groups ($134 \times 10^9/L$ versus 135×10^9 , respectively) for pooled data in the HCV subject population. Four (4) weeks following the initiation of the double-blind treatment phase, platelet counts decreased to approximately $97 \times 10^9/L$ in the eltrombopag group and $48 \times 10^9/L$ in the placebo group. Median platelet counts remained near Week 4 values for the remainder of the double-blind treatment phase (Part 2).

Severe Aplastic Anemia (SAA)

REVOLADE was studied in a single-arm, single-center, phase II study in 43 subjects with severe aplastic anemia who had an insufficient response to at least one course of antithymocyte globulin (rabbit or horse) plus cyclosporine and who had a platelet count $\leq 30 \times 10^9/L$.

REVOLADE was administered at an initial dose of 50 mg once daily for 2 weeks and increased by 25 mg over 2 week periods up to a maximum dose of 150 mg once daily. The primary endpoint was hematological response assessed after 12 or 16 weeks of REVOLADE treatment.

Hematological response was defined as meeting one or more of the following criteria: 1) platelet count increases to $20 \times 10^9/L$ above baseline, or stable platelet counts with transfusion independence for a minimum of 8 weeks; 2) hemoglobin increase by $>15g/L$, or a reduction in ≥ 4 units of RBC transfusions for 8 consecutive weeks; 3) absolute neutrophil count (ANC) increase of 100% or an ANC increase $>0.5 \times 10^9/L$.

REVOLADE was discontinued after 16 weeks if no hematologic response or transfusion independence was observed. Subjects who responded continued therapy in an extension phase of the trial.

The treated population had median age of 45 years (range 17 to 77 years) and 56% were male. At baseline, the median platelet count was $20 \times 10^9/L$, hemoglobin was 84 g/L, ANC was $0.58 \times 10^9/L$ and absolute reticulocyte count was $24.3 \times 10^9/L$. Eighty-six percent of subjects were RBC transfusion dependent and 91% were platelet transfusion dependent. The majority of subjects (84%) had received at least 2 prior immunosuppressive therapies. Three subjects had cytogenetic abnormalities at baseline.

Table 23 presents the primary efficacy results.

Table 23 Hematologic Response in Severe Aplastic Anemia

Outcome	REVOLADE N = 43
Response Rate, N (%)	17 (40)
95% CI (%)	(25, 56)

Bi- or tri-lineage responses were observed in 4/43 subjects (9%) at the initial response assessment and in 8/43 subjects (19%) at the last assessment. The longest platelet transfusion free period in responders ranged from 8 to 1,096 days with a median of 200 days. The longest RBC transfusion free period in responders ranged from 15 to 1,082 days with a median of 208 days. Four subjects who tapered off treatment with REVOLADE due to a tri-lineage response maintained a response for a median follow up period of 8 months (7.2 to 10.6 months).

DETAILED PHARMACOLOGY

REVOLADE (eltrombopag) does not stimulate platelet production in mice, rats or dogs because of unique TPO receptor specificity and therefore data from these animals do not fully model potential adverse effects related to the pharmacology of eltrombopag in humans.

Pharmacokinetic Interactions

Based on a human study with radiolabelled eltrombopag, glucuronidation plays a minor role in the metabolism of eltrombopag. Human liver microsome studies identified UGT1A1 and UGT1A3 as the enzymes responsible for eltrombopag glucuronidation. Eltrombopag was an inhibitor of a number of UGT enzymes *in vitro*. Clinically significant drug interactions involving glucuronidation are not anticipated due to limited contribution of individual UGT enzymes in the glucuronidation of eltrombopag and potential co-medications.

Based on a human study with radiolabelled eltrombopag, approximately 21% of an eltrombopag dose could undergo oxidative metabolism. Human liver microsome studies identified CYP1A2 and CYP2C8 as the enzymes responsible for eltrombopag oxidation. In studies utilizing human liver microsomes, eltrombopag (up to 100 μM) showed no *in vitro* inhibition of the CYP450 enzymes 1A2, 2A6, 2C19, 2D6, 2E1, 3A4/5, and 4A9/11, and was an inhibitor of CYP2C8 and CYP2C9 as measured using paclitaxel and diclofenac as the probe substrates, with IC_{50} values of 24.8 μM (11 $\mu\text{g}/\text{mL}$) and 20.2 μM (8.9 $\mu\text{g}/\text{mL}$), respectively. Administration of eltrombopag 75 mg once daily for 7 days to 24 healthy male subjects did not inhibit or induce the metabolism of probe substrates for 1A2 (caffeine), 2C19 (omeprazole), 2C9 (flurbiprofen), or 3A4 (midazolam) in humans. No clinically significant interactions are expected when eltrombopag and CYP450 substrates, inducers or inhibitors are co-administered.

