

**ANNEX I**  
**SUMMARY OF PRODUCT CHARACTERISTICS**

▼ This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions. See section 4.8 for how to report adverse reactions.

### 1. NAME OF THE MEDICINAL PRODUCT

Rybelsus 1.5 mg tablets  
Rybelsus 4 mg tablets  
Rybelsus 9 mg tablets

### 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

#### Rybelsus 1.5 mg tablets

Each tablet contains 1.5 mg semaglutide\*.

#### Rybelsus 4 mg tablets

Each tablet contains 4 mg semaglutide\*.

#### Rybelsus 9 mg tablets

Each tablet contains 9 mg semaglutide\*.

\*human glucagon-like peptide-1 (GLP-1) analogue produced in *Saccharomyces cerevisiae* cells by recombinant DNA technology.

For the full list of excipients, see section 6.1.

### 3. PHARMACEUTICAL FORM

Tablet

#### Rybelsus 1.5 mg tablets

White to light yellow, round tablet (6.5 mm in diameter) debossed with '1.5' on one side and 'novo' on the other side.

#### Rybelsus 4 mg tablets

White to light yellow, round tablet (6.5 mm in diameter) debossed with '4' on one side and 'novo' on the other side.

#### Rybelsus 9 mg tablets

White to light yellow, round tablet (6.5 mm in diameter) debossed with '9' on one side and 'novo' on the other side.

## 4. CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Rybelsus is indicated for the treatment of adults with insufficiently controlled type 2 diabetes mellitus to improve glycaemic control as an adjunct to diet and exercise

- as monotherapy when metformin is considered inappropriate due to intolerance or contraindications
- in combination with other medicinal products for the treatment of diabetes.

For study results with respect to combinations, effects on glycaemic control and cardiovascular events, and the populations studied, see sections 4.4, 4.5 and 5.1.

### 4.2 Posology and method of administration

#### Posology

The starting dose of semaglutide is 1.5 mg once daily for one month. After one month, the dose should be increased to a maintenance dose of 4 mg once daily. After at least one month with a dose of 4 mg once daily, the dose can be increased to a maintenance dose of 9 mg once daily to further improve glycaemic control.

The recommended single daily maintenance doses are 4 mg or 9 mg. The maximum recommended single daily dose of semaglutide is 9 mg. Rybelsus should always be used as one tablet per day. Taking more than one tablet a day should not be done to achieve the effect of a higher dose.

For information on switching between oral and subcutaneous semaglutide, see section 5.2.

When semaglutide is used in combination with metformin and/or a sodium-glucose co-transporter-2 inhibitor (SGLT2i) or thiazolidinedione, the current dose of metformin and/or SGLT2i or thiazolidinedione can be continued.

When semaglutide is used in combination with a sulfonylurea or with insulin, a reduction in the dose of sulfonylurea or insulin may be considered to reduce the risk of hypoglycaemia (see sections 4.4 and 4.8).

Self-monitoring of blood glucose is not needed in order to adjust the dose of semaglutide. Blood glucose self-monitoring is necessary to adjust the dose of sulfonylurea and insulin, particularly when semaglutide is started and insulin is reduced. A stepwise approach to insulin reduction is recommended.

#### *Missed dose*

If a dose is missed, the missed dose should be skipped and the next dose should be taken the following day.

#### Special populations

##### *Elderly*

No dose adjustment is required based on age. Therapeutic experience in patients  $\geq 75$  years of age is limited (see section 5.2).

### *Renal impairment*

No dose adjustment is required for patients with mild, moderate or severe renal impairment. Experience with the use of semaglutide in patients with severe renal impairment is limited. Semaglutide is not recommended in patients with end-stage renal disease (see section 5.2).

### *Hepatic impairment*

No dose adjustment is required for patients with hepatic impairment. Experience with the use of semaglutide in patients with severe hepatic impairment is limited. Caution should be exercised when treating these patients with semaglutide (see section 5.2).

### *Paediatric population*

The safety and efficacy of Rybelsus in children and adolescents below 18 years have not been established. No data are available.

### Method of administration

Rybelsus is a tablet for once-daily oral use.

- This medicinal product should be taken on an empty stomach after a recommended fasting period of at least 8 hours (see section 5.2).
- It should be swallowed whole with a sip of water (up to half a glass of water equivalent to 120 ml). Tablets should not be split, crushed or chewed, as it is not known whether this impacts absorption of semaglutide.
- Patients should wait at least 30 minutes before eating, drinking or taking other oral medicinal products. Waiting less than 30 minutes decreases the absorption of semaglutide (see sections 4.5 and 5.2).

## **4.3 Contraindications**

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

## **4.4 Special warnings and precautions for use**

### Traceability

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

### General

Semaglutide should not be used in patients with type 1 diabetes mellitus or for the treatment of diabetic ketoacidosis. Diabetic ketoacidosis has been reported in insulin-dependent patients whom had rapid discontinuation or dose reduction of insulin when treatment with a GLP-1 receptor agonist is started (see section 4.2).

There is no therapeutic experience in patients with congestive heart failure New York Heart Association (NYHA) class IV and semaglutide is therefore not recommended in these patients.

There is no therapeutic experience with semaglutide in patients with bariatric surgery.

### Gastrointestinal effects and dehydration

Use of GLP-1 receptor agonists may be associated with gastrointestinal adverse reactions that can cause dehydration, which in rare cases can lead to a deterioration of renal function (see section 4.8).

Patients treated with semaglutide should be advised of the potential risk of dehydration in relation to gastrointestinal side effects and take precautions to avoid fluid depletion.

#### Acute pancreatitis

Acute pancreatitis has been observed with the use of GLP-1 receptor agonists. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, semaglutide should be discontinued; if confirmed, semaglutide should not be restarted. Caution should be exercised in patients with a history of pancreatitis.

#### Hypoglycaemia

Patients treated with semaglutide in combination with a sulfonylurea or insulin may have an increased risk of hypoglycaemia (see section 4.8). The risk of hypoglycaemia can be lowered by reducing the dose of sulfonylurea or insulin when initiating treatment with semaglutide (see section 4.2).

#### Diabetic retinopathy

In patients with diabetic retinopathy treated with insulin and subcutaneous semaglutide, an increased risk of developing diabetic retinopathy complications has been observed, a risk that cannot be excluded for orally administered semaglutide (see data in section 4.8). Caution should be exercised when using semaglutide in patients with diabetic retinopathy. These patients should be monitored closely and treated according to clinical guidelines. Rapid improvement in glucose control has been associated with a temporary worsening of diabetic retinopathy, but other mechanisms cannot be excluded. Long-term glycaemic control decreases the risk of diabetic retinopathy.

#### Treatment response

Compliance with the dosing regimen is recommended for optimal effect of semaglutide. If the treatment response with semaglutide is lower than expected, the treating physician should be aware that the absorption of semaglutide is highly variable and may be minimal (2-4% of patients will not have any exposure), and that the absolute bioavailability of semaglutide is low.

#### Sodium content

This medicine contains less than 1 mmol sodium (23 mg) per tablet, that is to say essentially 'sodium-free'.

### **4.5 Interaction with other medicinal products and other forms of interaction**

Semaglutide delays gastric emptying which may influence the absorption of other oral medicinal products.

#### Effects of semaglutide on other medicinal products

##### *Thyroxine*

Total exposure (Area Under the Curve (AUC)) of thyroxine (adjusted for endogenous levels) was increased by 33% following administration of a single dose of levothyroxine. Maximum exposure ( $C_{max}$ ) was unchanged. Monitoring of thyroid parameters should be considered when treating patients with semaglutide at the same time as levothyroxine.

##### *Warfarin and other coumarin derivatives*

Semaglutide did not change the AUC or  $C_{max}$  of R- and S-warfarin following a single dose of warfarin, and the pharmacodynamic effects of warfarin as measured by the international normalised ratio (INR) were not affected in a clinically relevant manner. However, cases of decreased INR have been reported

during concomitant use of acenocoumarol and semaglutide. Upon initiation of semaglutide treatment in patients on warfarin or other coumarin derivatives, frequent monitoring of INR is recommended.

#### *Rosuvastatin*

AUC of rosuvastatin was increased by 41% [90% CI: 24; 60] when co-administered with semaglutide. Based on the wide therapeutic index of rosuvastatin the magnitude of changes in the exposure is not considered clinically relevant.

#### *Digoxin, oral contraceptives, metformin, furosemide*

No clinically relevant change in AUC or  $C_{max}$  of digoxin, oral contraceptives (containing ethinylestradiol and levonorgestrel), metformin or furosemide was observed when concurrently administered with semaglutide.

Interactions with medicinal products with very low bioavailability (1%) have not been evaluated.

### Effects of other medicinal products on semaglutide

#### *Omeprazole*

No clinically relevant change in AUC or  $C_{max}$  of semaglutide was observed when taken with omeprazole.

In a trial investigating the pharmacokinetics of semaglutide co-administered with five other tablets, the AUC of semaglutide decreased by 34% and  $C_{max}$  by 32%. This suggests that the presence of multiple tablets in the stomach influences the absorption of semaglutide if co-administered at the same time. After administering semaglutide, the patients should wait 30 minutes before taking other oral medicinal products (see section 4.2).

## **4.6 Fertility, pregnancy and lactation**

### Women of childbearing potential

Women of childbearing potential are recommended to use contraception when treated with semaglutide.

### Pregnancy

Studies in animals have shown reproductive toxicity (see section 5.3). There are limited data from the use of semaglutide in pregnant women. Therefore, semaglutide should not be used during pregnancy. If a patient wishes to become pregnant, or pregnancy occurs, semaglutide should be discontinued. Semaglutide should be discontinued at least 2 months before a planned pregnancy due to the long half-life (see section 5.2).

### Breast-feeding

In lactating rats, semaglutide, salcaprozate sodium and/or its metabolites were excreted in milk. As a risk to a breast-fed child cannot be excluded, Rybelsus should not be used during breast-feeding.

### Fertility

The effect of semaglutide on fertility in humans is unknown. Semaglutide did not affect male fertility in rats. In female rats, an increase in oestrous length and a small reduction in number of ovulations were observed at doses associated with maternal body weight loss (see section 5.3).

## 4.7 Effects on ability to drive and use machines

Semaglutide has no or negligible influence on the ability to drive or use machines. However, dizziness can be experienced mainly during dose escalation. Driving or use of machines should be done cautiously if dizziness occurs.

When it is used in combination with a sulfonylurea or insulin, patients should be advised to take precautions to avoid hypoglycaemia while driving and using machines (see section 4.4).

## 4.8 Undesirable effects

### Summary of the safety profile

In 10 phase 3a trials, 5 707 patients were exposed to semaglutide alone or in combination with other glucose-lowering medicinal products. The duration of the treatment ranged from 26 weeks to 78 weeks. The most frequently reported adverse reactions in clinical trials were gastrointestinal disorders, including nausea (very common), diarrhoea (very common) and vomiting (common).

### Tabulated list of adverse reactions

**Table 1** lists adverse reactions identified in phase 3 trials (further described in section 5.1) and post-marketing reports in patients with type 2 diabetes mellitus. The frequencies of the adverse reactions (except diabetic retinopathy complications, see footnote in **Table 1**) are based on a pool of the phase 3a trials excluding the cardiovascular outcomes trial.

The reactions are listed below by system organ class and absolute frequency. Frequencies are defined as: very common: ( $\geq 1/10$ ); common: ( $\geq 1/100$  to  $< 1/10$ ); uncommon: ( $\geq 1/1\ 000$  to  $< 1/100$ ); rare: ( $\geq 1/10\ 000$  to  $< 1/1\ 000$ ) and very rare: ( $< 1/10\ 000$ ); not known (cannot be estimated from the available data). Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness.

**Table 1 Frequency of adverse reactions of oral semaglutide**

| MedDRA system organ class                 | Very common   | Common   | Uncommon                               | Rare                  | Not Known                           |
|---|---|--|--|-----------------------|-------------------------------------|
| <b>Immune system disorders</b>            |   |  | Hypersensitivity <sup>c</sup>          | Anaphylactic reaction |                                     |
| <b>Metabolism and nutrition disorders</b> | Hypoglycaemia when used with insulin or sulfonylurea <sup>a</sup> | Hypoglycaemia when used with other oral antidiabetic products <sup>a</sup><br>Decreased appetite |  |                       |                                     |
| <b>Eye disorders</b>                      |   | Diabetic retinopathy complications <sup>b</sup>  |  |                       |                                     |
| <b>Cardiac disorders</b>                  |   |  | Increased heart rate                   |                       |                                     |
| <b>Gastrointestinal disorders</b>         | Nausea<br>Diarrhoea   | Vomiting<br>Abdominal pain<br>Abdominal distension<br>Constipation<br>Dyspepsia<br>Gastritis     | Eructation<br>Delayed gastric emptying | Acute pancreatitis    | Intestinal obstruction <sup>d</sup> |

|   |  |   |                  |  |  |
|---|--|---|------------------|--|--|
|   |  | Gastro-oesophageal reflux disease<br>Flatulence |                  |  |  |
| <b>Hepatobiliary disorders</b>                              |  |   | Cholelithiasis   |  |  |
| <b>General disorders and administration site conditions</b> |  | Fatigue   |                  |  |  |
| <b>Investigations</b>                                       |  | Increased lipase<br>Increased amylase           | Weight decreased |  |  |
| <b>Nervous system disorders</b>                             |  | Dizziness                                       | Dysgeusia        |  |  |

<sup>a)</sup> Hypoglycaemia defined as blood glucose < 3.0 mmol/L or < 54 mg/dL.

<sup>b)</sup> Diabetic retinopathy complications are a composite of retinal photocoagulation, treatment with intravitreal agents, vitreous haemorrhage and diabetes-related blindness (uncommon). Frequency is based on the cardiovascular outcomes trial with subcutaneous semaglutide, but it cannot be excluded that the risk of diabetic retinopathy complications identified also applies to Rybelsus.

<sup>c)</sup> Grouped term covering also adverse events related to hypersensitivity such as rash and urticaria.

<sup>d)</sup> From post-marketing reports.

## Description of selected adverse reactions

### *Hypoglycaemia*

Severe hypoglycaemia was primarily observed when semaglutide was used with a sulfonylurea (< 0.1% of subjects, < 0.001 events/patient year) or insulin (1.1% of subjects, 0.013 events/patient year). Few episodes (0.1% of subjects, 0.001 events/patient year) were observed with semaglutide in combination with oral antidiabetics other than sulfonylurea.

### *Gastrointestinal adverse reactions*

Nausea occurred in 15%, diarrhoea in 10%, and vomiting in 7% of patients when treated with semaglutide. Most events were mild to moderate in severity and of short duration. The events led to treatment discontinuation in 4% of subjects. The events were most frequently reported during the first months on treatment.

Acute pancreatitis confirmed by adjudication has been reported in phase 3a trials, semaglutide (< 0.1%) and comparator (0.2%). In the cardiovascular outcomes trial the frequency of acute pancreatitis confirmed by adjudication was 0.1% for semaglutide and 0.2% for placebo (see section 4.4.)

### *Diabetic retinopathy complications*

A 2-year clinical trial with subcutaneous semaglutide investigated 3 297 patients with type 2 diabetes, with high cardiovascular risk, long duration of diabetes and poorly controlled blood glucose. In this trial, adjudicated events of diabetic retinopathy complications occurred in more patients treated with subcutaneous semaglutide (3.0%) compared to placebo (1.8%). This was observed in insulin-treated patients with known diabetic retinopathy. The treatment difference appeared early and persisted throughout the trial. Systematic evaluation of diabetic retinopathy complication was only performed in the cardiovascular outcomes trial with subcutaneous semaglutide. In clinical trials with Rybelsus of up to 18 months duration involving 6 352 patients with type 2 diabetes, adverse events related to diabetic retinopathy were reported in similar proportions in subjects treated with semaglutide (4.2%) and comparators (3.8%).

### *Immunogenicity*

Consistent with the potential immunogenic properties of medicinal products containing proteins or peptides, patients may develop antibodies following treatment with semaglutide. The proportion of



subjects tested positive for anti-semaglutide antibodies at any time point after baseline was low (0.5%) and no subjects had neutralising anti-semaglutide antibodies or anti-semaglutide antibodies with neutralising effect on endogenous GLP-1 at end-of-trial.

#### *Heart rate increase*

Increased heart rate has been observed with GLP-1 receptor agonists. In the phase 3a trials, mean changes of 0 to 4 beats per minute (bpm) from a baseline of 69 to 76 were observed in patients treated with Rybelsus.

#### Reporting of suspected adverse reactions

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

### **4.9 Overdose**

Effects of overdose with semaglutide in clinical studies may be associated with gastrointestinal disorders. In the event of overdose, appropriate supportive treatment should be initiated according to the patient's clinical signs and symptoms. A prolonged period of observation and treatment of the symptoms may be necessary, taking into account the long half-life of semaglutide of approximately 1 week (see section 5.2). There is no specific antidote for overdose with semaglutide.

## **5. PHARMACOLOGICAL PROPERTIES**

### **5.1 Pharmacodynamic properties**

Pharmacotherapeutic group: Drugs used in diabetes, Glucagon-like peptide-1 (GLP-1) analogues, ATC code: A10BJ06

#### Mechanism of action

Semaglutide is a GLP-1 analogue with 94% sequence homology to human GLP-1. Semaglutide acts as a GLP-1 receptor agonist that selectively binds to and activates the GLP-1 receptor, the target for native GLP-1.

