Antiretroviral Medications (ARVs)

NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NRTIs)

NRTIs bind to and block reverse transcriptase (an HIV enzyme). HIV uses reverse transcriptase to convert its RNA into DNA (reverse transcription). Blocking reverse transcriptase and reverse transcription prevents HIV from replicating.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
1995	Epivir*	lamivudine	3TC	ViiV Healthcare
1998	Ziagen*	abacavir	abacavir sulfate, ABC	ViiV Healthcare
2001	Viread*	tenofovir disoproxil fumarate	tenofovir DF, TDF	Gilead Sciences
2003	Emtriva*	emtricitabine	FTC	Gilead Sciences
2015	Vemlidy**	tenofovir alafenamide fumarate	tenofovir AF, TAF	Gilead Sciences

NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NNRTIs)

NNRTIs bind to and block HIV reverse transcriptase (an HIV enzyme). HIV uses reverse transcriptase to convert its RNA into DNA (reverse transcription). Blocking reverse transcriptase and reverse transcription prevents HIV from replicating.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
1998	Sustiva*	efavirenz	EFV	Bristol-Myers Squibb
2008	Intelence	etravirine	ETR	Janssen Therapeutics
2011	Edurant	rilpivirine	rilpivirine hcl, RPV	Janssen Therapeutics
2018	Pifeltro	doravirine	DOR	Merck & Co., Inc.

PROTEASE INHIBITORS (PIs)

PIs block protease (an HIV enzyme). By blocking protease, PIs prevent new (immature) HIV from becoming a mature virus that can infect other CD4+ cells.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
2003	Reyataz*	atazanavir	atazanavir sulfate, ATV	Bristol-Myers Squibb
2006	Prezista*	darunavir	darunavir ethanolate, DRV	Janssen Therapeutics

ENTRY INHIBITORS

Entry inhibitors work by attaching themselves to proteins on the surface of CD4 cells or proteins on the surface of HIV. In order for HIV to bind to CD4 cells, the proteins on HIV's outer coat must bind to the proteins on the surface of CD4 cells. Entry inhibitors prevent this from happening.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
2007	Selzentry	maraviroc	MVC	ViiV Healthcare
2018	Trogarzo	ibalizumab-uiyk	ibalizumab, IBA	Thera Technologies
2020	Rukobia	fostemsavir	fostemsavir tromethamine, FTR	ViiV Healthcare

INTEGRASE INHIBITORS

Integrase inhibitors block integrase (an HIV enzyme). HIV uses integrase to insert (integrate) its viral DNA into the DNA of the host CD4 cells. Blocking integrase prevents HIV from replicating.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
2007	Isentress, Isentress HD	raltegravir	raltegravir potassium, RAL	Merck & Co., Inc.
2013	Tivicay, Tivicay PD	dolutegravir	dolutegravir sodium, DTG	ViiV Healthcare
2014	Vitekta**	elvitegravir		Gilead Sciences
2021	Vocabria	cabotegravir	cabotegravir sodium, CAB	ViiV Healthcare
2018	Biktarvy	bictegravir	BIC	Gilead Sciences

CAPSID INHIBITORS

Lenacapavir is a first-in-class HIV capsid inhibitor available as a subcutaneous injection given every six months, targeting the viral capsid to block HIV at multiple stages—nuclear entry, assembly, and release. Lenacapavir, in combination with other antiretroviral(s), is indicated for the treatment of human immunodeficiency virus type 1 (HIV-1) infection in heavily treatment-experienced adults with multidrug resistant HIV-1 whose current antiretroviral regimen is failing due to resistance, intolerance, or safety considerations.

2022	Sunleca	lenacapavir	LEN	Gilead Sciences

PHARMACOKINETIC ENHANCERS (PK ENHANCERS)

PK enhancers are used to boost the effectiveness of another drug. When the two drugs are given together, the PK enhancer interferes with the breakdown of the other drug, which allows the drug to remain in the body

longer at a higher concentration. PK enhancers are included in some HIV treatment regimens.

YEAR APPROVED	BRAND NAME	GENERIC NAME	ALSO KNOWN AS	MANUFACTURER
1996	Norvir*	ritonavir	RTV	AbbVie Inc.
2014	Tybost	cobicistat	COBI	Gilead Sciences

COMBINATION HIV MEDICATIONS

Combination HIV medications contain 2 or more HIV medicines from 1 or more drug classes.