In vitro studies demonstrate that eltrombopag is an inhibitor of the OATP1B1 transporter, with an IC_{50} value of 2.7 μM (1.2 $\mu\text{g}/\text{mL}$) and an inhibitor of the BCRP transporter, with an IC_{50} value of 2.7 μM (1.2 $\mu\text{g}/\text{mL}$). Administration of eltrombopag 75 mg once daily for 5 days with a single 10 mg dose of the OATP1B1 and BCRP substrate rosuvastatin to 39 healthy adult subjects increased plasma rosuvastatin C_{max} 103% (90% CI: 82%, 126%) and $\text{AUC}_{(0-\infty)}$ 55% (90% CI: 42%, 69%) (see **DRUG INTERACTIONS, Drug-Drug Interactions**).

Administration of a single dose of eltrombopag 50 mg tablet with 200 mg cyclosporine decreased the C_{max} and the $AUC_{(0-\infty)}$ of eltrombopag by 25% (90% CI: 15%, 35%) and 18% (90% CI: 8%, 28%), respectively. The co-administration of 600 mg cyclosporine decreased the C_{max} and the $AUC_{(0-\infty)}$ of eltrombopag by 39% (90% CI: 30%, 47%) and 24% (90% CI: 14%, 32%), respectively. The exact mechanism is unknown.

Co-administration of eltrombopag with lopinavir/ritonavir (LPV/RTV) may cause a decrease in the concentration of eltrombopag. A study in 40 healthy volunteers showed that the co-administration of single dose eltrombopag 100 mg with repeat dose LPV/RTV 400/100 mg twice daily resulted in a reduction in eltrombopag plasma $AUC_{(0-\infty)}$ by 17% (90% CI: 6.6%, 26.6%) (see **DRUG INTERACTIONS, Drug-Drug Interactions**).

Co-administration of eltrombopag with the HCV protease inhibitor boceprevir did not have an effect on the concentration of eltrombopag. A study in 28 healthy volunteers showed that the co-administration of single dose eltrombopag 200 mg with repeat dose boceprevir 750 mg three times daily reduced the boceprevir plasma $AUC_{(0-\infty)}$ by 4 % (90 % CI: -14.7 %, 8.5 %). Co-administration of single dose eltrombopag 200 mg with repeat dose boceprevir 800 mg three times daily reduced the boceprevir plasma $AUC_{(0-\infty)}$ by 4 % (90 % CI: 0.8 %, 7.9 %) and the C_t by 32% (90% CI -41.7%, -21.4%) (see **DRUG INTERACTIONS, Drug-Drug Interactions**).

Co-administration of eltrombopag with the HCV protease inhibitor telaprevir did not have an effect on the concentration of eltrombopag. A study in 28 healthy volunteers showed that the co-administration of single dose eltrombopag 200 mg with repeat dose telaprevir 750 mg three times daily reduced the eltrombopag plasma $AUC_{(0-\infty)}$ by 6 % (90 % CI: -14.7 %, 3.5 %). Co-administration of single dose eltrombopag 200 mg with repeat dose telaprevir 750 mg three times daily reduced the telaprevir plasma $AUC_{(0-\infty)}$ by 2 % (90 % CI: -6.1 %, 2.5 %) (see **DRUG INTERACTIONS, Drug-Drug Interactions**).

Administration of a single dose of eltrombopag 75 mg with a polyvalent cation-containing antacid (1,524 mg aluminium hydroxide and 1,425 mg magnesium carbonate) decreased plasma eltrombopag $AUC_{(0-\infty)}$ by 70% (90% CI: 64%, 76%) and C_{max} by 70% (90% CI: 62%, 76%) (see **DOSAGE AND ADMINISTRATION, and DRUG INTERACTIONS, Drug-Drug Interactions**).

Administration of a single 50 mg dose of eltrombopag with a standard high-calorie, high-fat breakfast that included dairy products reduced plasma eltrombopag $AUC_{(0-\infty)}$ by 59% (90% CI: 54%, 64%) and C_{max} by 65% (90% CI: 59%, 70%). Whereas, low-calcium food (<50 mg calcium) including fruit, lean ham, beef and unfortified (no added calcium, magnesium, iron) fruit juice, unfortified soy milk, and unfortified grain did not significantly impact plasma eltrombopag exposure, regardless of calorie and fat content (see **DOSAGE AND ADMINISTRATION, and DRUG INTERACTIONS, Drug-Food Interactions**).

TOXICOLOGY

REVOLADE (eltrombopag) does not stimulate platelet production in mice, rats, or dogs because of unique TPO receptor specificity. These animal species do not therefore model any potential on-target adverse effects related to the pharmacology of eltrombopag in the general toxicology, reproductive toxicology, and carcinogenicity studies. In the absence of nonclinical models to study potential on-target effects, it is acknowledged that the toxicology program lacks the ability to fully evaluate the safety of eltrombopag through study of the exaggerated pharmacology. The toxicology evaluation was therefore limited to identify potential off-target effects.

