SPECIAL Report

New Molecular Entities Listed in 2023

A Synopsis of the Key Drugs Listed in 2023 - their positioning and how they are going to impact the market landscape.

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Analyst | Devesh.Singh

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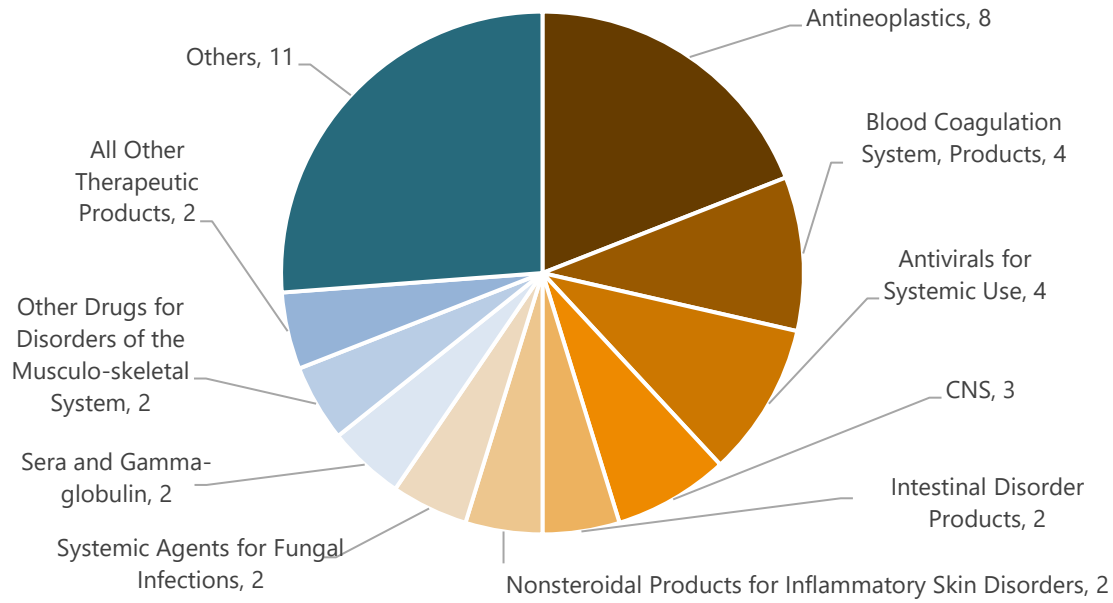
*1...Drugs indicated for "SARS-COV2 infection" are in the section "Profile of new molecular entities Listed in 2023, excluding the drugs which are described above", not in the section "Drugs Containing New Active Ingredients & Listed Under over ¥10 Billion of Peak Sales Potential".

Overview of New Molecular Entities*2 Listed in 2023

In 2023, a total of 42 new molecular entities (NMEs) were listed in Japan. This count was smaller than the count of NMEs listed a year ago in the 2022 (47 new drugs), however the combined peak sales estimate for 2023 was higher (¥468 Billion vs. ¥360 Billion).

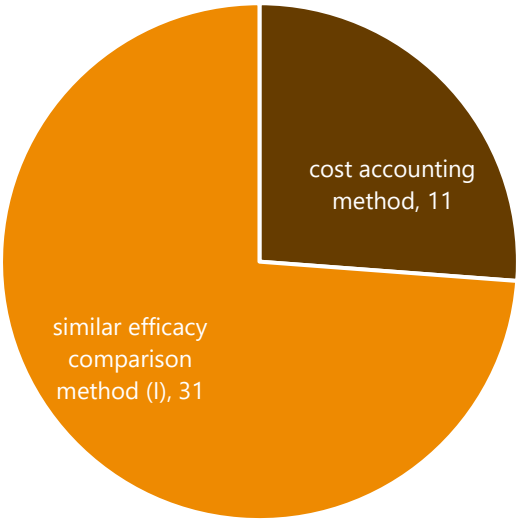
Oncology continues to be the largest contributor for NMEs flow and a total of 8 new drugs from oncology were listed. It was followed by 4 each from "Blood Coagulation System, Products" and "Antivirals for Systemic Use" (Figure 1).



Source: MHLW, Encise Research Center

Figure 1. New Molecular Entities Listing in 2023 by Therapeutic Category

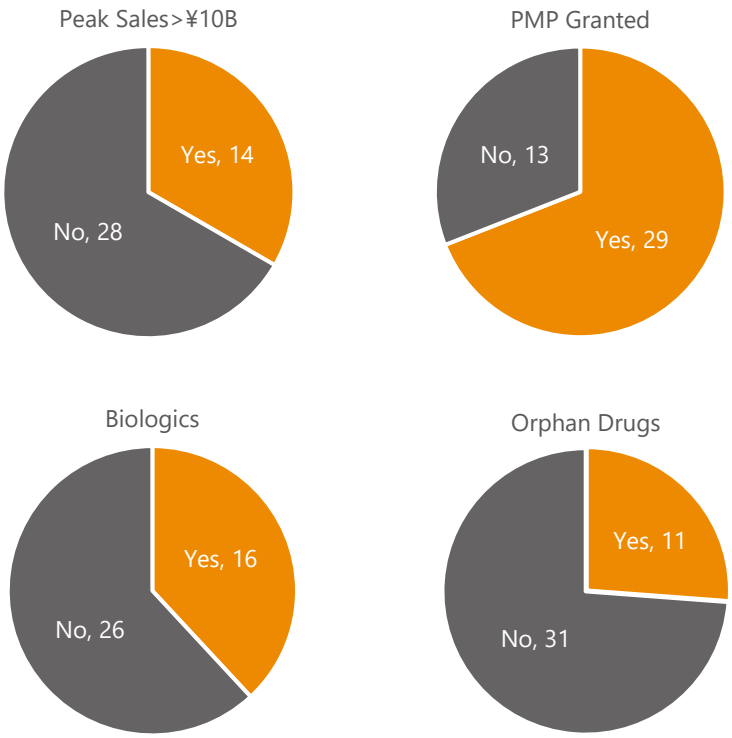
On pricing method front – maximum 31 drugs were priced by 'similar efficacy comparison method (I)', followed by 11 from the 'cost accounting method' (Figure 2).



Source: MHLW, Encise Research Center

Figure 2. New Molecular Entities Listing by Price Method

Out of these 42 NMEs, 14 are expected to have over ¥10 Billion of peak sales potential and 29 have received 'price-maintenance premium'. Out of these 42, 16 are biologics and 11 are listed under orphan drug status. (Figure 3 to 6).



Source: MHLW, Encise Research Center

Figure 3 to 6.

New Molecular Entities Listings by Different Categories

A more comprehensive overview of NMEs listing in past 10 years is provided under the appendix of this report (figure 7 to figure 12).

*2...The report includes all 'ethical drugs' approved as drugs containing new active ingredients and 'human cell therapy and gene therapy products' categories specified by the MHLW.

Altuviiio - FVIII replacement therapy with once-weekly dosing

Drug Profile - Altuviiio					
Molecule Type	Biologics(not mAb)	Molecule	Efanesoctocog alfa (genetical recombination)	Brand	Altuviiio
Launch Month	November 2023	Form	Injection	Strength	250/vial (with solution) 500/vial (with solution) 1,000/vial (with solution) 2,000/vial (with solution) 3,000/vial (with solution) 4,000/vial (with solution)
Therapeutic Classes[*3] (2nd level)	Blood Coagulation System Products	Mechanism of Action (MOA)	Hemostasis/Replacement of blood coagulation factor VIII		
Therapeutic Classes[*3] (3rd level)	Blood Coagulation Products				
Indication	Suppression of bleeding tendency in patients with blood coagulation factor VIII deficiency				
Manufecturer	Sanofi	Marketer	Sanofi	Originator/s	Amunix Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥49,543, ¥99,085, ¥198,171, ¥396,341, ¥594,512, ¥792,683	Peak Sales (Predicted[*4])	¥19.1 Billion
Total Sales of the Therapeutic Category (Blood Coagulation Products) [*5]					¥151 Billion
Contribution of the Brands in the Category (Blood Coagulation Products) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Blood Coagulation Products) [*5]					78%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Altuviiio is a factor VIII replacement therapy for hemophilia A and was listed and launched in November 2023.

The Drug: Altuviiio is a factor VIII replacement therapy for Hemophilia A which delivers normal to near-normal factor activity levels with once-weekly dosing, as compared to the existing replacement therapies, which need to be given twice or three times each week.

Pricing and Peak Sales Potential: Altuviiio's price was set by comparing it with Bayer Yakuhin's Jivi (recombinant damoctocog alfa pegol) as the reference, and it was granted a 5% utility premium (II). According to the data submitted to Chuikyo, Altuviiio is expected to generate peak sales of ¥19.1B in the 10th year, treating 669 patients. Despite the peak sales forecast exceeding ¥10B, Altuviiio will not be subject to the CEA, as drugs exclusively used for rare diseases such as hemophilia are excluded from the system's scope.

About the Indication: Hemophilia A is a rare lifelong condition which hampers blood clotting, leading to excessive bleeds that may cause joint damage, chronic pain, and affect quality of life. Its severity depends on clotting factor activity levels. Hemophilia A entails a deficiency of clotting factor VIII (FVIII), necessitating lifelong prophylactic treatment, often with recombinant FVIII. Altuviiio is a factor VIII replacement therapy approved for routine prophylaxis, on-demand treatment, and surgical management for adults and children.

When an injury causes a bleed, a process known as hemostasis occurs at the injury site to form a clot and stop the bleed. Hemostasis is achieved in 2 parts – 1.) Primary hemostasis, where platelets gather at the injury site aided by von Willebrand Factor (vWF) to create a "platelet plug" reducing blood loss, and 2.) Secondary hemostasis, where the clotting cascade generates a fibrin mesh around the platelets to stabilize the clot. Without enough Factor VIII, body's ability to generate thrombin is reduced. The amount of Factor VIII in blood is measured under "factor activity level" and when it is less than 1% of the normal level, it is considered Severe hemophilia. Hemophilia due to deficiency of factor IX is known as Hemophilia B.

Clinical Data: The approval of Altuviiio was backed on the results from a phase 3 study called XTEND-1. The data from this study published in NEJM showed that Altuviiio met primary and key secondary endpoints, demonstrating clinically meaningful prevention of bleeds and superior bleed protection compared to prior factor VIII prophylaxis based on an intra-patient comparison. More specifically, the results demonstrate that Altuviiio delivered normal to near-normal factor activity levels (>40%) for the majority of the week with once-weekly dosing.

Positioning & Market Outlook: Until 2006, all available factor VIII products used human or animal blood-derived components at some stage in manufacturing or formulation. Advate (from Baxter) was approved in 2006 in Japan, was the world's first and only recombinant factor VIII therapy processed without any human or animal-derived protein indicated for the hemophilia A. It reduced the potential risk of infections that may be caused by pathogens carried in human or animal-derived additives.

