A Year In Review

The journey of drug development in 2021

Review Report

Last year we released our first year-in review report and received deep appreciation from around the globe. This encouraged us to produce a further version, which again draws from data and intelligence found in our AdisInsight database and aims to present an updated overview of drug development in 2021.

With the pandemic still lingering upon us, we appreciate the global efforts in the research and development of new therapies and the actions taken to advance these therapies to their possible approval, for the benefit of patients worldwide. Covid-19 is naturally still in the spotlight, but other conditions are not forgotten when it comes to conducting early, clinical and late-stage research, although faced with the obvious difficulties of our current times.

We present here a review of key drug development metrics that we were able to observe through the use of our AdisInsight database, providing analysis on the potential of new and existing medicines, clinical studies, safety data, and key events in the biopharmaceutical field of 2021.

Most Interesting Drugs in 2021

Top 10 AdisInsight Drug profiles viewed

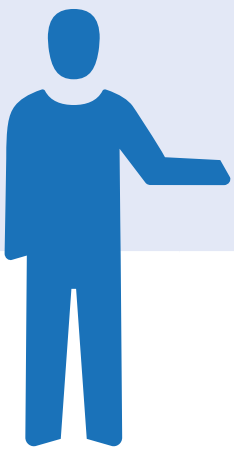
In 2021, Covid-19 continued to dominate drug development discussions. However, there was progress in other disease areas as well. The selection of drugs viewed by AdisInsight users included rare disease drug developments like Pegcetacoplan and Eculizumab. Additional profiles of high interest focused on cancer, atopic dermatitis and Covid-19 infections. It's interesting to note that the 2 most viewed profiles have remained unchanged in 2020 and 2021.

TABLE 1 - TOP DRUG PROFILES VIEWED GLOBALLY BY ALL USERS OF ADISINSIGHT

	Drug name	Approved indication	Indications in development
1	Pembrolizumab - Merck & Co	Breast cancer ; Cervical cancer; Colorectal cancer; Diffuse large B cell lymphoma; Gastric cancer; Head and neck cancer; Hodgkin's disease; Liver cancer; Malignant melanoma; Non-small cell lung cancer; Oesophageal cancer; Pancreatic cancer; Solid tumours; Squamous cell cancer; Urogenital cancer	Acute myeloid leukaemia; Adenocarcinoma; Adenoid cystic carcinoma; Biliary cancer; Bladder cancer; Bone cancer; Brain metastases; Breast cancer; Cancer; Cervical cancer; Cholangiocarcinoma; Chronic lymphocytic leukaemia; Colorectal cancer; Diffuse large B cell lymphoma; Endometrial cancer; Fallopian tube cancer; Follicular lymphoma; Gastric cancer; Gastrointestinal cancer; Germ cell and embryonal neoplasms; Glioblastoma; Glioma; Gliosarcoma; Haematological malignancies; Head and neck cancer; Hodgkin's disease; Human papillomavirus infections; Inflammatory breast cancer; Leiomyosarcoma; Leucoplakia; Liver cancer; Liver metastases; Lymphoma; Malignant melanoma; Malignant thymoma; Mantle-cell lymphoma; Marginal zone B-cell lymphoma; Meningeal carcinomatosis; Meningioma; Merkel cell carcinoma; Mesothelioma; Multiple myeloma; Myelodysplastic syndromes; Nasopharyngeal cancer; Neuroendocrine tumours; Non-Hodgkin's lymphoma; Non-small cell lung cancer; Oesophageal cancer; Osteosarcoma; Ovarian cancer; Pancreatic cancer; Penile cancer; Peritoneal cancer; Precursor cell lymphoblastic leukaemia-lymphoma; Prostate cancer; Rectal cancer; Recurrent respiratory papillomatosis; Renal cell carcinoma; Richter's syndrome; Sarcoma; Small cell lung cancer; Soft tissue sarcoma; Solid tumours; Squamous cell cancer; T-cell lymphoma; Thyroid cancer; Urogenital cancer; Uveal melanoma
2	Nivolumab - Bristol-Myers Squibb/Ono Pharmaceuticals	Colorectal cancer; Gastric cancer; Head and neck cancer; Hodgkin's disease; Liver cancer; Malignant melanoma; Mesothelioma; Non-small cell lung cancer; Renal cell carcinoma; Urogenital cancer	Acute myeloid leukaemia; Adrenocortical carcinoma; Alveolar soft part sarcoma; Autoimmune disorders; Biliary cancer; Bladder cancer; Brain metastases; Breast cancer; Bronchopulmonary dysplasia; CNS cancer; Cancer; Cervical cancer; Cholangiocarcinoma; Chronic lymphocytic leukaemia; Clear cell sarcoma; Colorectal cancer; Diffuse large B cell lymphoma; Fallopian tube cancer; Follicular lymphoma; Gastric cancer; Genitourinary disorders; Glioblastoma; Glioma; Haematological malignancies; Head and neck cancer; Hodgkin's disease; Leucoplakia; Liver cancer; Liver metastases; Lymphoma; Malignant melanoma; Meningeal carcinomatosis; Mesothelioma;

	Drug name	Approved indication	Indications in development
2			Multiple myeloma; Myelodysplastic syndromes; Nasopharyngeal cancer; Neurofibromatosis 1; Non-Hodgkin's lymphoma; Non-small cell lung cancer; Oesophageal cancer; Ovarian cancer; Pancreatic cancer; Penile cancer; Peripheral T-cell lymphoma; Peritoneal cancer; Plexiform neurofibroma; Prostate cancer; Rectal cancer; Renal cell carcinoma; Small cell lung cancer; Soft tissue sarcoma; Solid tumours; Squamous cell cancer; Testicular cancer; Thyroid cancer; Urogenital cancer; Uterine cancer; Uveal melanoma
3	Atezolizumab - Genentech	Breast cancer; Liver cancer; Malignant melanoma; Non-small cell lung cancer; Small cell lung cancer; Urogenital cancer	Acute myeloid leukaemia; Adrenocortical carcinoma; Anal cancer; Biliary cancer; Bladder cancer; Brain metastases; Breast cancer; Cervical cancer; Chronic lymphocytic leukaemia; Colorectal cancer; Cutaneous T-cell lymphoma; Diffuse large B cell lymphoma; Endometrial cancer; Fallopian tube cancer; Follicular lymphoma; Gastric cancer; Glioblastoma; Gynaecological cancer; Haematological malignancies; Head and neck cancer; Liver cancer; Malignant melanoma; Malignant thymoma; Mantle-cell lymphoma; Marginal zone B-cell lymphoma; Mesothelioma; Multiple myeloma; Neuroendocrine tumours; Non-Hodgkin's lymphoma; Non-small cell lung cancer; Oesophageal cancer; Ovarian cancer; Pancreatic cancer; Peritoneal cancer; Phaeochromocytoma; Prostate cancer; Renal cell carcinoma; Small cell lung cancer; Soft tissue sarcoma; Solid tumours; Squamous cell cancer; Thyroid cancer; Urogenital cancer; Waldenstrom's macroglobulinaemia
4	Dupilumab - Regeneron/Sanofi	Non-small cell lung cancer; Small cell lung cancer	Acute myeloid leukaemia; Biliary cancer; Bladder cancer; Brain metastases; Breast cancer; Cervical cancer; Cholangiocarcinoma; Chronic lymphocytic leukaemia; Colorectal cancer; Cutaneous T-cell lymphoma; Diffuse large B cell lymphoma; Endometrial cancer; Fallopian tube cancer; Gallbladder cancer; Gastric cancer; Gastrointestinal cancer; Germ cell and embryonal neoplasms; Glioblastoma; Haematological malignancies; Head and neck cancer; Liver cancer; Lung cancer; Lymphoma; Malignant melanoma; Mesothelioma; Multiple myeloma; Myelodysplastic syndromes; Neuroendocrine tumours; Non-Hodgkin's lymphoma; Non-small cell lung cancer; Oesophageal cancer; Oropharyngeal cancer; Ovarian cancer; Pancreatic cancer; Peripheral T-cell lymphoma; Peritoneal cancer; Prostate cancer; Renal cancer; Renal cell carcinoma; Sarcoma; Small cell lung cancer; Soft tissue sarcoma; Solid tumours; Urogenital cancer; Uterine cancer; Vulvovaginal cancer
5	Dupilumab - Regeneron/Sanofi	Asthma; Atopic dermatitis; Nasal polyps	Asthma; Atopic dermatitis; Bullous pemphigoid; Chronic obstructive pulmonary disease; Chronic urticaria; Eosinophilic gastroenteritis; Eosinophilic oesophagitis; Milk hypersensitivity; Nasal polyps; Peanut hypersensitivity; Prostate cancer; Prurigo nodularis; Pruritus; Rhinosinusitis; Urticaria