GLP-1 is a physiological hormone that has multiple actions in glucose and appetite regulation, and in the cardiovascular system. The glucose and appetite effects are specifically mediated via GLP-1 receptors in the pancreas and the brain.

Semaglutide reduces blood glucose in a glucose-dependent manner by stimulating insulin secretion and lowering glucagon secretion when blood glucose is high. The mechanism of blood glucose lowering also involves a minor delay in gastric emptying in the early postprandial phase. During hypoglycaemia, semaglutide diminishes insulin secretion and does not impair glucagon secretion. The mechanism of semaglutide is independent of the route of administration.

Semaglutide reduces body weight and body fat mass through lowered energy intake, involving an overall reduced appetite. In addition, semaglutide reduces the preference for high fat foods.

GLP-1 receptors are expressed in the heart, vasculature, immune system and kidneys. Semaglutide has a beneficial effect on plasma lipids, lowers systolic blood pressure and reduces inflammation in clinical studies. In animal studies, semaglutide attenuates the development of atherosclerosis by preventing aortic plaque progression and reducing inflammation in the plaque.

## Pharmacodynamic effects

The pharmacodynamic evaluations described below were performed with orally administered semaglutide after 12 weeks of treatment.

### *Fasting and postprandial glucose*

Semaglutide reduces fasting and postprandial glucose concentrations. In patients with type 2 diabetes, treatment with semaglutide resulted in a relative reduction compared to placebo of 22% [13; 30] for fasting glucose and 29% [19; 37] for postprandial glucose.

### *Glucagon secretion*

Semaglutide lowers the postprandial glucagon concentrations. In patients with type 2 diabetes, semaglutide resulted in the following relative reductions in glucagon compared to placebo: postprandial glucagon response of 29% [15; 41].

### *Gastric emptying*

Semaglutide causes a minor delay in early postprandial gastric emptying, with paracetamol exposure ( $AUC_{0-1h}$ ) 31% [13; 46] lower in the first hour after the meal, thereby reducing the rate at which glucose appears in the circulation postprandially.

### *Fasting and postprandial lipids*

Semaglutide compared to placebo lowered fasting triglyceride and very-low-density lipoproteins (VLDL) cholesterol concentrations by 19% [8; 28] and 20% [5; 33], respectively. The postprandial triglyceride and VLDL cholesterol response to a high fat meal was reduced by 24% [9; 36] and 21% [7; 32], respectively. ApoB48 was reduced both in fasting and postprandial state by 25% [2; 42] and 30% [15; 43], respectively.

## Clinical efficacy and safety

The efficacy and safety of Rybelsus have been evaluated in eight global randomised controlled phase 3a trials. Phase 3a studies were conducted with tablets containing 3 mg, 7 mg and 14 mg semaglutide which are bioequivalent to 1.5 mg, 4 mg and 9 mg semaglutide, respectively. In seven trials, the primary objective was the assessment of the glycaemic efficacy; in one trial, the primary objective was the assessment of cardiovascular outcomes.

The trials included 8 842 randomised patients with type 2 diabetes (5 169 treated with semaglutide), including 1 165 patients with moderate renal impairment. Patients had an average age of 61 years (range 18 to 92 years), with 40% of patients  $\geq 65$  years of age and 8%  $\geq 75$  years of age. The efficacy of semaglutide was compared with placebo or active controls (sitagliptin, empagliflozin and liraglutide).

The efficacy of semaglutide was not impacted by baseline age, gender, race, ethnicity, body weight, BMI, diabetes duration, upper gastrointestinal disease and level of renal function.

### *PIONEER 1 – Monotherapy*

In a 26-week double-blind trial, 703 patients with type 2 diabetes inadequately controlled with diet and exercise were randomised to semaglutide 3 mg, semaglutide 7 mg, semaglutide 14 mg or placebo once daily.

**Table 2 Results of a 26-week monotherapy trial comparing semaglutide with placebo (PIONEER 1)**

|                             | <b>Semaglutide<br/>7 mg<sup>2</sup><br/>(Bioequivalent to 4 mg)</b> | <b>Semaglutide<br/>14 mg<sup>2</sup><br/>(Bioequivalent to 9 mg)</b> | <b>Placebo</b> |
|-----------------------------|---|--|----------------|
| Full analysis set (N)       | 175   | 175  | 178            |
| <b>HbA<sub>1c</sub> (%)</b> |   |  |                |
| Baseline                    | 8.0   | 8.0  | 7.9            |

|  |                                |                                |      |
|--|--------------------------------|--------------------------------|------|
| Change from baseline <sup>1</sup>                        | -1.2                           | -1.4                           | -0.3 |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.9 [-1.1; -0.6]*             | -1.1 [-1.3; -0.9]*             | -    |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 69 <sup>§</sup>                | 77 <sup>§</sup>                | 31   |
| <b>FPG (mmol/L)</b>                                      |                                |                                |      |
| Baseline   | 9.0                            | 8.8                            | 8.9  |
| Change from baseline <sup>1</sup>                        | -1.5                           | -1.8                           | -0.2 |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.4 [-1.9; -0.8] <sup>§</sup> | -1.6 [-2.1; -1.2] <sup>§</sup> | -    |
| <b>Body weight (kg)</b>                                  |                                |                                |      |
| Baseline   | 89.0                           | 88.1                           | 88.6 |
| Change from baseline <sup>1</sup>                        | -2.3                           | -3.7                           | -1.4 |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.9 [-1.9; 0.1]               | -2.3 [-3.1; -1.5]*             | -    |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. <sup>§</sup> p< 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>2</sup> Bioequivalence has been confirmed between 4 mg and 7 mg doses, as well as, between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

### *PIONEER 2 – Semaglutide vs. empagliflozin, both in combination with metformin*

In a 52-week open-label trial, 822 patients with type 2 diabetes were randomised to semaglutide 14 mg once daily or empagliflozin 25 mg once daily, both in combination with metformin.

**Table 3 Results of a 52-week trial comparing semaglutide with empagliflozin (PIONEER 2)**

|  | <b>Semaglutide<br/>14 mg<sup>2</sup><br/>(Bioequivalent to 9 mg)</b> | <b>Empagliflozin<br/>25 mg</b> |
|--|--|--------------------------------|
| Full analysis set (N)                                    | 411  | 410                            |
| <b>Week 26</b>   |  |                                |
| <b>HbA<sub>1c</sub> (%)</b>                              |  |                                |
| Baseline   | 8.1  | 8.1                            |
| Change from baseline <sup>1</sup>                        | -1.3   | -0.9                           |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.4 [-0.6; -0.3]*   | -                              |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 67 <sup>§</sup>  | 40                             |
| <b>FPG (mmol/L)</b>                                      |  |                                |
| Baseline   | 9.5  | 9.7                            |
| Change from baseline <sup>1</sup>                        | -2.0   | -2.0                           |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | 0.0 [-0.2; 0.3]  | -                              |
| <b>Body weight (kg)</b>                                  |  |                                |
| Baseline   | 91.9   | 91.3                           |
| Change from baseline <sup>1</sup>                        | -3.8   | -3.7                           |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.1 [-0.7; 0.5]   | -                              |
| <b>Week 52</b>   |  |                                |
| <b>HbA<sub>1c</sub> (%)</b>                              |  |                                |
| Change from baseline <sup>1</sup>                        | -1.3   | -0.9                           |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.4 [-0.5; -0.3] <sup>§</sup>                                       | -                              |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 66 <sup>§</sup>  | 43                             |
| <b>Body weight (kg)</b>                                  |  |                                |
| Change from baseline <sup>1</sup>                        | -3.8   | -3.6                           |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.2 [-0.9; 0.5]   | -                              |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. <sup>§</sup> p< 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>2</sup> Bioequivalence has been confirmed between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

*PIONEER 3 – Semaglutide vs. sitagliptin, both in combination with metformin or metformin with sulfonylurea*

In a 78-week, double-blind, double-dummy trial, 1 864 patients with type 2 diabetes were randomised to semaglutide 3 mg, semaglutide 7 mg, semaglutide 14 mg or sitagliptin 100 mg once daily, all in combination with metformin alone or metformin and sulfonylurea. Reductions in HbA<sub>1c</sub> and body weight were sustained throughout the trial duration of 78 weeks.

**Table 4 Results of a 78-week trial comparing semaglutide with sitagliptin (PIONEER 3)**

|  | <b>Semaglutide<br/>7 mg<sup>2</sup><br/>(Bioequivalent to 4 mg)</b> | <b>Semaglutide<br/>14 mg<sup>2</sup><br/>(Bioequivalent to 9 mg)</b> | <b>Sitagliptin<br/>100 mg</b> |
|--|---|--|-------------------------------|
| Full analysis set (N)                                    | 465   | 465  | 467                           |
| <b>Week 26</b>   |   |  |                               |
| <b>HbA<sub>1c</sub> (%)</b>                              |   |  |                               |
| Baseline   | 8.4   | 8.3  | 8.3                           |
| Change from baseline <sup>1</sup>                        | -1.0  | -1.3   | -0.8                          |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -0.3 [-0.4; -0.1]*  | -0.5 [-0.6; -0.4]*   | -                             |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 44 <sup>§</sup>   | 56 <sup>§</sup>  | 32                            |
| <b>FPG (mmol/L)</b>                                      |   |  |                               |
| Baseline   | 9.4   | 9.3  | 9.5                           |
| Change from baseline <sup>1</sup>                        | -1.2  | -1.7   | -0.9                          |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -0.3 [-0.6; 0.0] <sup>§</sup>                                       | -0.8 [-1.1; -0.5] <sup>§</sup>                                       | -                             |
| <b>Body weight (kg)</b>                                  |   |  |                               |
| Baseline   | 91.3  | 91.2   | 90.9                          |
| Change from baseline <sup>1</sup>                        | -2.2  | -3.1   | -0.6                          |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -1.6 [-2.0; -1.1]*  | -2.5 [-3.0; -2.0]*   | -                             |
| <b>Week 78</b>   |   |  |                               |
| <b>HbA<sub>1c</sub> (%)</b>                              |   |  |                               |
| Change from baseline <sup>1</sup>                        | -0.8  | -1.1   | -0.7                          |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -0.1 [-0.3; 0.0]  | -0.4 [-0.6; -0.3] <sup>§</sup>                                       | -                             |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 39 <sup>§</sup>   | 45 <sup>§</sup>  | 29                            |
| <b>Body weight (kg)</b>                                  |   |  |                               |
| Change from baseline <sup>1</sup>                        | -2.7  | -3.2   | -1.0                          |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -1.7 [-2.3; -1.0] <sup>§</sup>                                      | -2.1 [-2.8; -1.5] <sup>§</sup>                                       | -                             |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. <sup>§</sup> p < 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>2</sup> Bioequivalence has been confirmed between 4 mg and 7 mg doses, as well as, between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

*PIONEER 4 – Semaglutide vs. liraglutide and placebo, all in combination with metformin or metformin with an SGLT2 inhibitor*

In a 52-week double-blind, double-dummy trial, 711 patients with type 2 diabetes were randomised to semaglutide 14 mg, liraglutide 1.8 mg subcutaneous injection or placebo once daily, all in combination with metformin or metformin and an SGLT2 inhibitor.

**Table 5 Results of a 52-week trial comparing semaglutide with liraglutide and placebo (PIONEER 4)**

|   | <b>Semaglutide<br/>14 mg<sup>2</sup><br/>(Bioequivalent to 9 mg)</b> | <b>Liraglutide<br/>1.8 mg</b> | <b>Placebo</b> |
|---|--|-------------------------------|----------------|
| Full analysis set (N)                             | 285  | 284                           | 142            |
| <b>Week 26</b>                                    |  |                               |                |
| <b>HbA<sub>1c</sub> (%)</b>                       |  |                               |                |
| Baseline  | 8.0  | 8.0                           | 7.9            |
| Change from baseline <sup>1</sup>                 | -1.2   | -1.1                          | -0.2           |
| Difference from liraglutide <sup>1</sup> [95% CI] | -0.1 [-0.3; 0.0]   | -                             | -              |

|  |                                |      |      |
|--|--------------------------------|------|------|
| Difference from placebo <sup>1</sup> [95% CI]            | -1.1 [-1.2; -0.9]*             | -    | -    |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 68 <sup>§,a</sup>              | 62   | 14   |
| <b>FPG (mmol/L)</b>                                      |                                |      |      |
| Baseline   | 9.3                            | 9.3  | 9.2  |
| Change from baseline <sup>1</sup>                        | -2.0                           | -1.9 | -0.4 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -0.1 [-0.4; 0.1]               | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.6 [-2.0; -1.3] <sup>§</sup> | -    | -    |
| <b>Body weight (kg)</b>                                  |                                |      |      |
| Baseline   | 92.9                           | 95.5 | 93.2 |
| Change from baseline <sup>1</sup>                        | -4.4                           | -3.1 | -0.5 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -1.2 [-1.9; -0.6]*             | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -3.8 [-4.7; -3.0]*             | -    | -    |
| <b>Week 52</b>   |                                |      |      |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |      |      |
| Change from baseline <sup>1</sup>                        | -1.2                           | -0.9 | -0.2 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -0.3 [-0.5; -0.1] <sup>§</sup> | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.0 [-1.2; -0.8] <sup>§</sup> | -    | -    |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 61 <sup>§,a</sup>              | 55   | 15   |
| <b>Body weight (kg)</b>                                  |                                |      |      |
| Change from baseline <sup>1</sup>                        | -4.3                           | -3.0 | -1.0 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -1.3 [-2.1; -0.5] <sup>§</sup> | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -3.3 [-4.3; -2.4] <sup>§</sup> | -    | -    |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p < 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>a</sup> vs placebo. <sup>2</sup> Bioequivalence has been confirmed between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

*PIONEER 5 – Semaglutide vs. placebo, both in combination with basal insulin alone, metformin and basal insulin or metformin and/or sulfonylurea, in patients with moderate renal impairment*

In a 26-week double-blind trial, 324 patients with type 2 diabetes and moderate renal impairment (eGFR 30-59 ml/min/1.73 m<sup>2</sup>) were randomised to semaglutide 14 mg or placebo once daily. Trial product was added to the patient's stable pre-trial antidiabetic regimen.

**Table 6 Results of a 26-week trial comparing semaglutide with placebo in patients with type 2 diabetes and moderate renal impairment (PIONEER 5)**

|  | <b>Semaglutide<br/>14 mg<sup>2</sup><br/>(Bioequivalent to 9 mg)</b> | <b>Placebo</b> |
|--|--|----------------|
| Full analysis set (N)                                    | 163  | 161            |
| <b>HbA<sub>1c</sub> (%)</b>                              |  |                |
| Baseline   | 8.0  | 7.9            |
| Change from baseline <sup>1</sup>                        | -1.0   | -0.2           |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.8 [-1.0; -0.6]*   | -              |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 58 <sup>§</sup>  | 23             |
| <b>FPG (mmol/L)</b>                                      |  |                |
| Baseline   | 9.1  | 9.1            |
| Change from baseline <sup>1</sup>                        | -1.5   | -0.4           |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.2 [-1.7; -0.6] <sup>§</sup>                                       | -              |
| <b>Body weight (kg)</b>                                  |  |                |
| Baseline   | 91.3   | 90.4           |
| Change from baseline <sup>1</sup>                        | -3.4   | -0.9           |
| Difference from placebo <sup>1</sup> [95% CI]            | -2.5 [-3.2; -1.8]*   | -              |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p < 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>2</sup> Bioequivalence has been confirmed between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

*PIONEER 7 – Semaglutide vs. sitagliptin, both in combination with metformin, SGLT2 inhibitors, sulfonyleurea or thiazolidinediones. Flexible-dose-adjustment trial*

In a 52-week open-label trial, 504 patients with type 2 diabetes were randomised to semaglutide (flexible dose adjustment of 3 mg, 7 mg, and 14 mg once daily) or sitagliptin 100 mg once daily, all in combination with 1-2 oral glucose-lowering medicinal products (metformin, SGLT2 inhibitors, sulfonyleurea or thiazolidinediones). The dose of semaglutide was adjusted every 8 weeks based on patient's glycaemic response and tolerability. The sitagliptin 100 mg dose was fixed. The efficacy and safety of semaglutide were evaluated at week 52.

At week 52, the proportion of patients on treatment with semaglutide 3 mg, 7 mg and 14 mg was approximately 10%, 30% and 60%, respectively.

**Table 7 Results of a 52-week flexible-dose-adjustment trial comparing semaglutide with sitagliptin (PIONEER 7)**

|  | <b>Semaglutide Flexible dose<sup>2</sup></b> | <b>Sitagliptin 100 mg</b> |
|--|--|---------------------------|
| Full analysis set (N)  | 253  | 251                       |
| <b>HbA<sub>1c</sub> (%)</b>                                  |  |                           |
| Baseline   | 8.3  | 8.3                       |
| Patients (%) achieving HbA <sub>1c</sub> < 7.0% <sup>1</sup> | 58*  | 25                        |
| <b>Body weight (kg)</b>                                      |  |                           |
| Baseline   | 88.9   | 88.4                      |
| Change from baseline <sup>1</sup>                            | -2.6   | -0.7                      |
| Difference from sitagliptin <sup>1</sup> [95% CI]            | -1.9 [-2.6; -1.2]*                           | -                         |

<sup>1</sup> Irrespective of treatment discontinuation (16.6% of the patients with semaglutide flexible dose and 9.2% with sitagliptin, where 8.7% and 4.0%, respectively, were due to AEs) or initiation of rescue medication (pattern mixture model using multiple imputation). \*p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity (for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio). <sup>2</sup>Bioequivalence has been confirmed between 1.5 mg and 3 mg, between 4 mg and 7 mg and between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

*PIONEER 8 – Semaglutide vs. placebo, both in combination with insulin with or without metformin*

In a 52-week double-blind trial, 731 patients with type 2 diabetes inadequately controlled on insulin (basal, basal/bolus or premixed) with or without metformin were randomised to semaglutide 3 mg, semaglutide 7 mg, semaglutide 14 mg or placebo once daily.