The Hemophilia A market landscape has changed significantly in recent years after entry of a number of 'genetically recombinant' factor VIII replacement therapies with longer duration of action. Altuviiio differentiates itself from the competition due to its extended half-life, which is three to four times longer than rival therapies as per Sanofi. Current factor VIII products cause levels to go up but decrease quickly, meaning patients have to go in for routine prophylaxis every two days. By contrast Altuviiio's weekly dosing.

Hemlibra is leading this market – however, it is bispecific antibody for factor IX and X and hence it is indicated for hemophilia A with or without factor VIII inhibitors.

A number of new candidates are under development for hemophilia including gene therapies, and we are likely to see new drugs in future. Pfizer has filed Marstacimab in March 2024. It is indicated for both hemophilia A or hemophilia B without inhibitors to factor VIII (FVIII) or factor IX (FIX).

An Interesting Fact: Hemophilia A medications, which are factor VIII replacement therapies, commonly use the 'ate' suffix in their names to denote factor VIII (eight or 8). Examples include Recombinate (Rurioctocog alfa from Baxter), Advate (Rurioctocog alfa, genetically recombinant, launched in 2020 by Takeda), Eloctate (launched in May 2019 by Sanofi) etc. However, Altuviiio stands out as the first drug to incorporate the Roman numeral VIII into its brand name. Likewise, treatments for hemophilia B, which are factor IX replacement therapies, often incorporate 'IX' in their names, such as Benefix, Alprolix, Ixinity, Hemgenix etc.

Table 1. Select Drug Candidates for Hemophilia A[*6]

Brands (Molecule) Marketer	Launch	2023 Sales	Dose Prophylaxis[*7]
Coagulation factor VIII replacement – for Hemophilia A			
Altuviiio (Efanesoctocog alfa, GR) Sanofi	2023	n/a	1x wk
Adynovate (Rurioctocog alfa pegol, GR) Takeda	2020[*8]	¥16.8B	2X wk
Advate (Rurioctocog alfa, GR) Takeda	2020[*8]	¥4.4B	3x-4x wk
Eloctate (Efraloctocog alfa, GR) Sanofi	2019[*9]	¥11.8B	Initially 2x wk then every 3-5days
Jivi (Damoctocog alfa pegol, GR) Bayer	2019	¥4.4B	Initially 2x wk then every 5days
Bispecific antibody (for factors IXa and X) - Hemophilia A			
Hemlibra[*10] (Emicizumab, GR) Chugai	2018	¥64.0B	Loading 1x wk for 4wk, then ever 2 or 4 weeks

[*6]…All are genetic recombinant drugs
[*7]…normal dose, may vary
[*8]…Takeda's launch year
[*9]…Sanofi's launch year
[*10]…Hemlibra is indicated for hemophilia A with or without factor VIII inhibitors.
Source: Encise Research Center, Company Reports

Overseas Status: The drug obtained US approval in February 2023 under the Altuviiio brand (by Sanofi and Sobi). In Europe, the European Medicines Agency (EMA) has accepted and verified marketing authorization application for Altuviiio in May 2023.

Besremi - a significant advancement in the treatment of polycythemia vera

Drug Profile - Besremi					
Molecule Type	Biologics(not mAb)	Molecule	Ropeginterferon alfa-2b (genetical recombination)	Brand	Besremi
Launch Month	June 2023	Form	Injection	Strength	250μg/0.5mL/syringe 500μg/mL/syringe
Therapeutic Classes[*3] (2nd level)	Immunostimulating Agents	Mechanism of Action (MOA)	Activation of cell growth inhibitory signals		
Therapeutic Classes[*3] (3rd level)	Interferons				
Indication	Polycythemia vera (limited to cases in which existing treatments are inadequate or inappropriate)				
Manufecturer	Pharmaessentia Japan	Marketer	Pharmaessentia Japan	Originator/s	PharmaEssentia Corporation
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥297,259, ¥565,154	Peak Sales (Predicted[*4])	¥16.3 Billion
Total Sales of the Therapeutic Category (Interferons) [*5]					¥44 Billion
Contribution of the Brands in the Category (Interferons) [*5]					100%
Hospital (≧100 beds) Sales Ratio in the Category (Interferons) [*5]					84%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

PharmaEssentia launched Besremi in June 2023 as its first product in Japan for polycythemia vera (PV). It won Japanese regulatory approval in March and joined the NHI price list in May.

The Drug: Ropeginterferon alfa-2b is a novel, mono-pegylated, long-acting proline interferon. It works by binding to the interferon alfa receptor (IFNAR) in the bone marrow. It has an inhibitory effect on the proliferation of hematopoietic stem cells, and is thought to decrease the mutated JAK2 (V617F) burden. Its pharmacokinetic properties have been enhanced for longer dosing intervals compared to conventional pegylated interferon.

Pricing and Peak Sales Potential: Besremi was priced under the cost-based method and was given price tag of ¥297,259 for its 250 μg version and ¥565,154 yen for 500 μg. Besremi is expected to generate peak sales of ¥16.3 billion in the 10th year, treating 1,700 patients. It is subject to the cost-effectiveness assessment scheme.

Marketing and Distribution: Besremi is the first product of PharmaEssentia in Japan. PharmaEssentia Japan was established in 2017 as a Japanese subsidiary of the Taipei-headquartered biopharma. PharmaEssentia has set up a stand-alone marketing organization in Japan.

About the Indication: Polycythemia Vera (PV) falls under myeloproliferative neoplasms (MPNs), a group of blood cancers. PV involves a mutation in a single stem cell in the bone marrow, leading to overproduction of blood cells, including red and white blood cells, and platelets. This excessive production, especially of red blood cells, thickens the blood, impairing normal flow and increasing the risk of serious complications like blood clots, heart attacks, and strokes. PV can progress to conditions like myelofibrosis and leukemia. Men over 60 years are at higher risk, with an estimated incidence of two in 100,000 individuals. Besremi is indicated for PV when other therapies are inadequate.

Clinical Data: The NDA submission in Japan relied on clinical trial findings, including a Phase II trial (A19-201 study) conducted in Japan and overseas studies. FDA approval in the USA was supported by a trial involving 51 PV patients at six sites in Austria, with two additional studies providing supplementary safety data. Results indicated that 61% of Besremi-treated patients achieved desired outcomes, such as normalized blood counts, spleen size reduction, and prevention of new blood clots.

Positioning & Market Outlook: Apart from the approval for PV, Besremi is under late-stage development for other indications – it is also under a global Ph III trial for 'essential thrombocythemia' as well as studies for 'adult T-cell leukemia' and 'chronic myelocytic leukemia'.

Besremi holds a robust position in addressing polycythemia vera. According to experts in hematology and oncology, there have been no specific medications designed to halt the progression from polycythemia vera to bone marrow fibrosis and leukemia until now. The introduction of Besremi signifies a noteworthy advancement in treatment, offering the potential to prevent the transition to these diseases.

In PV, a number of exciting agents being developed. Some of the Ph III candidates include Rusfertide, a hepcidin mimetic from Protagonist, which is now partnered with Takeda, Bomedemstat, an LSD1 inhibitor, from Imago BioSciences (now MSD), givinostat, an HDAC inhibitor, from Italfarmaco etc. Backed by exciting new candidates, this market is expected to grow by over 10% CAGR for the next ten years.

Overseas Status: Besremi was approved by the USA-FDA for the treatment of adult patients with PV in November 2021. In the Europe, EMA approved it as a first-line monotherapy to treat PV in adult patients without symptomatic splenomegaly in February 2019. The drug is also approved in Switzerland, Taiwan, Israel and South Korea etc.

Empaveli – the first and only C3 inhibitor for PNH

Drug Profile - Empaveli					
Molecule Type	Small Molecule	Molecule	Pegcetacoplan	Brand	Empaveli
Launch Month	September 2023	Form	Injection	Strength	1,080mg/20mL/vial
Therapeutic Classes[*3] (2nd level)	Immunosuppressants	Mechanism of Action (MOA)	Inhibiting not only the cleavage of C3 but also the production of downstream effectors for complement activation and Membrane-Attack Complex (MAC) by binding to complement C3 protein and C3b.		
Therapeutic Classes[*3] (3rd level)	Other Immunosuppressants				
Indication	Paroxysmal Nocturnal Hemoglobinuria (PNH)				
Manufecturer	Swedish Orphan Biovitrum Japan	Marketer	Asahi Kasei Pharma	Originator/s	Apellis Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥488,121	Peak Sales (Predicted[*4])	¥11 Billion
Total Sales of the Therapeutic Category (Other Immunosuppressants) [*5]					¥2 Billion
Contribution of the Brands in the Category (Other Immunosuppressants) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Other Immunosuppressants) [*5]					94%

[*3]…Encise's Anatomical Therapeutic Chemical Classification
[*4]…according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]…therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Empaveli is the first and only C3 inhibitor treatment for paroxysmal nocturnal hemoglobinuria (PNH). In Japan, Soliris (eculizumab) was launched in June 2010 as the first drug for PNH followed by Ultomiris (ravulizumab) in 2019. Both are C5 inhibitors and from Alexion. C5 inhibitors are currently considered as the first line treatment for PNH.

The Drug: Pegcetacoplan is made of two synthetic peptides (short chains of amino acids) linked together, which target and attach to the C3 complement protein, which is a part of the body's defense system called the 'complement system'. It not only inhibits the cleavage of C3 but also the production of downstream effectors for complement activation and Membrane-Attack Complex (MAC) by binding to complement C3 protein and C3b.

In patients with PNH, the complement proteins are over-active and damage the patients' own cells. By blocking the C3 complement protein, pegcetacoplan prevents complement proteins from damaging cells, thereby helping to relieve the symptoms of this disease.

Empaveli is the first and only C3 inhibitor treatment for PNH that controls both types of hemolysis - intravascular hemolysis (IVH, the destruction of red blood cells inside a blood vessel) and extravascular hemolysis (EVH, the destruction of red blood cells that occurs in the liver or spleen).

Pricing and Peak Sales Potential: Empaveli price was set with Soliris as the comparator drug where it was granted 5% utility premium (II). According to documents submitted to the Central Social Insurance Medical Council (Chuikyo), Empaveli is forecasted to achieve ¥11 billion in peak sales during its 10th year on the market, with an anticipated treatment of 226 patients.

Marketing and Distribution: Asahi Kasei Pharma is the local partner of Sobi in Japan, which holds the exclusive distribution rights to the drug in Japan. Globally, Swedish Orphan Biovitrum Japan (Sobi) and Apellis are partners.

About the Indication: Paroxysmal Nocturnal Hemoglobinuria (PNH) is a rare hematological condition wherein the body's immune system mistakenly attacks and destroys red blood cells, known as erythrocytes, regardless of age. Left untreated, PNH can lead to severe complications such as thrombosis, renal failure, and organ disorders.

Due to its rarity, the precise prevalence and incidence of PNH remain unknown. However, it is estimated that globally, there are approximately 15.9 individuals with PNH per 1 million people, with an annual incidence expected to be around 5 to 6 individuals per 1 million people.

Clinical Data: Empaveli was studied in two Ph III clinical trials for PNH – 1.) the PEGASUS study, which included adults with previous C5i treatment (eculizumab), and 2.) the PRINCE study, which included adults without any previous C5i treatment.