	Drug name	Approved indication	Indications in development
6	Ruxolitinib - Incyte Corporation/Novartis	Atopic dermatitis; Graft-versus-host disease; Myelofibrosis; Polycythaemia vera	Acute myeloid leukaemia; Alopecia areata; Atopic dermatitis; Breast cancer; Breast disorders; Bronchiolitis obliterans; COVID-19 pneumonia; Cachexia; Chronic lymphocytic leukaemia; Chronic myeloid leukaemia; Chronic myelomonocytic leukaemia; Cytokine release syndrome; Essential thrombocythaemia; Graft-versus-host disease; Haematological malignancies; Head and neck cancer; Hodgkin's disease; Multiple myeloma; Myelodysplastic syndromes; Myelofibrosis; Polycythaemia vera; Precursor cell lymphoblastic leukaemia-lymphoma; SARS-CoV-2 acute respiratory disease; Thalassaemia; Vitiligo
7	Eculizumab - Alexion AstraZencea Rare Disease	Haemolytic uraemic syndrome; Myasthenia gravis; Neuromyelitis optica; Paroxysmal nocturnal haemoglobinuria	Antiphospholipid syndrome; Delayed graft function; Guillain-Barre syndrome; Heart transplant rejection; Myasthenia gravis; Neuromyelitis optica; Paroxysmal nocturnal haemoglobinuria; Preeclampsia; Renal transplant rejection
8	Venetoclax - AbbVie/ Genentech	Chronic lymphocytic leukaemia	Acute myeloid leukaemia; B-cell lymphoma; Blastic plasmacytoid dendritic cell neoplasm; Breast cancer; Cancer; Chronic lymphocytic leukaemia; Chronic myelomonocytic leukaemia; Diffuse large B cell lymphoma; Follicular lymphoma; Mantle-cell lymphoma; Marginal zone B-cell lymphoma; Multiple myeloma; Myelodysplastic syndromes; Non-Hodgkin's lymphoma; Non-small cell lung cancer; Precursor cell lymphoblastic leukaemia-lymphoma; Prostate cancer; Small cell lung cancer; T-cell prolymphocytic leukaemia; Waldenstrom's macroglobulinaemia
9	Pegcetacoplan - Apellis Pharmaceuticals/ Swedish Orphan Biovitrum	Paroxysmal nocturnal haemoglobinuria	Age-related macular degeneration; Amyotrophic lateral sclerosis; Autoimmune haemolytic anaemia; Glomerulonephritis; IgA nephropathy; Lupus nephritis; Membranous glomerulonephritis; Paroxysmal nocturnal haemoglobinuria; Thrombotic microangiopathy; Wet age-related macular degeneration
10	Selinexor - Karyopharm Therapeutics	Diffuse large B cell lymphoma; Multiple myeloma	Acute myeloid leukaemia; B-cell lymphoma; Breast cancer; COVID 2019 infections; Cervical cancer; Chronic lymphocytic leukaemia; Colorectal cancer; Diffuse large B cell lymphoma; Endometrial cancer; Extranodal NK-T-cell lymphoma; Gastrointestinal stromal tumours; Glioblastoma; Glioma; Liposarcoma; Malignant melanoma; Multiple myeloma; Myelodysplastic syndromes; Myelofibrosis; Neuroendocrine tumours; Non-Hodgkin's lymphoma; Non-small cell lung cancer; Osteosarcoma; Ovarian cancer; Peripheral T-cell lymphoma; Precursor cell lymphoblastic leukaemia-lymphoma; Sepsis; Soft tissue sarcoma; Solid tumours; Thymic epithelial tumour; Thymoma



Overview

Overview of 2021 drug launches**

In 2021, there were a total of 107 compounds that were approved for the first time. The majority of the compounds are indicated for cancer, kidney disorders, rheumatoid arthritis, and pain.

***Detailed information about the drugs that were first approved during the course of 2021 can be found in Table 2 at the end of this document. [Table 2]*

Summary of drug development programme failures

In 2021, 1,770 drug development profiles turned to 'inactive', while 1,277 saw a development line, e.g. an indication, being suspended while the relevant drug development programme remained active.

The leading area in terms of suspended and inactive programmes was cancer (which was also leading this chart in 2020), followed by neurological disorders, immunological disorders, haematological diseases, infections in the top 5. We observe here that the broad categories in this analysis are the same that were seen in 2020 but their relevant positions have shifted.

DRUG DEVELOPMENT PROFILES

1,770

were

DISCONTINUED

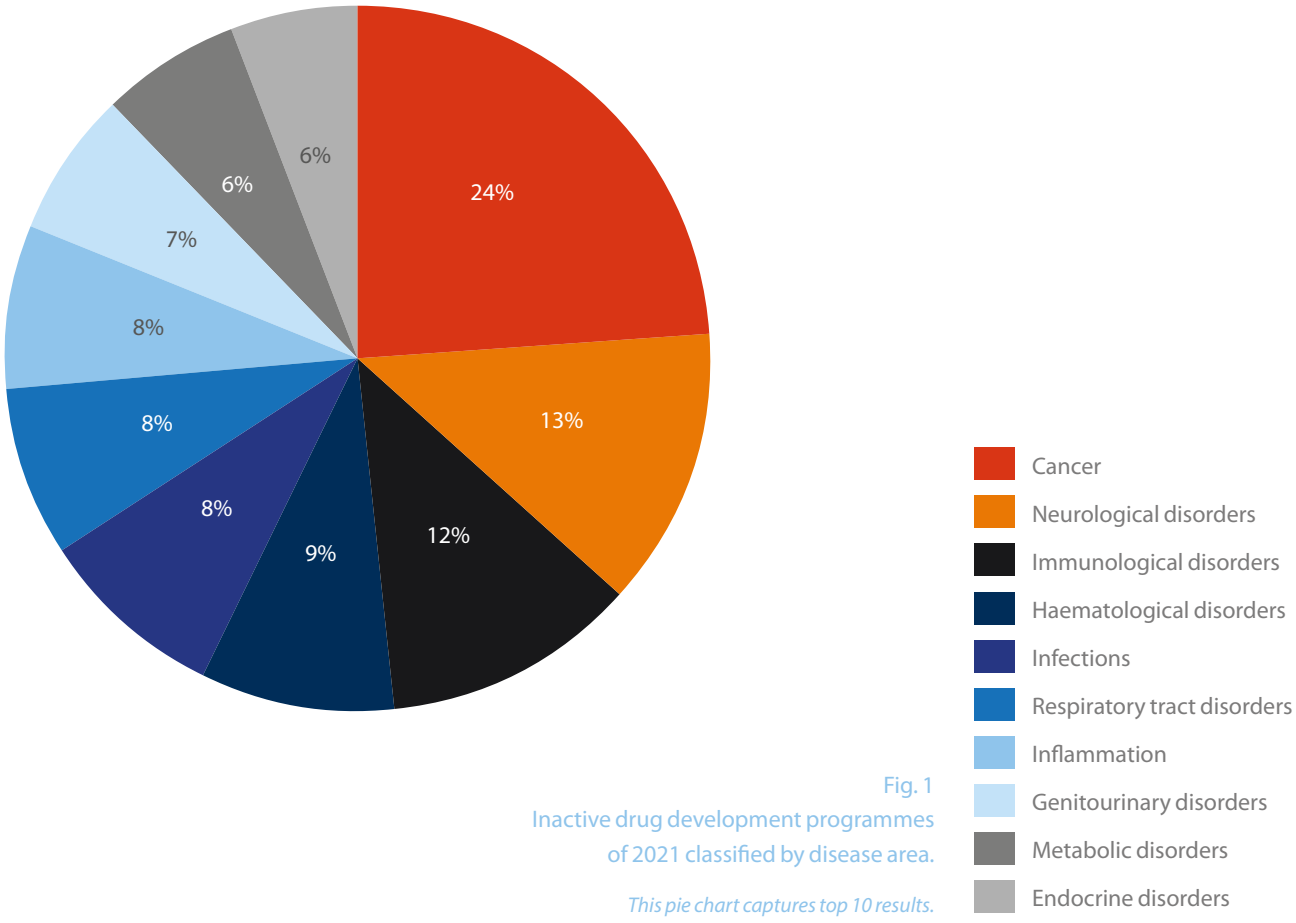


Fig. 1
Inactive drug development programmes of 2021 classified by disease area.

This pie chart captures top 10 results.

More than **14,200** **NEW TRIAL** *RECORDS*

Important research trends in 2021

Trials released by therapy area

More than 14,200 new trial records were added to AdisInsight in 2021. An analysis by disease area shows Tumors as the main area of focus, followed by Immunological disorders, Infections, which includes clinical development in coronavirus infections, Neurological disorders, and Respiratory tract disorders round out the top 5 categories.

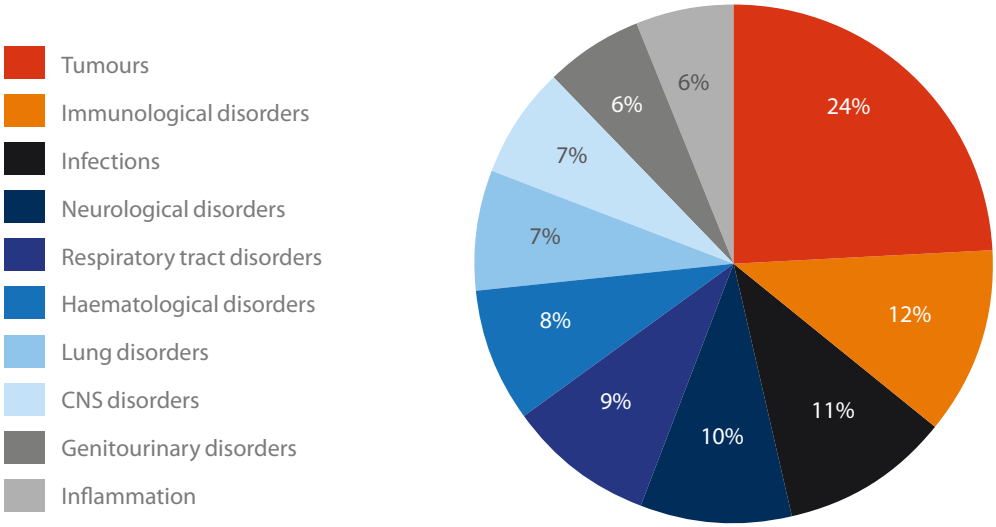


Fig. 2
Figure represents top 10 indications with most newly released trials in 2021.