**Table 8 Results of a 52-week trial comparing semaglutide with placebo in combination with insulin (PIONEER 8)**

|  | <b>Semaglutide 7 mg<sup>2</sup></b><br>(Bioequivalent to 4 mg) | <b>Semaglutide 14 mg<sup>2</sup></b><br>(Bioequivalent to 9 mg) | <b>Placebo</b> |
|--|--|---|----------------|
| Full analysis set (N)                                    | 182  | 181   | 184            |
| <b>Week 26 (insulin dose capped to baseline level)</b>   |  |   |                |
| <b>HbA<sub>1c</sub> (%)</b>                              |  |   |                |
| Baseline   | 8.2  | 8.2   | 8.2            |
| Change from baseline <sup>1</sup>                        | -0.9   | -1.3  | -0.1           |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.9 [-1.1; -0.7]*   | -1.2 [-1.4; -1.0]*  | -              |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 43 <sup>§</sup>  | 58 <sup>§</sup>   | 7              |
| <b>FPG (mmol/L)</b>                                      |  |   |                |
| Baseline   | 8.5  | 8.3   | 8.3            |
| Change from baseline <sup>1</sup>                        | -1.1   | -1.3  | 0.3            |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.4 [-1.9; -0.8] <sup>§</sup>                                 | -1.6 [-2.2; -1.1] <sup>§</sup>                                  | -              |
| <b>Body weight (kg)</b>                                  |  |   |                |
| Baseline   | 87.1   | 84.6  | 86.0           |

|  |                                |                                |      |
|--|--------------------------------|--------------------------------|------|
| Change from baseline <sup>1</sup>                        | -2.4                           | -3.7                           | -0.4 |
| Difference from placebo <sup>1</sup> [95% CI]            | -2.0 [-3.0; -1.0]*             | -3.3 [-4.2; -2.3]*             | -    |
| <b>Week 52 (uncapped insulin dose)<sup>+</sup></b>       |                                |                                |      |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                                |      |
| Change from baseline <sup>1</sup>                        | -0.8                           | -1.2                           | -0.2 |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.6 [-0.8; -0.4] <sup>§</sup> | -0.9 [-1.1; -0.7] <sup>§</sup> | -    |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 40 <sup>§</sup>                | 54 <sup>§</sup>                | 9    |
| <b>Body weight (kg)</b>                                  |                                |                                |      |
| Change from baseline <sup>1</sup>                        | -2.0                           | -3.7                           | 0.5  |
| Difference from placebo <sup>1</sup> [95% CI]            | -2.5 [-3.6; -1.4] <sup>§</sup> | -4.3 [-5.3; -3.2] <sup>§</sup> | -    |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. <sup>§</sup> p < 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>+</sup> The total daily insulin dose was statistically significantly lower with semaglutide than with placebo at week 52. <sup>2</sup> Bioequivalence has been confirmed between 4 mg and 7 mg doses, as well as, between 9 mg and 14 mg doses, see section 5.2 Pharmacokinetic properties.

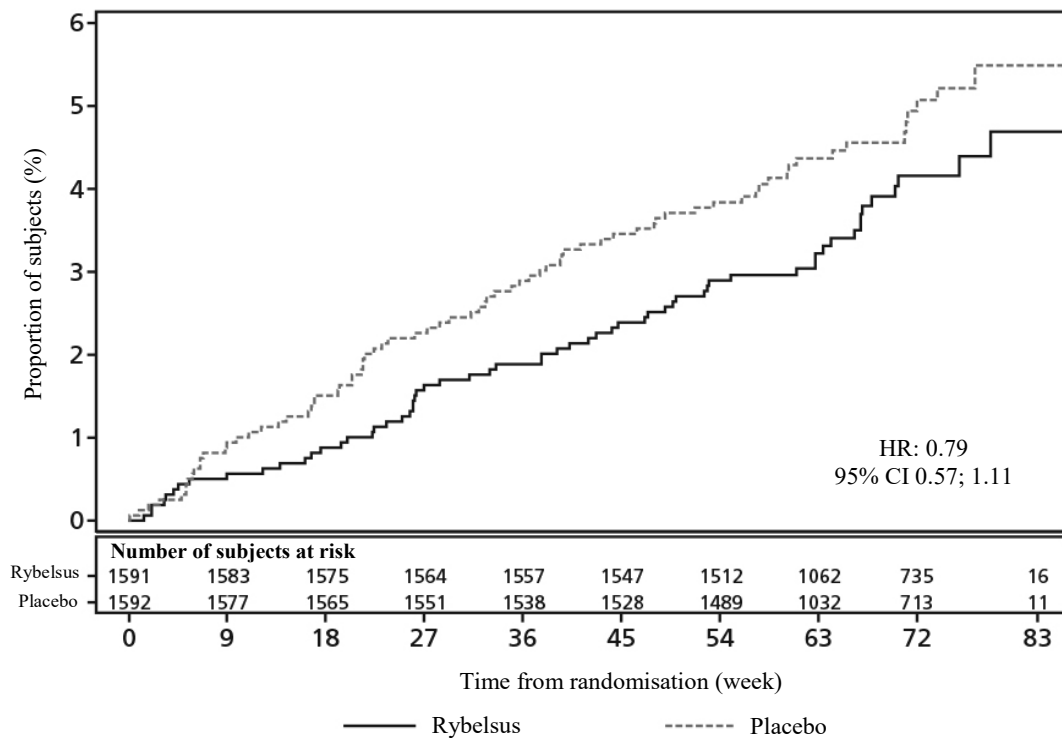
### Cardiovascular evaluation

In a double-blind trial (PIONEER 6), 3 183 patients with type 2 diabetes at high cardiovascular risk were randomised to Rybelsus 14 mg (bioequivalent to Rybelsus 9 mg) once daily or placebo in addition to standard-of-care. The median observation period was 16 months.

The primary endpoint was time from randomisation to first occurrence of a major adverse cardiovascular event (MACE): cardiovascular death, non-fatal myocardial infarction or non-fatal stroke.

Patients eligible to enter the trial were: 50 years of age or older and with established cardiovascular disease and/or chronic kidney disease, or 60 years of age or older and with cardiovascular risk factors only. In total, 1 797 patients (56.5%) had established cardiovascular disease without chronic kidney disease, 354 (11.1%) had chronic kidney disease only and 544 (17.1%) had both cardiovascular disease and kidney disease. 488 patients (15.3%) had cardiovascular risk factors only. The mean age at baseline was 66 years, and 68% of the patients were men. The mean duration of diabetes was 14.9 years and the mean BMI was 32.3 kg/m<sup>2</sup>. Medical history included stroke (11.7%) and myocardial infarction (36.1%).

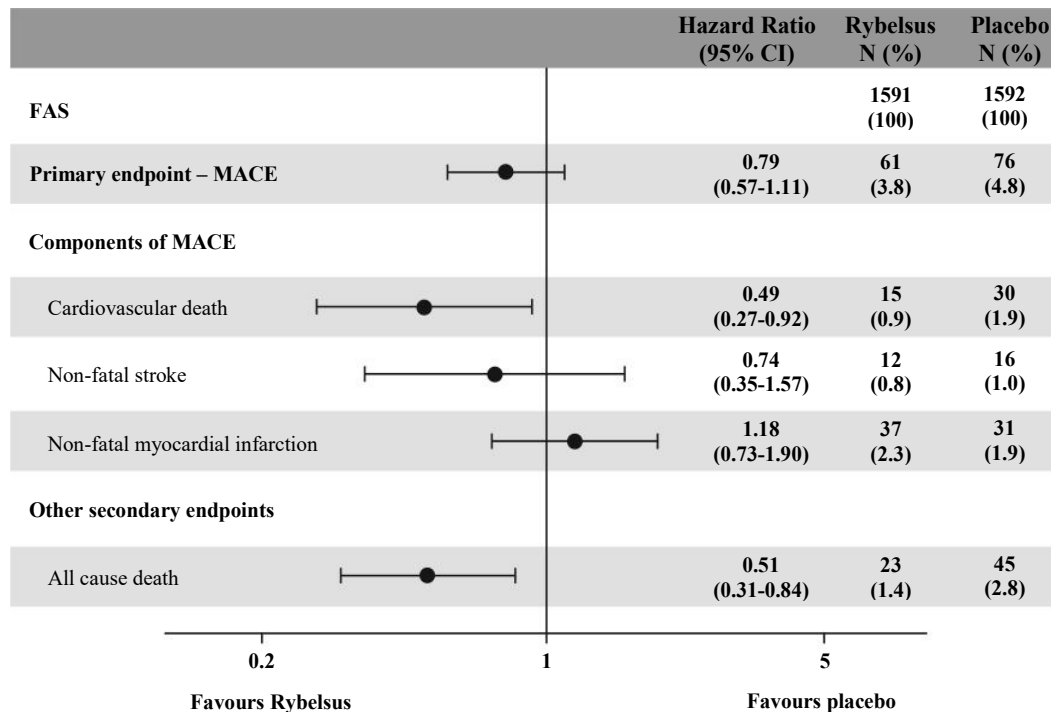
The total number of first MACE was 137: 61 (3.8%) with semaglutide and 76 (4.8%) with placebo. The analysis of time to first MACE resulted in a HR of 0.79 [0.57; 1.11]<sub>95% CI</sub>.



Cumulative incidence plot of primary outcome (a composite of cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke) with non-cardiovascular death as competing risk.  
Abbreviations: CI: Confidence interval, HR: Hazard ratio

**Figure 1 Cumulative incidence of first occurrence of MACE in PIONEER 6**

The treatment effect for the primary composite endpoint and its components in the PIONEER 6 trial is shown in [Figure 4](#).



**Figure 2 Treatment effect for the primary composite endpoint, its components and all cause death (PIONEER 6)**



## Body weight

By end-of-treatment, 27-45% of the patients had achieved a weight loss of  $\geq 5\%$  and 6-16% had achieved a weight loss of  $\geq 10\%$  with semaglutide, compared with 12-39% and 2-8%, respectively, with the active comparators.

## Blood pressure

Treatment with semaglutide had reduced systolic blood pressure by 2-7 mmHg.

## Paediatric population

The European Medicines Agency has deferred the obligation to submit the results of studies with Rybelsus in one or more subsets of the paediatric population in type 2 diabetes (see section 4.2 for information on paediatric use).

## **5.2 Pharmacokinetic properties**

Two formulations of the semaglutide tablets exist:

- 1.5 mg, 4 mg and 9 mg (round tablets)
- 3 mg, 7 mg and 14 mg (oval tablets)

Similar efficacy and safety can be expected for both formulations. Bioequivalent doses of the two formulations are outlined in the table below.

**Table 9 Equal effect of the two oral formulations**

| <b>Dose</b>       | <b>One round tablet</b> |                 | <b>One oval tablet</b> |
|-------------------|-------------------------|-----------------|------------------------|
| Starting dose     | 1.5 mg                  | Equal effect to | 3 mg                   |
| Maintenance doses | 4 mg                    | Equal effect to | 7 mg                   |
|                   | 9 mg                    | Equal effect to | 14 mg                  |

## Absorption

Orally administered semaglutide has a low absolute bioavailability and a variable absorption. Daily administration according to the recommended posology in combination with a long half-life reduces day-to-day fluctuation of the exposure.

The pharmacokinetics of semaglutide have been extensively characterised in healthy subjects and patients with type 2 diabetes. Following oral administration, maximum plasma concentration of semaglutide occurred approximately 1 hour post dose. Steady-state exposure was reached after 4–5 weeks of once-daily administration. In patients with type 2 diabetes, the average steady-state concentrations were approximately 6.7 nmol/L and 14.6 nmol/L with semaglutide 7 mg and 14 mg, respectively; with 90% of subjects treated with semaglutide 7 mg having an average concentration between 1.7 and 22.7 nmol/L and 90% of subjects treated with semaglutide 14 mg having an average concentration between 3.7 and 41.3 nmol/L. Systemic exposure of semaglutide increased in a dose-proportional manner.

Based on *in vitro* data, salcaprozate sodium facilitates absorption of semaglutide. The absorption of semaglutide predominantly occurs in the stomach.

The estimated bioavailability of semaglutide is approximately 1-2% following oral administration. The between-subject variability in absorption was high (coefficient of variation was approximately 100%). The estimation of the within-subject variability in bioavailability was not reliable.

Absorption of semaglutide is decreased if taken with food or large volumes of water. Different dosing schedules of semaglutide have been investigated. Studies show that longer pre- and post-dose fasting period results in higher absorption (see section 4.2).

## Distribution

The estimated absolute volume of distribution is approximately 8 L in subjects with type 2 diabetes. Semaglutide is extensively bound to plasma proteins (> 99%).

## Biotransformation

Semaglutide is metabolised through proteolytic cleavage of the peptide backbone and sequential beta-oxidation of the fatty acid sidechain. The enzyme neutral endopeptidase (NEP) is expected to be involved in the metabolism of semaglutide.

## Elimination

The primary excretion routes of semaglutide-related material are via the urine and faeces. Approximately 3% of the absorbed dose is excreted as intact semaglutide via the urine.

With an elimination half-life of approximately 1 week, semaglutide will be present in the circulation for about 5 weeks after the last dose. The clearance of semaglutide in patients with type 2 diabetes is approximately 0.04 L/h.

## Switching between oral and subcutaneous administration

The effect of switching between oral and subcutaneous semaglutide cannot easily be predicted because of the high pharmacokinetic variability of oral semaglutide. Exposure after oral semaglutide 9 mg once daily is comparable to subcutaneous semaglutide 0.5 mg once weekly. An oral dose equivalent to 1 mg of subcutaneous semaglutide has not been established.

## Special populations

### *Elderly*

Age had no effect on the pharmacokinetics of semaglutide based on data from clinical trials, which studied patients up to 92 years of age.

### *Gender*

Gender had no clinically meaningful effects on the pharmacokinetics of semaglutide.

### *Race and ethnicity*

Race (White, Black or African-American, Asian) and ethnicity (Hispanic or Latino, not Hispanic or Latino) had no effect on the pharmacokinetics of semaglutide.

### *Body weight*

Body weight had an effect on the exposure of semaglutide. Higher body weight was associated with lower exposure. Semaglutide provided adequate systemic exposure over the body weight range of 40-188 kg evaluated in the clinical trials.

### *Renal impairment*

Renal impairment did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. The pharmacokinetics of semaglutide were evaluated in patients with mild, moderate or severe renal impairment and patients with end-stage renal disease on dialysis compared with subjects with normal renal function in a study with 10 consecutive days of once-daily doses of semaglutide. This was also shown for subjects with type 2 diabetes and renal impairment based on data from phase 3a studies.

### *Hepatic impairment*

Hepatic impairment did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. The pharmacokinetics of semaglutide were evaluated in patients with mild, moderate or

severe hepatic impairment compared with subjects with normal hepatic function in a study with 10 consecutive days of once-daily doses of semaglutide.

#### *Upper GI tract disease*

Upper GI tract disease (chronic gastritis and/or gastroesophageal reflux disease) did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. The pharmacokinetics were evaluated in patients with type 2 diabetes with or without upper GI tract disease dosed for 10 consecutive days with once-daily doses of semaglutide. This was also shown for subjects with type 2 diabetes and upper GI tract disease based on data from phase 3a studies.

#### *Paediatric population*

Semaglutide has not been studied in paediatric patients.

### **5.3 Preclinical safety data**

Non-clinical data reveal no special hazard for humans based on conventional studies of safety pharmacology, repeated dose toxicity or genotoxicity.

Non-lethal thyroid C-cell tumours observed in rodents are a class effect for GLP-1 receptor agonists. In 2-year carcinogenicity studies in rats and mice, semaglutide caused thyroid C-cell tumours at clinically relevant exposures. No other treatment-related tumours were observed. The rodent C-cell tumours are caused by a non-genotoxic, specific GLP-1 receptor mediated mechanism to which rodents are particularly sensitive. The relevance for humans is considered to be low, but cannot be completely excluded.

In fertility studies in rats, semaglutide did not affect mating performance or male fertility. In female rats, an increase in oestrous cycle length and a small reduction in *corpora lutea* (ovulations) were observed at doses associated with maternal body weight loss.

In embryo-foetal development studies in rats, semaglutide caused embryotoxicity below clinically relevant exposures. Semaglutide caused marked reductions in maternal body weight and reductions in embryonic survival and growth. In foetuses, major skeletal and visceral malformations were observed, including effects on long bones, ribs, vertebrae, tail, blood vessels and brain ventricles. Mechanistic evaluations indicated that the embryotoxicity involved a GLP-1 receptor mediated impairment of the nutrient supply to the embryo across the rat yolk sac. Due to species differences in yolk sac anatomy and function, and due to the lack of GLP-1 receptor expression in the yolk sac of non-human primates, this mechanism is considered unlikely to be of relevance to humans. However, a direct effect of semaglutide on the foetus cannot be excluded.

