

## DIABETES MEDICATIONS

### ANTIHYPERGLYCEMIC DRUGS

	$\alpha$ GLUCOSIDASE INHIBITORS	BIGUANIDES	DPP-4 INHIBITORS			HUMAN GLUCAGON-LIKE PEPTIDE (GLP-1 AGONISTS)	
	Acarbose (Prandase, Glucobay)	Metformin (Glucophage, Glumetza, Avandamet, Janumet)	Linagliptin (Trajenta)	Saxagliptin (Onglyza) Saxagliptin/metformin (Kombiglyze)	Sitagliptin (Januvia) Sitagliptin/metformin (Janumet)	Exenatide (Byetta)	Liraglutide (Victoza)
<b>INTEGRASE INHIBITORS</b>							
• ELVITEGRAVIR/ COBICISTAT (Stribild, Genvoya)	✓	✓	✓	✓	✓	✓	✓
• DOLUTEGRAVIR (Tivicay, Triumeq)	✓	⚠ ↑ Metformin	✓	✓	✓	✓	✓
• RALTEGRAVIR (Isentress)	✓	✓	✓	✓	✓	✓	✓
<b>PROTEASE INHIBITORS</b>							
• DARUNAVIR (Prezcobix, Prezista) • LOPINAVIR (Kaletra)	✓	✓	✓	✓	✓	✓	⚠ Potential for additive PR prolongation

$\alpha$ GLUCOSIDASE INHIBITORS	BIGUANIDES	DPP-4 INHIBITORS			HUMAN GLUCAGON-LIKE PEPTIDE (GLP-1 AGONISTS)	
Acarbose (Prandase, Glucobay)	Metformin (Glucophage, Glumetza, Avandamet, Janumet)	Linagliptin (Trajenta)	Saxagliptin (Onglyza) Saxagliptin/metformin (Kombiglyze)	Sitagliptin (Januvia) Sitagliptin/metformin (Janumet)	Exenatide (Byetta)	Liraglutide (Victoza)

#### NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS

• RILPIVIRINE (Complera, Edurant)	✓	✓	✓	✓	✓	✓	⚠ Potential for additive PR prolongation
• EFAVIRENZ (Sustiva, Atripla) • ETRAVIRINE (Intelence) • NEVIRAPINE (Viramune)	✓	✓	⚠ Potential for ↓ linagliptin	⚠ Potential ↓ saxagliptin	✓	✓	✓

## DIABETES MEDICATIONS ANTIHYPERGLYCEMIC DRUGS

	MEGLITINIDES		SGLT2 INHIBITORS		SULFONYLUREAS	THIAZOLIDINEDIONES (TZDS)	
	Repaglinide (GlucoNorm)	Nateglinide (Starlix)	Canagliflozin (Invokana)	Dapagliflozin (Forxiga), empagliflozin (Jardiance)	Gliclazide (Diamicon) Glimepiride (Amaryl) Glyburide (Diabeta)	Pioglitazone (Actos)	Rosiglitazone (Avandia) Rosiglitazone/Metformin (Avandamet)
<b>INTEGRASE INHIBITORS</b>							
• DOLUTEGRAVIR (Tivicay, Triumeq)	✓	✓	✓	✓	✓	✓	✓
• ELVITEGRAVIR/ COBICISTAT (Stribild, Genvoya)	⚠ Potential ↑ repaglinide	⚠ Potential ↓ nateglinide	✓	✓	⚠ Potential ↓ sulfonyurea	✓	✓
• RALTEGRAVIR (Isentress)	✓	✓	✓	✓	✓	✓	✓
<b>PROTEASE INHIBITORS</b>							
• RITONAVIR (Norvir) or cobicistat-boosted PIs, e.g.: • ATAZANAVIR (Reyataz) • DARUNAVIR (Prezcobix, Prezista) • LOPINAVIR (Kaletra)	⚠ Potential ↑ repaglinide	⚠ Potential ↓/↑ nateglinide concentrations	⚠ Potential ↓ canagliflozin with ritonavir-boosted PIs  ✓ Cobicistat-boosted PIs: no interaction expected	✓	⚠ Potential ↓ sulfonyurea with ritonavir-boosted PIs  ✓ Cobicistat-boosted PIs: no interaction expected	⚠ Potential ↑ pioglitazone	⚠ Potential ↑ rosiglitazone with atazanavir alone with 2C8 inhibition  ✓