Repeat Dose Toxicity

The toxicity of repeated oral doses of eltrombopag has been assessed in mice, rats, rabbits and dogs in studies of up to 13, 28, 1 and 52 weeks, respectively. Eltrombopag was well tolerated with no adverse treatment-related clinical signs, effects on food consumption or body weight, or mortality for up to 13 weeks in mice at doses ≤ 100 mg/kg/day (652 $\mu\text{g}\cdot\text{h}/\text{mL}$), 28 weeks or 2 years in rats at doses ≤ 30 or 40 mg/kg/day (661 or 677 $\mu\text{g}\cdot\text{h}/\text{mL}$, respectively), 1 week in rabbits at doses ≤ 150 mg/kg/day (59 $\mu\text{g}\cdot\text{h}/\text{mL}$), and 52 weeks in dogs at doses ≤ 30 mg/kg/day (418 $\mu\text{g}\cdot\text{h}/\text{mL}$). Systemic exposures at these dose levels were 4.5-fold the maximum proposed human exposure in mice and rats, 0.4-fold in rabbits and 2.9-fold in dogs.

Treatment-related cataracts were detected in rodents and were dose and time-dependent. At ≥ 6 times the human clinical exposure based on AUC in ITP subjects at 75 mg/day and 3 times the human clinical exposure based on AUC in HCV subjects at 100 mg/day, cataracts were observed in mice after 6 weeks and rats after 28 weeks of dosing. At ≥ 4 times the human clinical exposure based on AUC in ITP subjects at 75 mg/day and 2 times the human clinical exposure based on AUC in HCV subjects at 100 mg/day, cataracts were observed in mice after 13 weeks and in rats after 39 weeks of dosing.

Cataracts have not been observed in dogs after 52 weeks of dosing at 2 times the human clinical exposure in ITP or pediatric ITP subjects and equivalent to the human clinical exposure in HCV subjects based on AUC.

Renal tubular toxicity was observed in studies of up to 14 days duration in mice and rats at exposures that were generally associated with morbidity and mortality. Tubular toxicity was also observed in a 2 year oral carcinogenicity study in mice at doses of 25, 75 and 150 mg/kg/day. Effects were less severe at lower doses and were characterized by a spectrum of regenerative changes. The exposure at the lowest dose was 1.2 times and 0.8 times the human clinical exposure based on AUC in ITP and pediatric ITP subjects, respectively, at 75 mg/day and 0.6 times the human clinical exposure based on AUC in HCV subjects at 100 mg/day.

Renal effects were not observed in rats after 28 weeks or in dogs after 52 weeks at exposures 4 and 2 times respectively, the human clinical exposure in ITP subjects, 3 and 2 times, respectively, the human clinical exposure in pediatric ITP subjects, and 2 times

and equivalent to the human clinical exposure in HCV subjects, based on AUC. .

Hepatocyte degeneration and/or necrosis, often accompanied by increased serum liver enzymes, was observed in mice, rats and dogs at doses that were associated with morbidity and mortality or were poorly tolerated. No hepatic effects were observed after chronic dosing in rats (28 weeks) or dogs (52 weeks) at exposures up to 4 or 2 times, respectively, the human clinical exposure in ITP subjects, and 3 and 2 times, respectively, the human clinical exposure in pediatric ITP subjects at 75 mg/day, and 2 times or equivalent to the human clinical exposure in HCV subjects at 100 mg/day, based on AUC.

Carcinogenicity

Eltrombopag was not carcinogenic in mice at doses up to 75 mg/kg/day or in rats at doses up to 40 mg/kg/day (exposures up to 4 times and 2 times the human clinical exposure based on AUC in ITP and pediatric ITP subjects, respectively, and 2 times the human clinical exposure based on AUC in HCV subjects at 100 mg/day).

Genotoxicity

Eltrombopag was not mutagenic or clastogenic in a bacterial mutation assay or in two *in vivo* assays in rats (micronucleus and unscheduled DNA synthesis, 10 times and 8 times the human clinical exposure based on C_{max} in ITP and pediatric ITP subjects, respectively, at 75 mg/day and 7 times the human clinical exposure in HCV subjects at 100 mg/day). In the *in vitro* mouse lymphoma assay, eltrombopag was marginally positive (<3 fold increase in mutation frequency). These *in vitro* and *in vivo* findings suggest that eltrombopag does not pose a genotoxic risk to humans.

Phototoxicity

In vitro studies with eltrombopag suggest a potential photosafety risk; however, in rodents there was no evidence of cutaneous phototoxicity (10 times and 7 times the human clinical exposure in ITP and pediatric ITP subjects, respectively, and 5 times the human clinical exposure in HCV subjects, based on AUC) or ocular phototoxicity (≥ 6 times and ≥ 4 times the human clinical exposure in ITP and pediatric ITP subjects, respectively, and ≥ 3 times the human clinical exposure in HCV subjects, based on AUC). Furthermore, a clinical pharmacology study in 36 subjects showed no evidence that photosensitivity was increased following administration of eltrombopag 75 mg. This was measured by delayed phototoxic index. Nevertheless, a potential risk of photoallergy cannot be ruled out since no specific preclinical study could be performed.