In developmental toxicity studies in rabbits and cynomolgus monkeys, increased pregnancy loss and slightly increased incidence of foetal abnormalities were observed at clinically relevant exposures. The findings coincided with marked maternal body weight loss of up to 16%. Whether these effects are related to the decreased maternal food consumption as a direct GLP-1 effect is unknown.

Postnatal growth and development were evaluated in cynomolgus monkeys. Infants were slightly smaller at delivery, but recovered during the lactation period.

In juvenile rats, semaglutide caused delayed sexual maturation in both males and females. These delays had no impact upon fertility and reproductive capacity of either sex, or on the ability of the females to maintain pregnancy.

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

Salcaprozate sodium  
Magnesium stearate

### **6.2 Incompatibilities**

Not applicable.

### **6.3 Shelf life**

3 years.

### **6.4 Special precautions for storage**

Store in the original blister package in order to protect from light and moisture. This medicinal product does not require any special temperature storage conditions.

### **6.5 Nature and contents of container**

Alu/Alu blisters.  
Pack sizes of: 10, 30, 60, 90 and 100 tablets.  
Not all pack sizes may be marketed.

### **6.6 Special precautions for disposal**

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

## **7. MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

## **8. MARKETING AUTHORISATION NUMBERS**

EU/1/20/1430/016  
EU/1/20/1430/017  
EU/1/20/1430/018  
EU/1/20/1430/019  
EU/1/20/1430/020  
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EU/1/20/1430/026  
EU/1/20/1430/027  
EU/1/20/1430/028  
EU/1/20/1430/029  
EU/1/20/1430/030

**9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

Date of first authorisation: 03 April 2020

**10. DATE OF REVISION OF THE TEXT**

08/2024

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

▼ This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions. See section 4.8 for how to report adverse reactions.

## 1. NAME OF THE MEDICINAL PRODUCT

Rybelsus 3 mg tablets  
Rybelsus 7 mg tablets  
Rybelsus 14 mg tablets

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

### Rybelsus 3 mg tablets

Each tablet contains 3 mg semaglutide\*.

### Rybelsus 7 mg tablets

Each tablet contains 7 mg semaglutide\*.

### Rybelsus 14 mg tablets

Each tablet contains 14 mg semaglutide\*.

\*human glucagon-like peptide-1 (GLP-1) analogue produced in *Saccharomyces cerevisiae* cells by recombinant DNA technology.

### Excipient with known effect

Each tablet, regardless of semaglutide strength, contains 23 mg sodium.

For the full list of excipients, see section 6.1.

## 3. PHARMACEUTICAL FORM

Tablet

### Rybelsus 3 mg tablets

White to light yellow, oval shaped tablet (7.5 mm x 13.5 mm) debossed with '3' on one side and 'novo' on the other side.

### Rybelsus 7 mg tablets

White to light yellow, oval shaped tablet (7.5 mm x 13.5 mm) debossed with '7' on one side and 'novo' on the other side.

### Rybelsus 14 mg tablets

White to light yellow, oval shaped tablet (7.5 mm x 13.5 mm) debossed with '14' on one side and 'novo' on the other side.

## 4. CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Rybelsus is indicated for the treatment of adults with insufficiently controlled type 2 diabetes mellitus to improve glycaemic control as an adjunct to diet and exercise

- as monotherapy when metformin is considered inappropriate due to intolerance or contraindications
- in combination with other medicinal products for the treatment of diabetes.

For study results with respect to combinations, effects on glycaemic control and cardiovascular events, and the populations studied, see sections 4.4, 4.5 and 5.1.

### 4.2 Posology and method of administration

#### Posology

The starting dose of semaglutide is 3 mg once daily for one month. After one month, the dose should be increased to a maintenance dose of 7 mg once daily. After at least one month with a dose of 7 mg once daily, the dose can be increased to a maintenance dose of 14 mg once daily to further improve glycaemic control.

The recommended single daily maintenance doses are 7 mg or 14 mg.

The maximum recommended single daily dose of semaglutide is 14 mg. Rybelsus should always be used as one tablet per day. Taking more than one tablet a day should not be done to achieve the effect of a higher dose.

For information on switching between oral and subcutaneous semaglutide, see section 5.2.

When semaglutide is used in combination with metformin and/or a sodium-glucose co-transporter-2 inhibitor (SGLT2i) or thiazolidinedione, the current dose of metformin and/or SGLT2i or thiazolidinedione can be continued.

When semaglutide is used in combination with a sulfonylurea or with insulin, a reduction in the dose of sulfonylurea or insulin may be considered to reduce the risk of hypoglycaemia (see section 4.4 and 4.8).

Self-monitoring of blood glucose is not needed in order to adjust the dose of semaglutide. Blood glucose self-monitoring is necessary to adjust the dose of sulfonylurea and insulin, particularly when semaglutide is started and insulin is reduced. A stepwise approach to insulin reduction is recommended.

#### *Missed dose*

If a dose is missed, the missed dose should be skipped and the next dose should be taken the following day.

#### Special populations

##### *Elderly*

No dose adjustment is required based on age. Therapeutic experience in patients  $\geq 75$  years of age is limited (see section 5.2).

### *Renal impairment*

No dose adjustment is required for patients with mild, moderate or severe renal impairment. Experience with the use of semaglutide in patients with severe renal impairment is limited. Semaglutide is not recommended in patients with end-stage renal disease (see section 5.2).

### *Hepatic impairment*

No dose adjustment is required for patients with hepatic impairment. Experience with the use of semaglutide in patients with severe hepatic impairment is limited. Caution should be exercised when treating these patients with semaglutide (see section 5.2).

### *Paediatric population*

The safety and efficacy of Rybelsus in children and adolescents below 18 years have not been established. No data are available.

### Method of administration

Rybelsus is a tablet for once-daily oral use.

- This medicinal product should be taken on an empty stomach after a recommended fasting period of at least 8 hours (see section 5.2).
- It should be swallowed whole with a sip of water (up to half a glass of water equivalent to 120 ml). Tablets should not be split, crushed or chewed, as it is not known whether this impacts absorption of semaglutide.
- Patients should wait at least 30 minutes before eating, drinking or taking other oral medicinal products. Waiting less than 30 minutes decreases the absorption of semaglutide (see sections 4.5 and 5.2).

### **4.3 Contraindications**

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

### **4.4 Special warnings and precautions for use**

#### Traceability

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

#### General

Semaglutide should not be used in patients with type 1 diabetes mellitus or for the treatment of diabetic ketoacidosis. Diabetic ketoacidosis has been reported in insulin-dependent patients whom had rapid discontinuation or dose reduction of insulin when treatment with a GLP-1 receptor agonist is started (see section 4.2).

There is no therapeutic experience in patients with congestive heart failure New York Heart Association (NYHA) class IV and semaglutide is therefore not recommended in these patients.

There is no therapeutic experience with semaglutide in patients with bariatric surgery.

#### Gastrointestinal effects and dehydration

Use of GLP-1 receptor agonists may be associated with gastrointestinal adverse reactions that can cause dehydration, which in rare cases can lead to a deterioration of renal function (see section 4.8). Patients treated with semaglutide should be advised of the potential risk of dehydration in relation to gastrointestinal side effects and take precautions to avoid fluid depletion.



### Acute pancreatitis

Acute pancreatitis has been observed with the use of GLP-1 receptor agonists. Patients should be informed of the characteristic symptoms of acute pancreatitis. If pancreatitis is suspected, semaglutide should be discontinued; if confirmed, semaglutide should not be restarted. Caution should be exercised in patients with a history of pancreatitis.

### Hypoglycaemia

Patients treated with semaglutide in combination with a sulfonylurea or insulin may have an increased risk of hypoglycaemia (see section 4.8). The risk of hypoglycaemia can be lowered by reducing the dose of sulfonylurea or insulin when initiating treatment with semaglutide (see section 4.2).

### Diabetic retinopathy

In patients with diabetic retinopathy treated with insulin and subcutaneous semaglutide, an increased risk of developing diabetic retinopathy complications has been observed, a risk that cannot be excluded for orally administered semaglutide (see data in section 4.8). Caution should be exercised when using semaglutide in patients with diabetic retinopathy. These patients should be monitored closely and treated according to clinical guidelines. Rapid improvement in glucose control has been associated with a temporary worsening of diabetic retinopathy, but other mechanisms cannot be excluded. Long-term glycaemic control decreases the risk of diabetic retinopathy.

### Treatment response

Compliance with the dosing regimen is recommended for optimal effect of semaglutide. If the treatment response with semaglutide is lower than expected, the treating physician should be aware that the absorption of semaglutide is highly variable and may be minimal (2-4% of patients will not have any exposure), and that the absolute bioavailability of semaglutide is low.

### Sodium content

This medicinal product contains 23 mg sodium per tablet, equivalent to 1% of the WHO recommended maximum daily intake of 2 g sodium for an adult.

## **4.5 Interaction with other medicinal products and other forms of interaction**

Semaglutide delays gastric emptying which may influence the absorption of other oral medicinal products.

### Effects of semaglutide on other medicinal products

#### *Thyroxine*

Total exposure (Area Under the Curve (AUC)) of thyroxine (adjusted for endogenous levels) was increased by 33% following administration of a single dose of levothyroxine. Maximum exposure ( $C_{max}$ ) was unchanged. Monitoring of thyroid parameters should be considered when treating patients with semaglutide at the same time as levothyroxine.

#### *Warfarin and other coumarin derivatives*

Semaglutide did not change the AUC or  $C_{max}$  of R- and S-warfarin following a single dose of warfarin, and the pharmacodynamic effects of warfarin as measured by the international normalised ratio (INR) were not affected in a clinically relevant manner. However, cases of decreased INR have been reported during concomitant use of acenocoumarol and semaglutide. Upon initiation of semaglutide treatment in patients on warfarin or other coumarin derivatives, frequent monitoring of INR is recommended.

### *Rosuvastatin*

AUC of rosuvastatin was increased by 41% [90% CI: 24;60] when co-administered with semaglutide. Based on the wide therapeutic index of rosuvastatin the magnitude of changes in the exposure is not considered clinically relevant.

### *Digoxin, oral contraceptives, metformin, furosemide*

No clinically relevant change in AUC or  $C_{max}$  of digoxin, oral contraceptives (containing ethinylestradiol and levonorgestrel), metformin or furosemide was observed when concurrently administered with semaglutide.

Interactions with medicinal products with very low bioavailability (1%) have not been evaluated.

### Effects of other medicinal products on semaglutide

#### *Omeprazole*

No clinically relevant change in AUC or  $C_{max}$  of semaglutide was observed when taken with omeprazole.

In a trial investigating the pharmacokinetics of semaglutide co-administered with five other tablets, the AUC of semaglutide decreased by 34% and  $C_{max}$  by 32%. This suggests that the presence of multiple tablets in the stomach influences the absorption of semaglutide if co-administered at the same time. After administering semaglutide, the patients should wait 30 minutes before taking other oral medicinal products (see section 4.2).

## **4.6 Fertility, pregnancy and lactation**

### Women of childbearing potential

Women of childbearing potential are recommended to use contraception when treated with semaglutide.

### Pregnancy

Studies in animals have shown reproductive toxicity (see section 5.3). There are limited data from the use of semaglutide in pregnant women. Therefore, semaglutide should not be used during pregnancy. If a patient wishes to become pregnant, or pregnancy occurs, semaglutide should be discontinued. Semaglutide should be discontinued at least 2 months before a planned pregnancy due to the long half-life (see section 5.2).

### Breast-feeding

In lactating rats, semaglutide, salcaprozate sodium and/or its metabolites were excreted in milk. As a risk to a breast-fed child cannot be excluded, Rybelsus should not be used during breast-feeding.

### Fertility

The effect of semaglutide on fertility in humans is unknown. Semaglutide did not affect male fertility in rats. In female rats, an increase in oestrous length and a small reduction in number of ovulations were observed at doses associated with maternal body weight loss (see section 5.3).

## **4.7 Effects on ability to drive and use machines**

Semaglutide has no or negligible influence on the ability to drive or use machines. However, dizziness can be experienced mainly during dose escalation. Driving or use of machines should be done cautiously if dizziness occurs.

When it is used in combination with a sulfonylurea or insulin, patients should be advised to take precautions to avoid hypoglycaemia while driving and using machines (see section 4.4).

#### 4.8 Undesirable effects

##### Summary of the safety profile

In 10 phase 3a trials, 5 707 patients were exposed to semaglutide alone or in combination with other glucose-lowering medicinal products. The duration of the treatment ranged from 26 weeks to 78 weeks. The most frequently reported adverse reactions in clinical trials were gastrointestinal disorders, including nausea (very common), diarrhoea (very common) and vomiting (common).

##### Tabulated list of adverse reactions

Table 1 lists adverse reactions identified in phase 3 trials (further described in section 5.1) and post-marketing reports in patients with type 2 diabetes mellitus. The frequencies of the adverse reactions (except diabetic retinopathy complications, see footnote in Table 1) are based on a pool of the phase 3a trials excluding the cardiovascular outcomes trial.

The reactions are listed below by system organ class and absolute frequency. Frequencies are defined as: very common: ( $\geq 1/10$ ); common: ( $\geq 1/100$  to  $< 1/10$ ); uncommon: ( $\geq 1/1,000$  to  $< 1/100$ ); rare: ( $\geq 1/10\ 000$  to  $< 1/1\ 000$ ) and very rare: ( $< 1/10\ 000$ ); not known (cannot be estimated from the available data). Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness.

**Table 1 Frequency of adverse reactions of oral semaglutide**

| <b>MedDRA system organ class</b>          | <b>Very common</b>  | <b>Common</b>   | <b>Uncommon</b>                        | <b>Rare</b>           | <b>Not Known</b>                    |
|---|---|---|--|-----------------------|-------------------------------------|
| <b>Immune system disorders</b>            |   |   | Hypersensitivity <sup>c</sup>          | Anaphylactic reaction |                                     |
| <b>Metabolism and nutrition disorders</b> | Hypoglycaemia when used with insulin or sulfonylurea <sup>a</sup> | Hypoglycaemia when used with other oral antidiabetic products <sup>a</sup><br>Decreased appetite  |  |                       |                                     |
| <b>Eye disorders</b>                      |   | Diabetic retinopathy complications <sup>b</sup>   |  |                       |                                     |
| <b>Cardiac disorders</b>                  |   |   | Increased heart rate                   |                       |                                     |
| <b>Gastrointestinal disorders</b>         | Nausea<br>Diarrhoea   | Vomiting<br>Abdominal pain<br>Abdominal distension<br>Constipation<br>Dyspepsia<br>Gastritis<br>Gastro-oesophageal reflux disease<br>Flatulence | Eructation<br>Delayed gastric emptying | Acute pancreatitis    | Intestinal obstruction <sup>d</sup> |
| <b>Hepatobiliary disorders</b>            |   |   | Cholelithiasis                         |                       |                                     |

|   |  |                                       |                  |  |  |
|---|--|---------------------------------------|------------------|--|--|
| <b>General disorders and administration site conditions</b> |  | Fatigue                               |                  |  |  |
| <b>Investigations</b>                                       |  | Increased lipase<br>Increased amylase | Weight decreased |  |  |
| <b>Nervous system disorders</b>                             |  | Dizziness                             | Dysgeusia        |  |  |

<sup>a)</sup> Hypoglycaemia defined as blood glucose < 3.0 mmol/L or < 54 mg/dL.

<sup>b)</sup> Diabetic retinopathy complications are a composite of retinal photocoagulation, treatment with intravitreal agents, vitreous haemorrhage and diabetes-related blindness (uncommon). Frequency is based on the cardiovascular outcomes trial with subcutaneous semaglutide, but it cannot be excluded that the risk of diabetic retinopathy complications identified also applies to Rybelsus.

<sup>c)</sup> Grouped term covering also adverse events related to hypersensitivity such as rash and urticaria.

<sup>d)</sup> From post-marketing reports.

### Description of selected adverse reactions

#### *Hypoglycaemia*

Severe hypoglycaemia was primarily observed when semaglutide was used with a sulfonylurea (< 0.1% of subjects, < 0.001 events/patient year) or insulin (1.1% of subjects, 0.013 events/patient year). Few episodes (0.1% of subjects, 0.001 events/patient year) were observed with semaglutide in combination with oral antidiabetics other than sulfonylurea.

#### *Gastrointestinal adverse reactions*

Nausea occurred in 15%, diarrhoea in 10%, and vomiting in 7% of patients when treated with semaglutide. Most events were mild to moderate in severity and of short duration. The events led to treatment discontinuation in 4% of subjects. The events were most frequently reported during the first months on treatment.

Acute pancreatitis confirmed by adjudication has been reported in phase 3a trials, semaglutide (< 0.1%) and comparator (0.2%). In the cardiovascular outcomes trial the frequency of acute pancreatitis confirmed by adjudication was 0.1% for semaglutide and 0.2% for placebo (see section 4.4.)