In the PEGASUS study, Empaveli demonstrated superior improvements in hemoglobin (Hb) in people who previously received eculizumab at week 16 ($P<0.0001$). Moreover, the Hb improvement was maintained through the 48-week study. In the PRINCE study, 86% of people taking Empaveli achieved Hb stabilization and 46% of people taking Empaveli achieved Hb normalization over 26 weeks.

Positioning & Market Outlook: Soliris from Alexion was launched on June 2010 as the first drug for PNH in Japan. Later it was approved for other indications also. Until then, hematopoietic stem cell transplantation was used to perform for certain patients. Ultomiris, another drug from Alexion, was the next drug for the PNH which joined the NHI price listing in September 2019. Ultomiris offered extended dosing interval of once every eight weeks (one-fourth the injection frequency of Soliris). Both the Soliris and Ultomiris are C5 inhibitors. C5 inhibitors are currently considered as the first line treatment for PNH.

Empaveli was priced with Soliris as the comparator drug and earned a 5% utility premium. In Japan, Empaveli's recommended dose schedule for adults is subcutaneous injection (1 vial of 1080 mg) twice a week, which can be increased to once every three days if not effective.

Empaveli conducted trails in patients previously treated with C5 inhibitors (eculizumab) as well as in patients who were previously untreated with C5 inhibitors. However, its results from the former study appears more convincing. In Europe, Empaveli is recommended to be used in patients who continue to have anaemia despite treatment with C5 inhibitors for at least 3 months.

A number of new drugs are also approaching the market. These include Crovalimab from Chugai, which is an anti-C5 recycling antibody, Pozelimab from Regeneron, also an anti-C5 antibody etc. In January, 2024, Voydeya (danicopan) from Alexionpharma was approved as the first-in-class, oral, Factor D inhibitor as an ad-on therapy for PNH patients on C5 inhibitors. Globally, over two dozen drugs are under clinical development for PNH and growth can be expected in this market.

Overseas Status: Pegcetacoplan is approved for the treatment of PNH in the United States (it was approved initially in May 2021 and later self-administrating injector was approved in October 2023; in the USA it is sold under the brand name Empaveli), European Union (approved in December 2021; sold under the brand name Aspaveli), and other countries globally. The therapy is also under investigation for some other rare diseases across hematology and nephrology. In February of 2023, the UDA FDA also approved pegcetacoplan (under the brand name Syfovre) as the first in class treatment for GA (Geographic atrophy; a late stage of non-neovascular age-related macular degeneration (non-nAMD)).

Epkinly – the first anti-CD20xCD3 bispecific antibody for LBCL

Drug Profile - Epkinly					
Molecule Type	Biologics(mAb)	Molecule	Epcoritamab (genetical recombination)	Brand	Epkinly
Launch Month	November 2023	Form	Injection	Strength	4mg/0.8mL/vial 48mg/0.8mL/vial
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	T-cell dependent cellular cytotoxicity		
Therapeutic Classes[*3] (3rd level)	Monoclonal Antibody Antineoplastics				
Indication	- The following recurrent or refractory large B-cell lymphoma - Diffuse large B cell lymphoma - High grade B cell lymphoma - Primary mediastinal large B-cell lymphoma - Recurrent or refractory follicular lymphoma				
Manufecturer	Genmab	Marketer	Genmab	Originator/s	Genmab
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥137,724, ¥1,595,363	Peak Sales (Predicted[*4])	¥30.7 Billion
Total Sales of the Therapeutic Category (Monoclonal Antibody Antineoplastics) [*5]					¥1,060 Billion
Contribution of the Brands in the Category (Monoclonal Antibody Antineoplastics) [*5]					90%
Hospital (≥100 beds) Sales Ratio in the Category (Monoclonal Antibody Antineoplastics) [*5]					98%

[*3]…Encise's Anatomical Therapeutic Chemical Classification
[*4]…according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]…therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Epkinly was NHI listed and launched on the same day in November 2023 as the first T-cell engaging bispecific antibody for the treatment of certain types of relapsed or refractory (r/r) large B-cell lymphoma (LBCL).

The Drug: Epkinly is a IgG1 bispecific antibody directed towards certain types of relapsed or refractory LBCL. The drug is designed to slow disease progression by simultaneously binding to CD3 on T cells and CD20 on B cells and inducing the T cell-mediated killing of CD20-positive cells. It is the first bispecific antibody directed at LBCL in Japan.

Pricing and Peak Sales Potential: According to the data provided to Chuikyo, Epkinly is anticipated to achieve peak sales of ¥30.7 billion in its tenth year on the market, with an estimated 972 patients. It falls under the H1 category of products subject to the CEA. Epkinly was priced with Amgen's Blincyto (blinatumomab) as the comparator and was granted a 10% utility premium (II).

Marketing and Distribution: The drug was jointly developed by Genmab and AbbVie as part of their oncology collaboration. Genmab is a marketing authorization holder (MAH) in Japan, while promotions will be run together with AbbVie.

About the Indication: Epkinly is indicated for the treatment of certain types of relapsed or refractory LBCL (diffuse large B-cell lymphoma (DLBCL), high-grade B-cell lymphoma, and primary mediastinal large B-cell lymphoma), and relapsed or refractory follicular lymphoma (FL), after two or more lines of systemic therapy. LBCL is a non-Hodgkin's lymphoma (NHL) that progresses rapidly with abnormalities occurring in B-cell lymphocytes (a type of white blood cell).

DLBCL is the most common type of NHL worldwide, accounting for approximately 30 percent of all NHL cases and comprising an estimated 30,400 U.S. cases in 2022. DLBCL can arise in lymph nodes as well as in organs outside of the lymphatic system, occurs more commonly in the elderly and is slightly more prevalent in men.

As per national cancer center survey report in 2019, the total number of newly diagnosed cases of malignant lymphoma in Japan were 36,638 and this figure has grown at 4.6% 10 years compound annual growth rate (CAGR).

Clinical Data: Epkinly was evaluated in a single-arm clinical trial called EPCORE NHL-1, consisting of three segments: Phase 1 (first-in-human, dose-escalation), Phase 2a (expansion), and Phase 2a (optimization). The accelerated approval by the FDA was based on data from the expansion cohort of 157 patients with r/r LBCL.

Of the 157 patients enrolled, 148 had DLBCL or high-grade B-cell lymphoma, with 86% diagnosed with DLBCL not otherwise specified (NOS). The study aimed to assess Epkinly's safety and effectiveness at the recommended Phase 1 dose across three patient cohorts with various r/r B-cell NHL types and limited treatment options.

Epkinly demonstrated an overall response rate of 61%, including a 39% complete response rate. The median response duration was 15.6 months.

Positioning & Market Outlook: The competition in the anti-CD20 bispecific space is taking shape as a number of big players are expected to enter the market soon.

In March 2024, Chugai has filed an NDA for its anti-CD20xCD3 bispecific antibody mosunetuzumab for the treatment of patients with r/r follicular lymphoma (FL) who have received two or more prior systemic therapies. It was already approved by the USA FDA in Dec 2022 under the brand name Lunsumio. Another anti-CD20xCD3 bispecific antibody from Chugai glofitamab is currently under development in Japan. It is also already approved by the USA FDA (in June, 2023) under the brand name Columvi for the treatment of adult patients with r/r DLBCL NOS or LBCL arising from FL, after two or more lines of systemic therapy. Other candidates from the same category under-development include candidates from Regeneron and Johnson & Johnson (in partnership with Xencor).

Overseas Status: Epcoritamab received accelerated approval from the USA FDA in May 2023 (under brand name Epkinly), and it received conditional approval from the European commission in September 2023 (under brand name Tepkinly).

Leqembi - the first disease-modifying therapy for AD

Drug Profile - Leqembi					
Molecule Type	Biologics(mAb)	Molecule	Lecanemab (genetical recombination)	Brand	Leqembi
Launch Month	December 2023	Form	Injection	Strength	200mg/2mL/vial 500mg/5mL/vial
Therapeutic Classes[*3] (2nd level)	Other CNS Drugs	Mechanism of Action (MOA)	Binding to and neutralization of soluble amyloid-beta (Aβ) oligomers and promotion of Aβ clearance from the brain.		
Therapeutic Classes[*3] (3rd level)	Anti-Alzheimer Products				
Indication	Inhibition of progression of mild cognitive impairment (MCI) and mild dementia due to Alzheimer's disease				
Manufecturer	Eisai	Marketer	Eisai	Originator/s	BioArctic Neuroscience
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥45,777, ¥114,443	Peak Sales (Predicted[*4])	¥98.6 Billion
Total Sales of the Therapeutic Category (Anti-Alzheimer Products) [*5]					¥35 Billion
Contribution of the Brands in the Category (Anti-Alzheimer Products) [*5]					2%
Hospital (≥100 beds) Sales Ratio in the Category (Anti-Alzheimer Products) [*5]					28%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Leqembi was approved in September 2023, for people with mild cognitive impairment (MCI) and mild dementia due to Alzheimer's disease (AD). It is the first AD-modifying therapy approved in Japan and had the highest forecasted peak-sales among all drugs approved in 2023.

The Drug: Lecanemab is a humanized immunoglobulin gamma 1 (IgG1) monoclonal antibody (mAb) designed to target both aggregated soluble and insoluble forms of the Aβ peptide, which constitutes the primary component of the amyloid plaques present in the brains of individuals with AD. The buildup of amyloid beta plaques in the brain stands as a crucial pathophysiological characteristic of AD. Lecanemab selectively binds to neutralize and remove soluble toxic Aβ aggregates that may potentially affect disease pathology and slow the disease progression. Leqembi can only be used in people diagnosed with AD with the presence of Aβ pathology suggested through amyloid PET scans or cerebrospinal fluid testing.

Pricing and Peak Sales Potential: The NHI pricing of Leqembi was established through a cost-based method, involving a "usefulness premium (I)" of 45%. This premium was fully applied due to the product's extensive manufacturing cost transparency (premium coefficient: 1.0). Additionally, Leqembi met the requirements for the post-launch price maintenance premium (PMP).

According to these criteria, it is priced at ¥45,777 per 200mg/2 mL vial and ¥114,443 per 500mg/5 mL vial. Consequently, the anticipated annual cost of Leqembi per patient is approximately ¥2.98 million, which falls below the estimated US$26,500 per year per patient (or roughly ¥3.88 million) in the USA. Data submitted to the Chuikyo suggests that Leqembi is projected to achieve a peak sale of ¥98.6 Billion by treating 32,000 patients in the ninth year following its launch.

About the Indication: AD is a subtype of dementia, which gradually progresses and affects both cognition and behavior. Exact physiology is not known but the role of 'amyloid cascade hypothesis' is widely accepted, which causes the shrinkage of brain tissues and loss of neurons. As per the Ministry of Health, Labour and Welfare (MHLW), estimated about 6 million of elderly over 65 of age have dementia as of 2020, and this is expected to rise to about 7 million by 2025. Growing elderly population makes Japan one of the highest AD prevalent countries among the developed nations.