Reproductive and Developmental Toxicity

REVOLADE did not affect female fertility, early embryonic development or embryofetal development in rats at doses up to 20 mg/kg/day (2 times and approximately equivalent to the human clinical exposure in ITP and pediatric ITP subjects, respectively, at 75 mg/day and equivalent to the human clinical exposure in HCV subjects at 100 mg/day, based on AUC). Also there was no effect on embryofetal development in rabbits at doses

up to 150 mg/kg/day, the highest dose tested (0.3 to 0.5 times the human clinical exposure in ITP, pediatric ITP, and HCV subjects based on AUC). However, at a maternally toxic dose of 60 mg/kg/day (6 times and 4 times the human clinical exposure in ITP and pediatric ITP subjects, respectively, and 3 times the human clinical exposure in HCV subjects, based on AUC) in rats, REVOLADE treatment was associated with embryo lethality (increased pre and post implantation loss), reduced fetal body weight and gravid uterine weight in the female fertility study and a low incidence of cervical ribs and reduced fetal body weight in the embryofetal development study.

Special Populations and Conditions: REVOLADE did not affect male fertility in rats at doses up to 40 mg/kg/day, the highest dose tested (3 times the human clinical exposure in ITP and pediatric ITP subjects and 2 times the human clinical exposure in HCV subjects, based on AUC). In the pre- and post-natal development study in rats, there were no undesirable effects on pregnancy, parturition or lactation of F₀ female rats at maternally non-toxic doses (10 and 20 mg/kg/day) and no effects on the growth, development, neurobehavioral or reproductive function of the offspring (F₁). REVOLADE was detected in the plasma of all F₁ rat pups for the entire 22 hour sampling period following administration of medicinal product to the F₀ dams, suggesting that rat pup exposure to REVOLADE was likely via lactation.

Juvenile Toxicity: Age-dependent development of hepatic excretory pathways and reduced hepatic clearance led to higher exposures of eltrombopag and poor tolerability in very young rats. In a juvenile rat study using pups treated from days 4-31 postpartum, all pups at 60 mg/kg/day were either found dead or euthanized by day 14. Six pups were found dead or euthanized early at 30 mg/kg/day, a dose that is 9 times the maximum clinical exposure in pediatric ITP patients at 75 mg/day, based on AUC. In juvenile rats dosed from day 32-63 postpartum, mortality was not observed.

In definitive juvenile toxicity studies in rats, eltrombopag was not associated with adverse effects at doses up to 15 mg/kg/day in pups dosed from Days 4 to 31 pp and 40 mg/kg/day in pups dosed from Days 32 to 63 pp. In rat pups dosed from Days 4 to 31 pp, a dose of 15 mg/kg/day (exposure 5 times the human clinical exposure based on AUC in pediatric ITP subjects at 75 mg/day) was associated with slight reductions in body weight gain and slight decreases in red cell parameters with an apparent regenerative increase in reticulocyte counts. Discoloration of the skin, fur and other organs (attributed to the color of eltrombopag) was observed in rat pups at very high systemic exposure and was reversible following an off-treatment period. In rat pups dosed from Days 32 to 63 pp, a dose of 40 mg/kg/day was associated with similar slight changes in red blood cell parameters and slight decreases in serum cholesterol and triglyceride concentrations.

Cataracts were observed in mice and rats. Development of cataracts is dose-, time- and age-dependent, i.e. the young rapidly developing lens epithelium of the mouse, was more susceptible than the older, developmentally quiescent lens epithelium. At non-tolerated doses (9 times the maximum human clinical exposure in pediatric ITP patients at 75 mg/day, based on AUC) in pre-weaning juvenile rats dosed from Days 4-32 pp (approximately equating to a 2-year old human at the end of the dosing period), ocular opacities were observed. Cataracts were not observed in juvenile rats given tolerated

doses at 5 times the human clinical exposure in pediatric ITP patients, based on AUC. In young mice (6 weeks of age at initiation of dosing) given 150 mg/kg eltrombopag, development of cataracts was observed with an onset of approximately 6 to 7 weeks at 5 times the maximum human clinical exposure in pediatric ITP patients at 75 mg/day, based on AUC. However, in mice 26-weeks of age at the initiation of dosing, a dose of 150 mg/kg/day did not cause cataract formation.