#### *Diabetic retinopathy complications*

A 2-year clinical trial with subcutaneous semaglutide investigated 3 297 patients with type 2 diabetes, with high cardiovascular risk, long duration of diabetes and poorly controlled blood glucose. In this trial, adjudicated events of diabetic retinopathy complications occurred in more patients treated with subcutaneous semaglutide (3.0%) compared to placebo (1.8%). This was observed in insulin-treated patients with known diabetic retinopathy. The treatment difference appeared early and persisted throughout the trial. Systematic evaluation of diabetic retinopathy complication was only performed in the cardiovascular outcomes trial with subcutaneous semaglutide. In clinical trials with Rybelsus of up to 18 months duration involving 6 352 patients with type 2 diabetes, adverse events related to diabetic retinopathy were reported in similar proportions in subjects treated with semaglutide (4.2%) and comparators (3.8%).

#### *Immunogenicity*

Consistent with the potential immunogenic properties of medicinal products containing proteins or peptides, patients may develop antibodies following treatment with semaglutide. The proportion of subjects tested positive for anti-semaglutide antibodies at any time point after baseline was low (0.5%) and no subjects had neutralising anti-semaglutide antibodies or anti-semaglutide antibodies with neutralising effect on endogenous GLP-1 at end-of-trial.

### *Heart rate increase*

Increased heart rate has been observed with GLP-1 receptor agonists. In the phase 3a trials, mean changes of 0 to 4 beats per minute (bpm) from a baseline of 69 to 76 were observed in patients treated with Rybelsus.

### Reporting of suspected adverse reactions

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

## **4.9 Overdose**

Effects of overdose with semaglutide in clinical studies may be associated with gastrointestinal disorders. In the event of overdose, appropriate supportive treatment should be initiated according to the patient's clinical signs and symptoms. A prolonged period of observation and treatment of the symptoms may be necessary, taking into account the long half-life of semaglutide of approximately 1 week (see section 5.2). There is no specific antidote for overdose with semaglutide.

## **5. PHARMACOLOGICAL PROPERTIES**

### **5.1 Pharmacodynamic properties**

Pharmacotherapeutic group: Drugs used in diabetes, Glucagon-like peptide-1 (GLP-1) analogues, ATC code: A10BJ06

#### Mechanism of action

Semaglutide is a GLP-1 analogue with 94% sequence homology to human GLP-1. Semaglutide acts as a GLP-1 receptor agonist that selectively binds to and activates the GLP-1 receptor, the target for native GLP-1.

GLP-1 is a physiological hormone that has multiple actions in glucose and appetite regulation, and in the cardiovascular system. The glucose and appetite effects are specifically mediated via GLP-1 receptors in the pancreas and the brain.

Semaglutide reduces blood glucose in a glucose-dependent manner by stimulating insulin secretion and lowering glucagon secretion when blood glucose is high. The mechanism of blood glucose lowering also involves a minor delay in gastric emptying in the early postprandial phase. During hypoglycaemia, semaglutide diminishes insulin secretion and does not impair glucagon secretion. The mechanism of semaglutide is independent of the route of administration.

Semaglutide reduces body weight and body fat mass through lowered energy intake, involving an overall reduced appetite. In addition, semaglutide reduces the preference for high fat foods.

GLP-1 receptors are expressed in the heart, vasculature, immune system and kidneys. Semaglutide has a beneficial effect on plasma lipids, lowers systolic blood pressure and reduces inflammation in clinical studies. In animal studies, semaglutide attenuates the development of atherosclerosis by preventing aortic plaque progression and reducing inflammation in the plaque.

#### Pharmacodynamic effects

The pharmacodynamic evaluations described below were performed with orally administered semaglutide after 12 weeks of treatment.

### *Fasting and postprandial glucose*

Semaglutide reduces fasting and postprandial glucose concentrations. In patients with type 2 diabetes, treatment with semaglutide resulted in a relative reduction compared to placebo of 22% [13; 30] for fasting glucose and 29% [19; 37] for postprandial glucose.

### *Glucagon secretion*

Semaglutide lowers the postprandial glucagon concentrations. In patients with type 2 diabetes, semaglutide resulted in the following relative reductions in glucagon compared to placebo: postprandial glucagon response of 29% [15; 41].

### *Gastric emptying*

Semaglutide causes a minor delay in early postprandial gastric emptying, with paracetamol exposure (AUC<sub>0-1h</sub>) 31% [13; 46] lower in the first hour after the meal, thereby reducing the rate at which glucose appears in the circulation postprandially.

### *Fasting and postprandial lipids*

Semaglutide compared to placebo lowered fasting triglyceride and very-low-density lipoproteins (VLDL) cholesterol concentrations by 19% [8; 28] and 20% [5; 33], respectively. The postprandial triglyceride and VLDL cholesterol response to a high fat meal was reduced by 24% [9; 36] and 21% [7; 32], respectively. ApoB48 was reduced both in fasting and postprandial state by 25% [2; 42] and 30% [15; 43], respectively.

### Clinical efficacy and safety

The efficacy and safety of Rybelsus have been evaluated in eight global randomised controlled phase 3a trials. Phase 3a studies were conducted with tablets containing 3 mg, 7 mg and 14 mg semaglutide which are bioequivalent to 1.5 mg, 4 mg and 9 mg semaglutide, respectively. In seven trials, the primary objective was the assessment of the glycaemic efficacy; in one trial, the primary objective was the assessment of cardiovascular outcomes.

The trials included 8 842 randomised patients with type 2 diabetes (5 169 treated with semaglutide), including 1 165 patients with moderate renal impairment. Patients had an average age of 61 years (range 18 to 92 years), with 40% of patients  $\geq$  65 years of age and 8%  $\geq$  75 years of age. The efficacy of semaglutide was compared with placebo or active controls (sitagliptin, empagliflozin and liraglutide).

The efficacy of semaglutide was not impacted by baseline age, gender, race, ethnicity, body weight, BMI, diabetes duration, upper gastrointestinal disease and level of renal function.

### *PIONEER 1 – Monotherapy*

In a 26-week double-blind trial, 703 patients with type 2 diabetes inadequately controlled with diet and exercise were randomised to semaglutide 3 mg, semaglutide 7 mg, semaglutide 14 mg or placebo once daily.

**Table 2 Results of a 26-week monotherapy trial comparing semaglutide with placebo (PIONEER 1)**

|  | <b>Semaglutide<br/>7 mg</b> | <b>Semaglutide<br/>14 mg</b> | <b>Placebo</b> |
|--|-----------------------------|------------------------------|----------------|
| Full analysis set (N)                                    | 175                         | 175                          | 178            |
| <b>HbA<sub>1c</sub> (%)</b>                              |                             |                              |                |
| Baseline   | 8.0                         | 8.0                          | 7.9            |
| Change from baseline <sup>1</sup>                        | -1.2                        | -1.4                         | -0.3           |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.9 [-1.1; -0.6]*          | -1.1 [-1.3; -0.9]*           | -              |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 69 <sup>§</sup>             | 77 <sup>§</sup>              | 31             |
| <b>FPG (mmol/L)</b>                                      |                             |                              |                |

|   |                                |                                |      |
|---|--------------------------------|--------------------------------|------|
| Baseline                                      | 9.0                            | 8.8                            | 8.9  |
| Change from baseline <sup>1</sup>             | -1.5                           | -1.8                           | -0.2 |
| Difference from placebo <sup>1</sup> [95% CI] | -1.4 [-1.9; -0.8] <sup>§</sup> | -1.6 [-2.1; -1.2] <sup>§</sup> | -    |
| <b>Body weight (kg)</b>                       |                                |                                |      |
| Baseline                                      | 89.0                           | 88.1                           | 88.6 |
| Change from baseline <sup>1</sup>             | -2.3                           | -3.7                           | -1.4 |
| Difference from placebo <sup>1</sup> [95% CI] | -0.9 [-1.9; 0.1]               | -2.3 [-3.1; -1.5]*             | -    |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p< 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio.

### *PIONEER 2 – Semaglutide vs. empagliflozin, both in combination with metformin*

In a 52-week open-label trial, 822 patients with type 2 diabetes were randomised to semaglutide 14 mg once daily or empagliflozin 25 mg once daily, both in combination with metformin.

**Table 3 Results of a 52-week trial comparing semaglutide with empagliflozin (PIONEER 2)**

|  | Semaglutide<br>14 mg           | Empagliflozin<br>25 mg |
|--|--------------------------------|------------------------|
| Full analysis set (N)                                    | 411                            | 410                    |
| <b>Week 26</b>   |                                |                        |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                        |
| Baseline   | 8.1                            | 8.1                    |
| Change from baseline <sup>1</sup>                        | -1.3                           | -0.9                   |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.4 [-0.6; -0.3]*             | -                      |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 67 <sup>§</sup>                | 40                     |
| <b>FPG (mmol/L)</b>                                      |                                |                        |
| Baseline   | 9.5                            | 9.7                    |
| Change from baseline <sup>1</sup>                        | -2.0                           | -2.0                   |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | 0.0 [-0.2; 0.3]                | -                      |
| <b>Body weight (kg)</b>                                  |                                |                        |
| Baseline   | 91.9                           | 91.3                   |
| Change from baseline <sup>1</sup>                        | -3.8                           | -3.7                   |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.1 [-0.7; 0.5]               | -                      |
| <b>Week 52</b>   |                                |                        |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                        |
| Change from baseline <sup>1</sup>                        | -1.3                           | -0.9                   |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.4 [-0.5; -0.3] <sup>§</sup> | -                      |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 66 <sup>§</sup>                | 43                     |
| <b>Body weight (kg)</b>                                  |                                |                        |
| Change from baseline <sup>1</sup>                        | -3.8                           | -3.6                   |
| Difference from empagliflozin <sup>1</sup> [95% CI]      | -0.2 [-0.9; 0.5]               | -                      |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p< 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio.

### *PIONEER 3 – Semaglutide vs. sitagliptin, both in combination with metformin or metformin with sulfonylurea*

In a 78-week, double-blind, double-dummy trial, 1 864 patients with type 2 diabetes were randomised to semaglutide 3 mg, semaglutide 7 mg, semaglutide 14 mg or sitagliptin 100 mg once daily, all in combination with metformin alone or metformin and sulfonylurea. Reductions in HbA<sub>1c</sub> and body weight were sustained throughout the trial duration of 78 weeks.

**Table 4 Results of a 78-week trial comparing semaglutide with sitagliptin (PIONEER 3)**

|  | Semaglutide<br>7 mg            | Semaglutide<br>14 mg           | Sitagliptin<br>100 mg |
|--|--------------------------------|--------------------------------|-----------------------|
| Full analysis set (N)                                    | 465                            | 465                            | 467                   |
| <b>Week 26</b>   |                                |                                |                       |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                                |                       |
| Baseline   | 8.4                            | 8.3                            | 8.3                   |
| Change from baseline <sup>1</sup>                        | -1.0                           | -1.3                           | -0.8                  |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -0.3 [-0.4; -0.1]*             | -0.5 [-0.6; -0.4]*             | -                     |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 44 <sup>§</sup>                | 56 <sup>§</sup>                | 32                    |
| <b>FPG (mmol/L)</b>                                      |                                |                                |                       |
| Baseline   | 9.4                            | 9.3                            | 9.5                   |
| Change from baseline <sup>1</sup>                        | -1.2                           | -1.7                           | -0.9                  |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -0.3 [-0.6; 0.0] <sup>§</sup>  | -0.8 [-1.1; -0.5] <sup>§</sup> | -                     |
| <b>Body weight (kg)</b>                                  |                                |                                |                       |
| Baseline   | 91.3                           | 91.2                           | 90.9                  |
| Change from baseline <sup>1</sup>                        | -2.2                           | -3.1                           | -0.6                  |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -1.6 [-2.0; -1.1]*             | -2.5 [-3.0; -2.0]*             | -                     |
| <b>Week 78</b>   |                                |                                |                       |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                                |                       |
| Change from baseline <sup>1</sup>                        | -0.8                           | -1.1                           | -0.7                  |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -0.1 [-0.3; 0.0]               | -0.4 [-0.6; -0.3] <sup>§</sup> | -                     |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 39 <sup>§</sup>                | 45 <sup>§</sup>                | 29                    |
| <b>Body weight (kg)</b>                                  |                                |                                |                       |
| Change from baseline <sup>1</sup>                        | -2.7                           | -3.2                           | -1.0                  |
| Difference from sitagliptin <sup>1</sup> [95% CI]        | -1.7 [-2.3; -1.0] <sup>§</sup> | -2.1 [-2.8; -1.5] <sup>§</sup> | -                     |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p< 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio.

*PIONEER 4 – Semaglutide vs. liraglutide and placebo, all in combination with metformin or metformin with an SGLT2 inhibitor*

In a 52-week double-blind, double-dummy trial, 711 patients with type 2 diabetes were randomised to semaglutide 14 mg, liraglutide 1.8 mg subcutaneous injection or placebo once daily, all in combination with metformin or metformin and an SGLT2 inhibitor.

**Table 5 Results of a 52-week trial comparing semaglutide with liraglutide and placebo (PIONEER 4)**

|  | Semaglutide<br>14 mg           | Liraglutide<br>1.8 mg | Placebo |
|--|--------------------------------|-----------------------|---------|
| Full analysis set (N)                                    | 285                            | 284                   | 142     |
| <b>Week 26</b>   |                                |                       |         |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                       |         |
| Baseline   | 8.0                            | 8.0                   | 7.9     |
| Change from baseline <sup>1</sup>                        | -1.2                           | -1.1                  | -0.2    |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -0.1 [-0.3; 0.0]               | -                     | -       |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.1 [-1.2; -0.9]*             | -                     | -       |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 68 <sup>§,a</sup>              | 62                    | 14      |
| <b>FPG (mmol/L)</b>                                      |                                |                       |         |
| Baseline   | 9.3                            | 9.3                   | 9.2     |
| Change from baseline <sup>1</sup>                        | -2.0                           | -1.9                  | -0.4    |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -0.1 [-0.4; 0.1]               | -                     | -       |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.6 [-2.0; -1.3] <sup>§</sup> | -                     | -       |
| <b>Body weight (kg)</b>                                  |                                |                       |         |
| Baseline   | 92.9                           | 95.5                  | 93.2    |



|  |                    |      |      |
|--|--------------------|------|------|
| Change from baseline <sup>1</sup>                        | -4.4               | -3.1 | -0.5 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -1.2 [-1.9; -0.6]* | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -3.8 [-4.7; -3.0]* | -    | -    |
| <b>Week 52</b>   |                    |      |      |
| <b>HbA<sub>1c</sub> (%)</b>                              |                    |      |      |
| Change from baseline <sup>1</sup>                        | -1.2               | -0.9 | -0.2 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -0.3 [-0.5; -0.1]§ | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.0 [-1.2; -0.8]§ | -    | -    |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 61 <sup>§,a</sup>  | 55   | 15   |
| <b>Body weight (kg)</b>                                  |                    |      |      |
| Change from baseline <sup>1</sup>                        | -4.3               | -3.0 | -1.0 |
| Difference from liraglutide <sup>1</sup> [95% CI]        | -1.3 [-2.1; -0.5]§ | -    | -    |
| Difference from placebo <sup>1</sup> [95% CI]            | -3.3 [-4.3; -2.4]§ | -    | -    |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p < 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>a</sup> vs placebo.

*PIONEER 5 – Semaglutide vs. placebo, both in combination with basal insulin alone, metformin and basal insulin or metformin and/or sulfonylurea, in patients with moderate renal impairment*

In a 26-week double-blind trial, 324 patients with type 2 diabetes and moderate renal impairment (eGFR 30-59 ml/min/1.73 m<sup>2</sup>) were randomised to semaglutide 14 mg or placebo once daily. Trial product was added to the patient's stable pre-trial antidiabetic regimen.

**Table 6 Results of a 26-week trial comparing semaglutide with placebo in patients with type 2 diabetes and moderate renal impairment (PIONEER 5)**

|  | Semaglutide<br>14 mg | Placebo |
|--|----------------------|---------|
| Full analysis set (N)                                    | 163                  | 161     |
| <b>HbA<sub>1c</sub> (%)</b>                              |                      |         |
| Baseline   | 8.0                  | 7.9     |
| Change from baseline <sup>1</sup>                        | -1.0                 | -0.2    |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.8 [-1.0; -0.6]*   | -       |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 58 <sup>§</sup>      | 23      |
| <b>FPG (mmol/L)</b>                                      |                      |         |
| Baseline   | 9.1                  | 9.1     |
| Change from baseline <sup>1</sup>                        | -1.5                 | -0.4    |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.2 [-1.7; -0.6]§   | -       |
| <b>Body weight (kg)</b>                                  |                      |         |
| Baseline   | 91.3                 | 90.4    |
| Change from baseline <sup>1</sup>                        | -3.4                 | -0.9    |
| Difference from placebo <sup>1</sup> [95% CI]            | -2.5 [-3.2; -1.8]*   | -       |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p < 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. § p < 0.05, not controlled for multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio.

*PIONEER 7 – Semaglutide vs. sitagliptin, both in combination with metformin, SGLT2 inhibitors, sulfonylurea or thiazolidinediones. Flexible-dose-adjustment trial*

In a 52-week open-label trial, 504 patients with type 2 diabetes were randomised to semaglutide (flexible dose adjustment of 3 mg, 7 mg, and 14 mg once daily) or sitagliptin 100 mg once daily, all in combination with 1-2 oral glucose-lowering medicinal products (metformin, SGLT2 inhibitors, sulfonylurea or thiazolidinediones). The dose of semaglutide was adjusted every 8 weeks based on patient's glycaemic response and tolerability. The sitagliptin 100 mg dose was fixed. The efficacy and safety of semaglutide were evaluated at week 52.

