












































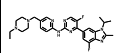
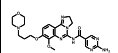
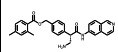
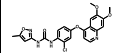
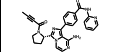
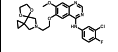
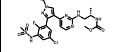
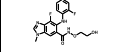
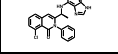
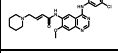
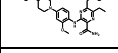
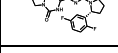
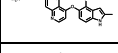
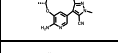
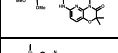
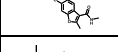
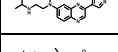

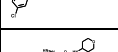
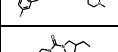
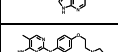
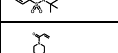
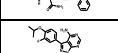
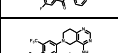
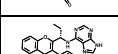
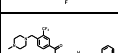
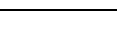



























Name	Structure	Reported target	Company	Approved for clinical use	Approval Jurisdiction
Fasudil (Eril)		ROCK	Chuanwei Eril	cerebral vasospasm PAH	1995 Japan 1995 China
Trastuzumab	Monoclonal antibody	EGFR	Genentech	EGFR breast cancer	1998 FDA 2000 EMA
Sirolimus (Rapamune)		mTOR	Wyeth Pfizer	kidney transplantation	1999 FDA 2001 EMA
Imatinib		Bcr-Abl , c-KIT PDGFR	Novartis	chronic myelogenous leukemia, Ph+ B-All, HES, GIST	2001 FDA 2001 EMA
Gefitinib		EGFR	AstraZeneca	NSCLC	2003 FDA 2009 EMA
Cetuximab	Monoclonal antibody	EGFR	Eli Lilly	EGFR colorectal cancer	2004 FDA 2004 EMA
Erlotinib		EGFR	Roche-OSI	NSCLC pancreatic cancer	2004 FDA 2005 EMA
Sorafenib		VEGFR2, PDGFR, KIT, FLT3, BRAF	Bayer-Onyx	renal cancer HCC	2005 FDA 2006 EMA
Sunitinib		VEGFR, KIT, PDGFR,RET, CSF1R, FLT3	Pfizer	renal cancer	2006 FDA 2008 EMA
Panitumumab	Monoclonal antibody	EGFR	Amgen	EGFR colorectal cancer	2006 FDA 2007 EMA
Dasatinib		ABL,PDGFR, KIT, SRC	Bristol-Myers Squibb	chronic myelogenous leukemia ALL	2006 FDA 2006 EMA
Lapatinib		EGFR ERBB2	GlaxoSmithKline	breast cancer	2007 FDA 2008 EMA
Nilotinib		ABL, PDGFR KIT	Novartis	chronic myelogenous leukemia	2007 FDA 2007 EMA
Temsirolimus		mTOR	Pfizer-Wyeth	advanced renal cell carcinoma	2007 FDA 2007 EMA
Everolimus		mTOR	Novartis	RCC, SEGA Transplantation	2009 FDA 2009 EMA
Pazopanib		VEGFR2 PDGFR c-KIT	GlaxoSmithKline	renal cell carcinoma	2009 FDA 2010 EMA
Crizotinib		ALK, MET	Pfizer	NSCLC with ALK translocations	2011 FDA 2012 EMA
Vandetanib		RET, VEGFR FGFR, EGFR	AstraZeneca	thyroid cancer	2011 FDA 2012 EMA
Ruxolitinib		JAK2	Novartis-Incyte	myelofibrosis with JAK2V617F	2011 FDA 2012 EMA
Vemurafenib		BRAF	Roche-Plexxikon	m-Melanoma with BRAFV600E	2011 FDA 2012 EMA
Icotinib		EGFR	Betta Pharmaceuticals	NSCLC	2012 China
Pertuzumab	Monoclonal antibody	ERBB2	Genentech	HER2-positive breast cancer	2012 FDA 2013 EMA
Ponatinib		ABL	Ariad Pharmaceuticals	T315 resistant CML	2012 FDA 2013 EMA
Axitinib		VEGFR, PDGFR, KIT RET,CSF1R FLT3	Pfizer	renal cell carcinoma	2012 FDA 2012 EMA
Bosutinib		ABL	Pfizer	CML resistant/intolerant to therapy	2012 FDA 2013 EMA
Cabozantinib		VEGFR2 PDGFR, KIT FLT3	Exelixis	medullary thyroid cancer	2012 FDA 2014 EMA