YEAR APPROVED	BRAND NAME	INDIVIDUAL COMPONENTS	ALSO KNOWN AS	MANUFACTURER
2000	Kaletra*	lopinavir – PI ritonavir – PI	LPV / RTV	AbbVie Inc.
2004	Epzicom*	abacavir sulfate – NRTI lamivudine – NRTI	ABC / 3TC	ViiV Healthcare
2004	Truvada*	emtricitabine – NRTI tenofovir DF – NRTI	FTC / TDF	Gilead Sciences
2006	Atripla*	efavirenz – NNRTI emtricitabine – NRTI tenofovir DF – NRTI	EFV / FTC / TDF	Gilead Sciences
2011	Complera	emtricitabine – NRTI rilpivirine -- NNRTI tenofovir DF – NRTI	FTC / RPV / TDF	Gilead Sciences

2012	Stribild	elvitegravir – Integrase Inhibitor cobicistat – PK Enhancer emtricitabine -- NRTI tenofovir DF – NRTI	QUAD EVG / COBI / FTC / TDF	Gilead Sciences
2014	Triumeq	abacavir sulfate – NRTI dolutegravir – Integrase Inhibitor lamivudine – NRTI	ABC / DTG / 3TC	ViiV Healthcare
2015	Prezcobix	darunavir – PI cobicistat – PK Enhancer	DRV / COBI	Janssen Therapeutics
2015	Evotaz	atazanavir – PI cobicistat – PK Enhancer	ATV / COBI	
2015	Genvoya	elvitegravir – Integrase Inhibitor cobicistat – PK Enhancer emtricitabine – NRTI tenofovir AF – NRTI	EVG / COBI / FTC / TAF	Gilead Sciences
2016	Odefsey	emtricitabine – NRTI rilpivirine – NNRTI tenofovir AF – NRTI	FTC / RPV / TAF	Gilead Sciences
2016	Descovy	emtricitabine -- NRTI tenofovir AF – NRTI	FTC/TAF	Gilead Sciences

2017	Juluca	dolutegravir – Integrase Inhibitor rilpivirine – NNRTI	DTG / RPV	ViiV Healthcare
2018	Biktarvy	bictegravir – Integrase Inhibitor emtricitabine – NRTI tenofovir AF – NRTI	BIC / FTC / TAF	Gilead Sciences
2018	Symfi* Symfi Lo*	efavirenz – NNRTI lamivudine – NRTI tenofovir DF – NRTI	EFV / 3TC / TDF	Viatris
2018	Cimduo	lamivudine – NRTI tenofovir DF – NRTI	Temixys 3TC / TDF	Viatris
2018	Delstrigo	doravirine – NNRTI lamivudine – NRTI tenofovir DF – NRTI	DOR / 3TC / TDF	Merck & Co., Inc.
2018	Symtuza	darunavir – PI cobicistat – PK Enhancer emtricitabine – NRTI tenofovir AF – NRTI	DRV / COBI / FTC / TAF	Janssen Therapeutics
2019	Dovato	dolutegravir – Integrase Inhibitor lamivudine – NRTI	DTG / 3TC	ViiV Healthcare

2021	Cabenuva	cabotegravir – Integrase Inhibitor rilpivirine – NNRTI	CAB / RPV	ViiV Healthcare

*Generic versions have been approved under the President's Emergency Plan for AIDS Relief (PEPFAR).

**Not available or not used as an individual ARV. Only available or used as a component of combination medications.

SIDE EFFECTS

ARVs can have adverse effects. Newer drugs have fewer side effects. These treatments can help people live long, healthy lives with reduced risks of HIV-related complications and transmission. The potential side effects vary depending on the types of medication a person uses. Also, the same medication can have different side effects in different people. Read more about side effects of ARVs.

INTERACTIONS WITH OTHER SUBSTANCES

ARVs can interact with other medications, supplements, and herbal products.

To avoid interactions, discuss all your current medications and supplements with your healthcare provider, as these can influence how HIV medications work. Read more about drug interactions of ARVs.

THE BOTTOM LINE

Antiretroviral medications (ARVs) are effective treatments for HIV. Organizations around the world recommend that all people with HIV begin antiretroviral therapy (ART) as soon as possible after receiving their diagnosis. ARVs can reduce the risk of HIV-related complications, stop the virus from progressing, and prevent transmission to others. In addition, ARVs increase a person's quality of life and life expectancy.

Some people may experience side effects. However, these may go away after a few weeks of treatment. There are several classes of ARVs, and if one causes side effects another may not.

Your healthcare provider can offer information and guidance about treatment options for HIV.

MORE INFORMATION

HIVInfo.NIH.gov: FDA-Approved HIV Medicines

U.S. Food & Drug Administration (FDA): HIV and AIDS: Medicines to Help You

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