Trial activity by region

Out of the more than 14,000 new trial records released to AdisInsight in 2021, a significant proportion of these were carried out in North America and Asia-Pacific, with the USA, China and Japan being prime locations, followed by Europe with Italy, Spain, UK, Germany and France, all showing comparable number of trials of around 800 each.

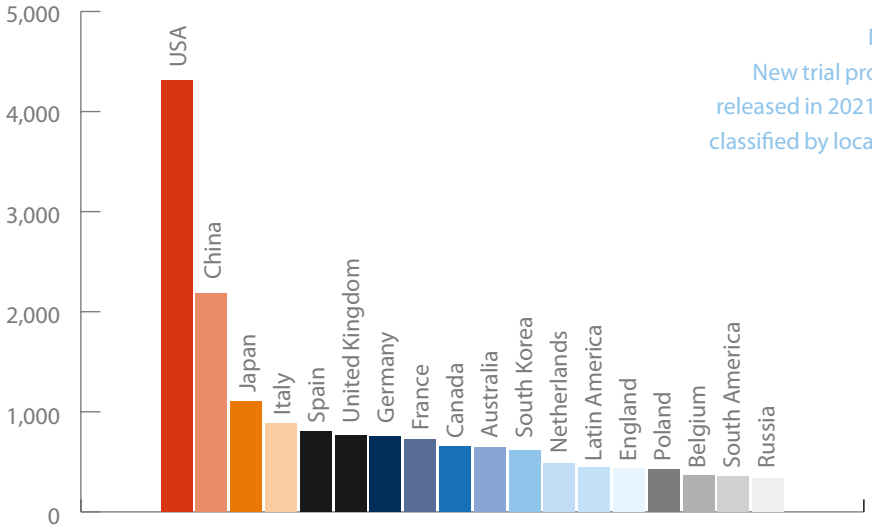


Fig. 3
New trial profiles released in 2021 and classified by location.

Outlook on clinical trials

In 2020, the number of suspended trials climbed 3 times the rate of trials suspended in the previous year. And while the correlation with the pandemic does not necessarily imply causation in all cases, we believe the trend points to the difficulties of recruiting and running clinical studies during a pandemic. In 2021, the number of suspended clinical trials was on par with pre-pandemic numbers.

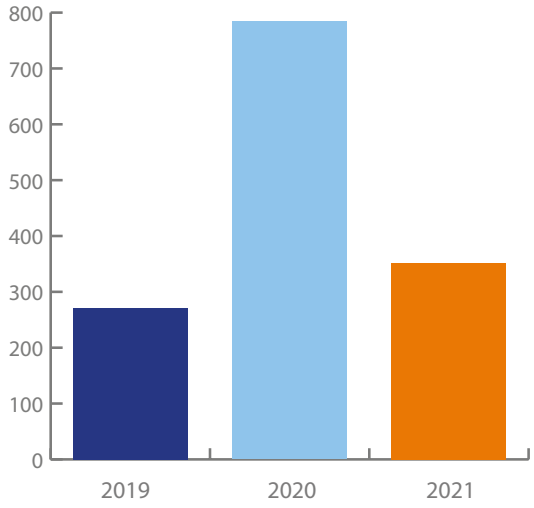


Fig. 4
Number of suspended trials from 2019 till 2021.

New profiles released in 2021 by Indication (top 10 indications)

In 2021, 4,713 new drug profiles were added to the AdisInsight database. When reviewing this list by Indication, cancer represented the largest increase in newly developed drugs, followed by neurological disorders, infections, CNS disorders and immunological disorders complete the top 5 indications with the most newly created drug programs. The Covid-19 drug development is classified within infections and helped propel this indication to the top 5 in 2021.

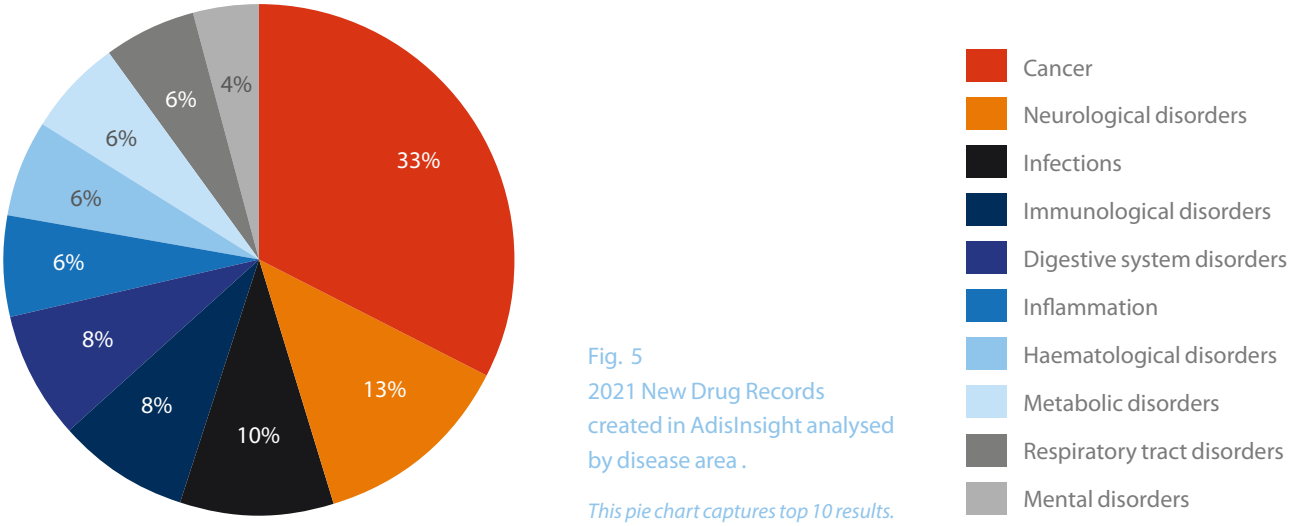


Fig. 5
2021 New Drug Records created in AdisInsight analysed by disease area .

This pie chart captures top 10 results.

New profiles released in 2021 by Drug Class
(top 10 classes)

We also segmented the new Drug profiles released to AdisInsight in 2021 by Drug Class. The top four categories account for more than half of the top classes in this analysis. Antineoplastics lead this analysis, followed by biological proteins, small molecules and immunotherapies.

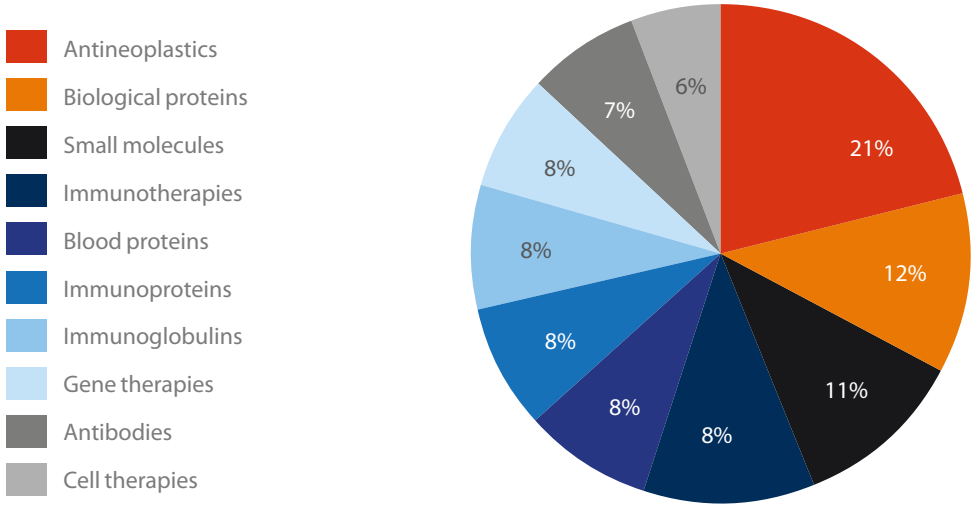


Fig. 6
2021 New Drug Records in AdisInsight by Drug Class.

This pie chart captures top 10 results.

New profiles released in 2021 by Mechanism of Action
(top 10 categories)

Below is an analysis of all Drug profiles released to AdisInsight during the course of 2021 classified by Mechanism of Action.

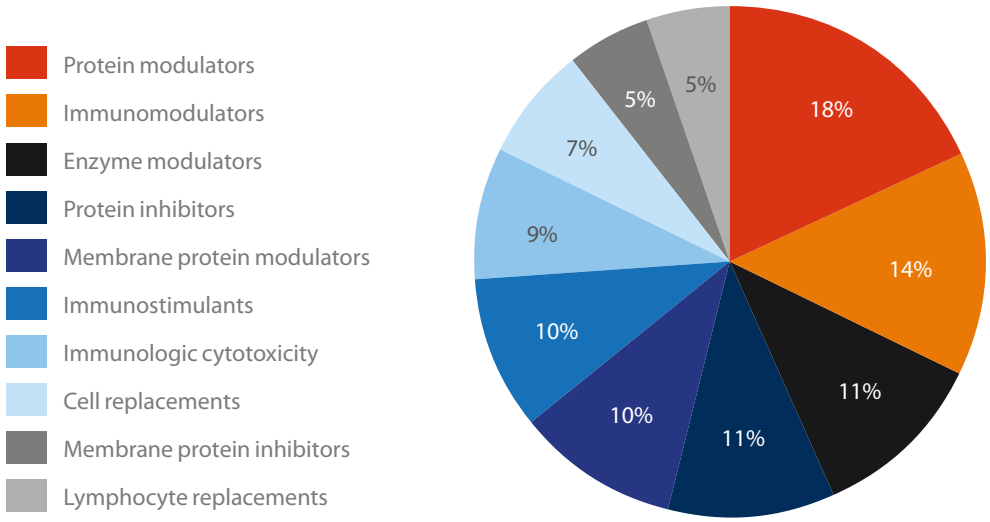


Fig. 7
2021 New Drug profiles in AdisInsight by Mechanism of Action.