REFERENCES

1. Bussel J, Cheng G, Saleh M, et al. Eltrombopag for the Treatment of Chronic Idiopathic Thrombocytopenic Purpura. *N Eng J of Med* 2007; 357: 2237-47
2. Erickson-Miller , Connies L, Delorme, Evelyne, Hopson, Christopher B, et al. Preclinical Activity of Eltrombopag (SB-497115), an Oral, Non-peptide Thrombopoietin Receptor Agonist. *Stem Cells* 2008; 366: 1-19
3. Grainger D.J, Locatelli L., Chotsampancharoen T. et al. Eltrombopag for children with chronic immune thrombocytopenia (PETIT2): a randomised, multicentre, placebo-controlled trial. *Lancet* 2015; 386: 1649–58.
4. Jenkins J, Williams, D, Deng Y et al. Phase 1 Clinical Study of Eltrombopag, an Oral, Nonpeptide Thrombopoietin Receptor Agonist. *Blood* 2007; 109: 4739-4741
5. Stasi R, Evangelista M, Amadort S. Novel Thrombopoietic Agents-A review of their Use in Idiopathic Thrombocytopenic Purpura. *Drugs* 2008; 688(7): 901-912

PART III: CONSUMER INFORMATION

PrREVOLADE® eltrombopag tablets (as eltrombopag olamine)

This leaflet is part III of a three-part "Product Monograph" published when REVOLADE was approved for sale in Canada and is designed specifically for Consumers. This leaflet is a summary and will not tell you everything about REVOLADE. Contact your doctor or pharmacist if you have any questions about the drug.

ABOUT THIS MEDICATION

What the medication is used for:

Chronic immune thrombocytopenia (ITP): REVOLADE is used to treat a bleeding disorder known as chronic immune thrombocytopenia (ITP) to increase platelet counts in adults and children one year of age and older when other medications have not worked. ITP is a condition where there is a low platelet count (thrombocytopenia). Platelets are blood cells that help the blood clot normally. ITP patients may have an increased risk of bleeding. Symptoms of bleeding are petechiae (pinpoint sized flat round red spots under the skin), purpura (bruising), nosebleeds, bleeding gums, or not being able to control bleeding if cuts or injuries occur.

Severe Aplastic Anemia (SAA):

REVOLADE is used to treat adult patients with low blood counts caused by severe aplastic anemia (SAA). REVOLADE is used when other drugs don't work.

Chronic hepatitis C (HCV) Associated Thrombocytopenia: Many patients with HCV infections have low platelet counts (thrombocytopenia) not only as a result of the disease but also due to some of the medicines that are used to treat the disease. The use of REVOLADE to increase and maintain the platelet count prior to and throughout antiviral treatment of HCV infection gives patients a better opportunity to maintain the optimal dose and duration of their antiviral therapy.

What it does:

Treatment of ITP:

REVOLADE is a drug that may help increase the number of platelets.

Treatment of SAA:

REVOLADE is a drug that may help increase the number of platelets and other types of blood cells.

Treatment of HCV Associated Thrombocytopenia:

REVOLADE is a drug that may help increase the number of platelets.

When it should not be used:

Do not use REVOLADE if you:

- are allergic to REVOLADE or to any of the non-medicinal ingredients
- have severe liver impairment

What the medicinal ingredient is:

eltrombopag

What the nonmedicinal ingredients are:

Tablets: Hypromellose, macrogol, magnesium stearate, mannitol, microcrystalline cellulose, povidone, sodium starch glycolate and titanium dioxide.

12.5 mg and 25 mg tablets also contain polysorbate.

50 mg tablets also contain iron oxide yellow and iron oxide red.

75 mg tablets also contain iron oxide red and iron oxide black.

What dosage forms it comes in:

Tablets: 12.5 mg, 25 mg, 50 mg, and 75 mg.

WARNINGS AND PRECAUTIONS

Serious Warnings and Precautions

Chronic hepatitis patients with liver disease may be at increased risk of liver failure and death when taking REVOLADE with pegylated interferon and ribavirin, which are used to treat hepatitis C. Your doctor may monitor your liver symptoms closely.

REVOLADE is only available as tablets and should not be used in patients who are unable to swallow REVOLADE tablets whole.

Consult the Consumer Information for both pegylated interferon and ribavirin for relevant safety information associated with the use of these products as they are used with REVOLADE when treating patients with hepatitis C and thrombocytopenia.

BEFORE you use REVOLADE, talk to your doctor or pharmacist if you:

- Have liver problems.
- Have kidney problems.
- Have a history of thrombosis (formation of a clot inside a blood vessel, obstructing the flow of blood), or you know that thrombosis occurs frequently in your family. The risk of blood clots may be increased in the following circumstances: If you are elderly, if you have been bedridden for a long time, if you have cancer, if you are taking the contraceptive birth control pill, or hormone replacement therapy, if you have undergone recent surgery or received a physical injury, if you are overweight, if you are a smoker.
- Have a history of cataracts (problems with sight).
- Are pregnant or plan to become pregnant.
- Are breast-feeding or planning to breastfeed.
- Are over 65 years of age.
- Are of East Asian descent.

Pregnancy:

You should avoid becoming pregnant while taking REVOLADE because the effect of REVOLADE on pregnancy is not known. You should use a reliable method of contraception (a way to prevent you from becoming pregnant). If you become pregnant during treatment, tell your doctor.

Breast-feeding:

Studies in animals have shown that REVOLADE is likely secreted into milk. It is not known whether REVOLADE passes into breast milk. Breast-feeding is not recommended while you are taking REVOLADE.