At week 52, the proportion of patients on treatment with semaglutide 3 mg, 7 mg and 14 mg was approximately 10%, 30% and 60%, respectively.

**Table 7 Results of a 52-week flexible-dose-adjustment trial comparing semaglutide with sitagliptin (PIONEER 7)**

|  | Semaglutide Flexible dose | Sitagliptin 100 mg |
|--|---------------------------|--------------------|
| Full analysis set (N)  | 253                       | 251                |
| <b>HbA<sub>1c</sub> (%)</b>                                  |                           |                    |
| Baseline   | 8.3                       | 8.3                |
| Patients (%) achieving HbA <sub>1c</sub> < 7.0% <sup>1</sup> | 58*                       | 25                 |
| <b>Body weight (kg)</b>                                      |                           |                    |
| Baseline   | 88.9                      | 88.4               |
| Change from baseline <sup>1</sup>                            | -2.6                      | -0.7               |
| Difference from sitagliptin <sup>1</sup> [95% CI]            | -1.9 [-2.6; -1.2]*        | -                  |

<sup>1</sup> Irrespective of treatment discontinuation (16.6% of the patients with semaglutide flexible dose and 9.2% with sitagliptin, where 8.7% and 4.0%, respectively, were due to AEs) or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity (for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio).

*PIONEER 8 – Semaglutide vs. placebo, both in combination with insulin with or without metformin*  
In a 52-week double-blind trial, 731 patients with type 2 diabetes inadequately controlled on insulin (basal, basal/bolus or premixed) with or without metformin were randomised to semaglutide 3 mg, semaglutide 7 mg, semaglutide 14 mg or placebo once daily.

**Table 8 Results of a 52-week trial comparing semaglutide with placebo in combination with insulin (PIONEER 8)**

|  | Semaglutide 7 mg               | Semaglutide 14 mg              | Placebo |
|--|--------------------------------|--------------------------------|---------|
| Full analysis set (N)                                    | 182                            | 181                            | 184     |
| <b>Week 26 (insulin dose capped to baseline level)</b>   |                                |                                |         |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                                |         |
| Baseline   | 8.2                            | 8.2                            | 8.2     |
| Change from baseline <sup>1</sup>                        | -0.9                           | -1.3                           | -0.1    |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.9 [-1.1; -0.7]*             | -1.2 [-1.4; -1.0]*             | -       |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 43 <sup>§</sup>                | 58 <sup>§</sup>                | 7       |
| <b>FPG (mmol/L)</b>                                      |                                |                                |         |
| Baseline   | 8.5                            | 8.3                            | 8.3     |
| Change from baseline <sup>1</sup>                        | -1.1                           | -1.3                           | 0.3     |
| Difference from placebo <sup>1</sup> [95% CI]            | -1.4 [-1.9; -0.8] <sup>§</sup> | -1.6 [-2.2; -1.1] <sup>§</sup> | -       |
| <b>Body weight (kg)</b>                                  |                                |                                |         |
| Baseline   | 87.1                           | 84.6                           | 86.0    |
| Change from baseline <sup>1</sup>                        | -2.4                           | -3.7                           | -0.4    |
| Difference from placebo <sup>1</sup> [95% CI]            | -2.0 [-3.0; -1.0]*             | -3.3 [-4.2; -2.3]*             | -       |
| <b>Week 52 (uncapped insulin dose)<sup>+</sup></b>       |                                |                                |         |
| <b>HbA<sub>1c</sub> (%)</b>                              |                                |                                |         |
| Change from baseline <sup>1</sup>                        | -0.8                           | -1.2                           | -0.2    |
| Difference from placebo <sup>1</sup> [95% CI]            | -0.6 [-0.8; -0.4] <sup>§</sup> | -0.9 [-1.1; -0.7] <sup>§</sup> | -       |
| <b>Patients (%) achieving HbA<sub>1c</sub> &lt; 7.0%</b> | 40 <sup>§</sup>                | 54 <sup>§</sup>                | 9       |
| <b>Body weight (kg)</b>                                  |                                |                                |         |
| Change from baseline <sup>1</sup>                        | -2.0                           | -3.7                           | 0.5     |
| Difference from placebo <sup>1</sup> [95% CI]            | -2.5 [-3.6; -1.4] <sup>§</sup> | -4.3 [-5.3; -3.2] <sup>§</sup> | -       |

<sup>1</sup> Irrespective of treatment discontinuation or initiation of rescue medication (pattern mixture model using multiple imputation). \* p< 0.001 (unadjusted 2-sided) for superiority, controlled for multiplicity. <sup>§</sup> p< 0.05, not controlled for

multiplicity; for 'Patients achieving HbA<sub>1c</sub> < 7.0%', the p-value is for the odds ratio. <sup>+</sup> The total daily insulin dose was statistically significantly lower with semaglutide than with placebo at week 52.

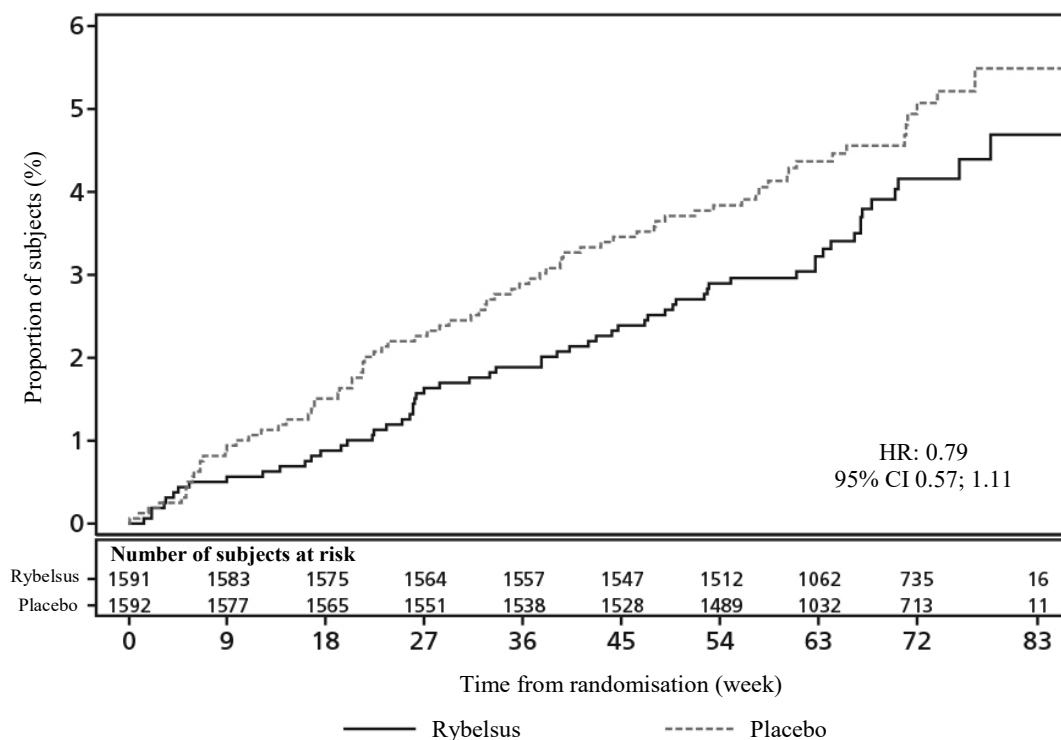
### Cardiovascular evaluation

In a double-blind trial (PIONEER 6), 3 183 patients with type 2 diabetes at high cardiovascular risk were randomised to Rybelsus 14 mg once daily or placebo in addition to standard-of-care. The median observation period was 16 months.

The primary endpoint was time from randomisation to first occurrence of a major adverse cardiovascular event (MACE): cardiovascular death, non-fatal myocardial infarction or non-fatal stroke.

Patients eligible to enter the trial were: 50 years of age or older and with established cardiovascular disease and/or chronic kidney disease, or 60 years of age or older and with cardiovascular risk factors only. In total, 1 797 patients (56.5%) had established cardiovascular disease without chronic kidney disease, 354 (11.1%) had chronic kidney disease only and 544 (17.1%) had both cardiovascular disease and kidney disease. 488 patients (15.3%) had cardiovascular risk factors only. The mean age at baseline was 66 years, and 68% of the patients were men. The mean duration of diabetes was 14.9 years and the mean BMI was 32.3 kg/m<sup>2</sup>. Medical history included stroke (11.7%) and myocardial infarction (36.1%).

The total number of first MACE was 137: 61 (3.8%) with semaglutide and 76 (4.8%) with placebo. The analysis of time to first MACE resulted in a HR of 0.79 [0.57; 1.11]<sub>95% CI</sub>.

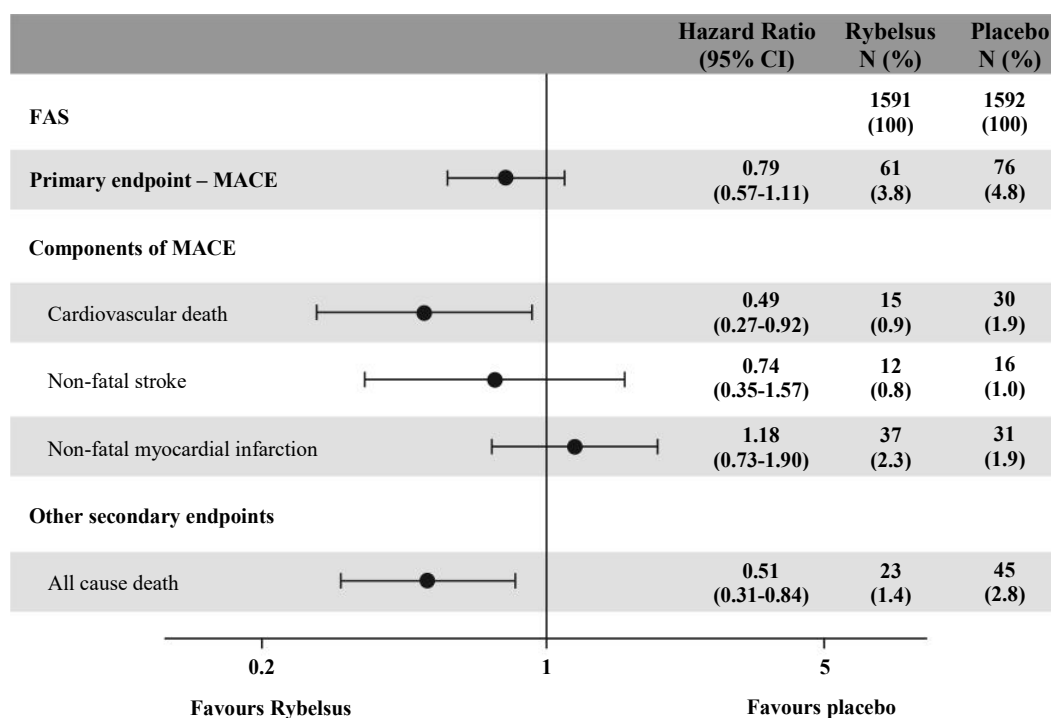


Cumulative incidence plot of primary outcome (a composite of cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke) with non-cardiovascular death as competing risk.

Abbreviations: CI: Confidence interval, HR: Hazard ratio

**Figure 3 Cumulative incidence of first occurrence of MACE in PIONEER 6**

The treatment effect for the primary composite endpoint and its components in the PIONEER 6 trial is shown in Figure 4.



**Figure 4 Treatment effect for the primary composite endpoint, its components and all cause death (PIONEER 6)**

### Body weight

By end-of-treatment, 27-45% of the patients had achieved a weight loss of  $\geq 5\%$  and 6-16% had achieved a weight loss of  $\geq 10\%$  with semaglutide, compared with 12-39% and 2-8%, respectively, with the active comparators.

### Blood pressure

Treatment with semaglutide had reduced systolic blood pressure by 2-7 mmHg.

### Paediatric population

The European Medicines Agency has deferred the obligation to submit the results of studies with Rybelsus in one or more subsets of the paediatric population in type 2 diabetes (see section 4.2 for information on paediatric use).

## **5.2 Pharmacokinetic properties**

Two formulations of the semaglutide tablets exist:

- 1.5 mg, 4 mg and 9 mg (round tablets)
- 3 mg, 7 mg and 14 mg (oval tablets)

Similar efficacy and safety can be expected for both formulations. Bioequivalent doses of the two formulations are outlined in the table below.

**Table 9 Equal effect of the two oral formulations**

| <b>Dose</b>       | <b>One round tablet</b> |                 | <b>One oval tablet</b> |
|-------------------|-------------------------|-----------------|------------------------|
| Starting dose     | 1.5 mg                  | Equal effect to | 3 mg                   |
| Maintenance doses | 4 mg                    | Equal effect to | 7 mg                   |
|                   | 9 mg                    | Equal effect to | 14 mg                  |

### Absorption

Orally administered semaglutide has a low absolute bioavailability and a variable absorption. Daily administration according to the recommended posology in combination with a long half-life reduces day-to-day fluctuation of the exposure.

The pharmacokinetics of semaglutide have been extensively characterised in healthy subjects and patients with type 2 diabetes. Following oral administration, maximum plasma concentration of semaglutide occurred approximately 1 hour post dose. Steady-state exposure was reached after 4–5 weeks of once-daily administration. In patients with type 2 diabetes, the average steady-state concentrations were approximately 6.7 nmol/L and 14.6 nmol/L with semaglutide 7 mg and 14 mg, respectively; with 90% of subjects treated with semaglutide 7 mg having an average concentration between 1.7 and 22.7 nmol/L and 90% of subjects treated with semaglutide 14 mg having an average concentration between 3.7 and 41.3 nmol/L. Systemic exposure of semaglutide increased in a dose-proportional manner.

Based on *in vitro* data, salcaprozate sodium facilitates absorption of semaglutide. The absorption of semaglutide predominantly occurs in the stomach.

The estimated bioavailability of semaglutide is approximately 1% following oral administration. The between-subject variability in absorption was high (coefficient of variation was approximately 100%). The estimation of the within-subject variability in bioavailability was not reliable.

Absorption of semaglutide is decreased if taken with food or large volumes of water. Different dosing schedules of semaglutide have been investigated. Studies show that longer pre- and post-dose fasting period results in higher absorption (see section 4.2).

### Distribution

The estimated absolute volume of distribution is approximately 8 L in subjects with type 2 diabetes. Semaglutide is extensively bound to plasma proteins (>99%).

### Biotransformation

Semaglutide is metabolised through proteolytic cleavage of the peptide backbone and sequential beta-oxidation of the fatty acid sidechain. The enzyme neutral endopeptidase (NEP) is expected to be involved in the metabolism of semaglutide.

### Elimination

The primary excretion routes of semaglutide-related material are via the urine and faeces. Approximately 3% of the absorbed dose is excreted as intact semaglutide via the urine.

With an elimination half-life of approximately 1 week, semaglutide will be present in the circulation for about 5 weeks after the last dose. The clearance of semaglutide in patients with type 2 diabetes is approximately 0.04 L/h.

### Switching between oral and subcutaneous administration

The effect of switching between oral and subcutaneous semaglutide cannot easily be predicted because of the high pharmacokinetic variability of oral semaglutide. Exposure after oral semaglutide 14 mg

once daily is comparable to subcutaneous semaglutide 0.5 mg once weekly. An oral dose equivalent to 1 mg of subcutaneous semaglutide has not been established.

### Special populations

#### *Elderly*

Age had no effect on the pharmacokinetics of semaglutide based on data from clinical trials, which studied patients up to 92 years of age.

#### *Gender*

Gender had no clinically meaningful effects on the pharmacokinetics of semaglutide.

#### *Race and ethnicity*

Race (White, Black or African-American, Asian) and ethnicity (Hispanic or Latino, not Hispanic or Latino) had no effect on the pharmacokinetics of semaglutide.

#### *Body weight*

Body weight had an effect on the exposure of semaglutide. Higher body weight was associated with lower exposure. Semaglutide provided adequate systemic exposure over the body weight range of 40-188 kg evaluated in the clinical trials.

#### *Renal impairment*

Renal impairment did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. The pharmacokinetics of semaglutide were evaluated in patients with mild, moderate or severe renal impairment and patients with end-stage renal disease on dialysis compared with subjects with normal renal function in a study with 10 consecutive days of once-daily doses of semaglutide. This was also shown for subjects with type 2 diabetes and renal impairment based on data from phase 3a studies.

#### *Hepatic impairment*

Hepatic impairment did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. The pharmacokinetics of semaglutide were evaluated in patients with mild, moderate or severe hepatic impairment compared with subjects with normal hepatic function in a study with 10 consecutive days of once-daily doses of semaglutide.

#### *Upper GI tract disease*

Upper GI tract disease (chronic gastritis and/or gastroesophageal reflux disease) did not impact the pharmacokinetics of semaglutide in a clinically relevant manner. The pharmacokinetics were evaluated in patients with type 2 diabetes with or without upper GI tract disease dosed for 10 consecutive days with once-daily doses of semaglutide. This was also shown for subjects with type 2 diabetes and upper GI tract disease based on data from phase 3a studies.

#### *Paediatric population*

Semaglutide has not been studied in paediatric patients.