This pie chart captures top 10 results.

Number of safety records by report location

The AdisInsight database includes case reports of Adverse Drug Reactions (ADRs) from the international literature. A review of the case report records that were released to AdisInsight in 2021 shows the USA published the most case reports, followed by Japan, China, Italy and India in the top 5 reporter locations observed in the published literature in 2021.

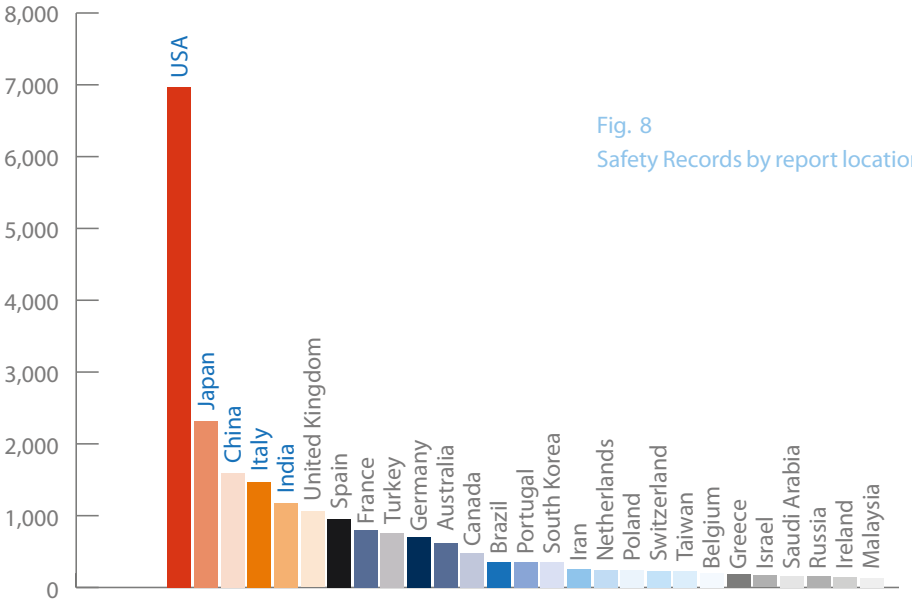


Fig. 8
Safety Records by report location.

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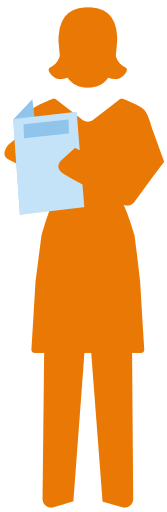

Key 2021 deals

Deal types

AdisInsight tracks commercial deals that happen around drug development, including M&A deals, R&D agreements, marketing agreements, distribution agreements and all types of relevant deals in the field. Below is a summary of the deal records by type and organization (top 20) that were tracked in 2021.

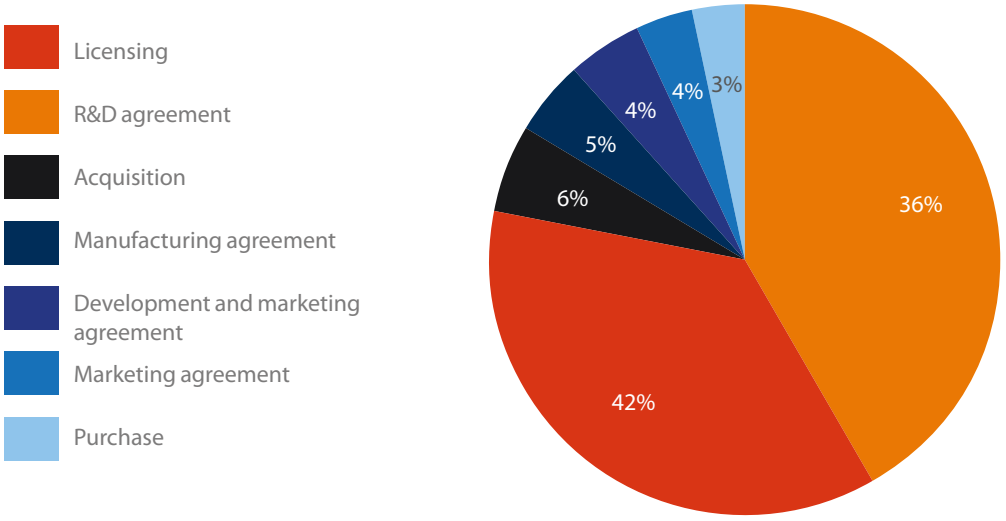

Fig. 9
Licensing and Research & Development agreements were leading the way in 2021.

Deals by Organisation

A different analysis by Organisation sees AstraZeneca as leading Company as regards the number of deal records that were tracked by AdisInsight in 2021, followed by Merck&Co, Roche, Takeda and Bristol-Myers Squibb amongst the top 5.

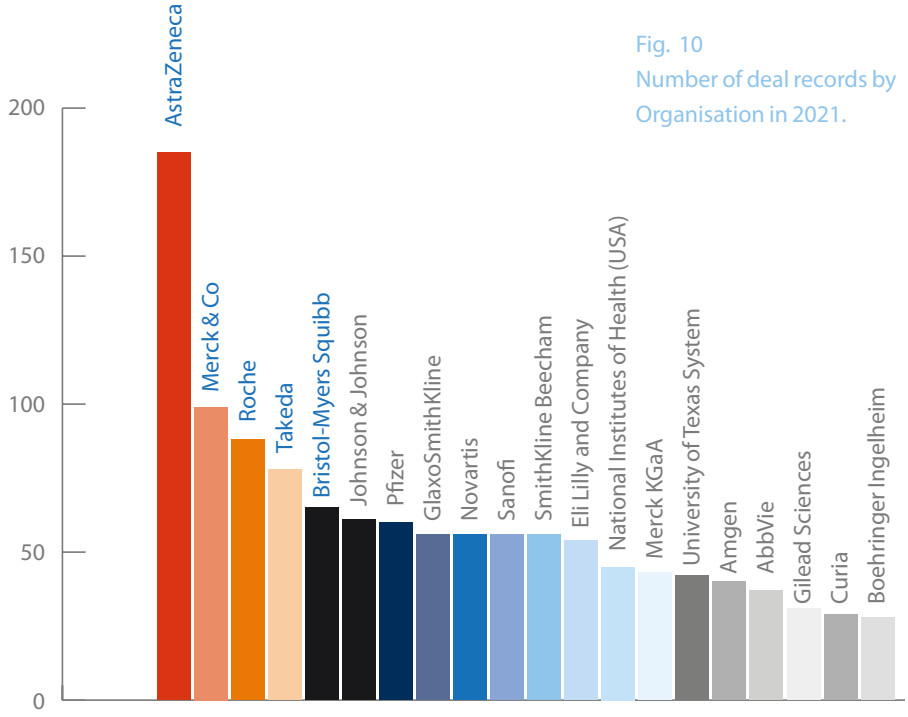

Fig. 10
Number of deal records by Organisation in 2021.

Conclusions

AdisInsight shows a significant number of new drug (4,700+) and trial (14,200+) profiles created in 2021, with 1,770 drug development programmes and 351 trials being conversely suspended. This shows that research & development, as well as clinical activities, were able to proceed at great pace, despite the difficulties posed by the pandemic. In particular, we see a 15% increase in the number of new drug profiles created in 2021 vs 2020, while numbers for new trial records remain somewhat stable.

Cancer appears to be an area of major focus in several of our analyses, together with Immunological Disorders, Infections and Neurological Disorders.

Licensing and R&D agreements make up nearly 80% of all deal events tracked by our database in 2021.

The focus on pharmacovigilance and adverse event reporting from the literature appears unaltered: our charts show increasing volumes of ICSRs from the literature.

We will continue to track emerging areas and other significant events in the development of new medicines, while including details on global clinical trials, study outcomes and safety reports from the international literature.

As shown in this report, AdisInsight represents a key tool for users to keep track of rapidly developing areas and to follow drug development updates, clinical outcomes and safety reports globally.

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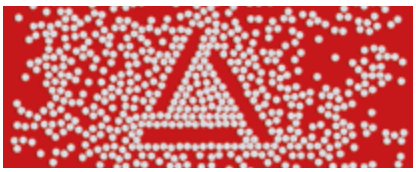

About AdisInsight

AdisInsight is your complete pharma discovery platform. Connecting a uniquely wide range of datasets with expertly curated insights, we bring you trusted, relevant and up-to-the-minute pharma information you can rely on. Our comprehensive and integrated reports go deeper and broader, encompassing everything from clinical trials and commercial deals, to safety information and patents. Whether you're looking for the complete picture or want to ensure you're not missing any critical details, you'll find everything you need in our quick and easily searchable platform. We'll give you the insight and confidence to make the right pharma decisions every time.