Cataracts:

In animal studies it was found that REVOLADE caused the development of cataracts (a clouding of the lens in the eye). In HCV studies in patients with thrombocytopenia (low blood platelet count) also receiving interferon, an increased risk in the incidence of cataracts has also been seen. In chronic ITP studies, new cataracts have happened in patients receiving REVOLADE. In the chronic ITP studies with children, two cataract events occurred in patients given REVOLADE. Your doctor may recommend that you are checked for cataracts before and during REVOLADE therapy.

INTERACTIONS WITH THIS MEDICATION

Taking Other Medicines:

There are certain groups of medicines, including prescription and non-prescription medicines and vitamins that interact with REVOLADE and that you should not take

at the same time while receiving a course of REVOLADE. These medications include some products within the following groups:

- Antacid medicines to treat stomach ulcers, indigestion or heartburn
- Certain medicines used to lower cholesterol (statins)
- Minerals such as aluminum, calcium, iron, magnesium, selenium and zinc which may be found in mineral supplements

There are certain groups of medicines, requiring additional platelet monitoring. These medicines include lopinavir/ritonavir (medicines to treat HIV infection) and cyclosporine (used in the context of transplantations or immune diseases).

Talk to your doctor if you take any of these medications. In some cases, you may need to adjust the dose or alter the timing of the dose (see Usual dose). Ask your doctor or pharmacist to review the medicines you are currently taking and suggest suitable alternatives if necessary.

If you are also taking medicines which are given to prevent blood clots (anticoagulants or antiplatelet therapy), there is a greater risk of bleeding. You should discuss this with your doctor. If you are taking other medications for your treatment, these may be reduced or stopped when given together with REVOLADE.

Taking REVOLADE with Food and Drink:

Do not take REVOLADE with dairy products (e.g. milk, ice cream, yogurt, etc.).

REVOLADE may be taken with food low in calcium such as:

- Fruits such as pineapple, raisins and strawberries
- Lean ham, chicken or beef
- Unfortified fruit juice, soy milk and grain. (Unfortified means no added calcium, magnesium or iron).

Please discuss this matter with your doctor or pharmacist; they will be able to give you advice on the most suitable meals to be eaten while you are taking REVOLADE.

PROPER USE OF THIS MEDICATION

Swallow the tablets whole, with some water. Do NOT crush tablets and then mix with food or liquids.

Usual adult dose (18 years and above):

The usual starting dose for either adult ITP or adult SAA patients is **50 mg** REVOLADE once daily. People of East Asian / Southeast Asian origin (Chinese, Japanese, Taiwanese, Thai, or Korean) need to start at a lower dose of 25 mg.

The usual starting dose for adult HCV patients is **25 mg** REVOLADE once daily. People of East Asian / Southeast Asian origin (Chinese, Japanese, Taiwanese, Thai or Korean) will start on the same 25 mg dose.

Usual dose for pediatric ITP patients (aged 1 to less than 18 years):

The usual starting dose for pediatric ITP patients 1 to 5 years of age is **25 mg** REVOLADE once daily.

The usual starting dose for pediatric ITP patients 6 to less than 18 years of age is **50 mg** REVOLADE once daily. Pediatric ITP patients 6 to less than 18 years of age of East Asian / Southeast Asian origin (Chinese, Japanese, Taiwanese, Thai, or Korean) need to start at a lower dose of 25 mg.

If your child is not able to swallow the tablets whole, talk to your doctor or your pharmacist.

If you have liver disease and your doctor has decided to treat you for either ITP or SAA, your starting dose should be no more than 25 mg taken once daily.

Based on your response to REVOLADE your doctor will adapt the dose and may recommend that your daily dose of REVOLADE be increased or decreased.

ITP Patients: The dose of REVOLADE should not exceed 75 mg/day.

SAA Patients: The dose of REVOLADE should not exceed 150 mg/day.

HCV Associated Thrombocytopenia Patients: The dose of REVOLADE should not exceed 100 mg/day.

Do not stop taking REVOLADE until your doctor advises you to do so.

After your doctor advises you to stop treatment with REVOLADE, your platelet count will then be checked each week for 4 weeks.

Don't take REVOLADE during the 2 hours before or 4 hours after you take antacid medication (to treat indigestion), mineral supplements (such as aluminium, calcium, iron, magnesium, selenium or zinc), or dairy products. If you do, the medicine will not be properly absorbed into your body. One way to avoid issues with

these products would be to take them in the morning and take REVOLADE in the evening. Ask your doctor or pharmacist for advice if you are unsure.

Adult ITP Patients: Do not take REVOLADE for more than one year at a time. Treatment should be reassessed by your doctor after one year.

HCV Associated Thrombocytopenia Patients: Do not take REVOLADE for more than one year at a time. Once your anti-viral therapy has been discontinued treatment with REVOLADE will be stopped.

Overdose:

In case of drug overdose, contact a health care practitioner, hospital emergency department or regional Poison Control Centre immediately, even if there are no symptoms.