Clinical Data: The approval of Leqembi was backed on the data from the landmark Phase III Clarity AD clinical study. This study had enrolled 1,795 people with early AD aged from 50 to 90 years and randomised them to receive either a dosage of 10mg/kg of lecanemab every two weeks or a placebo. The primary endpoint of the study was the change from baseline in the Clinical Dementia Rating-Sum of Boxes (CDR-SB) at 18 months. The mean change of CDR-SB from baseline at 18 months was 1.21 and 1.66 for lecanemab and placebo groups, respectively.

The individuals treated with Lecanemab showed a statistically significant reduction by -0.45 in clinical decline on the global cognitive and functional scale, compared with placebo at 18 months, representing a 27% slowing of clinical decline.

Positioning & Market Outlook: After the genericization of major products in 2020, the AD market sales continue to fall sharply. In 2023, the total AD market was ¥36.7 billion (-24% YoY and -29% 3-year compound annual growth rate (CAGR)). There has been no new drug since 2011 in AD in Japan (until Leqembi). However, in the near future, tremendous growth is expected due to the rapidly aging population and the entry of high-priced, disease-modifying drugs like Leqembi.

In Japan, the number of patients with MCI and mild dementia due to AD, which is Leqembi's targeted indication, is estimated at 5.42 million. However, the therapy's actual utilization will be restricted under "optimal use promotion guidelines" that will precisely outline eligibility criteria for patients, facilities, and physicians.

Donanemab, an anti-Aβ antibody from Eli Lilly, is a close competitor candidate of Leqembi. The Ph III study 'TRAILBLAZER-ALZ 2' demonstrated that donanemab significantly slowed cognitive and functional decline in people with early symptomatic AD. Donanemab was filed in Japan in September, 2023.

Overseas Status: Lecanemab received breakthrough therapy designation from the US FDA for the treatment of AD in June 2021 and subsequently was grated accelerated approval in January 2023. Later, supplemental biologics license application (sBLA) was filed supported by the findings from Clarity AD Phase III data for securing the complete approval. In Europe, Eisai submitted a marketing authorization application (MAA) for the drug to the European Medicines Agency (EMA) in January 2023, which was subsequently accepted in the same month. The EMA recommended refusing the marketing authorization for the drug in July 2024.

Leqvio - the first siRNA therapy for hypercholesterolemia

Drug Profile - Leqvio					
Molecule Type	Nucleic Acid	Molecule	Inclisiran sodium	Brand	Leqvio
Launch Month	November 2023	Form	Injection	Strength	300mg/1.5mL/syringe
Therapeutic Classes[*3] (2nd level)	Lipid-regulating/Anti-atheroma Preparations	Mechanism of Action (MOA)	Inhibition of Proprotein convertase subtilisin/kexin type 9 (PCSK9) production by RNA interference		
Therapeutic Classes[*3] (3rd level)	Cholesterol and Triglyceride Regulating Preparations				
Indication	Familial hypercholesterolemia, hypercholesterolemia However, only if both of the following apply. - High risk of cardiovascular events - Inadequate response to HMG-CoA reductase inhibitors or unsuitable for treatment with HMG-CoA reductase inhibitors				
Manufecturer	Novartis Pharma	Marketer	Novartis Pharma	Originator/s	Alnylam Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥443,548	Peak Sales (Predicted[*4])	¥19.5 Billion
Total Sales of the Therapeutic Category (Cholesterol and Triglyceride Regulating Preparations) [*5]					¥135 Billion
Contribution of the Brands in the Category (Cholesterol and Triglyceride Regulating Preparations) [*5]					26%
Hospital (≧100 beds) Sales Ratio in the Category (Cholesterol and Triglyceride Regulating Preparations) [*5]					22%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Novartis launched Leqvio in November 2023 soon after its listing. Leqvio is the first siRNA therapy for dyslipidemia approved in Japan. All other siRNA therapies approved so far in Japan are for rare diseases.

The Drug: Inclisiran exerts its effect by preventing the formation of PCSK9 protein, allowing more LDL receptors to remove circulating LDL-C. After administration, it is slowly released into the cytoplasm and loads onto the RNA-induced silencing complex (RISC). Once loaded, it works with RISC to sequentially cleave multiple copies of PCSK9 protein mRNA, which continuously prevents PCSK9 production. Less PCSK9 allows for increased LDL-C receptors to bind to and decrease circulating LDL-C.

Pricing and Peak Sales Potential: Leqvio was priced by comparator method (I) referring to Amgen's Repatha (evolocumab). For its novel mechanism of action it was granted a utility premium (I) of 40%. Its peak sales is estimated to be ¥19.5B in the 10th year on the market, with 29,000 patients expected, as per the data submitted to MHLW. It will be also subject to the CEA under the H1 product category.

Marketing and Distribution: Novartis will market the drug in Japan. Novartis has obtained global rights to develop, manufacture and commercialize Leqvio under a license and collaboration agreement with Alnylam Pharmaceuticals.

About the Indication: Leqvio is approved for both familial and non-familial hypercholesterolemia. It will be prescribed for patients meeting two criteria: 1) at high risk of cardiovascular events and 2) showing inadequate responses to or unsuitability for HMG-CoA reductase inhibitors. Guidelines promoting optimal usage will be developed to outline specific eligibility criteria for facilities and patients. Optimal use promotion guidelines are to be compiled to specify more detailed eligibility criteria for facilities and patients.

Clinical Data: Leqvio's approval was supported by results from a placebo-controlled, double-blind, randomized Phase III clinical trial programs, including ORION-9, ORION-10, and ORION-11 trials. ORION-9 was a global trial conducted at 46 sites across eight countries, enrolling 482 patients with Heterozygous Familial Hypercholesterolemia (HeFH). In ORION-10, held at 145 US sites, and ORION-11, conducted at 70 sites across seven countries, patients with Atherosclerotic cardiovascular disease (ASCVD) were studied. Additionally, the approval was also backed upon Japanese Phase II trial ORION-15.

In ORION-9, Leqvio reduced LDL-C by 48% compared to placebo at 17 months. ORION-10, with 1,561 ASCVD participants, demonstrated a 52% reduction in LDL-C compared to placebo at 17 months and a 54% reduction from three to 18 months. ORION-11, with 1,617 ASCVD or risk equivalent patients, showed a 50% reduction in LDL-C compared to placebo.

Positioning & Market Outlook: Leqvio carries the exact same indication as Amgen's PCSK9 inhibitor Repatha. However, there is little difference in terms of their expected effects. While Repatha requires subcutaneous injections every two to four weeks, Leqvio offers a significantly extended dosing interval, with injections only every six months during the maintenance phase. This longer interval is particularly advantageous for patient adherence, especially for older individuals who may find self-injections challenging. Specialists recognize the potential of Leqvio to improve patient compliance, particularly among those with poor adherence profiles, thereby reducing treatment dropouts. The less frequent dosing regimen of Leqvio, requiring injections only twice a year, holds promise for revolutionizing the treatment of dyslipidemia.

The total dyslipidemia market was about ¥193 billion in 2023 and it continues to fall sharply (-11% YoY, and -11% 3-year compound annual growth rate (CAGR)) as the major segment statins have been heavily genericized. Going forward, however, growth can be expected in this market driven by next-generation drugs like Leqvio and high R&D activity. Entry of semaglutide in dyslipidaemia market (for diabetes patients) is also going to impact the conventional market.

Overseas Status: Leqvio is approved in more than 90 countries worldwide including the US, EU and China.

Litfulo - the second approved drug for alopecia areata

Drug Profile - Litfulo					
Molecule Type	Small Molecule	Molecule	Ritlecitinib tosilate	Brand	Litfulo
Launch Month	September 2023	Form	Capsule	Strength	50mg/capsule
Therapeutic Classes[*3] (2nd level)	Other Dermatological Preparations	Mechanism of Action (MOA)	Inhibition of Janus kinase (JAK) 3 and TEC family kinases, tyrosine kinases expressed in hepatocellular carcinoma		
Therapeutic Classes[*3] (3rd level)	Other Dermatological Preparations				
Indication	Alopecia areata (limited to refractory cases where hair loss is extensive)				
Manufecturer	Pfizer	Marketer	Pfizer	Originator/s	Pfizer
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥5,802.4	Peak Sales (Predicted[*4])	¥15.6 Billion
Total Sales of the Therapeutic Category (Other Dermatological Preparations) [*5]					¥28 Billion
Contribution of the Brands in the Category (Other Dermatological Preparations) [*5]					93%
Hospital (≥100 beds) Sales Ratio in the Category (Other Dermatological Preparations) [*5]					17%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Litfulo is a kinase inhibitor indicated for the treatment of severe alopecia areata in adults and adolescents 12 years and older, it is the second approved treatment for this indication.

The Drug: Ritlecitinib is an inhibitor of JAK3 and the TEC family kinases. Inhibition of JAK3 and TEC kinase family members by ritlecitinib may block signaling of cytokines and cytolytic activity of T cells, which is implicated in the pathogenesis of alopecia areata. Ritlecitinib is also being evaluated for vitiligo, Crohn's disease, and ulcerative colitis.

Pricing and Peak Sales Potential: Litfulo price was calculated based on the comparator method (I) by referring to Olumiant (baricitinib) and it was granted a 5% usefulness premium (II) and a 5% pediatric premium. Litfulo is eligible for the price maintenance premium (PMP) and will be subject to cost-effectiveness assessments (CEAs) under the 'H1 category' of applicable products (peak sales of over ¥10B). Peak sales are projected to reach ¥15.6 B with 11,000 patients in its 10th year on the market, as per the documents presented to the Central Social Insurance Medical Council (Chuikyo).

About the Indication: Litfulo is approved for the treatment of Alopecia Areata only in extensive and refractory cases. Alopecia Areata is an autoimmune disease characterized by patchy hair loss, which occurs when immune cells attack normal hair follicles. While hair loss commonly occurs on the scalp, it can extend to encompass the entire head and body, including facial areas like eyebrows, eyelashes, and the beard. Although the typical age of onset is between 25 and 35 years, this condition can affect individuals across various age groups, spanning from children to the elderly, irrespective of gender or race. In Japan, the prevalence of Alopecia Areata is gradually increasing, estimated to be approximately 0.2-0.3%.

Additionally, treatment options for alopecia areata are limited, and management after onset is known to be difficult. These can lead to decreased health-related quality of life in many patients, and serious psychological effects such as depression and anxiety.

Clinical Data: The approval was backed on data collected from multiple clinical trials including a global Ph II/III study, titled ALLEGRO-2b/3, as well as a PIII clinical study, ALLEGRO-LT.

The ALLEGRO-2b/3 investigated the drug in a total of 718 AA patients 12 years of age and older, with at least 50% scalp hair loss due to the disease, including alopecia totalis (complete scalp hair loss) and alopecia universalis (complete scalp, face, and body hair loss).

As per Pfizer, ritlecitinib 50 mg and 30 mg achieved the primary efficacy endpoint of the study, which was the proportion of patients with less than or equal to 20% scalp hair loss after 24 weeks of treatment versus placebo.