Contact information

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Table 2 - DRUGS THAT WERE FIRST APPROVED DURING THE COURSE OF 2021

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
1	5 flurouracil topical cream - Hill Dermaceuticals	Tolak	DNA synthesis inhibitors Thymidylate synthase inhibitors	Pyrimidinones Small molecules	Actinic keratosis	Topical	USA
2	Adalimumab biosimilar - LG Chem	LBAL	Antibody-dependent cell cytotoxicity Immunosuppressants Tumour necrosis factor alpha inhibitors	Anti-TNF monoclonal antibodies	Rheumatoid arthritis	SC	Japan
3	Adalimumab biosimilar - Shanghai Henlius Biotech	HLX 03	Antibody-dependent cell cytotoxicity Immunosuppressants Tumour necrosis factor alpha inhibitors	Anti-TNF monoclonal antibodies	Rheumatoid arthritis Plaque psoriasis Uveitis Ankylosing spondylitis	SC SC SC SC	China China China China
4	Aducanumab - Biogen/Eisai Co/Neurimmune Therapeutics	Aducanumabavwa ADUHELM Antibeta amyloid monoclonal antibody Biogen/Neurimmune Therapeutics BART BIIB 037 NI10	Amyloid beta-protein inhibitors	Antibodies Monoclonal antibodies	Alzheimer's disease	IV	USA
5	Alteplase biosimilar - International Biotech Center Generium	GNR004 Revelise Reveliza	Fibrinolytic agents Plasminogen activators	Plasminogen activator enzymes Recombinant proteins	Pulmonary embolism Stroke Myocardial infarction	IV IV IV	Russia Russia Russia

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
6	Amivantamab - Genmab/ Janssen Biotech	AmiLCMD Amivantamab admixed with rHuPH20 Amivantamabvmjw Bispecific EGFRcMet antibody CNTO4424 EGFRMET bispecific antibody EGFRxcMET bispecific antibody JNJ 372 JNJ61186372 JNJ6372 RYBREVANT	Antibody-dependent cell cytotoxicity	Bispecific antibodies	Non-small cell lung cancer	IV	USA
7	Anamorelin - Helsinn Therapeutics/ Ono Pharmaceutical	Adlumiz Anamorelin HCl Anamorelin hydrochloride ONO7643 RC1291 RC1291 HCl ST1291	Ghrelin receptor agonists	Piperidines Small molecules	Cachexia	PO	Japan
8	Ansuvimab - Ridgeback Biotherapeutics	Ansuvimabzykl Ebanga EboV mAb114 EVB114 mAb 114 VRC EBOMAB092 00 AB	Glycoprotein inhibitors Virus internalisation inhibitors	Monoclonal antibodies	Ebola virus infections	IV	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
9	Artesunate intravenous - US Army Medical Material Development Activity/Walter Reed Army Institute of Research	Artesunate intravenous project MMV00/1013 Artesunate IV Artesunate IV project MMV00/1013 Intravenous artesunate IV artesunate Nuartez	Reactive oxygen species stimulants	3-ring heterocyclic compounds Artemisinins Small molecules Succinates	Malaria	IV	USA
10	Atorvastatin/ fimasartan - Boryung Pharmaceutical	Akarb Atorvastatin/BRA 657 Fimasartan/atorvastatin Boryung Pharmaceutical	Angiotensin type 1 receptor antagonists HMG-CoA reductase inhibitors	Fatty acids Fluorobenzenes Heptanoic acids Pyrimidinones Pyrroles Small molecules	Dyslipidaemias Hypertension	PO PO	South Korea South Korea
11	Avacopan - ChemoCentryx/ Vifor Fresenius Medical Care Renal Pharma	CCX 168 TAVNEOS Vynpenta	Complement C5a receptor antagonists	Amides Cyclopentanes Fluorinated hydrocarbons Piperidines Small molecules	Anti-neutrophil cytoplasmic antibody-associated vasculitis	PO	USA
12	Belantamab mafodotin - GlaxoSmithKline	antiBCMAADC GlaxoSmithKline Belamaf belantamab mafodotinblmf BLENREP GSK2857916 GSK916 J6M0mcMMAF	Antibody-dependent cell cytotoxicity Apoptosis stimulants Mitosis inhibitors Tubulin polymerisation inhibitors	Auristatins Drug conjugates Immunotoxins Monoclonal antibodies	Multiple myeloma	IV	USA
13	Bepotastine controlled-release - Hanlim Pharmaceutical	BELION Bepotastine salicylate Bepotastine sustainedrelease HL 151	Histamine H1 receptor antagonists	Butyric acids Chlorobenzenes Piperidines Pyridines Small molecules	Chronic urticaria Pruritus Perennial allergic rhinitis	PO PO PO	South Korea South Korea South Korea

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
14	Betamethasone dipropionate/ calcipotriol - MC2 Therapeutics	BDP/calcipotriene MC2 Biotek Calcipotriol/betamethasone dipropionate MC2 01 MC201 PAD Cream MC214 PADcombo PADscalp Wynzora	Calcitriol receptor agonists Steroid receptor agonists	Cyclohexenes Dihydroxycholecalciferols Fluorinated steroids Glucocorticoids Indenes Small molecules Vitamin D analogues	Plaque psoriasis	Topical	USA
15	Bevacizumab biosimilar - Shandong Boan Biotechnology	BA1101 Boyounuo LY 01008	Angiogenesis inhibitors Vascular endothelial growth factor A inhibitors	Monoclonal antibodies	Non-small cell lung cancer Colorectal cancer Liver cancer Glioblastoma	IV IV IV IV	China China China China
16	Borneol/ edaravone - Simcere	Compound edaravone Edaravone combination Edaravone Dexborneol Edaravone/borneol SanbexinTM SIM 071201	Antioxidants Free radical scavengers	Heterocyclic bicyclo compounds Pyrazolones Small molecules Terpenes	Stroke	Parenteral	China
17	Bupivacaine controlled release - DURECT Corporation	Bupivacaine extended release DURECT Corporation Optesia POSIDUR POSIMIR SABERbupivacaine	Sodium channel antagonists	Analgesics Anilides Non-opioid analgesics Pipecolic acids Piperidines Small molecules	Postoperative pain	SC	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
18	Carbidopa/ entacapone/ levodopa - LobSor Pharmaceuticals	Carbidopa monohydrate/ entacapone/levodopa LobSor Pharmaceuticals Entacapone/levodopa/carbidopa LobSor Pharmaceuticals LECIGel LECIGon Lecigon Levodopa/carbidopa/entacapone LobSor Pharmaceuticals TRIGEL LobSor Pharmaceuticals	Catechol O-methyltransferase inhibitors Decarboxylase inhibitors Dopamine receptor agonists	Amides Catecholamines Catechols Hydrazines Nitriles Nitrophenols Small molecules	Parkinson's disease	Intraduo-denal	Slovenia, Netherlands, Romania, Austria, Germany
19	Casimersen - Sarepta Therapeutics	AMONDYS 45 SRP4045	Dystrophin expression stimulants RNA interference	Antisense oligonucleotides Morpholines	Duchenne muscular dystrophy	IV	USA
20	Centella Asiatica extract - Oneness Biotech	COMPLEHEAL DCB WH1 Fespixon Fespixon cream ON101 ONENESS PAF4 Plectranthus amboinicus extract Oneness Biotech S1 WH 1	Macrophage modulators	Flavanones Terpenes	Diabetic foot ulcer	Topical	Taiwan
21	Centhaquine - Midwestern University/ Pharmazz	Centhaquin Midwestern University/ Pharmazz Centhaquine citrate Lyfaquin PMZ 2010 PMZ2010 citrate	Alpha 1 adrenergic receptor antagonists Alpha 2 adrenergic receptor agonists	Analgesics Piperazines Quinolines Small molecules	Hypovolaemic shock	IV	India

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
22	Clascoterone - Cassiopea	Breezula CB0301 Cortexolone 17alphapropionate Winlevi	Androgen receptor antagonists	Esters Pregnenediones Propionates Small molecules	Acne vulgaris	Topical	USA
23	Colchicine extended release tablet - Pharmascience	colchicine 0.5 mg extendedrelease tablets Pr MYINFLATM	Tubulin polymerisation inhibitors	Colchicum alkaloids Small molecules	Coronary artery disease	PO	Canada
24	Contezolid - MicuRx Pharmaceuticals	MRX I Youxitai	Protein synthesis inhibitors	Amines Dihydropyridines Fluorinated hydrocarbons Oxazoles Oxazolidinones	Skin and soft tissue infections	PO	China
25	Darbepoetin alfa biosimilar - Reliance Life Sciences	Darberel RTPR026	Erythropoiesis stimulants Erythropoietin receptor agonists	Recombinant erythropoietins	Anaemia	SC	India
26	Dasiglucagon - Zealand Pharma	HypoPal rescue pen ZEGALOGUE ZP 4207 ZPGA1	Glucagon receptor agonists	Peptides	Hypoglycaemia	SC	USA
27	Diclofenac etalhyaluronate - Seikagaku Corporation	Diclofenac etalhyaluronate sodium Seikagaku Corporation Hyaluronic acid/nonsteroidal antiinflammatory drug Hyaluronic acid/NSAID JOYCLU ONO 5704 ONO5704/SI613 SI613	Cyclooxygenase inhibitors	Amides Analgesics Drug conjugates Glycosaminoglycans Nonsteroidal anti-inflammatories	Osteoarthritis	Intra articular	Japan