<b>Tofacitinib</b>		JAK3	Pfizer	rheumatoid arthritis	2012 FDA 2017 EMA
<b>Ibrutinib</b>		BTK	Janssen Pharmaceutic	mantle cell lymphoma	2013 FDA 2013 EMA
<b>Afatinib</b>		EGFR	Boehringer Ingelheim	NSCLC with EGFR mutations	2013 FDA 2013 EMA
<b>Dabrafenib</b>		BRAF	GlaxoSmithKline	m-Melanoma with BRAFV600E	2013 FDA 2013 EMA
<b>Regorafenib</b>		VEGFR2 Tie2	Bayer	CRC, GIST	2012 FDA 2013 EMA
<b>Trametinib</b>		MEK	GlaxoSmithKline	m-Melanoma with BRAFV600E	2013 FDA 2014 EMA
<b>Ripasudil</b>		ROCK1/2	Kowa Company	glaucoma ocular hypertension	2014 Japan
<b>Idelalisib</b>		PI3K $\delta$	Gilead Sciences	chronic lymphocytic leukemia	2014 FDA 2014 EMA
<b>Nimotuzumab</b>	Monoclonal antibody	EGFR	Biotech Pharm.	cell carcinomas of the head and neck	2014 China, India
<b>Ramucirumab</b>	Monoclonal antibody	KDR (VEGFR2)	Eli Lilly	mNSCLC colorectal cancer	2014 FDA 2014 EMA
<b>Nintedanib</b>		VEGFR PDGFR FGFR	Boehringer Ingelheim	idiopathic pulmonary fibrosis	2014 FDA 2014 EMA
<b>Ceritinib</b>		ALK	Novartis	NSCLC with ALK translocations	2014 FDA 2015 EMA
<b>Apatinib Rivoceeranib</b>		VEGFR2, KIT Src	Elevar	gastric cancer, NSCLC	2014 China 2018FDA
<b>Necitumumab</b>	Monoclonal antibody	EGFR	Eli Lilly	NSCLC	2015 FDA 2015 EMA
<b>Alectinib</b>		ALK	Roche	NSCLC with ALK translocations	2014 Japan 2015 FDA 2017 EMA
<b>Radotinib</b>		Bcr-ABL PDGFR	Daewoong Pharmaceutical	chronic myelogenous leukemia	2015 S.Korea
<b>Palbociclib</b>		CDK4/6	Pfizer	advanced (metastatic) breast cancer	2015 FDA 2016 EMA
<b>Lenvatinib</b>		VEGFRs	Eisai	thyroid cancer (DTC) kidney cancer	2015 FDA 2015 EMA
<b>Cobimetinib</b>		MEK1/2	Roche Exelixis	melanoma, breast cancer	2015 FDA 2015 EMA
<b>Osimertinib</b>		EGFR	AstraZeneca	T790M+ve NSCLC	2015 FDA 2016 EMA
<b>Olmotinib</b>		EGFR	Boehringer Ingelheim	T790M+ve NSCLC	2016 S.Korea
<b>Olaratumab</b>	Monoclonal antibody	PDGFRa	Eli Lilly	soft tissue sarcoma	2016 DFA 2016 EMA
<b>Ribociclib</b>		CDK4/6	Novartis	advanced (metastatic) breast cancer HR+, HER2-ve	2017 FDA 2017 EMA
<b>Brigatinib</b>		ALK T790M EGFR	Ariad Pharmaceuticals	ALK-rearranged metastatic NSCLC	2017 FDA 2018 EMA
<b>Midostaurin</b>		PKC, FLT3	Novartis	acute myeloid leukemia (FLT3 mutation-positive)	2017 FDA 2017 EMA
<b>Neratinib</b>		EGFR	Wyeth-Pfizer-Puma	HER2-positive breast cancer	2017 FDA 2018 EMA
<b>Baricitinib</b>		JAK1/2	Incyte Eli Lilly	rheumatoid arthritis	2017 FDA 2017 EMA