Missed Dose:

If you miss a dose, take it as soon as you remember. However, do not take a double dose to make up for a forgotten dose, instead start taking REVOLADE again at the regular time the next day.

If you have any further questions on the use of REVOLADE, ask your doctor or pharmacist.

SIDE EFFECTS AND WHAT TO DO ABOUT THEM

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

Side effects reported with REVOLADE in the treatment of adult patients with ITP include:

Common side effects

- Nausea
- Diarrhea
- Dry mouth
- Vomiting
- Rash
- Joint pain
- Dry eye
- Feeling hot
- Headache
- Numbness or tingling of the skin
- Increased sweating
- Sore throat or discomfort when swallowing
- Cataract
- Fatigue

Common side effects that may show up in the blood tests

- Changes in enzymes produced by the liver
- Increase in bilirubin (a substance produced by the liver)

Side effects reported with REVOLADE in the treatment of children 1 year and older with ITP include:

Very common side effects

- Sore throat, runny nose, nasal congestion and sneezing
- Infection in the nose, sinuses, throat and upper airways, common cold (*upper respiratory tract infection*)
- Cough

Common side effects

- Abdominal pain, diarrhoea, constipation, nausea, indigestion
- Toothache, bleeding from the mouth
- Decreased appetite
- Pain in the mouth and throat
- Fever
- Lung or skin infection, influenza, meningitis, enlarged tonsils, head lice
- Rash, itchy rash, scratching, bruising
- Vitamin D deficiency
- Anaemia
- Motion sickness
- Changes in the back of the eye (retina)
- Pain, back pain, groin pain, osteoporosis, non-cardiac chest pain, skin or joint injury
- Lack of energy, sleepiness
- Numbness
- Eating disorder
- Allergic reaction

Common side effects that may show up in the blood tests

- Changes in enzymes produced by the liver

Side effects reported with REVOLADE in the treatment of patients with SAA include:

Very common side effects

- Cough, shortness of breath, runny nose, pain in the nose and throat
- Anxiety and Depression
- Fever
- Headache, dizziness, fatigue (feeling very tired)
- Abdominal pain, diarrhea, nausea
- Bruising

- Muscle spasms, joint pain
- Pain in arms, legs, hands and feet

Very common side effects that may show up in the blood tests

- Increase in some liver enzymes (transaminases)

Common side effects

- Bleeding from the gums
- Pain or blisters inside the mouth
- Vomiting
- Weakness, lack of energy
- Chills
- Swelling of arms and legs
- Shortness of breath when walking
- Nosebleed
- Back pain
- Skin rash, itching, rash with pale red, raised, itchy bumps
- Patch of skin that looks different
- Dry eyes
- Trouble sleeping
- Feeling unwell, feeling pain
- Constipation, passing gas
- Abnormal colour of urine or feces
- Pain when swallowing
- Swollen tongue
- Decreased or increased appetite
- Pain in bones
- Muscle pain
- Cataract

Common side effects that may show up in the blood tests

- High levels of iron in your blood
- Low blood sugar levels
- Changes in enzymes produced by the liver

Laboratory tests may show abnormal changes to the cells in your bone marrow.

Side effects reported with REVOLADE in the treatment of patients with HCV include:

Common side effects

- Fever
- Fatigue
- Chills
- Headache
- Cough
- Nausea
- Diarrhea

- Unusual hair loss or thinning
- Muscle pain
- Itching
- Feeling weak
- Difficulty sleeping
- Loss of appetite
- Flu-like symptoms
- Swelling of the hands, ankles or feet
- Cataract

Very common side effects that may show up in the blood tests

- Reduced number of red blood cells (*anemia*)

Common side effects that may show up in the blood tests

- Increase in bilirubin (a substance produced by the liver)

Frequency not known: (frequency cannot be estimated from the available data from spontaneous reports)

- Yellowing or darkening of skin (skin discolouration)

Please talk with your doctor if you experience skin discolouration as they can evaluate and manage this side effect appropriately.

SERIOUS SIDE EFFECTS, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM				
Symptom / effect		Talk with your doctor or pharmacist		Stop taking drug and seek immediate medical help
		Only if severe	In all cases	
Very common	Febrile neutropenia: fever, flu-like symptoms, shaking chills, severe night sweats		✓	
Common	Sepsis: rapid heartbeat, fever, shaking chills, rapid breathing, nausea, vomiting, decreased urination		✓	
	Viral infection: fever, fatigue, headache, body aches, diarrhea, nausea, vomiting		✓	
	Eye disorders: -Cataracts: clouded, blurred or dim vision, seeing halos around lights, fading or yellowing of colours -Blurred Vision -Visual impairment: changes in vision -Vitreous floaters: spots in vision that appear as specks or strings of floating material; spots that move with eye movement		✓	
	Abdominal discomfort		✓	
	Splenic infarction (spleen tissue death): severe pain in upper left side of abdomen that can radiate to left shoulder		✓	