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
28	Dihydroergotamine - Impel NeuroPharma	DHE Dihydroergotamine Mesylate INP104 PODDHE TRUDHESA	Serotonin 1B receptor agonists Serotonin 1D receptor agonists	Ergotamines Mesylates Small molecules	Migraine	Intranasal	USA
29	Disitamab vedotin - Yantai Rongchang Pharmaceutical	Aidixi RC 48 RC 48ADC Recombinant Humanized antiHER2 Monoclonal AntibodyMMAE Conjugate Yantai Rongchang Pharmaceutical	Tubulin polymerisation inhibitors	Auristatins Drug conjugates Immunotoxins Monoclonal antibodies	Gastric cancer	IV	China
30	Drospirenone/ estetrol - Mithra Pharmaceuticals	Drovelis DRSP/E4 E4/DRSP Estelle Estetrol/Drospirenone FSN013 Lydisilka Nextstellis PeriNesta	Estrogen receptor agonists Hormone replacements Mineralocorticoid receptor antagonists Progesterone receptor agonists Testosterone congener inhibitors	Androstenes Gonadal steroid hormones Oral contraceptives Progesterone congeners Small molecules	Pregnancy	PO	Belgium, Canada
31	Enoxaparin sodium biosimilar - Sandoz Canada	Inclunox Inclunox HP	Factor Xa inhibitors Thrombin inhibitors	Low molecular weight heparins	Venous thrombosis Venous thromboembolism Deep vein thrombosis Deep vein thrombosis Unstable angina pectoris Myocardial infarction Unstable angina pectoris Venous thrombosis Venous thromboembolism Myocardial infarction	IV SC IV SC IV SC SC SC IV IV	Canada Canada Canada Canada Canada Canada Canada Canada Canada Canada

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
32	Estradiol/ norethisterone acetate/ relugolix - Myovant Sciences	Estradiol/norethindrone acetate/ relugolix Myovant Sciences MYFEMBREE Relugolix combination tablet Relugolix/estradiol hemihydrate/ norethisterone acetate RYEQO	Estrogen receptor agonists LHRH receptor antagonists Progesterone receptor agonists	Analgesics Contraceptives Estrenes Fluorobenzenes Norpregnenes Pyridazines Pyrimidines Small molecules Thiophenes Urea compounds	Uterine leiomyoma	PO	USA
33	Evinacumab - Regeneron Pharmaceuticals	Evinacumabdgnb Evkeeza REGN1500	ANGPTL3 protein inhibitors	Monoclonal antibodies	Hyperlipoproteinaemia type II	IV	USA
34	Fedratinib - Celgene Corporation	FEDR INREBIC Inrebic SAR302503 TG101348	Fms-like tyrosine kinase 3 inhibitors Janus kinase-2 inhibitors	Phenyl ethers Pyrimidines Pyrrolidines Small molecules Sulfonamides	Myelofibrosis	PO	USA
35	Fenofibrate/ pitavastatin - Hanlim Pharmaceutical	HLPIF Livasupril Pitavastatin/fenofibrate STAFEN STAFEN Cap Hanlim Pharmaceutical	HMG-CoA reductase inhibitors Peroxisome proliferator-activated receptor alpha agonists	Benzophenones Butyric acids Carboxylic acids Cyclopropanes Fibric acid derivatives Fluorobenzenes Propionates Quinolines Small molecules	Hyperlipidaemia	PO	South Korea

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
36	Filgotinib - Galapagos/ Gilead Sciences	Filgotinib hydrochloride G146034 G146034101 GLPG0634 GS6034 Jyseleca	Janus kinase 1 inhibitors	2 ring heterocyclic compounds Amides Cyclopropanes Pyridines Small molecules Thiamorpholines Triazoles	Rheumatoid arthritis	PO	Liechtenstein, European Union, United Kingdom, Norway, Japan, Iceland
37	Furmonertinib - Allist Pharmaceuti-cals/ArriVent Biopharma	Alflutinib mesylate Allist Pharmaceuticals/ArriVent Biopharma AST2818 Furmonertinib mesylate Allist Pharmaceuticals/ArriVent Biopharma Iflutinib mesylate Allist Pharmaceuticals/ArriVent Biopharma Ivesa Vometinib mesylate Allist Pharmaceuticals/ArriVent Biopharma	Epidermal growth factor receptor antagonists	Amides Diamines Fluorinated hydrocarbons Indoles Pyridines Pyrimidines Small molecules	Non-small cell lung cancer	PO	China
38	Glycopyrrolate/ indacaterol/ mometasone - Novartis	Enerzair Enerzair Breezhaler ICS/LABA/LAMA inhaled triple therapy Novartis IND/GLY/MF Indacaterol acetate glycopyrronium bromide and mometasone furoate Novartis QVM 149	Beta 2 adrenergic receptor agonists Glucocorticoid receptor agonists Muscarinic receptor antagonists	Corticosteroids Glucocorticoids Indans Pregnadienediols Pyrrolidines Quaternary ammonium compounds Quinolones Small molecules	Asthma	Inhalation	Canada

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
39	Hyaluronidase/ pertuzumab/ trastuzumab - Roche	Herceptin/perjeta Perjeta/herceptin Pertuzumab Trastuzumab and Hyaluronidasezzxf Pertuzumab/trastuzumab PH FDC SC Phesgo RG 6264 Trastuzumab/pertuzumab	Antibody-dependent cell cytotoxicity Dimerisation inhibitors ERBB 2 receptor antagonists Hyaluronidase replacements Immunomodulators	Monoclonal antibodies	Breast cancer	SC	USA
40	Hymenoptera hypersensitivity immunotherapy subcutaneous - Stallergenes Greer plc	Albey	Immunomodulators	Allergens Hymenoptera allergy immunotherapies Venoms	Hymenoptera hypersensitivity	SC	New Zealand, Australia
41	Ibrexafungerp - SCYNEXIS	Brexafemme Ibrexafungerp citrate MK3118 SCY 078 SCY078citrate	Beta-1,3-D glucan synthetase inhibitors	Amines Glycosides Phenanthrenes Pyridines Small molecules Triazoles Triterpenes	Vulvovaginal candidiasis	PO	USA
42	Idecabtagene vicleucel - 2seventy bio	Abecma AntiBCMA CART Cell Therapy bluebird bio/Celgene AntiBCMA CART cells bluebird bio/ Celgene bb2121 idecel	Immunologic cytotoxicity T lymphocyte replacements	CAR-T cell therapies Gene therapies	Multiple myeloma	IV	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
43	Imeglimin - Poxel	EMD387008 Imeglimin hydrochloride Poxel PXL 008 RVT1501 TWYMEEG	Insulin secretion stimulants	Amines Small molecules Triazines	Type 2 diabetes mellitus	PO	Japan
44	Imlifidase - Hansa Biopharma	EnzE programme Hansa Biopharma AB Enzymebased antibody enhancement programme Hansa Biopharma AB HMedIdeS IDEFIRIX IdeS IgGdegrading enzyme of Streptococcus pyogenes IgGendopeptidase Mac1 Streptococcal cysteine proteinase	Immunoglobulin inhibitors Immunosuppressants	Bacterial proteins Endopeptidases	Renal transplant rejection	IV	Finland, United Kingdom, Sweden, Netherlands
45	Inclisiran - Alnylam Pharmaceuti-cals/Novartis	ALN60212 ALNPCSsc KJX839 Leqvio PCSK9si	PCSK9 protein expression inhibitors RNA interference	Amino sugars Drug conjugates Small interfering RNA	Hypercholesterolaemia	SC	United Kingdom, Netherlands
46	Indacaterol/ mometasone - Novartis	Atectura Atectura Breezhaler IND/MF Mometasone furoate/indacaterol acetate Mometasone/indacaterol QMF Twisthaler QMF149	Arachidonic acid inhibitors Beta 2 adrenergic receptor agonists Glucocorticoid receptor agonists	Glucocorticoids Indans Pregnadienediols Quinolones Small molecules	Asthma	Inhalation	Canada