<b>Abemaciclib</b>		CDK4/6	Eli Lilly	advanced (metastatic) breast cancer HR+, HER2-ve	2017 FDA 2018 EMA
<b>Copanlisib</b>		PI3K mTOR	Bayer	relapsed follicular lymphoma	2017 FDA
<b>Netarsudil</b>		ROCK/NET	Aerie Pharmaceutical	glaucoma/ocular hypertension	2017 FDA 2019 EMA
<b>Tivozanib</b>		VEGFR	AVEO Pharmaceutical	advanced RCC	2017 EMA
<b>Acalabrutinib</b>		BTK	AstraZeneca Acerta Pharma	mantle cell lymphoma, CLL	2017 FDA 2018 EMA
<b>Simotinib</b>		EGFR	Jiangsu Simcere Pharmaceutical	solid tumours	2018 China
<b>Encorafenib</b>		MEK/RAF	Novartis-Array-Pfizer	BRAF mutant melanoma	2018 FDA 2018 EMA
<b>Binimetinib</b>		MEK/RAF	Array-Novartis-Pfizer	BRAF mutant melanoma	2018 FDA 2018 EMA
<b>Duvelisib</b>		PI3K $\delta/\gamma$	Verastem Oncology	CLL, SLL, FL	2018 FDA
<b>Dacomitinib</b>		mutant EGFR	Pfizer	NSCLC with EGFR mutations	2018 FDA 2019 EMA
<b>Gilteritinib</b>		FLT3, RTKs	Astellas Pharma	acute myeloid leukemia FLT3 mutant	2018 FDA 2019 EMA 2021 China
<b>Larotrectinib</b>		TRKs	LOXO-Bayer	solid tumours with NTRK fusions	2018 FDA
<b>Catequentinib</b>		VEGFRs	Advenchen Laboratories	NSCLC	2018 China
<b>Lorlatinib</b>		ALK /ROS	Pfizer	ALK+ve met NSCLC	2018 FDA 2019 EMA
<b>Fostamatinib</b>		SYK	Rigel Pharmaceuticals	autoimmune thrombocytopenia	2018 FDA 2020 EMA
<b>Fruquintinib</b>		VEGFR	Chi-Med Eli Lilly	metastatic colorectal cancer	2018 China
<b>Erdafitinib</b>		FGFRs	Janssen	advanced metastatic urothelial carcinoma	2019 FDA
<b>Alpelisib</b>		PI3K $\alpha$	Novartis	breast cancer, HR+ve, HER2-ve	2019 FDA
<b>Pexidartinib</b>		CSF1R, c-KIT FLT3	Daiichi Sankyo	tenosynovial giant cell tumour	2019 FDA
<b>Entrectinib</b>		NTRK1/2/3 ROS1, ALK	Roche	ROS1+ve NSCLC, solid tumors NTRK+ve	2019 FDA
<b>Upadacitinib</b>		JAK1	AbbVie	rheumatoid arthritis	2019 FDA 2019 EMA
<b>Fedratinib</b>		JAK3, FLT3 BRD4	Celgene	myelofibrosis	2019 FDA 2021EMA
<b>Zanubrutinib</b>		BTK	Beigene	mantle cell lymphoma	2019 FDA
<b>Umbralisib</b>		PI3K $\delta$	TG Therapeutic	marginal zone lymphoma	2019 FDA
<b>Leniolisib</b>		PI3K $\delta$	Novartis	APDS PASLI disease	2019 FDA
<b>Tenalisib</b>		PI3K $\delta/\gamma$	Rhizen Pharm.	PTCL, brest cancer	2019 FDA
<b>Flumatinib</b>		Bcr-ABL PDGFR	Jiangsu Hansoh Pharmaceutical	chronic myelogenous leukemia	2019 China