Positioning & Market Outlook: Various drugs have been used for years to treat Alopecia Areata, but most were not officially approved for this purpose and were used off-label or as over-the-counter (OTC) medicines. These include topical and injectable steroids, minoxidil, anthralin, cyclosporine, methotrexate, sulfasalazine, and more. The first drug officially approved for Alopecia Areata is Eli Lilly's JAK inhibitor Olumiant (baricitinib), given the additional indication by MHLW in June 2022. Olumiant, originally approved for rheumatoid arthritis and atopic dermatitis, had total sales of ¥30.6B from all indications in CY 2023. Litfulo is the second and only competitor of Olumiant for Alopecia Areata.

While the clinical studies for Olumiant (BRAVE-AA trails) and Litfulo (ALLEGRO trials) have differences in design, their findings are somewhat similar. Notably, the Litfulo study included children (age 12 and up), giving it an apparent advantage over Olumiant, which was tested only on adults (age 18-60 years). However, for effective Alopecia Areata treatment, it's crucial to sustain hair growth over an extended period. Since both drugs are relatively new and were studied for only 48 to 52 weeks in trials, we will need post-marketing studies to uncover their sustainable long-term benefits.

Overseas Status: Litfulo received approval from the US FDA in June 2023 and from the European Union in September 2023 as a treatment for severe alopecia areata in both adults and children aged 12 and above.

Mounjaro - first GIP/GLP-1 dual receptor agonist for T2DM

Drug Profile - Mounjaro					
Molecule Type	Small Molecule	Molecule	Tirzepatide	Brand	Mounjaro
Launch Month	April 2023	Form	Injection	Strength	2.5mg/0.5mL/kit 5mg/0.5mL/kit 7.5mg/0.5mL/kit 10mg/0.5mL/kit 12.5mg/0.5mL/kit 15mg/0.5mL/kit
Therapeutic Classes[*3] (2nd level)	Drugs Used in Diabetes	Mechanism of Action (MOA)	Glucose-Dependent Insulinotropic Polypeptide (GIP) / Glucagon-like peptide-1 receptor agonist (GLP-1) receptors agonist		
Therapeutic Classes[*3] (3rd level)	GLP-1 Agonist Antidiabetics				
Indication	Diabetes type 2				
Manufecturer	Eli Lilly Japan	Marketer	Mitsubishi Tanabe Pharma	Originator/s	Eli Lilly and Company
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥1,924, ¥3,848, ¥5,772, ¥7,696, ¥9,620, ¥11,544	Peak Sales (Predicted[*4])	¥36.7 Billion
Total Sales of the Therapeutic Category (GLP-1 Agonist Antidiabetics) [*5]					¥111 Billion
Contribution of the Brands in the Category (GLP-1 Agonist Antidiabetics) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (GLP-1 Agonist Antidiabetics) [*5]					27%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Mounjaro (tirzepatide) is a dual-targeted, injectable, sustained-release therapy indicated for the management of type 2 diabetes (T2D) in adults as an adjunct to diet and exercise. In Japan, it was approved in September 2022 but the listing was delayed until March 15, 2023 and it was launched on April 18, 2023. This was apparently due to its heavy demand in overseas markets.

The Drug: Mounjaro is the first and only once-weekly glucose-dependent insulinotropic polypeptide (GIP) and glucagon-like peptide-1 (GLP-1) receptor agonist to improve blood glucose levels in adults with T2D. GIP and GLP-1 are the native incretin hormones. The activation of these receptors improves the secretion of both first and second-phase insulin and reduces glucagon levels, both in a glucose-dependent manner.

Pricing and Peak Sales Potential: In clinical trials, it has shown superior HbA1c reductions in head-to-head trials with Ozempic and Trulicity. For this, it was granted a 10% utility premium (II) over Ozempic as the comparator. Mounjaro has a projected peak sale of ¥36.7 billion in the 10th year on the market, treating 240,000 patients (as per documents presented to the Central Social Insurance Medical Council (Chuikyo)).

Marketing and Distribution: Mounjaro is originated and developed by Eli Lilly. In Japan, Eli Lilly holds its manufacturing and marketing approval, while Mitsubishi Tanabe (MTPC) is responsible for its sales and distribution. Eli Lilly Japan and MTPC will jointly provide information to healthcare professionals.

About the Indication: T2D occurs predominantly in people over the age of 40. Being overweight and sedentary life-style are one of major causes. DT2 is characterized by impaired insulin secretion and/or resistance. It is called non-insulin-dependent diabetes mellitus (NIDDM), because insulin is produced but the body's insulin receptors are relatively insensitive to the levels of insulin in the body. As per MHLW patient survey data in 2020, the total number diagnosed patients of diabetes under treatment was about 5.8 million. Estimated about 95% of them were T2D.

As per the International Diabetic Federation (IDF), Japan had a 11.8% prevalence of diabetes in adults in 2021. The prevalence of diabetes in Japan is increasing and it is mainly attributed to aging as well as growing obesity rates.

Clinical Data: Mounjaro demonstrated positive outcome in an extensive, global Phase III SURPASS programme that included five clinical trials (SURPASS-1, SURPASS-2, SURPASS-3, SURPASS-4 and SURPASS-5). In SURPASS-1, Mounjaro was studied as a monotherapy while in SURPASS-2-3 and 4, it was studied as an add-on to the metformin, sulfonylureas, and/or sodium-glucose co-transporter 2 inhibitors (SGLT2 inhibitors). In SURPASS-5 it was evaluated in combination with basal insulin with or without metformin.

Mounjaro delivered superior blood glucose level reductions against all comparators in the SURPASS programme. Patients achieved reductions of between 1.8% and 2.1% in their blood glucose levels on an average for Mounjaro 5mg, and between 1.7% and 2.4% for both 10mg and 15mg doses of Mounjaro. Additionally, Mounjaro also led to significantly greater weight loss in patients than other comparators. Patients treated with 5mg of Mounjaro lost 12lb of weight, while those given a 15mg dose saw their weight reduce by 25lb.

Positioning & Market Outlook: The total anti-diabetes drug market was ¥711.8 billion in 2023 and it continues to be one of the growing therapeutic segments in Japan (7% YoY). The dynamics of diabetes market, both for oral agents and injectable agents, is rapidly changing. The growth in the diabetes class is anticipated due to increasing diabetic population, flow of new drugs with new mechanism of actions, expanding labels, new-safety data, and combination therapies especially around SGLT-2 inhibitors and GLP-1 analogues.

GLP-1 analogues and insulins are administered through sub-cutaneous route. GLP-1 analogues posted a total sale of ¥63.8 Billion in 2023. It is a growing class (5% YoY, and 5% 3-Year CAGR) and the growth is likely to be maintained backed by the entry of high-potential new drugs like Ozempic (¥23.5 billion, 89% YoY) and Mounjaro.

Mounjaro is considered as a potential blockbuster globally. The high expectations are based on the robust clinical data it has shown. The topline data of a global Phase III trial (SURPASS-1) indicated a 2.07% reduction in HbA1c and 9.5 kg (11.0%) drop in weight, among other favourable results. It is also under development for chronic weight management, and heart failure with preserved ejection fraction (HFpEF), and for non-alcoholic steatohepatitis (NASH).

Overseas Status: The US FDA approved Mounjaro in May 2022 after granting priority review designation. It received marketing authorization from the European Union in September 2022. In October 2022, the FDA granted Fast Track designation for tirzepatide to evaluate it for the treatment of obesity, or overweight with weight-related comorbidities in adults.

Omvoh - first IL-23 inhibitor in the crowded UC market

Drug Profile - Omvoh					
Molecule Type	Biologics(mAb)	Molecule	Mirikizumab (genetical recombination)	Brand	Omvoh
Launch Month	June 2023	Form	Injection	Strength	100mg/mL/kit 100mg/mL/syringe
Therapeutic Classes[*3] (2nd level)	Intestinal Disorder Products	Mechanism of Action (MOA)	Inhibitory effect on Interleukin-23 (IL-23) p19		
Therapeutic Classes[*3] (3rd level)	Inflammatory Bowel Disorder Products				
Indication	Maintenance therapy for moderate to severe ulcerative colitis (limited to cases with inadequate response to existing treatment)				
Manufecturer	Eli Lilly Japan	Marketer	Mochida Pharmaceutical	Originator/s	Eli Lilly and Company
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥126,798, ¥126,798	Peak Sales (Predicted[*4])	¥29.1 Billion
Total Sales of the Therapeutic Category (Inflammatory Bowel Disorder Products) [*5]					¥62 Billion
Contribution of the Brands in the Category (Inflammatory Bowel Disorder Products) [*5]					80%
Hospital (≥100 beds) Sales Ratio in the Category (Inflammatory Bowel Disorder Products) [*5]					57%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Omvoh was approved in Japan in March 2023 ahead of the USA or Europe. It is indicated for induction and maintenance therapy in patients with moderate to severe ulcerative-colitis (UC) who have an inadequate response to conventional treatments.

The Drug: Mirikizumab is a humanized IgG4 monoclonal antibody which targets the protein p19 subunit of human IL-23 cytokine and selectively inhibits the IL-23 pathway. Overactive IL-23 pathway is a key contributor to inflammation in UC pathogenesis. IL-23 drives mucosal inflammation by regulating T cell and innate immune cell subsets, which produce pro-inflammatory cytokines. By blocking these pathways, Mirikizumab effectively prevents the release of pro-inflammatory cytokines and chemokines.

Pricing and Peak Sales Potential: Omvoh was priced under the comparator method (I) by comparing Skyrizi (risankizumab). Omvoh comes in two formulations - an IV version for remission induction therapy and SC versions (autoinjector and syringe forms) for maintenance therapy. Together, they are expected to carry a peak-sales potential of ¥31.5 billion by treating 15,500 patients (in the 10th year), as per the data submitted at Chuikyo.

Marketing and Distribution: Through the partnership between Eli Lilly and Mochida, Lilly provides Omvoh in Japan while Mochida is responsible for its distribution, sales, and detailing activities.

About the Indication: The Inflammatory Bowel Disease (IBD) is an umbrella terms for autoimmune disorders in gastrointestinal track. Ulcerative colitis (UC) is major subtype of IBD where immune system causes inflammation and ulcers on the inner lining of colon (large intestine) and rectum. Another major subtype is Crohn's disease (CD) which mainly affects the portion of the small intestine before the colon. Ulcerative colitis can develop at any age, but the disease is more likely to develop in people between the ages of 15 and 30.

Clinical Data: In two trials known as LUCENT, Omvoh exhibited favorable outcomes as both induction and maintenance therapy for individuals with ulcerative colitis who had been previously treated. Following a 12-week induction period, 24.2% of patients receiving Omvoh attained clinical remission, compared to 13.3% in the placebo group. Throughout the maintenance phase, 63.6% of those who achieved remission with Omvoh at 12 weeks maintained it for a year, while only 36.9% of patients in the placebo group sustained remission for the same duration.