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
47	Influenza vaccine - Jiangsu Jindike Biotechnology		Immunostimulants	Influenza virus vaccines	Influenza virus infections	IM	China
48	Insulin aspart biosimilar - Gan and Lee Pharmaceuticals	Aspart 30 injection Fastacting aspart injection GLASP Rapilin Rapilin30	Ornithine decarboxylase stimulants Phosphokinase stimulants Protein tyrosine kinase stimulants	Insulins Pancreatic hormones Peptides	Type 1 diabetes mellitus	SC	China
49	Interferon beta-1a biosimilar - Biocad	BCD033 interferon 1a Biocad interferon b1a Biocad interferon beta1a Biocad Teberif	Immunostimulants Interferon beta-1a replacements	Interferons	Multiple sclerosis	SC	Russia
50	KI 1115	KI1115	Chelating agents		Iron overload	unspecified	South Korea
51	Lazertinib - Janssen Biotech/ Yuhan	C18112003G GNS 1480 JNJ 73841937 JNJ1937 JNJ73841937AAA Lazertinib mesylate monohydrate Leclaza YH25448	Epidermal growth factor receptor antagonists	Amides Aniline compounds Dimethylamines Ethers Morpholines Pyrimidines Small molecules	Non-small cell lung cancer	PO	South Korea
52	Levothyroxine sodium - Vertice Pharma	THYQUIDITY	Thyroid hormone receptor agonists	Aromatic amino acids Small molecules Thyroid hormones	Hypothyroidism	PO	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
53	Lisocabtagene maraleucel - Juno Therapeutics	antiCD19/EGFRt/41BB/zeta modified CAR CD8+ and CD4+ T lymphocyte therapy Juno Therapeutics antiCD19EGFRt41BBzeta modified CAR CD8+ and CD4+ T lymphocyte therapy Juno Therapeutics Breyanzi CD19directed chimeric antigen receptor T cell therapy Juno Therapeutics EGFRt41BBmodifiedCARCD8+andCD4+TlymphocytesJunoTherapeutics Gene modified autologous T cells JCAR 017 Lisocel	Immunologic cytotoxicity T lymphocyte replacements	CAR-T cell therapies Gene therapies	Diffuse large B cell lymphoma	IV	USA
54	Lonafarnib - Eiger Biopharma-ceuticals	EBP 994 MK6336 Sarasar SCH 066336 SCH 66336 Zokinvy	Farnesyltranstransferase inhibitors	Amides Benzene derivatives Halogenated hydrocarbons Piperidines Pyridines Small molecules	Progeria	PO	USA
55	Lonapegso-matropin - Ascendis Pharma	ACP 001 ACP 011 Lonapegsomatropintcgd SKYTROFA TransCon growth hormone TransCon hGH TransCon PEG growth hormone TransCon PEG hGH TransCon PEG somatropin	Human growth hormone replacements	Growth hormones Polyethylene glycols Recombinant proteins	Somatotropin deficiency	SC	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
56	Loncastuximab tesirine - ADC Therapeutics	ADCT402 AntiCD19PBDconjugateADC Lonca loncastuximab tesirinelpyl LoncaT ZYNLONTA	Alkylating agents DNA cross linking agents	Benzodiazepines Drug conjugates Immunotoxins Pyrroles	Diffuse large B cell lymphoma	IV	USA
57	Low molecular weight heparin biosimilar - Shenzhen Techdow Pharmaceuti-cals/Valeo Pharma	LMWH biosimilar LMWH biosimilar Valeo Pharma Redesca Redesca HP	Factor Xa inhibitors Thrombin inhibitors	Low molecular weight heparins	Thromboembolism Deep vein thrombosis Pulmonary embolism	Parenteral Parenteral Parenteral	Canada Canada Canada
58	Margetuximab - MacroGenics	AntiHER2monoclonalantibody GreenCross MARGENZA Margetuximabcmkb MGAH22	Antibody-dependent cell cytotoxicity Natural killer cell stimulants	Monoclonal antibodies	Breast cancer	IV	USA
59	Maribavir - Takeda	1263W94 Benzimidavir Camvia GW 1263 GW 1263W94 LIVTENCITYTM Maribavir Shire SHP620 TAK 620 VP41263	Ganciclovir kinase inhibitors	Benzimidazoles Ribonucleosides Small molecules	Cytomegalovirus infections	PO	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
60	Meningococcal vaccine groups A C Y W-135 conjugate (second generation) - Sanofi	Men Quad TT MenACYW conjugate vaccine Meninge ACTW conj Sanofi Meningococcal polysaccharide (serogroups ACY and W) tetanus toxoid conjugate vaccine MenQuadfi Quadrivalent Meningococcal Conjugate Vaccine TetraMenT	Immunostimulants	Conjugate vaccines Meningococcal vaccines	Meningococcal group A infections	IM	USA
61	Misoprostol - Azanta	Angusta PGE1	Prostaglandin receptor agonists	Prostaglandins	Labour induction	PO	United Kingdom
62	Naloxone intranasal spray - Hikma Pharmaceuticals	KLOXXADO Naloxone hydrochloride nasal spray Hikma Pharmaceuticals Naloxone nasal spray Hikma Pharmaceuticals	Opioid mu receptor antagonists	Benzofurans Isoquinolines Ketones Morphinans Small molecules	Opioid-related disorders	Intranasal	USA
63	Norepinephrine injection - Baxter International	Levophed Noradrenalineinjection Norepinephrinebitartrate	Adrenergic receptor agonists	Catecholamines Ethanolamines	Hypotension	IV	USA
64	Odevixibat - Albireo Pharma	A4250 Bylvay Odevixibat sesquihydrate Alberio Pharma	Sodium-bile acid cotransporter inhibitors	Acetamides Butyric acids Small molecules Sulfones Thiazepines	Intrahepatic cholestasis	PO	USA, Germany

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
65	Olanzapine/ samidorphan - Alkermes	ALKS 33/olanzapine ALKS3831 LYBALVI Olanzapine/ALKS 33 OLZ/SAM Alkermes plc Samidorphan/olanzapine	Dopamine D1 receptor antagonists Dopamine D2 receptor antagonists Opioid mu receptor antagonists Serotonin 2A receptor antagonists	Amides Benzodiazepines Cyclopropanes Morphinans Oxazepines Phenanthrenes Small molecules Thiazepines	Schizophrenia Bipolar disorders	PO PO	USA USA
66	Orelabrutinib - InnoCare Pharma	ICP 022 INNOBRUKA	Agammaglobulinaemia tyrosine kinase inhibitors	Amides Phenyl ethers Piperidines Pyridines Small molecules	Mantle-cell lymphoma Chronic lymphocytic leukaemia	PO PO	China China
67	Osimertinib companion diagnostic - Guardant Health/ AstraZeneca	Osimertinib Guardant360 CDx companion diagnostic	Undefined mechanism	Diagnostic agents	Non-small cell lung cancer	unspecified	USA
68	Oxycodone/ naloxone sustained release - Shandong Luye Pharmaceutical	LY021702	Opioid delta receptor agonists Opioid kappa receptor agonists Opioid mu receptor agonists Opioid mu receptor antagonists	Morphinans Morphine derivatives Opioid analgesics Small molecules	Pain	PO	Europe
69	Pamiparib - BeiGene	BeiGene290 BGB290 BGB290BeiGene PARPi BeiGene PARTRUVIX	Poly(ADP-ribose) polymerase 1 inhibitors Poly(ADP-ribose) polymerase 2 inhibitors	Aza compounds Fluorinated hydrocarbons Ketones Small molecules	Fallopian tube cancer Ovarian cancer Peritoneal cancer	PO PO PO	China China China
70	Pegcetacoplan - Apellis Pharmaceuti-cals/Swedish Orphan Biovitrum	APL2 Aspaveli EMPAVELI	Complement C3 inhibitors	Cyclic peptides Polyethylene glycols	Paroxysmal nocturnal haemoglobinuria	SC	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
71	PG 001	PG001	Proto oncogene protein c met stimulants	Growth factors	Liver disorders	unspecified	Japan
72	PG 002	PG002	Transforming growth factor beta1 inhibitors	Peptides	Cancer	unspecified	Japan
73	Piflufolastat F18 - Curium Pharma/ Progenics Pharmaceuticals	18FDCFPyL 18FDCFPyL (PyLPSMA) PET/CT DCFPyL18F Fluorine18 DCFPyL Fluorine18 piflufolastat Piflufolastat F 18 injection PyL PYLARIFY	Positron-emission tomography enhancers	Amides Carboxylic acids Fluorinated hydrocarbons Imaging agents Pyridines Radiopharmaceutical diagnostics Radiopharmaceuticals Small molecules Urea compounds	Prostate cancer	IV	USA
74	Ponesimod - Janssen Pharmaceuticals	ACT128800 Compound 8bo Actelion PONVORY R3477 RG 3477	Sphingosine 1 phosphate receptor modulators	Chlorobenzenes Imines Phenyl ethers Small molecules Thiazolidines	Multiple sclerosis	PO	USA
75	Potassium bicarbonate/ potassium citrate - Advicenne	ADV 7103 Potassium citrate monohydrated/ potassium hydrogen carbonate Potassium citrate/potassium bicarbonate Potassium hydrogen carbonate/ potassium citrate monohydrated Potassiumbicarbonate/ potassiumcitrateAdvicenne Sibnayal	Electrolyte replacements	Citrates Electrolytes Potassium compounds Small molecules	Kidney disorders	PO	United Kingdom
76	Ramosetron - Samyang Biopharmaceuti-cals Corporation	Emestop FD Tab Emestop oral disintegrating tablet Ramosetron hydrochloride Samyang Biopharmaceuticals Corporation	Serotonin 3 receptor antagonists	Benzimidazoles Small molecules	Nausea and vomiting	PO	South Korea

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
77	Ranibizumab biosimilar - Kidswell Bio/ Senju Pharmaceutical	GBS007 OT701 RanibizumabBS SJP0133	Vascular endothelial growth factor A inhibitors	Immunoglobulin fragments Monoclonal antibodies	Age-related macular degeneration	Ophthalmic	Japan
78	Recombinant crisantaspase - Jazz Pharmaceuticals / Pfenex	Asparaginase Erwinia chrysanthemi (recombinant)rywn Asparaginase Erwinia chrysanthemirywn JZP458 PF743 Recombinant Asparginase Erwinia chrysanthemi Jazz Pharmaceuticals/ Pfenex Recombinant Erwinia asparaginase Jazz Pharmaceuticals/Pfenex Rylaze	Asparaginase replacements	Amidohydrolases Recombinant proteins	Precursor cell lymphoblastic leukaemia-lymphoma	IM	USA
79	Relugolix - Myovant/Takeda	ORGOVYX Relumina RVT 601 TAK385	LHRH receptor antagonists	Analgesics Fluorobenzenes Ketones Pyridazines Pyrimidines Small molecules Thiophenes Urea compounds	Prostate cancer	PO	USA
80	Remimazolam tosylate - Jiangsu Hengrui Medicine	HR7056 Remimazolam tosilate	GABA A receptor agonists	Benzodiazepines Halogenated hydrocarbons Imidazoles Propionates Pyridines Small molecules	Sedation	IV	China