<b>Avapritinib</b>		mutants KIT PDGFR	Blueprint Medicines	PDGFR exon 18 mutation (incl D842V)+ve	2020 FDA
<b>Tucatinib</b>		ERBB2	Seattle Genetics	HER2-positive breast cancer	2020 FDA 2021EMA
<b>Pemigatinib</b>		FGFR	Incyte	cholangiocarcinoma with FGFR2 fusion	2020 FDA
<b>Capmatinib Tabrecta</b>		mutant MET	Novartis	MET mutation+ve NSCLC	2020 FDA
<b>Selpercatinib</b>		RET fusions	Eli Lilly	NSCLC, MTC, thyroid cancers	2020 FDA
<b>Ripretinib</b>		KIT, PDGFRA incl mutants	Deciphera Pharmaceuticals	advanced GIST Mastocytosis	2020 FDA
<b>Paxalisib</b>		PI3K/mTOR	Kazia Therapeutics	malignant glioblastoma	2020 FDA
<b>Selumetinib</b>		MEK1/2	Astra Zeneca	neurofibromatosis type 1	2020 FDA
<b>Pralsetinib</b>		RET	Blueprint Medicines	met RET fusion +ve NSCLC MTC	2020 FDA
<b>Filgotinib</b>		JAK1	Gilead Galapagos	rheumatoid arthritis	2020 EMA 2020 Japan
<b>Almonertinib</b>		T790M EGFR	Hansoh Pharma	advanced mutation +ve NSCLC	2020 China
<b>Tirbanibulin</b>		Src, tubulin	Almirall	actinic keratosis	2020 FDA
<b>Tirabrutinib</b>		BTK	Ono Gilead	chronic myelogenous leukemia	2020 Japan
<b>Delgocitinib</b>		JAK	Japan Tobacco	atopic dermatitis	2020 Japan
<b>Pyrotinib</b>		EGFR, HER2/4	Jiangsu Hengrui	breast cancer	2020 China
<b>Orelabrutinib</b>		BTK	InnoCare	mantle cell lymphoma CLL, SLL	2020 China
<b>Margetuximab</b>	Monoclonal antibody	HER2	Raven Biotech	mHER2-positive breast cancer	2020 FDA
<b>Infigratinib</b>		FGFR1-3	Novartis	cholangiocarcinoma	2021 FDA
<b>Tepotinib</b>		MET ex 14 alterations	EMD Serono	metastatic NSCLC	2020 Japan 2021 FDA
<b>Peficitinib</b>		JAK	Astellas Janssen	rheumatoid arthritis	2021 Japan
<b>Trilaciclib</b>		CDK4/6	G1 Therapeutics	SCLC chemo myelopreservation	2021 FDA
<b>Surufatinib</b>		VEGFR1-3	HUTCHMED	advanced pancreatic NET	2021 China
<b>Savolitinib</b>		c-MET	AZ-HUTCHMED	adenocarcinoma, NSCLC	2021 China
<b>Lazertinib</b>		EGFR mutants	Yuhan-Janssen	NSCLC	2021 S. Korea
<b>Mobocertinib</b>		EGFR	Janssen	NSCLC with EGFR mutations	2021 FDA
<b>Furmonertinib</b>		EGFR T790M	Allist Pharm.	NSCLC	2021 China
<b>Amivantamab</b>	Monoclonal antibody	EGFR/MET	Janssen	NSCLC	2021 FDA

<b>Asciminib</b>		Bcr-ABL	Novartis	chronic myelogenous leukemia	2021 FDA
<b>Abrocitinib</b>		JAK1	Pfizer	atopic dermatitis	2022 FDA
<b>Defactinib</b>		PTK2, Pyk2 MELK	Pfizer-Verastem	solid tumours	2022 FDA
<b>Pacritinib</b>		JAK/IRAK	CTI BioPharm	myelofibrosis	2022 FDA
<b>Deucravacitinib</b>		TYK2	Bristol-Myers Squibb	psoriasis	2022 FDA
<b>Futibatinib</b>		FGFR2	Taiho Pharma	cholangiocarcinoma	2022 FDA