### **5.3 Preclinical safety data**

Non-clinical data reveal no special hazard for humans based on conventional studies of safety pharmacology, repeated dose toxicity or genotoxicity.

Non-lethal thyroid C-cell tumours observed in rodents are a class effect for GLP-1 receptor agonists. In 2-year carcinogenicity studies in rats and mice, semaglutide caused thyroid C-cell tumours at clinically relevant exposures. No other treatment-related tumours were observed. The rodent C-cell tumours are caused by a non-genotoxic, specific GLP-1 receptor mediated mechanism to which rodents are particularly sensitive. The relevance for humans is considered to be low, but cannot be completely excluded.

In fertility studies in rats, semaglutide did not affect mating performance or male fertility. In female rats, an increase in oestrous cycle length and a small reduction in *corpora lutea* (ovulations) were observed at doses associated with maternal body weight loss.

In embryo-foetal development studies in rats, semaglutide caused embryotoxicity below clinically relevant exposures. Semaglutide caused marked reductions in maternal body weight and reductions in embryonic survival and growth. In foetuses, major skeletal and visceral malformations were observed, including effects on long bones, ribs, vertebrae, tail, blood vessels and brain ventricles. Mechanistic evaluations indicated that the embryotoxicity involved a GLP-1 receptor mediated impairment of the nutrient supply to the embryo across the rat yolk sac. Due to species differences in yolk sac anatomy and function, and due to the lack of GLP-1 receptor expression in the yolk sac of non-human primates, this mechanism is considered unlikely to be of relevance to humans. However, a direct effect of semaglutide on the foetus cannot be excluded.

In developmental toxicity studies in rabbits and cynomolgus monkeys, increased pregnancy loss and slightly increased incidence of foetal abnormalities were observed at clinically relevant exposures. The findings coincided with marked maternal body weight loss of up to 16%. Whether these effects are related to the decreased maternal food consumption as a direct GLP-1 effect is unknown.

Postnatal growth and development were evaluated in cynomolgus monkeys. Infants were slightly smaller at delivery, but recovered during the lactation period.

In juvenile rats, semaglutide caused delayed sexual maturation in both males and females. These delays had no impact upon fertility and reproductive capacity of either sex, or on the ability of the females to maintain pregnancy.

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

Salcaprozate sodium  
Povidone K90  
Cellulose, microcrystalline  
Magnesium stearate

### **6.2 Incompatibilities**

Not applicable.

### **6.3 Shelf life**

3 mg: 2 years.  
7 mg: 30 months.  
14 mg: 30 months.

### **6.4 Special precautions for storage**

Store in the original blister package in order to protect from light and moisture. This medicinal product does not require any special temperature storage conditions.

### **6.5 Nature and contents of container**

Alu/Alu blisters.  
Pack sizes of: 10, 30, 60, 90 and 100 tablets.  
Not all pack sizes may be marketed.

## **6.6 Special precautions for disposal**

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

## **7. MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

## **8. MARKETING AUTHORISATION NUMBERS**

EU/1/20/1430/001  
EU/1/20/1430/002  
EU/1/20/1430/003  
EU/1/20/1430/004  
EU/1/20/1430/005  
EU/1/20/1430/006  
EU/1/20/1430/007  
EU/1/20/1430/008  
EU/1/20/1430/009  
EU/1/20/1430/010  
EU/1/20/1430/011  
EU/1/20/1430/012  
EU/1/20/1430/013  
EU/1/20/1430/014  
EU/1/20/1430/015

## **9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

Date of first authorisation: 03 April 2020

## **10. DATE OF REVISION OF THE TEXT**

08/2024

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



## **ANNEX II**

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

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

Name and address of the manufacturer of the biological active substance

Novo Nordisk A/S  
Hallas Allé  
DK-4400 Kalundborg  
Denmark

Hovione FarmaCiencia S.A.  
Quinta Sao Pedro, Sete Casas  
PT-2674-506 Loures  
Portugal

Novo Nordisk Pharmaceutical Industries Inc.  
3612 Powhatan Road  
Clayton  
North Carolina 27527-9217  
United States

Name and address of the manufacturer responsible for batch release

Novo Nordisk A/S  
Novo Allé  
DK-2800 Bagsværd  
Denmark

**B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE**

Medicinal product subject to medical prescription.

**C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION**

• **Periodic safety update reports (PSURs)**

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

The marketing authorisation holder (MAH) shall submit the first PSUR for this product within 6 months following authorisation.

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

• **Risk management plan (RMP)**

The marketing authorisation holder (MAH) shall perform the required pharmacovigilance activities and interventions detailed in the agreed RMP presented in Module 1.8.2 of the marketing authorisation and any agreed subsequent updates of the RMP.

An updated RMP should be submitted:

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

**ANNEX III**  
**LABELLING AND PACKAGE LEAFLET**

## **A. LABELLING**

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 1.5 mg tablets  
semaglutide

**2. STATEMENT OF ACTIVE SUBSTANCE**

Each tablet contains 1.5 mg of semaglutide.

**3. LIST OF EXCIPIENTS**

Contains sodium.  
See package leaflet for further information.

**4. PHARMACEUTICAL FORM AND CONTENTS**

10 tablets  
30 tablets  
60 tablets  
90 tablets  
100 tablets

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use.  
Oral use.  
How to take Rybelsus.  
Take on an empty stomach, after a recommended fasting of at least 8 hours.  
Take the tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew.  
Wait at least 30 minutes before eating, drinking or taking any other oral medicines.

Push down and push back.

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

Keep out of the sight and reach of children.

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

**8. EXPIRY DATE**

EXP

**9. SPECIAL STORAGE CONDITIONS**

Store in the original blister package in order to protect from light and moisture.

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE****11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

**12. MARKETING AUTHORISATION NUMBERS**

|                  |             |
|------------------|-------------|
| EU/1/20/1430/016 | 10 tablets  |
| EU/1/20/1430/017 | 30 tablets  |
| EU/1/20/1430/018 | 60 tablets  |
| EU/1/20/1430/019 | 90 tablets  |
| EU/1/20/1430/020 | 100 tablets |

**13. BATCH NUMBER**

Lot

**14. GENERAL CLASSIFICATION FOR SUPPLY****15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

rybelsus 1.5 mg

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER - HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON BLISTERS OR STRIPS**

**BLISTERS**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 1.5 mg tablets  
semaglutide

**2. NAME OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Lot

**5. OTHER**



**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 3 mg tablets  
semaglutide

**2. STATEMENT OF ACTIVE SUBSTANCE**

Each tablet contains 3 mg of semaglutide.

**3. LIST OF EXCIPIENTS**

Contains sodium.  
See package leaflet for further information.

**4. PHARMACEUTICAL FORM AND CONTENTS**

10 tablets  
30 tablets  
60 tablets  
90 tablets  
100 tablets

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use.  
Oral use.  
How to take Rybelsus.  
Take on an empty stomach, after a recommended fasting of at least 8 hours.  
Take the tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew.  
Wait at least 30 minutes before eating, drinking or taking any other oral medicines.

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

Keep out of the sight and reach of children.

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

**8. EXPIRY DATE**

EXP

**9. SPECIAL STORAGE CONDITIONS**

Store in the original blister package in order to protect from light and moisture.

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE****11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

**12. MARKETING AUTHORISATION NUMBERS**

EU/1/20/1430/001 10 tablets  
EU/1/20/1430/002 30 tablets  
EU/1/20/1430/003 60 tablets  
EU/1/20/1430/004 90 tablets  
EU/1/20/1430/011 100 tablets

**13. BATCH NUMBER**

Lot

**14. GENERAL CLASSIFICATION FOR SUPPLY****15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

rybelsus 3 mg

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER - HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON BLISTERS OR STRIPS**

**BLISTERS**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 3 mg tablets  
semaglutide

**2. NAME OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Lot

**5. OTHER**

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 4 mg tablets  
semaglutide

**2. STATEMENT OF ACTIVE SUBSTANCE**

Each tablet contains 4 mg of semaglutide.

**3. LIST OF EXCIPIENTS**

Contains sodium.  
See package leaflet for further information.

**4. PHARMACEUTICAL FORM AND CONTENTS**

10 tablets  
30 tablets  
60 tablets  
90 tablets  
100 tablets

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use.  
Oral use.  
How to take Rybelsus.  
Take on an empty stomach, after a recommended fasting of at least 8 hours.  
Take the tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew.  
Wait at least 30 minutes before eating, drinking or taking any other oral medicines.

Push down and push back.

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

Keep out of the sight and reach of children.

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

**8. EXPIRY DATE**

EXP

**9. SPECIAL STORAGE CONDITIONS**

Store in the original blister package in order to protect from light and moisture.

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE****11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

**12. MARKETING AUTHORISATION NUMBERS**

|                  |             |
|------------------|-------------|
| EU/1/20/1430/021 | 10 tablets  |
| EU/1/20/1430/022 | 30 tablets  |
| EU/1/20/1430/023 | 60 tablets  |
| EU/1/20/1430/024 | 90 tablets  |
| EU/1/20/1430/025 | 100 tablets |

**13. BATCH NUMBER**

Lot

**14. GENERAL CLASSIFICATION FOR SUPPLY****15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

rybelsus 4 mg

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER - HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON BLISTERS OR STRIPS**

**BLISTERS**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 4 mg tablets  
semaglutide

**2. NAME OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Lot

**5. OTHER**

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 7 mg tablets  
semaglutide

**2. STATEMENT OF ACTIVE SUBSTANCE**

Each tablet contains 7 mg of semaglutide.

**3. LIST OF EXCIPIENTS**

Contains sodium.  
See package leaflet for further information.

**4. PHARMACEUTICAL FORM AND CONTENTS**

10 tablets  
30 tablets  
60 tablets  
90 tablets  
100 tablets

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use.  
Oral use.  
How to take Rybelsus.  
Take on an empty stomach, after a recommended fasting of at least 8 hours.  
Take the tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew.  
Wait at least 30 minutes before eating, drinking or taking any other oral medicines.

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

Keep out of the sight and reach of children.

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

**8. EXPIRY DATE**

EXP

**9. SPECIAL STORAGE CONDITIONS**

Store in the original blister package in order to protect from light and moisture.

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE****11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

**12. MARKETING AUTHORISATION NUMBERS**

EU/1/20/1430/014 10 tablets  
EU/1/20/1430/005 30 tablets  
EU/1/20/1430/006 60 tablets  
EU/1/20/1430/007 90 tablets  
EU/1/20/1430/012 100 tablets

**13. BATCH NUMBER**

Lot

**14. GENERAL CLASSIFICATION FOR SUPPLY****15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

rybelsus 7 mg

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER - HUMAN READABLE DATA**

PC  
SN  
NN



**MINIMUM PARTICULARS TO APPEAR ON BLISTERS OR STRIPS**

**BLISTERS**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 7 mg tablets  
semaglutide

**2. NAME OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Lot

**5. OTHER**

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 9 mg tablets  
semaglutide

**2. STATEMENT OF ACTIVE SUBSTANCE**

Each tablet contains 9 mg of semaglutide.

**3. LIST OF EXCIPIENTS**

Contains sodium.  
See package leaflet for further information.

**4. PHARMACEUTICAL FORM AND CONTENTS**

10 tablets  
30 tablets  
60 tablets  
90 tablets  
100 tablets

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use.  
Oral use.  
How to take Rybelsus.  
Take on an empty stomach, after a recommended fasting of at least 8 hours.  
Take the tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew.  
Wait at least 30 minutes before eating, drinking or taking any other oral medicines.

Push down and push back.

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

Keep out of the sight and reach of children.

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

**8. EXPIRY DATE**

EXP

**9. SPECIAL STORAGE CONDITIONS**

Store in the original blister package in order to protect from light and moisture.

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE****11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

**12. MARKETING AUTHORISATION NUMBERS**

|                  |             |
|------------------|-------------|
| EU/1/20/1430/026 | 10 tablets  |
| EU/1/20/1430/027 | 30 tablets  |
| EU/1/20/1430/028 | 60 tablets  |
| EU/1/20/1430/029 | 90 tablets  |
| EU/1/20/1430/030 | 100 tablets |

**13. BATCH NUMBER**

Lot

**14. GENERAL CLASSIFICATION FOR SUPPLY****15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

rybelsus 9 mg

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER - HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON BLISTERS OR STRIPS**

**BLISTERS**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 9 mg tablets  
semaglutide

**2. NAME OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Lot

**5. OTHER**

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 14 mg tablets  
semaglutide

**2. STATEMENT OF ACTIVE SUBSTANCE**

Each tablet contains 14 mg of semaglutide.

**3. LIST OF EXCIPIENTS**

Contains sodium.  
See package leaflet for further information.

**4. PHARMACEUTICAL FORM AND CONTENTS**

10 tablets  
30 tablets  
60 tablets  
90 tablets  
100 tablets

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use.  
Oral use.  
How to take Rybelsus.  
Take on an empty stomach, after a recommended fasting of at least 8 hours.  
Take the tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew.  
Wait at least 30 minutes before eating, drinking or taking any other oral medicines.

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

Keep out of the sight and reach of children.

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

**8. EXPIRY DATE**

EXP

**9. SPECIAL STORAGE CONDITIONS**

Store in the original blister package in order to protect from light and moisture.

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE****11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

**12. MARKETING AUTHORISATION NUMBERS**

EU/1/20/1430/015 10 tablets  
EU/1/20/1430/008 30 tablets  
EU/1/20/1430/009 60 tablets  
EU/1/20/1430/010 90 tablets  
EU/1/20/1430/013 100 tablets

**13. BATCH NUMBER**

Lot

**14. GENERAL CLASSIFICATION FOR SUPPLY****15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

rybelsus 14 mg

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER - HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON BLISTERS OR STRIPS**

**BLISTERS**

**1. NAME OF THE MEDICINAL PRODUCT**

Rybelsus 14 mg tablets  
semaglutide

**2. NAME OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Lot

**5. OTHER**

**B. PACKAGE LEAFLET**



## Package leaflet: Information for the patient

### **Rybelsus 1.5 mg tablets** **Rybelsus 4 mg tablets** **Rybelsus 9 mg tablets** semaglutide

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

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

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

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

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

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

Rybelsus contains the active substance semaglutide. It is a medicine that is used to lower blood sugar levels.

Rybelsus is used to treat adults (aged 18 years and older) with type 2 diabetes when diet and exercise is not enough:

- on its own – when you cannot use metformin (another diabetes medicine) or
- with other medicines for diabetes – when the other medicines are not enough to control your blood sugar levels. These may be medicines you take by mouth or inject such as insulin.

It is important that you continue with your diet and exercise plan as agreed with your doctor, pharmacist or nurse.

#### **What is type 2 diabetes?**

Type 2 diabetes is a condition in which your body does not make enough insulin, and the insulin that your body makes does not lower your blood sugar the way it should. In some cases, your body can produce too much blood sugar. If your blood sugar increases and remains high over a long period of time, this can lead to harmful effects such as heart problems, kidney disease, eye disorders and poor circulation in your limbs. That is why it is important to keep your blood sugar levels within a normal range.

## 2. What you need to know before you take Rybelsus

### Do not take Rybelsus

- if you are allergic to semaglutide or any of the other ingredients of this medicine (listed in section 6).

### Warnings and precautions

Talk to your doctor, pharmacist or nurse before taking Rybelsus.

#### Traceability

In order to improve the traceability of biological medicinal products, record the name and the lot number (included on the outer cartons and blister) of the medicine you are taking and provide this information when reporting any side effects.

#### General

This medicine is not the same as insulin and you should not use it if:

- you have type 1 diabetes (your body does not produce any insulin)
- you develop diabetic ketoacidosis. This is a complication of diabetes with high blood sugar, breathing difficulty, confusion, excessive thirst, a sweet smell to the breath or a sweet or metallic taste in the mouth.

#### Stomach and gut problems and dehydration

During treatment with this medicine, you may feel sick (nausea) or be sick (vomiting), or have diarrhoea. These side effects can cause dehydration (loss of fluids). It is important that you drink enough fluids to prevent dehydration. This is especially important if you have kidney problems. Talk to your doctor if you have any questions or concerns.

#### Severe and on-going stomach pain which could be due to an inflamed pancreas

If you have severe and on-going pain in the stomach area – see a doctor straight away as this could be a sign of inflamed pancreas (acute pancreatitis).

#### Low blood sugar (hypoglycaemia)

Taking a sulfonylurea medicine or insulin with Rybelsus might increase the risk of getting low blood sugar (hypoglycaemia). See section 4 for the warning signs of low blood sugar levels.

Your doctor may ask you to test your blood sugar levels. This will help to decide if the dose of the sulfonylurea or insulin needs to be changed to reduce the risk of low blood sugar.

#### Diabetic eye disease (retinopathy)

Fast improvements in blood sugar control may lead to a temporary worsening of diabetic eye disease. If you have diabetic eye disease and get eye problems while taking this medicine, talk to your doctor.

#### Treatment response

If the treatment response with semaglutide is lower than expected, this may be due to low absorption caused by variability in absorption and low absolute bioavailability. You should follow the instructions given in section 3 for optimal effect of semaglutide.

### Children and adolescents

This medicine is not recommended in children and adolescents aged under 18 years as the safety and efficacy in this age group have not been established.