	MEGLITINIDES		SGLT2 INHIBITORS		SULFONYLUREAS	THIAZOLIDINEDIONES (TZDS)	
	Repaglinide (GlucoNorm)	Nateglinide (Starlix)	Canagliflozin (Invokana)	Dapagliflozin (Forxiga), empagliflozin (Jardiance)	Gliclazide (Diamicon) Glimepiride (Amaryl) Glyburide (Diabeta)	Pioglitazone (Actos)	Rosiglitazone (Avandia) Rosiglitazone/Metformin (Avandamet)
<b>NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS</b>							
• RILPIVIRINE (Complera, Edurant)	✓	✓	✓	✓	✓	✓	✓
• EFAVIRENZ (Sustiva, Atripla) • ETRAVIRINE (Intelence) • NEVIRAPINE (Viramune)	⚠ Potential ↓ repaglinide	⚠ Potential ↑ nateglinide with etravirine and efavirenz	⚠ Potential ↓ canagliflozin with efavirenz	✓	⚠ Potential ↑ sulfonyurea with etravirine and efavirenz	⚠ Potential ↓ pioglitazone	✓

## DIABETES MEDICATIONS ANTIHYPERGLYCEMIC DRUGS

### Mechanism of Drug Interactions, Management and Monitoring

	METFORMIN	DPP-4 INHIBITORS		MEGLITINIDES		
MECHANISM OF INTERACTION	<p><b>Metformin:</b> excreted 100% as unchanged drug by glomerular filtration plus active tubular secretion via OCT2 and MATE-1-2K</p>	<p><b>Linagliptin:</b> inhibition of CYP3A4 and P-gp <b>Saxagliptin:</b> inhibition of CYP3A4</p>	<p><b>Linagliptin, saxagliptin:</b> induction of CYP3A4/P-gp</p>	<p><b>Repaglinide:</b> inhibition OATP1B1 and CYP3A4</p>	<p><b>Nateglinide:</b> induction CYP2C9</p>	<p><b>Nateglinide:</b> inhibition CYP2C9</p>
MAIN INTERACTING ARVs	Dolutegravir	Ritonavir and cobicistat-boosted protease inhibitors and cobicistat-boosted elvitegravir	Efavirenz, etravirine, nevirapine	Ritonavir and cobicistat-boosted protease inhibitors and cobicistat-boosted elvitegravir	Elvitegravir	Efavirenz, etravirine
MANAGEMENT	<p>Close monitoring is recommended when starting or stopping dolutegravir and metformin together</p> <p>If patient is already receiving dolutegravir, start with a low metformin dose and gradually increase. If patient is starting/stopping dolutegravir while receiving metformin, a dose adjustment may be necessary</p> <p>Choose an alternative antidiabetic agent or antiretroviral if high-dose metformin is not tolerated with dolutegravir, if it is considered necessary</p>	<p>May not be clinically significant, since linagliptin and saxagliptin have a large safety window</p> <p>No dose adjustment necessary</p>	<p>Adjust linagliptin and saxagliptin doses if needed</p>	<p>Adjust dose if needed</p>	<p>Adjust dose if needed</p>	<p>Adjust dose if needed</p>
MONITORING	Metformin side effects (primarily gastrointestinal)	No monitoring suggested	Close monitoring of efficacy	Close monitoring of side effects	Antihyperglycemic efficacy	Close monitoring of side effects. May potentiate the hypoglycemic action

## DIABETES MEDICATIONS ANTIHYPERGLYCEMIC DRUGS

### Mechanism of Drug Interactions, Management and Monitoring

	SGLT2 INHIBITORS	SULFONYLUREAS		THIAZOLIDINEDIONES		
MECHANISM OF INTERACTION	Canagliflozin: induction UGT	Gliclazide, glimepiride and glyburide: 2C9 induction	Gliclazide, glimepiride and glyburide: 2C9 inhibition	Pioglitazone: 3A4 inhibition	Pioglitazone: 3A4 induction	Rosiglitazone: 2C8 inhibition
MAIN INTERACTING ARVs	Ritonavir protease inhibitors boosted and efavirenz	Ritonavir PIs boosted Elvitegravir	Efavirenz and etravirine	Ritonavir and cobicistat PIs boosted Cobicistat elvitegravir boosted	Efavirenz, nevirapine and etravirine	Unboosted atazanavir
MANAGEMENT	Adjust dose as needed	Adjust dose as needed	Adjust dose as needed	Adjust dose as needed	Adjust dose as needed	Adjust dose as needed
MONITORING	Antihyperglycemic efficacy	Antihyperglycemic efficacy	Sulfonylurea side effects	Pioglitazone side effects	Antihyperglycemic efficacy	Rosiglitazone side effects



No dose adjustment required.



Use combination with caution. Adjustment in drug dose or frequency, additional/more frequent monitoring, or use of an alternative agent may be required. May wish to consult with a pharmacist knowledgeable in HIV drug interactions.



Contraindicated/avoid combination.

A MANAGEMENT TOOL FOR **HIV** DRUG-DRUG INTERACTIONS

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