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Incretin-Based Drugs

Updated: January 3, 2018.

OVERVIEW

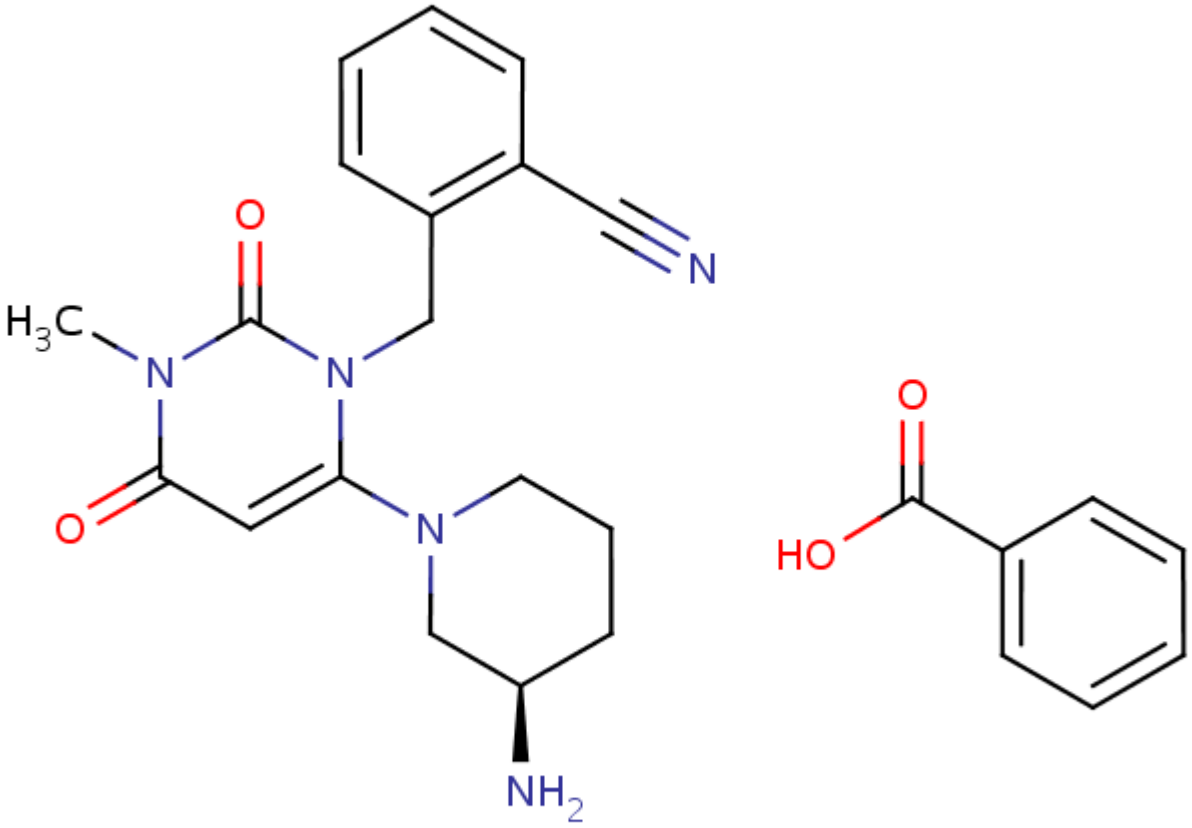
The incretins are gastrointestinal polypeptide hormones that act to modulate insulin secretion from pancreatic beta cells. These hormones include glucagon-like peptide-1 (GLP-1) and gastric inhibitory peptide (GIP), and they are secreted from the upper gastrointestinal tract in response to feeding. They act on the pancreas, causing insulin release even before blood glucose levels are elevated. Both hormones are polypeptides that are rapidly cleared from the serum by the enzyme dipeptidyl peptidase-4 (DPP-4). The incretin pathway provides several potential targets for therapy of type 2 diabetes, the main ones being DPP-4 inhibitors and GLP-1 analogues. These incretin-based hypoglycemic agents are relatively new and they have not been implicated as common causes of drug induced liver injury. These two groups of incretin-based drugs are quite different in chemical structure, pharmacology and safety profile and are discussed separately.

Drug Class: Antidiabetic Agents

Drugs in the Subclass, Incretin-Based Drugs:

- Dipeptidyl Peptidase-4 (DPP-4) Inhibitors
  - Alogliptin
  - Linagliptin
  - Saxagliptin
  - Sitagliptin
- Glucagon-Like Peptide-1 (GLP-1) Analogues
  - Albiglutide
  - Dulaglutide
  - Exenatide
  - Liraglutide
  - Lixisenatide
  - Semaglutide

CHEMICAL FORMULAS AND STRUCTURES

DRUG	CAS REGISTRY NUMBER	MOLECULAR FORMULA	STRUCTURE
Alogliptin	850649-62-6	C18-H21-N5-O2.C7-H6-O2	

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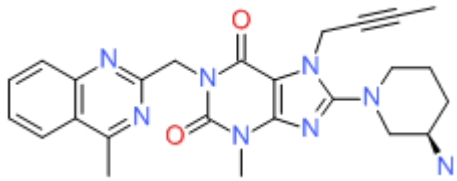
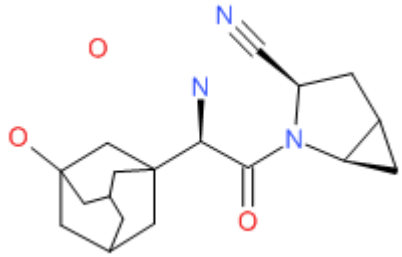
Linagliptin	668270-12-0	C25-H28-N8-O2	
Saxagliptin	945667-22-1	C18-H25-N3-O2.H2O	
Sitagliptin	486460-32-6	C16-H15-F6-N5-O