### Other medicines and Rybelsus

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

In particular, tell your doctor, pharmacist or nurse if you are using medicines containing any of the following:

- levothyroxine which is used for thyroid disease. This is because your doctor may need to check your thyroid levels if you are taking Rybelsus together with levothyroxine.
- warfarin or similar medicines taken by mouth to reduce blood clotting (oral anti-coagulants). You may need frequent blood tests to check how quickly your blood clots.
- If you are using insulin, your doctor will tell you how to reduce the dose of insulin and will recommend you monitor your blood sugar more frequently, in order to avoid hyperglycaemia (high blood sugar) and diabetic ketoacidosis (a complication of diabetes that occurs when the body is unable to breakdown glucose because there is not enough insulin).

### **Pregnancy and breast-feeding**

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

This medicine should not be used during pregnancy, as it is not known if it affects your unborn baby. Therefore, use of contraception is recommended while taking this medicine. If you wish to become pregnant, discuss how to change your treatment with your doctor as you should stop using this medicine at least 2 months in advance. If you become pregnant while using this medicine, talk to your doctor straight away, as your treatment will need to be changed.

Do not use this medicine if you are breast-feeding, as it is unknown if it passes into breast milk.

### **Driving and using machines**

Rybelsus is unlikely to affect your ability to drive and use machines.

Some patients may feel dizzy when taking Rybelsus. If you feel dizzy, be extra careful while driving or using machines. Talk to your doctor for the further information.

If you use this medicine in combination with a sulfonylurea or insulin, low blood sugar (hypoglycaemia) may occur which may reduce your ability to concentrate. Do not drive or use machines if you get any signs of low blood sugar. See section 2, 'Warning and precautions' for information on increased risk of low blood sugar and section 4 for the warning signs of low blood sugar. Talk to your doctor for further information.

### **Rybelsus contains sodium**

This medicine contains less than 1 mmol sodium (23 mg) per tablet, that is to say essentially 'sodium-free'.

## **3. How to take Rybelsus**

Always take this medicine exactly as your doctor has told you. Check with your doctor or pharmacist if you are not sure.

### **How much to take**

- The starting dose is one 1.5 mg tablet once a day for one month.
- After one month, your doctor will increase your dose to one 4 mg tablet once a day.
- Your doctor will instruct you to stay on a dose for minimum one month before increasing to a higher dose.
- Your doctor may increase your dose to one 9 mg tablet once a day if your blood sugar is not controlled well enough with a dose of 4 mg once a day.
- Your doctor will prescribe the strength that is right for you. Do not change your dose unless your doctor has told you so.
- Rybelsus should always be taken as one tablet per day. You should not take two tablets to get the effect of a higher dose.

### **Taking this medicine**

- Take your Rybelsus tablet on an empty stomach after a recommended fasting period of at least 8 hours.
- Swallow your Rybelsus tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew the tablet, as it is not known if it affects absorption of semaglutide.
- After taking your Rybelsus tablet wait at least 30 minutes before eating, drinking or taking other oral medicines. Waiting less than 30 minutes lowers the absorption of semaglutide.

### **If you take more Rybelsus than you should**

If you take more Rybelsus than you should, talk to your doctor straight away. You may get side effects such as feeling sick (nausea).

### **If you forget to take Rybelsus**

If you forget to take a dose, skip the missed dose and just take your normal dose the next day.

### **If you stop taking Rybelsus**

Do not stop using this medicine without talking to your doctor. If you stop using it, your blood sugar levels may increase.

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

## **4. Possible side effects**

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

### **Serious side effects**

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

- complications of diabetic eye disease (retinopathy). You should tell your doctor if you get eye problems, such as changes in vision, during treatment with this medicine.

#### **Rare** (may affect up to 1 in 1 000 people)

- serious allergic reactions (anaphylactic reactions). You must get immediate medical help and inform your doctor straight away if you get symptoms such as breathing problems, swelling of face and throat, wheezing, fast heartbeat, pale and cold skin, feeling dizzy or weak.
- inflamed pancreas (acute pancreatitis) which could cause severe pain in the stomach and back which does not go away. You should see a doctor immediately if you experience such symptoms.

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

- Bowel obstruction. A severe form of constipation with additional symptoms such as stomach ache, bloating, vomiting etc.

### **Other side effects**

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

- feeling sick (nausea) – this usually goes away over time
- diarrhoea – this usually goes away over time
- low blood sugar (hypoglycaemia) when this medicine is used with medicines that contain a sulfonylurea or insulin. Your doctor may reduce your dose of these medicines before you start using this medicine.

The warning signs of low blood sugar may come on suddenly. They can include: cold sweat, cool pale skin, headache, fast heartbeat, feeling sick (nausea) or very hungry, changes in vision, feeling sleepy or weak, feeling nervous, anxious or confused, difficulty concentrating or shaking.

Your doctor will tell you how to treat low blood sugar and what to do if you notice these warning signs.

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

- low blood sugar (hypoglycaemia) when this medicine is used with oral diabetes medicine other than sulfonylurea or insulin
- being sick (vomiting)
- upset stomach or indigestion
- inflamed stomach ('gastritis') – the signs include stomach ache, feeling sick (nausea) or being sick (vomiting)
- reflux or heartburn – also called 'gastro-esophageal reflux disease'
- stomach pain
- bloating of the stomach
- constipation
- tiredness
- less appetite
- gas (flatulence)
- increase of pancreatic enzymes (such as lipase and amylase) shown in blood tests
- feeling dizzy.

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

- weight loss
- gallstones
- burping
- fast pulse
- allergic reactions like rash, itching or hives
- a delay in the emptying of the stomach
- change in the way food or drink tastes.

**Reporting of side effects**

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via [the national reporting system listed in Appendix V](#). By reporting side effects you can help provide more information on the safety of this medicine.

## 5. How to store Rybelsus

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

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

Store in the original package in order to protect from light and moisture. This medicine does not require any special temperature storage conditions.

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

## 6. Contents of the pack and other information

**What Rybelsus contains**

- The active substance is semaglutide. Each tablet contains 1.5, 4 or 9 mg semaglutide.
- The other ingredients are salcaprozate sodium, magnesium stearate. See also section 2, 'Rybelsus contains sodium'.

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

Rybelsus 1.5 mg tablets are white to light yellow and round (6.5 mm in diameter). They have '1.5' on one side and 'novo' on the other side.

Rybelsus 4 mg tablets are white to light yellow and round (6.5 mm in diameter). They have '4' on one side and 'novo' on the other side.

Rybelsus 9 mg tablets are white to light yellow and round (6.5 mm in diameter). They have '9' on one side and 'novo' on the other side.

The 1.5 mg, 4 mg and 9 mg tablets are available in alu/alu blister cards in pack sizes of 10, 30, 60, 90 and 100 tablets.

Not all pack sizes may be marketed in your country.

### **Marketing Authorisation Holder and Manufacturer**

Novo Nordisk A/S

Novo Allé

DK-2880 Bagsværd

Denmark

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### **Other sources of information**

Detailed information on this medicine is available on the European Medicines Agency web site:

<https://www.ema.europa.eu/>

## Package leaflet: Information for the patient

**Rybelsus 3 mg tablets**  
**Rybelsus 7 mg tablets**  
**Rybelsus 14 mg tablets**  
semaglutide

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

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

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

### What is in this leaflet

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

#### 1. What Rybelsus is and what it is used for

Rybelsus contains the active substance semaglutide. It is a medicine that is used to lower blood sugar levels.

Rybelsus is used to treat adults (aged 18 years and older) with type 2 diabetes when diet and exercise is not enough:

- on its own – when you cannot use metformin (another diabetes medicine) or
- with other medicines for diabetes – when the other medicines are not enough to control your blood sugar levels. These may be medicines you take by mouth or inject such as insulin.

It is important that you continue with your diet and exercise plan as agreed with your doctor, pharmacist or nurse.

#### What is type 2 diabetes?

Type 2 diabetes is a condition in which your body does not make enough insulin, and the insulin that your body makes does not lower your blood sugar the way it should. In some cases, your body can produce too much blood sugar. If your blood sugar increases and remains high over a long period of time, this can lead to harmful effects such as heart problems, kidney disease, eye disorders and poor circulation in your limbs. That is why it is important to keep your blood sugar levels within a normal range.

## 2. What you need to know before you take Rybelsus

### Do not take Rybelsus

- if you are allergic to semaglutide or any of the other ingredients of this medicine (listed in section 6).

### Warnings and precautions

Talk to your doctor, pharmacist or nurse before taking Rybelsus.

#### Traceability

In order to improve the traceability of biological medicinal products, record the name and the lot number (included on the outer cartons and blister) of the medicine you are taking and provide this information when reporting any side effects.

#### General

This medicine is not the same as insulin and you should not use it if:

- you have type 1 diabetes (your body does not produce any insulin)
- you develop diabetic ketoacidosis. This is a complication of diabetes with high blood sugar, breathing difficulty, confusion, excessive thirst, a sweet smell to the breath or a sweet or metallic taste in the mouth.

#### Stomach and gut problems and dehydration

During treatment with this medicine, you may feel sick (nausea) or be sick (vomiting), or have diarrhoea. These side effects can cause dehydration (loss of fluids). It is important that you drink enough fluids to prevent dehydration. This is especially important if you have kidney problems. Talk to your doctor if you have any questions or concerns.

#### Severe and on-going stomach pain which could be due to an inflamed pancreas

If you have severe and on-going pain in the stomach area – see a doctor straight away as this could be a sign of inflamed pancreas (acute pancreatitis).

#### Low blood sugar (hypoglycaemia)

Taking a sulfonylurea medicine or insulin with Rybelsus might increase the risk of getting low blood sugar (hypoglycaemia). See section 4 for the warning signs of low blood sugar levels.

Your doctor may ask you to test your blood sugar levels. This will help to decide if the dose of the sulfonylurea or insulin needs to be changed to reduce the risk of low blood sugar.

#### Diabetic eye disease (retinopathy)

Fast improvements in blood sugar control may lead to a temporary worsening of diabetic eye disease. If you have diabetic eye disease and get eye problems while taking this medicine, talk to your doctor.

#### Treatment response

If the treatment response with semaglutide is lower than expected, this may be due to low absorption caused by variability in absorption and low absolute bioavailability. You should follow the instructions given in section 3 for optimal effect of semaglutide.

### Children and adolescents

This medicine is not recommended in children and adolescents aged under 18 years as the safety and efficacy in this age group have not been established.

### Other medicines and Rybelsus

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



In particular, tell your doctor, pharmacist or nurse if you are using medicines containing any of the following:

- levothyroxine which is used for thyroid disease. This is because your doctor may need to check your thyroid levels if you are taking Rybelsus together with levothyroxine.
- warfarin or similar medicines taken by mouth to reduce blood clotting (oral anti-coagulants). You may need frequent blood tests to check how quickly your blood clots.
- If you are using insulin, your doctor will tell you how to reduce the dose of insulin and will recommend you monitor your blood sugar more frequently, in order to avoid hyperglycaemia (high blood sugar) and diabetic ketoacidosis (a complication of diabetes that occurs when the body is unable to breakdown glucose because there is not enough insulin).

### **Pregnancy and breast-feeding**

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

This medicine should not be used during pregnancy, as it is not known if it affects your unborn baby. Therefore, use of contraception is recommended while taking this medicine. If you wish to become pregnant, discuss how to change your treatment with your doctor as you should stop using this medicine at least 2 months in advance. If you become pregnant while using this medicine, talk to your doctor straight away, as your treatment will need to be changed.

Do not use this medicine if you are breast-feeding, as it is unknown if it passes into breast milk.

### **Driving and using machines**

Rybelsus is unlikely to affect your ability to drive and use machines.

Some patients may feel dizzy when taking Rybelsus. If you feel dizzy, be extra careful while driving or using machines. Talk to your doctor for the further information.

If you use this medicine in combination with a sulfonylurea or insulin, low blood sugar (hypoglycaemia) may occur which may reduce your ability to concentrate. Do not drive or use machines if you get any signs of low blood sugar. See section 2, 'Warning and precautions' for information on increased risk of low blood sugar and section 4 for the warning signs of low blood sugar. Talk to your doctor for further information.

### **Rybelsus contains sodium**

This medicine contains 23 mg sodium (main component of cooking/table salt) in each tablet. This is equivalent to 1% of the recommended maximum daily dietary intake of sodium for an adult.

## **3. How to take Rybelsus**

Always take this medicine exactly as your doctor has told you. Check with your doctor or pharmacist if you are not sure.

### **How much to take**

- The starting dose is one 3 mg tablet once a day for one month.
- After one month, your doctor will increase your dose to one 7 mg tablet once a day.
- Your doctor will instruct you to stay on a dose for minimum one month before increasing to a higher dose.
- Your doctor may increase your dose to one 14 mg tablet once a day if your blood sugar is not controlled well enough with a dose of 7 mg once a day.
- Your doctor will prescribe the strength that is right for you. Do not change your dose unless your doctor has told you so.
- Rybelsus should always be taken as one tablet per day. You should not take two tablets to get the effect of a higher dose.

### **Taking this medicine**

- Take your Rybelsus tablet on an empty stomach after a recommended fasting period of at least 8 hours.
- Swallow your Rybelsus tablet whole with a sip of water (up to 120 ml). Do not split, crush or chew the tablet, as it is not known if it affects absorption of semaglutide.
- After taking your Rybelsus tablet wait at least 30 minutes before eating, drinking or taking other oral medicines. Waiting less than 30 minutes lowers the absorption of semaglutide.

### **If you take more Rybelsus than you should**

If you take more Rybelsus than you should, talk to your doctor straight away. You may get side effects such as feeling sick (nausea).

### **If you forget to take Rybelsus**

If you forget to take a dose, skip the missed dose and just take your normal dose the next day.

### **If you stop taking Rybelsus**

Do not stop using this medicine without talking to your doctor. If you stop using it, your blood sugar levels may increase.

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

## **4. Possible side effects**

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

### **Serious side effects**

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

- complications of diabetic eye disease (retinopathy). You should tell your doctor if you get eye problems, such as changes in vision, during treatment with this medicine.

#### **Rare** (may affect up to 1 in 1 000 people)

- serious allergic reactions (anaphylactic reactions). You must get immediate medical help and inform your doctor straight away if you get symptoms such as breathing problems, swelling of face and throat, wheezing, fast heartbeat, pale and cold skin, feeling dizzy or weak.
- inflamed pancreas (acute pancreatitis) which could cause severe pain in the stomach and back which does not go away. You should see a doctor immediately if you experience such symptoms.

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

- Bowel obstruction. A severe form of constipation with additional symptoms such as stomach ache, bloating, vomiting etc.

### **Other side effects**

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

- feeling sick (nausea) – this usually goes away over time
- diarrhoea – this usually goes away over time
- low blood sugar (hypoglycaemia) when this medicine is used with medicines that contain a sulfonylurea or insulin. Your doctor may reduce your dose of these medicines before you start using this medicine.

The warning signs of low blood sugar may come on suddenly. They can include: cold sweat, cool pale skin, headache, fast heartbeat, feeling sick (nausea) or very hungry, changes in vision, feeling sleepy or weak, feeling nervous, anxious or confused, difficulty concentrating or shaking.

Your doctor will tell you how to treat low blood sugar and what to do if you notice these warning signs.

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

- low blood sugar (hypoglycaemia) when this medicine is used with oral diabetes medicine other than sulfonylurea or insulin
- being sick (vomiting)
- upset stomach or indigestion
- inflamed stomach ('gastritis') – the signs include stomach ache, feeling sick (nausea) or being sick (vomiting)
- reflux or heartburn – also called 'gastro-esophageal reflux disease'
- stomach pain
- bloating of the stomach
- constipation
- tiredness
- less appetite
- gas (flatulence)
- increase of pancreatic enzymes (such as lipase and amylase) shown in blood tests
- feeling dizzy.

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

- weight loss
- gallstones
- burping
- fast pulse
- allergic reactions like rash, itching or hives
- a delay in the emptying of the stomach
- change in the way food or drink tastes.

**Reporting of side effects**

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via [the national reporting system listed in Appendix V](#). By reporting side effects you can help provide more information on the safety of this medicine.

**5. How to store Rybelsus**

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

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

Store in the original package in order to protect from light and moisture. This medicine does not require any special temperature storage conditions.

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

**6. Contents of the pack and other information**

**What Rybelsus contains**

- The active substance is semaglutide. Each tablet contains 3, 7 or 14 mg semaglutide.
- The other ingredients are salcaprozate sodium, povidone K90, cellulose microcrystalline, magnesium stearate. See also section 2, 'Rybelsus contains sodium'.

**What Rybelsus looks like and contents of the pack**

Rybelsus 3 mg tablets are white to light yellow and oval shaped (7.5 mm x 13.5 mm). They have '3' on one side and 'novo' on the other side.

Rybelsus 7 mg tablets are white to light yellow and oval shaped (7.5 mm x 13.5 mm). They have '7' on one side and 'novo' on the other side.

Rybelsus 14 mg tablets are white to light yellow and oval shaped (7.5 mm x 13.5 mm). They have '14' on one side and 'novo' on the other side.

The 3 mg, 7 mg and 14 mg tablets are available in alu/alu blister cards in pack sizes of 10, 30, 60, 90 and 100 tablets.

Not all pack sizes may be marketed in your country.

**Marketing Authorisation Holder and Manufacturer**

Novo Nordisk A/S

Novo Allé

DK-2880 Bagsværd

Denmark

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**Other sources of information**

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