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
81	Riluzole - Aquestive Therapeutics	AQST117 Exservan Riluzole oral soluble film Riluzole OSF	Excitatory amino acid antagonists Glutamate release inhibitors Voltage-gated sodium channel inhibitors	Benzothiazoles Small molecules	Amyotrophic lateral sclerosis	PO	USA
82	Rintatolimod - AIM ImmunoTech	Ampligen Atvogen Mismatched doublestranded RNA AIM ImmunoTech Poly IPoly C12U Poly IpolyC12U poly(I) poly(C12U) Rintamod VaccineadjuvantpolyIpolyC12U Vaccineadjuvantrintatolimod	HIV replication inhibitors Immunostimulants Interferon stimulants Ribonuclease stimulants RNA synthesis inhibitors Toll-like receptor 3 agonists VP35 protein inhibitors	Oligonucleotides	Renal cell carcinoma Malignant melanoma Chronic fatigue syndrome HIV infections	IV IV IV IV	USA USA USA USA
83	Risperidone extended release - Luye Pharma Group	LY03004 Risperidone ER microspheres Luye Pharma Group Risperidone Microspheres for Injection (II) Luye Pharma Group Rykindo	Dopamine D2 receptor antagonists Serotonin 2A receptor antagonists	Fluorinated hydrocarbons Isoxazoles Piperidines Pyrimidinones Small molecules	Schizophrenia	IM	China
84	Rituximab biosimilar - Allergan/Amgen	ABP 798 APB798 RIABNI	Antibody-dependent cell cytotoxicity T lymphocyte stimulants	Monoclonal antibodies	Granulomatosis with polyangiitis Microscopic polyangiitis Chronic lymphocytic leukaemia Non-Hodgkin's lymphoma	IV IV IV IV	USA USA USA USA
85	Rituximab biosimilar - Eli Lilly and Company/ Innovent Biologics	HALPRYZA IBI301	Antibody-dependent cell cytotoxicity T lymphocyte stimulants	Monoclonal antibodies	Follicular lymphoma Diffuse large B cell lymphoma Chronic lymphocytic leukaemia	IV IV IV	China China China
86	Rituximab biosimilar - Zydus Cadila	Vortuxi	Antibody-dependent cell cytotoxicity T lymphocyte stimulants	Monoclonal antibodies	Rheumatoid arthritis	IV	India

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
87	Rivastigmine transdermal multi day - Luye Pharma	Kingsmin LY 03013 LY 30410 RIDTDS Rivastigmine MD Rivastigmine transdermal Luye Pharma	Acetylcholinesterase inhibitors Butyrylcholinesterase inhibitors	Phenylcarbamates Small molecules	Alzheimer's disease	Transdermal	China
88	Rizatriptan oral film - IntelGenx	INT 0008/2007 INT 0008/2008 INT0008 RHB103 Rizaport RIZAPORT VersaFilm	Serotonin 1B receptor agonists Serotonin 1D receptor agonists	Small molecules Triazoles Tryptamines	Migraine	PO	Spain
89	SARS CoV 2 vaccine inactivated - Sinovac Biotech	Adsorbed COVID19 Vaccine inactivated Sinovac CoronaVac Coronavac CoronaVac COVID19 Vaccine (Vero Cell) Inactivated Sinovac Biotech COVID19 vaccine Sinovac Biotech COVID2019 vaccine Sinovac Biotech PiCoVacc SARSCoV2 inactivated vaccine	Immunostimulants	COVID-19 vaccines Viral vaccines	COVID 2019 infections	IM	China
90	Savolitinib - AstraZeneca/ HUTCHMED	AZD6094 HMP504 HMPL504 Orpathys Volitinib	Proto oncogene protein c met inhibitors	Imidazoles Pyrazines Pyrazoles Pyridines Small molecules Triazoles	Non-small cell lung cancer	PO	China

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
91	Serdexmethyl-phenidate/ dexmethyl-phenidate - KemPharm	AZSTARYS Dmethylphenidate prodrug KemPharm Dthreomethylphenidate prodrug KemPharm KP 415 Methylphenidateprodrug KemPharm SDX KemPharm Serdexmethylphenidate chloride KemPharm Serdexmethylphenidate/dMPH KemPharm	Adrenergic receptor modulators Central nervous system stimulants Dopamine release stimulants	Phenylacetates Piperidines Small molecules	Attention-deficit hyperactivity disorder	PO	USA
92	Setmelanotide - Rhythm	BIM22493 CAM 4072 IMCIVREE RM493	Melanocortin type 4 receptor agonists	Amides Cyclic peptides Cysteines Disulfides	Obesity	SC	USA
93	Sotorasib companion diagnostic - Amgen/QIAGEN	AMG 510 companion diagnostic Amgen/QIAGEN Sotorasib therascreen KRAS RGQ PCR kit	Undefined mechanism	Diagnostic agents	Non-small cell lung cancer	unspecified	USA
94	Surufatinib - HUTCMED	HMPL012 Sufatinib Sulanda Sulfatinib HUTCHMED	Macrophage colony stimulating factor receptor antagonists Type 1 fibroblast growth factor receptor antagonists Vascular endothelial growth factor receptor 3 antagonists Vascular endothelial growth factor receptor-1 antagonists Vascular endothelial growth factor receptor-2 antagonists	Indoles Pyrimidines Small molecules Sulfonamides	Neuroendocrine tumours	PO	China

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
95	Tafasitamab - Incyte Corporation/ MorphoSys	antiCD19 MAb XmAb5574 antiCD19 MoAb XmAb5574 INCMOR0208 Minjuvi Monjuvi MOR 208 MOR00208 Tafasitamabcxix XENP5574 XmAb5574	Antibody-dependent cell cytotoxicity T lymphocyte stimulants	Monoclonal antibodies	Diffuse large B cell lymphoma	IV	USA
96	Telitacicept - Yantai Rongchang Pharmaceutical	RC18 RCT18 Tai##8217##ai Taiai	B cell activating factor inhibitors Immunomodulators Tumour necrosis factor ligand superfamily member 13 inhibitors	Immunoglobulin Fc fragments Recombinant fusion proteins	Systemic lupus erythematosus	SC	China
97	Teserpaturev - Daiichi Sankyo Company/ University of Tokyo	DELYTACT DS 1647 G47 delta oncolytic virus therapy Daiichi Sankyo/University of Tokyo G47 oncolytic virus therapy Daiichi Sankyo/University of Tokyo G47Delta oncolytic virus therapy Daiichi Sankyo/University of Tokyo Oncolytic herpes simplex virus type I Daiichi Sankyo Company/University of Tokyo	Cell death stimulants Immunologic cytotoxicity	Gene therapies Oncolytic viruses	Glioma	Intrapleural	Japan
98	Tirbanibulin - Almirall/ Athenex	ALM14789 KLISYRI Klisyri KX01 KX2391	Src-Family kinase inhibitors Tubulin polymerisation inhibitors	Acetamides Morpholines Phenyl ethers Pyridines Small molecules	Actinic keratosis	Topical	Germany, USA, United Kingdom

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
99	Tisotumab vedotin - Genmab/Seagen	HuMaxTF HuMaxTFADC HumaxTFADC TF011MMAE Tisotumab vedotintftv Genmab/ Seagen TIVDAK	Antibody-dependent cell cytotoxicity Tubulin modulators	Auristatins Drug conjugates Immunotoxins Monoclonal antibodies	Cervical cancer	IV	USA
100	Trastuzumab emtansine - Zydus Cadila	Ujvira ZRC3256	Apoptosis stimulants Mitosis inhibitors Tubulin inhibitors Tubulin polymerisation inhibitors	Drug conjugates Immunotoxins Macrolides Maytansinoids Monoclonal antibodies	Breast cancer	IV	India
101	Tree pollen allergy immunotherapy - Lofarma	Carbamylated monomeric tree pollen drops LAIS BirchAlder tablets Lais Frhblher sublingual drops Treepollen allergoid Lofarma	Immunomodulators	Allergens Tree pollen allergy immunotherapies	Allergic rhinoconjunctivitis	Sublingual	Germany
102	Trientine tetrahydro-chloride - Orphalan	Cuprior TETA 4HCl	Chelating agents	Ethylenediamines Small molecules	Hepatolenticular degeneration	PO	European Union
103	Trilaciclib - G1 Therapeutics	COSELA G1T 28 G1T281	Cyclin-dependent kinase 4 inhibitors Cyclin-dependent kinase 6 inhibitors	Amines Aza compounds Cyclohexanes Ketones Piperazines Pyrazines Pyridines Pyrimidines Pyrroles Small molecules Spiro compounds	Small cell lung cancer	IV	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
104	Umbralisib - TG Therapeutics	RP 5307 RP5264 TGR1202 UKONIQ	Casein kinase lepsilon inhibitors Phosphatidylinositol 3 kinase delta inhibitors	Amines Benzopyrans Fluorinated hydrocarbons Ketones Pyrazoles Pyrimidines Small molecules	Follicular lymphoma Marginal zone B-cell lymphoma	PO PO	USA USA
105	Varenicline - Oyster Point Pharmaceuticals	OC01 OC01 nasal spray TYRVAYA	Alpha4 beta2 nicotinic receptor agonists Virus internalisation inhibitors Virus replication inhibitors	3-ring heterocyclic compounds Azabicyclo compounds Benzazepines Bridged-ring heterocyclic compounds Pyrazines Quinoxalines Small molecules	Dry eyes	Intranasal	USA
106	Viloxazine hydrochloride - Supernus Pharmaceuticals	QELBREE SPN 809 SPN 812 SPN812 ER SPN812V Viloxazine extendedrelease Supernus Pharmaceuticals Viloxazine hydrochloride extended release Supernus Pharmaceuticals	Adrenergic uptake inhibitors	Ethers Morpholines Small molecules	Attention-deficit hyperactivity disorder	PO	USA

	Drug	Synonyms	Mechanism of Action	Chemical/ Biological Class	Marketed Indications	Route	Location
107	Voclosporin - Aurinia Pharmaceuticals	ISA(TX)247 ISA247 ISAtx 247 ISATx247 LUPKYNIS Orelvo R1524 transISA 247 transR 1524 Voclera	Calcineurin inhibitors Immunosuppressants Virus replication inhibitors	Ciclosporins Small molecules	Lupus nephritis	PO	USA