Positioning & Market Outlook: A number of biologics already available in the UC market (table 2). Although Omvoh is late from that point of view, it is the first IL-23 inhibitor to enter the crowded UC market. By selectively targeting IL-23, Omvoh is viewed as a better therapy than Stelara, which targets both IL-12 and IL-23. With multiple indications, Stelara generated ¥77.2 billion sales (14.6% YoY) in the 2023. Other biologics in the UC market include AbbVie's Humira (2023 sales ¥58.4 Billion, -6.8% YoY) and Takeda's Entyvio (2023 sales ¥17.6 Billion, 13.7% YoY).

Meanwhile, other IL-23 inhibitors are under development for UC. These include Skyrizi (Risankizumab, which is already approved for other indications including Crohn's disease and psoriasis etc.) and Tremfya (guselkumab, which is also already approved for other indications including psoriasis, psoriatic arthritis etc.). AbbVie has already filed Skyrizi to the US FDA and the EMA based on positive phase III results.

Overseas Status: Omvoh was approved in Japan in March 2023 ahead of the USA or Europe. Omvoh was granted marketing authorization in the European Union (EU) in May 2023 for its use as induction and maintenance therapy in patients with moderate to severe UC who have an inadequate response to conventional treatments. In the USA, it was approved by the FDA in October 2023 for treating adults with moderate to severe active UC.

Table 2: Select Biologics Approved for Ulcerative Colitis[*6]

Brand (Molecule) Marketer	MOA	Indications including	2023 Sales
Omvoh (Mirikizumab) Mochida	Targets IL-23p19	Ulcerative Colitis	n/a
Stelara (Ustekinumab) MTPC	targets both IL-12 and IL-23	Crohn's Disease, Ulcerative Colitis, Psoriatic Arthritis, Psoriasis vulgaris	¥77.2 B
Humira (adalimumab) AbbVie	TNF-α inhibitor	Rheumatoid arthritis, psoriasis (vulgaris, arthritis, pustular), ankylosing spondylitis, juvenile arthritis; Behcet's disease, ulcerative colitis etc.	¥58.4 B
Entyvio (Vedolizumab) Takeda	$\alpha_4\beta_7$ integrin blocker	ulcerative colitis and Crohn's disease	¥17.6 B

[*6]…All are genetic recombinant drugs
Source: Encise Research Center, Company Reports

Phesgo - subcutaneous FDC of Perjeta and Herceptin

Drug Profile - Phesgo					
Molecule Type	Biologics(mAb)	Molecule	Pertuzumab (genetical recombination), Trastuzumab (genetical recombination) and Vorhyaluronidase alfa (genetical recombination)	Brand	Phesgo
Launch Month	November 2023	Form	Injection	Strength	10mL/vial 15mL/vial
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	Antibody dependent cellular cytotoxicity		
Therapeutic Classes[*3] (3rd level)	Monoclonal Antibody Antineoplastics				
Indication	- HER2-positive breast cancer - HER2-positive unresectable advanced or recurrent colorectal cancer that exacerbated after cancer chemotherapy				
Manufecturer	Chugai Pharmaceutical	Marketer	Chugai Pharmaceutical	Originator/s	Roche
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥268,695, ¥471,565	Peak Sales (Predicted[*4])	¥34.4 Billion
Total Sales of the Therapeutic Category (Monoclonal Antibody Antineoplastics) [*5]					¥1,060 Billion
Contribution of the Brands in the Category (Monoclonal Antibody Antineoplastics) [*5]					90%
Hospital (≥100 beds) Sales Ratio in the Category (Monoclonal Antibody Antineoplastics) [*5]					98%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Phesgo is a fixed-dose combination of Perjeta and Herceptin - its unique formulation allows for subcutaneous administration, reducing infusion time to five to eight minutes, potentially alleviating strain on healthcare systems and enhancing patient convenience and cost-effectiveness.

The Drug: Phesgo is a fixed-dose subcutaneous combination of two already marketed antibodies from Chugai - Perjeta (pertuzumab) and Herceptin (trastuzumab) along with vorhyaluronidase alfa. Hyaluronidase, a hyaluronic acid-degrading enzyme, is considered to enhance the dispersion and absorption of the antibodies in the combination. Phesgo is the world's first subcutaneous injection for HER2-positive colorectal cancer.

Pricing and Peak Sales Potential: Phesgo was priced by the comparator method by referring to Perjeta and Herceptin as comparators, with no launch premium granted. As per the data submitted to the Central Social Insurance Medical Council (Chuikyo), Phesgo is expected to generate a peak sale of¥ 34.4B in the fifth year on the market, treating 9,300 patients.

About the Indication: Phesgo is indicated for Human Epidermal Growth Factor Receptor 2 (HER2)-positive breast cancer as well as HER2-positive unresectable, advanced/relapsed colorectal cancer that has progressed after chemotherapy. HER2 receptors are present in all cells, whether healthy or cancerous. However, an excess of these receptors can accelerate the growth and division of cancer cells, leading to a condition known as HER2+ cancer.

Roughly 15% to 20% of breast cancer cases are estimated to be HER2-positive. According to data from the Japan National Cancer Center (NCC) in 2019, Japan saw a total of 110,728 new cases of diagnosed breast cancer, marking a 3.9% year-over-year increase and a 63.8% growth over the past decade.

For colorectal cancer, approximately 3-4% of tumors are HER2 positive. According to NCC data from 2019, the total number of newly diagnosed cases of all colon cancer during the same period was 155,625, showing a 2.2% year-over-year increase and a 33.8% growth over the past decade.

Clinical Data: The approval from the Ministry of Health, Labour and Welfare (MHLW) was based on the outcomes of the global Phase III FeDeriCa trial, conducted among patients with HER2-positive breast cancer. This trial, which was open-label, aimed to compare the pharmacokinetics, efficacy, and safety of administering Phesgo via subcutaneous injection alongside chemotherapy versus the intravenous infusion of Perjeta and Herceptin.

Encompassing 500 patients in both neoadjuvant and adjuvant settings, the primary objective was to evaluate the minimum levels of Perjeta in the bloodstream within a specific dosage timeframe, as well as to assess the overall pathological complete response in the breast and axilla following surgery, indicating the absence of detectable cancer tissue in the excised area. The study sought to determine any differences between Phesgo and Perjeta + Herceptin. The FeDeriCa trial effectively achieved its primary goal of demonstrating non-inferior levels of Perjeta in the bloodstream.

Positioning & Market Outlook: As clinical trials of Phesgo aimed to show non-inferiority to the combination of Herceptin and Perjeta, it is likely to protect the sales from the generic erosion of the two brands. Being a fixed-dose subcutaneous agent, Phesgo shortens the administration time as compared to Perjeta and Herceptin, which are both given intravenously, and requires no dose adjustment. As per Chugai, this is expected to contribute to enhance the efficiency of medical resources.

Both Herceptin and Perjeta have been mainstay products for Chugai. Herceptin sales has been declining severely as biosimilars takes the market share and it posted just ¥6.2 Billion (5 years CAGR -29%), while the sales from its biosimilars was ¥8.1 Billion in 2023. There are no biosimilars for Perjeta yet and it is still growing (2023 sales was ¥42.2 Billion, 5.6% YoY). However, as it was launched in 2013, it must be approaching the expiry of its exclusivity (re-examination period).

Overseas Status: The US FDA approved Phesgo for the treatment of eligible patients with early and metastatic HER2-positive breast cancer in June 2020. Following it USA approval, in December 2020, the European Commission granted its approval for treating HER2-positive breast cancer in adults.

Phozevel - a first-in-class phosphate absorption inhibitor

Drug Profile - Phozevel					
Molecule Type	Small Molecule	Molecule	Tenapanor hydrochloride	Brand	Phozevel
Launch Month	February 2024	Form	Tablet	Strength	5mg/tablet 10mg/tablet 20mg/tablet 30mg/tablet
Therapeutic Classes[*3] (2nd level)	All Other Therapeutic Products	Mechanism of Action (MOA)	Inhibition of a sodium–hydrogen antiporter 3 (NHE3)		
Therapeutic Classes[*3] (3rd level)	Hyperkalaemia/Hyperphosphataemia Products				
Indication	Improvement of hyperphosphatemia in patients with chronic kidney disease on dialysis				
Manufecturer	Kyowa Kirin	Marketer	Kyowa Kirin	Originator/s	Ardelyx
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥234.1, ¥345.8, ¥510.9, ¥641.8	Peak Sales (Predicted[*4])	¥19.3 Billion
Total Sales of the Therapeutic Category (Hyperkalaemia/Hyperphosphataemia Products) [*5]					¥57 Billion
Contribution of the Brands in the Category (Hyperkalaemia/Hyperphosphataemia Products) [*5]					70%
Hospital (≥100 beds) Sales Ratio in the Category (Hyperkalaemia/Hyperphosphataemia Products) [*5]					34%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Kyowa Kirin launched Phozevel in February 2024 for the improvement of hyperphosphatemia in chronic kidney disease patients on dialysis.

The Drug: Phozevel is a first-in-class phosphate absorption inhibitor designed to block phosphate absorption through the paracellular pathway by inhibiting the sodium hydrogen exchanger 3 (NHE3) on intestinal epithelial cells in the gut.

Pricing and Peak Sales Potential: Phozevel price was set through comparator method (I) with Kissei's P-TOL Chewable Tablets (sucroferric oxyhydroxide) and was granted a 40% utility premium (I). Its peak sales are forecasted to be at ¥19.3B in the ninth year, with 66,000 patients targeted. It will also go through the CEA under the H1 category of products. Kyowa Kirin projects the drug to generate sales of ¥3.3 billion in its initial year of 2024.

Marketing and Distribution: Kyowa Kirin will handle the marketing of the drug in Japan. They acquired rights for Phozevel's development and commercialization targeting cardiorenal diseases, including hyperphosphatemia, from Ardelyx in 2017. The deal involved an upfront payment of $30M to Ardelyx, with additional milestone payments of up to $130M for development and commercialization. Ardelyx was also entitled to receive high-teen percentage royalties on sales.

About the Indication: Phozevel is indicated for the improvement of hyperphosphatemia in chronic kidney disease patients on dialysis. Hyperphosphatemia is a serious condition, defined as resulting in elevated levels of phosphate in the blood, which affects the vast majority of the patients. The kidneys are responsible for eliminating excess phosphate and as kidney function declines, phosphate is not adequately eliminated from the body. As a result, hyperphosphatemia is a nearly universal condition among people with CKD on maintenance dialysis.

Clinical Data: Phozevel approval was based on the findings from four Phase III trials conducted in Japan on patients undergoing maintenance dialysis with hyperphosphatemia. In these studies, tenapanor, whether used alone or in combination with phosphate binders, showed a statistically significant reduction in serum phosphorus levels compared to a placebo.

Positioning & Market Outlook: Currently phosphate binders are considered as standard of care for managing hyperphosphatemia in CKD patients on dialysis. However, the majority of these patients are unable to consistently achieve target serum phosphate concentrations despite treatment with phosphate binders. Phozevel is not a phosphate binder but a phosphate absorption inhibitor. Therefore, Phozevel's complimentary mechanism of action is helpful to such patients not adequately responding to phosphate binder therapy.