SERIOUS SIDE EFFECTS, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM

Symptom / effect	Talk with your doctor or pharmacist		Stop taking drug and seek immediate medical help
	Only if severe	In all cases	
Syncope and dizziness postural: fainting, dizziness when standing up or sitting down		✓	
Liver Problems (including Hepatitis B): yellow colour to skin, whites of the eyes (jaundice), unusual dark urine, unusual tiredness, right upper stomach area pain		✓	
Hypoglycemia (low blood sugar): thirst, frequent urination, hunger, nausea and dizziness, fast heartbeat, tingling trembling, nervousness, sweating		✓	
Uncommon Allergic reactions: rash, hives, swelling of the face, lips, tongue or throat, difficulty swallowing or breathing		✓	
Bleeding		✓	
Blood clot in the leg: swelling, pain or tenderness of one leg		✓	
Unusual hair loss or thinning		✓	
Musculoskeletal chest pain		✓	

SERIOUS SIDE EFFECTS, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM

Symptom / effect	Talk with your doctor or pharmacist		Stop taking drug and seek immediate medical help
	Only if severe	In all cases	
Musculoskeletal pain (pain that affects the muscles and tendons along with bones)		✓	
Myalgia (aching muscles)		✓	
Urinary tract infections		✓	

REVOLADE may cause serious side effects

Liver Problems:

REVOLADE may damage your liver and cause serious, even life threatening, illness. You must have blood tests to check your liver before you start taking REVOLADE and during treatment. When you are given antiviral treatments together with REVOLADE to treat HCV associated thrombocytopenia, some liver problems can get worse.

Your doctor will order the blood tests and any other tests required. In some cases, REVOLADE treatment may need to be stopped.

Bleeding after you stop treatment:

When you stop taking REVOLADE, your blood platelet count may drop back down to what it was before you started taking REVOLADE. These effects are most likely to happen within 4 weeks after you stop taking REVOLADE. The lower platelet counts may increase your risk of bleeding. Your doctor will check your platelet counts for at least 4 weeks after you stop taking REVOLADE. Tell your doctor or pharmacist if you have any bruising or bleeding after you stop taking REVOLADE.

Problems with your bone marrow:

People with the disease for which you are being treated may have problems with their bone marrow. Drugs like REVOLADE help increase the number of platelets. This can increase the risk of bone marrow cell disorders, blood cancers, changes in DNA, or cause scarring of the bone marrow. Signs of bone marrow changes may show up as abnormal results in your blood tests. Your doctor may also carry out tests to directly check your bone marrow during treatment with REVOLADE.

High platelet counts and higher chance for blood clots:

You have a higher chance of getting a blood clot if your platelet count is too high during treatment with REVOLADE, but blood clots can occur with normal or even low platelet counts. If you have disease of the liver, you are at risk of a blood clot in a blood vessel that feeds your liver (portal vein thrombosis). You may have severe complications from some forms of blood clots, such as clots that travel to the lungs or that cause heart attacks or strokes. You may have clots in small blood vessels, which may harm organs such as the kidneys. Your doctor will check your blood platelet counts, and change your dose or stop REVOLADE if your platelet counts get too high. Tell your doctor right away if you have any of these signs and symptoms of a blood clot: swelling or pain/tenderness of one leg, sudden shortness of breath especially when accompanied with sharp pain in the chest and/or rapid breathing, abdominal pain, enlarged abdomen, blood in stool.

This is not a complete list of side effects. For any unexpected effects while taking REVOLADE contact your doctor or pharmacist.

HOW TO STORE IT

Keep out of reach of children.

Tablets: Store below 30°C, protect from freezing.

REPORTING SUSPECTED SIDE EFFECTS

You can report any suspected adverse reactions associated with the use of health products to the Canada Vigilance Program by one of the following 3 ways:

- **Report online at**
www.healthcanada.gc.ca/medeffect
- **Call toll-free at 1-866-234-2345**
- **Complete a Canada Vigilance Reporting Form and:**
 - **Fax toll-free to 1-866-678-6789, or**
 - **Mail to:**
Canada Vigilance Program
Health Canada
Postal Locator 0701E
Ottawa, Ontario
K1A 0K9

Postage paid labels, Canada Vigilance Reporting Form and the adverse reaction reporting guidelines are available on the MedEffect™ Canada Web site at www.healthcanada.gc.ca/medeffect.

NOTE: Should you require information related to the management of side effects, contact your health professional. The Canada Vigilance Program does not provide medical advice.

MORE INFORMATION

This document plus the full product monograph, prepared for health professionals can be found at:

<http://www.novartis.ca> or by contacting the sponsor,

Novartis Pharmaceuticals Canada Inc.
385 Bouchard Blvd.
Dorval, Quebec
H9S 1A9
1-800-363-8883

This leaflet was prepared by Novartis Pharmaceuticals Canada Inc.

Last revised: May 11, 2017

REVOLADE is a registered trademark

**All trademarks and registered trademarks are the property of their respective owners.*