**GLP-1 Receptor Agonist**  
**Dual GIP/GLP-1 Receptor Agonist**

### Common medications

| Dual GLP-1 RA: | Dulaglutide (Trulicity®), liraglutide (Victoza®), semaglutide (Ozempic®/Rybelsus®) |
| Dual GIP/GLP-1 RA: | tirzepatide (Mounjaro®) |

### Type of drug

Incretin mimetic

### Cardiorenal benefits in high-risk populations*

- Heart protection: reduces the risk of heart attacks
- Brain protection: reduces the risk of strokes
- Kidney protection: reduces albuminuria (protein in the urine)

### Blood glucose lowering and weight-reducing action

- Increases the body’s response to blood sugar: Increases the body’s own insulin levels (to lower blood sugar) and decreases glucagon (a hormone that raises blood sugar)
- Sugar-dependent action: stronger blood sugar-lowering when blood sugars are above-target; weak (or no) blood sugar-lowering when blood sugars are at- or below-target (medication on its own does not cause low blood sugars, but may have low blood sugar with other diabetes medications)
- Slows the emptying of the stomach – promotes feeling full (not hungry)
- Can lower blood pressure slightly

<table>
<thead>
<tr>
<th>Glucose-lowering efficacy</th>
<th>A1C-lowering (%)</th>
<th>Weight-lowering (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLP-1 RA</td>
<td>High to very high</td>
<td>0.6 – 1.4</td>
</tr>
<tr>
<td>Dual GIP/GLP-1 RA</td>
<td>Very high</td>
<td>1.7 – 2.4</td>
</tr>
</tbody>
</table>

### Dosing

<table>
<thead>
<tr>
<th>Dosing</th>
<th>Initiation dose</th>
<th>Minimum maintenance dose</th>
<th>Minimum demonstrated cardiorenal protective dose*</th>
<th>Potential dose escalations for additional glucose-/weight-lowering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dulaglutide†</td>
<td>0.75mg</td>
<td>0.75mg</td>
<td>1.5mg</td>
<td>3mg, 4.5mg</td>
</tr>
<tr>
<td>Liraglutide‡</td>
<td>0.6mg</td>
<td>1.2mg</td>
<td>1.8mg</td>
<td>– (2.4mg, 3.0mg)§</td>
</tr>
<tr>
<td>Semaglutide s.c.†</td>
<td>0.25mg</td>
<td>0.5mg</td>
<td>0.5mg</td>
<td>1mg, 2mg (1mg, 1.7mg, 2.4mg)§</td>
</tr>
<tr>
<td>Semaglutide p.o.§</td>
<td>3mg</td>
<td>7mg</td>
<td>–</td>
<td>14mg</td>
</tr>
<tr>
<td>Tirzepatide§</td>
<td>2.5mg</td>
<td>5mg</td>
<td>–</td>
<td>7.5mg, 10mg (12.5mg, 15mg)</td>
</tr>
</tbody>
</table>

† administer once weekly and consider dose escalations at a minimum 4-week interval;  
‡ administer daily and consider dose escalations at a minimum 7-day interval  
§ administer once daily and consider dose escalations at a minimum 30-day interval  
* cardiorenal protection currently demonstrated for dulaglutide, liraglutide & semaglutide s.c.  
§ doses indicated for chronic weight management

Continued
## GLP-1 Receptor Agonist
### Dual GIP/GLP-1 Receptor Agonist (continued)

### Medication considerations and/or side effects
- GI adverse effects, e.g. nausea, diarrhea/constipation, vomiting, can often be avoided or reduced with attention to food choices
- To reduce possible GI upset: Eat smaller meals, stop eating when not hungry, avoid spicy and/or fatty foods, stay hydrated (i.e. drink water)
- With GI upset: consider extending the interval between dose up-titrations and/or reducing the up-titration dose
- If low blood sugars occur: assess and adjust (decrease/stop) other medications associated with hypoglycemia such as insulin secretagogue and insulin
- With known diabetic eye disease (retinopathy), semaglutide should be started with your eye doctor’s knowledge
- See an eye doctor (ophthalmologist or optometrist) every 1 to 2 years specifically to look at the blood vessels at the back of the eye (retina)

### Cautions
- History of pancreatitis, pancreatic cancer
- Can increase heart rate by 7-8 bpm & prolong PR interval by 10ms
- Limited clinical experience in GFR <15 mL/min/1.73m² or on dialysis

### Contraindications
- Personal or family history of medullary thyroid carcinoma (MTC), multiple endocrine neoplasia syndrome in type 2 (MEN 2), pregnancy and breastfeeding