Phozevel price was set by comparison method with Kissei's P-TOL. P-Tol has been in the market since 2015 and available as tablet and granule and posted ¥6.7B in CY 2023. A number of other phosphate binders available in Japan market include lanthanum carbonate (sold under brand name Fosrenol from Bayer and multiple GE companies, total sales in CY 2023 ¥12.4B), Calcium carbonate (sold from multiple companies, CY 2023 sales ¥1.2B), Sevelamer (sold under brand names Phosblock from Kyowa-Kirin) and Renagel (from Chugai, total sales ¥0.9B in CY 2023) etc.

As per MHLW patients survey report, the total number of patients with CKD in Japan was approximately 629,000 (64% males and 36% females) in 2020. Another study mentioned that approximately 350,000 people in Japan are on chronic dialysis, and this number continues to increase.

Considering the unique position Phozevel offers and the large size of the target market, Phozevel sales is likely to pick up early. Kyowa Kirin has estimated that it would generate sales of ¥3.3 B in its initial year of 2024.

Overseas Status: In October 2023, tenapanor was approved by the USA FDA under the Brand name Xphoza to reduce serum phosphorus in adults with CKD on dialysis as add-on therapy in patients who have an inadequate response to phosphate binders or who are intolerant of any dose of phosphate binder therapy. Earlier in September 2019, tenapanor was also approved by the US FDA for the treatment of irritable bowel syndrome with constipation (IBS-C) under the brand name Ibsrela.

Rystiggo - gMG treatment for the two main sub-types

Drug Profile - Rystiggo					
Molecule Type	Biologics(mAb)	Molecule	Rozanolixizumab (genetical recombination)	Brand	Rystiggo
Launch Month	November 2023	Form	Injection	Strength	280mg/2mL/vial
Therapeutic Classes[*3] (2nd level)	Immunosuppressants	Mechanism of Action (MOA)	Inhibition of Immunoglobulin G (IgG) recycling and transcytosis by blocking IgG binding to Neonatal Fc receptor (FcRn)		
Therapeutic Classes[*3] (3rd level)	Other Immunosuppressants				
Indication	Generalized myasthenia gravis (limited to cases with inadequate response to steroids or non-steroidal immunosuppressants)				
Manufecturer	UCB Japan	Marketer	UCB Japan	Originator/s	UCB
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥356,392	Peak Sales (Predicted[*4])	¥20.4 Billion
Total Sales of the Therapeutic Category (Other Immunosuppressants) [*5]					¥112 Billion
Contribution of the Brands in the Category (Other Immunosuppressants) [*5]					77%
Hospital (≥100 beds) Sales Ratio in the Category (Other Immunosuppressants) [*5]					58%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Rystiggo was launched in November 2023 for the treatment of generalized myasthenia gravis (gMG).

The Drug: Rystiggo is a humanized IgG4 monoclonal antibody that targets the human neonatal Fc receptor (FcRn), inhibiting its interaction with Immunoglobulin G (IgG). This process enhances the catabolism of antibodies and lowers the levels of pathogenic IgG autoantibodies. By facilitating intracellular IgG degradation, Rystiggo effectively reduces circulating IgG concentrations.

Pricing and Peak Sales Potential: Rystiggo's pricing was determined using the comparator method (I) and it received a 10% marketability premium due to its orphan designation. According to the data presented to Chuikyo, its peak sales are estimated to reach ¥20.4 billion, based on treating 1,300 patients in the tenth year on the market.

About the Indication: Rystiggo is indicated for treating adult patients with gMG, but only in those who inadequately respond to steroids or other immunosuppressants.

Myasthenia gravis (MG) is a chronic autoimmune disorder in which antibodies destroy the communication between nerves and muscle, resulting in weakness of the skeletal muscles. MG affects the voluntary muscles of the body, especially those that control the eyes, mouth, throat and limbs. MG has two main types: ocular Myasthenia Gravis (oMG), affecting eye and eyelid muscles, and generalized MG (gMG), causing weakness in multiple muscle groups. It is more common in young women (20-30 years old) and men aged 50 and above. The global prevalence is estimated to be around 150 to 350 cases per 1,000,000 people. There are three main sub-types of MG:

1. Anti-acetylcholine receptor (AChR) subtype - anti-AChR antibodies are detected in 85% to 95% of patients with gMG, and 40% to 70% in oMG.
2. Muscle-specific tyrosine kinase (MuSK) subtype - anti-MuSK antibodies are detected in 7% to 10% of all patients with MG and up to 40% of patients who test negative for anti-AChR antibodies.
3. Lipoprotein receptor-related protein 4 (LRP4) accounts for 2% to 50% of double seronegative MG cases.

Clinical Data: The approval was supported by findings from the crucial Phase Ⅲ MycarinG clinical trial. The main effectiveness measure of the trial was assessing the difference in Myasthenia Gravis-Activities Daily Living Profile (MG-ADL) total scores between treatment groups at day 43 compared to baseline. The MG-ADL evaluates the impact of generalized Myasthenia Gravis (gMG) on eight routine activities, including breathing, speaking, swallowing, and mobility. The reductions in MG-ADL score from baseline to day 43 were more significant in the Rystiggo groups compared to the placebo group.

Rystiggo has demonstrated efficacy both in anti-AChR antibody-positive gMG and anti-MuSK antibody-positive gMG, the two most common subtypes of the disease.

Positioning & Market Outlook: The drugs traditionally used for the management of gMG include 1. Cholinesterase inhibitors (e.g. pyridostigmine etc.) to improve communication between nerves and muscles. 2. Corticosteroids (e,g, prednisone etc.) to block the immune system making it less able to produce antibodies. 3. Immunosuppressants (e,g, azathioprine, mycophenolate mofetil, cyclosporine, methotrexate etc.). However, none of them cure the disease but slows the progression or provide symptomatic relief but all of them have side effect profile. In some patients removing thymus gland is found to be effective.

Next generation drugs include the complement inhibitors and neonatal Fc receptor (FcRn) blockers. Soliris (recombinant eculizumab) was the first complement inhibitor for gMG. Ultomiris (ravulizumab) and Zilbrysq (zilucoplan) are also C5-inhibitors. While, Vyvgart (efgartigimod alfa) and Rystiggo (Rozanolixizumab) both are neonatal FcRn blockers.

UCB received approval for two gMG drugs in September 2023, Rystiggo and Zilbrysq. While Rystiggo was launched in November soon after both products were NHI listed, Zilbrysq was launched in February 2024. Zilbrysq is indicated for gMG only in cases with inadequate responses to steroids or other immunosuppressants. It is the first self-injectable subcutaneous treatment for gMG in Japan. As per the data submitted to the Central Social Insurance Medical Council (Chuikyo), its peak sales are projected at ¥8.9B in the 10th year on the market.

Given the substantial unmet need in the field of MG and the recent introduction of promising candidates, significant market growth can be expected in this area. Among late stage pipline candidates, Mitsubishi Tanabe is developing Uplizna (inebilizumab), which an anti-CD-19 mAb, licensed from Amgen (Horizon earlier).

Overseas Status: The USA FDA approved the drug in June 2023 for the treatment of gMG, following the orphan drug designation granted in 2019. Rystiggo received a marketing authorisation valid throughout the EU in January 2024. It was also granted orphan drug designation by the European Commission in April 2020.

Profile of New Molecular Entities Listed in 2023, excluding the drugs which are described above

Tavalisse

Drug Profile - Tavalisse					
Molecule Type	Small Molecule	Molecule	Fostamatinib sodium hydrate	Brand	Tavalisse
Launch Month	April 2023	Form	Tablet	Strength	100mg/tablet 150mg/tablet
Therapeutic Classes[*3] (2nd level)	Blood Coagulation System, Products	Mechanism of Action (MOA)	Spleen tyrosine kinase (SYK) inhibitor		
Therapeutic Classes[*3] (3rd level)	Platelet-Enhancing Products				
Indication	Chronic idiopathic thrombocytopenic purpura				
Manufacturer	Kissei Pharmaceutical	Marketer	Kissei Pharmaceutical	Originator/s	Rigel Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥4,188, ¥6,226.8	Peak Sales (Predicted[*4])	¥6.0 Billion
Total Sales of the Therapeutic Category (Platelet-Enhancing Products) [*5]					¥45 Billion
Contribution of the Brands in the Category (Platelet-Enhancing Products) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Platelet-Enhancing Products) [*5]					76%

Cresemba (Oral)

Drug Profile - Cresemba					
Molecule Type	Small Molecule	Molecule	Isavuconazonium sulfate	Brand	Cresemba
Launch Month	April 2023	Form	Capsule	Strength	100mg/capsule
Therapeutic Classes[*3] (2nd level)	Systemic Agents for Fungal Infections	Mechanism of Action (MOA)	Inhibition of cell membrane synthesis		
Therapeutic Classes[*3] (3rd level)	Systemic Agents for Fungal Infections				
Indication	Treatment of the following mycoses: ○Aspergillosis (invasive aspergillosis, Chronic Progressive Pulmonary Aspergillosis (CPPA), Simple Pulmonary Aspergillosis (SPA)) ○Mucormycosis ○Cryptococcosis (pulmonary cryptococcosis, disseminated cryptococcosis (including cryptococcal meningitis))				
Manufacturer	Asahi Kasei Pharma	Marketer	Asahi Kasei Pharma	Originator/s	Basilea Pharmaceutica
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥4,505.7	Peak Sales (Predicted[*4])	¥3.4 Billion
Total Sales of the Therapeutic Category (Systemic Agents for Fungal Infections) [*5]					¥35 Billion
Contribution of the Brands in the Category (Systemic Agents for Fungal Infections) [*5]					64%
Hospital (≥100 beds) Sales Ratio in the Category (Systemic Agents for Fungal Infections) [*5]					63%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Paxlovid

Drug Profile - Paxlovid					
Molecule Type	Small Molecule	Molecule	Nirmatrelvir and Ritonavir	Brand	Paxlovid
Launch Month	February 2022	Form	Tablet	Strength	300mg(nirmatrelvir)/sheet 600mg(nirmatrelvir)/sheet
Therapeutic Classes[*3] (2nd level)	Antivirals for Systemic Use	Mechanism of Action (MOA)	Inhibitory effect on 3CL protease		
Therapeutic Classes[*3] (3rd level)	Antivirals, Other				
Indication	SARS-CoV-2 infection				
Manufecturer	Pfizer	Marketer	Pfizer	Originator/s	Pfizer
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥12,538.6, ¥19,805.5	Peak Sales (Predicted[*4])	¥28.1 Billion
Total Sales of the Therapeutic Category (Antivirals, Other) [*5]					¥81 Billion
Contribution of the Brands in the Category (Antivirals, Other) [*5]					77%
Hospital (≧100 beds) Sales Ratio in the Category (Antivirals, Other) [*5]					23%

Monover

Drug Profile - Monover					
Molecule Type	Others	Molecule	Ferric derisomaltose	Brand	Monover
Launch Month	March 2023	Form	Injection	Strength	500mg/5mL/vial 1,000mg/10mL/vial
Therapeutic Classes[*3] (2nd level)	Anti-anaemic Preparations	Mechanism of Action (MOA)	Iron supplementation		
Therapeutic Classes[*3] (3rd level)	Haematinics, Iron and All Combinations				
Indication	Iron Deficiency Anemia (IDA)				
Manufecturer	Nippon Shinyaku	Marketer	Nippon Shinyaku	Originator/s	Pharmacosmos
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥6,189, ¥12,377	Peak Sales (Predicted[*4])	¥2.0 Billion
Total Sales of the Therapeutic Category (Haematinics, Iron and All Combinations) [*5]					¥7 Billion
Contribution of the Brands in the Category (Haematinics, Iron and All Combinations) [*5]					47%
Hospital (≧100 beds) Sales Ratio in the Category (Haematinics, Iron and All Combinations) [*5]					38%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Erwinase

Drug Profile - Erwinase					
Molecule Type	Biologics(not mAb)	Molecule	Crisantaspase	Brand	Erwinase
Launch Month	June 2023	Form	Injection	Strength	10,000U/vial
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	Hydrolysis of L-asparagine		
Therapeutic Classes[*3] (3rd level)	All Other Antineoplastics				
Indication	Acute leukemia (including blast crisis in chronic leukemia), Malignant Lymphoma (ML) Limited to those who show hypersensitivity to L-Asparaginase preparations.				
Manufecturer	Ohara Pharmaceutical	Marketer	Ohara Pharmaceutical	Originator/s	Health Protection Agency
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥172,931	Peak Sales (Predicted[*4])	¥0.73 Billion
Total Sales of the Therapeutic Category (All Other Antineoplastics) [*5]					¥44 Billion
Contribution of the Brands in the Category (All Other Antineoplastics) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (All Other Antineoplastics) [*5]					84%

Imjudo

Drug Profile - Imjudo					
Molecule Type	Biologics(mAb)	Molecule	Tremelimumab (genetical recombination)	Brand	Imjudo
Launch Month	March 2023	Form	Injection	Strength	25mg/1.25mL/vial 300mg/15mL/vial
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	Cytotoxic T-lymphocyte-associated protein 4 (CTLA-4) inhibitor		
Therapeutic Classes[*3] (3rd level)	Monoclonal Antibody Antineoplastics				
Indication	①Unresectable hepatocellular carcinoma ②Unresectable progressive/recurrent non-small cell lung cancer				
Manufecturer	AstraZeneca	Marketer	AstraZeneca	Originator/s	Pfizer
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥214,801, ¥2,311,819	Peak Sales (Predicted[*4])	¥7.5 Billion
Total Sales of the Therapeutic Category (Monoclonal Antibody Antineoplastics) [*5]					¥1,060 Billion
Contribution of the Brands in the Category (Monoclonal Antibody Antineoplastics) [*5]					90%
Hospital (≥100 beds) Sales Ratio in the Category (Monoclonal Antibody Antineoplastics) [*5]					98%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Libtayo

Drug Profile - Libtayo					
Molecule Type	Biologics(mAb)	Molecule	Cemiplimab (genetical recombination)	Brand	Libtayo
Launch Month	March 2023	Form	Injection	Strength	350mg/7mL/vial
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	Inhibition of PD-1/PD-L1 ligand binding		
Therapeutic Classes[*3] (3rd level)	Monoclonal Antibody Antineoplastics				
Indication	Progressive or recurrent cervical cancer that exacerbated after cancer chemotherapy				
Manufecturer	Sanofi	Marketer	Sanofi	Originator/s	Regeneron Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥450,437	Peak Sales (Predicted[*4])	¥2.3 Billion
Total Sales of the Therapeutic Category (Monoclonal Antibody Antineoplastics) [*5]					¥1,060 Billion
Contribution of the Brands in the Category (Monoclonal Antibody Antineoplastics) [*5]					90%
Hospital (≥100 beds) Sales Ratio in the Category (Monoclonal Antibody Antineoplastics) [*5]					98%

Adtralza

Drug Profile - Adtralza					
Molecule Type	Biologics(mAb)	Molecule	Tralokinumab (genetical recombination)	Brand	Adtralza
Launch Month	September 2023	Form	Injection	Strength	150mg/mL/syringe
Therapeutic Classes[*3] (2nd level)	Nonsteroidal Products for Inflammatory Skin Disorders	Mechanism of Action (MOA)	Inhibition of interleukin-13 (IL-13) signaling		
Therapeutic Classes[*3] (3rd level)	Other Nonsteroidal Products for Inflammatory Skin Disorders				
Indication	Atopic dermatitis with inadequate response to existing treatments				
Manufecturer	Leo Pharma	Marketer	Leo Pharma	Originator/s	Cambridge Antibody Technology
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥29,295	Peak Sales (Predicted[*4])	¥4.4 Billion
Total Sales of the Therapeutic Category (Other Nonsteroidal Products for Inflammatory Skin Disorders) [*5]					¥28 Billion
Contribution of the Brands in the Category (Other Nonsteroidal Products for Inflammatory Skin Disorders) [*5]					93%
Hospital (≥100 beds) Sales Ratio in the Category (Other Nonsteroidal Products for Inflammatory Skin Disorders) [*5]					17%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Cresemba (Injection)

Drug Profile - Cresemba					
Molecule Type	Small Molecule	Molecule	Isavuconazonium sulfate	Brand	Cresemba
Launch Month	April 2023	Form	Injection	Strength	200mg/vial
Therapeutic Classes[*3] (2nd level)	Systemic Agents for Fungal Infections	Mechanism of Action (MOA)	Inhibition of cell membrane synthesis		
Therapeutic Classes[*3] (3rd level)	Systemic Agents for Fungal Infections				
Indication	Treatment of the following mycoses: 〇Aspergillosis (invasive aspergillosis, Chronic Progressive Pulmonary Aspergillosis (CPPA), Simple Pulmonary Aspergillosis (SPA)) 〇Mucormycosis 〇Cryptococcosis (pulmonary cryptococcosis, disseminated cryptococcosis (including cryptococcal meningitis))				
Manufacturer	Asahi Kasei Pharma	Marketer	Asahi Kasei Pharma	Originator/s	Basilea Pharmaceutica
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥27,924	Peak Sales (Predicted[*4])	¥0.56 Billion
Total Sales of the Therapeutic Category (Systemic Agents for Fungal Infections) [*5]					¥35 Billion
Contribution of the Brands in the Category (Systemic Agents for Fungal Infections) [*5]					64%
Hospital (≥100 beds) Sales Ratio in the Category (Systemic Agents for Fungal Infections) [*5]					63%

Allydone

Drug Profile - Allydone					
Molecule Type	Small Molecule	Molecule	Donepezil	Brand	Allydone
Launch Month	April 2023	Form	Adhesive Skin Patch	Strength	27.5mg/sheet 55mg/sheet
Therapeutic Classes[*3] (2nd level)	Other CNS Drugs	Mechanism of Action (MOA)	Reversible inhibition of acetylcholinesterase (AChE)		
Therapeutic Classes[*3] (3rd level)	Anti-Alzheimer Products				
Indication	Inhibition of progression of cognitive symptoms in Alzheimer's Disease (AD)				
Manufacturer	Teikoku Seiyaku	Marketer	Kowa	Originator/s	Eisai
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥289.8, ¥441.4	Peak Sales (Predicted[*4])	¥2.6 Billion
Total Sales of the Therapeutic Category (Anti-Alzheimer Products) [*5]					¥35 Billion
Contribution of the Brands in the Category (Anti-Alzheimer Products) [*5]					2%
Hospital (≥100 beds) Sales Ratio in the Category (Anti-Alzheimer Products) [*5]					28%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Xocova

Drug Profile - Xocova					
Molecule Type	Small Molecule	Molecule	Ensitrelvir fumaric acid	Brand	Xocova
Launch Month	November 2022	Form	Tablet	Strength	125mg/tablet
Therapeutic Classes[*3] (2nd level)	Antivirals for Systemic Use	Mechanism of Action (MOA)	Inhibitory effect on 3CL protease		
Therapeutic Classes[*3] (3rd level)	Antivirals, Other				
Indication	SARS-CoV-2 infection				
Manufacturer	Shionogi	Marketer	Shionogi	Originator/s	Hokkaido University, Shionogi
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥7,407.4	Peak Sales (Predicted[*4])	¥19.2 Billion
Total Sales of the Therapeutic Category (Antivirals, Other) [*5]					¥81 Billion
Contribution of the Brands in the Category (Antivirals, Other) [*5]					77%
Hospital (≥100 beds) Sales Ratio in the Category (Antivirals, Other) [*5]					23%

Doptelet

Drug Profile - Doptelet					
Molecule Type	Small Molecule	Molecule	Avatrombopag maleate	Brand	Doptelet
Launch Month	June 2023	Form	Tablet	Strength	20mg/tablet
Therapeutic Classes[*3] (2nd level)	Blood Coagulation System, Products	Mechanism of Action (MOA)	Thrombopoietin (TPO) receptor stimulating activity		
Therapeutic Classes[*3] (3rd level)	Platelet-Enhancing Products				
Indication	Improvement of thrombocytopenia in patients with chronic liver disease scheduled for elective invasive procedures				
Manufacturer	Swedish Orphan Biovitrum Japan	Marketer	Asahi Kasei Pharma	Originator/s	Astellas Pharma
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥7,106.6	Peak Sales (Predicted[*4])	¥0.07 Billion
Total Sales of the Therapeutic Category (Platelet-Enhancing Products) [*5]					¥45 Billion
Contribution of the Brands in the Category (Platelet-Enhancing Products) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Platelet-Enhancing Products) [*5]					76%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Orphacol

Drug Profile - Orphacol					
Molecule Type	Small Molecule	Molecule	Cholic acid	Brand	Orphacol
Launch Month	June 2023	Form	Capsule	Strength	50mg/capsule
Therapeutic Classes[*3] (2nd level)	Sbiliary Tract and Liver Disorder Products	Mechanism of Action (MOA)	Suppression of abnormal bile acids synthesis by supression of CYP7A1, improvement of cholestasis associated with increased bile flow and secretion of bile acids into bile, and absorption enhancement of fats and fat-soluble vitamins		
Therapeutic Classes[*3] (3rd level)	Biliary Tract Disorder Products				
Indication	Inborn Errors of Bile Acid Metabolism (IEBAM)				
Manufecturer	Reqmed	Marketer	Reqmed	Originator/s	Laboratoires CTRS
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥12,596	Peak Sales (Predicted[*4])	¥0.23 Billion
Total Sales of the Therapeutic Category (Biliary Tract Disorder Products) [*5]					¥10 Billion
Contribution of the Brands in the Category (Biliary Tract Disorder Products) [*5]					1%
Hospital (≥100 beds) Sales Ratio in the Category (Biliary Tract Disorder Products) [*5]					30%

Vyalev

Drug Profile - Vyalev					
Molecule Type	Small Molecule	Molecule	Foslevodopa and Foscarbidopa hydrate	Brand	Vyalev
Launch Month	July 2023	Form	Injection	Strength	10mL/vial
Therapeutic Classes[*3] (2nd level)	Anti-parkinson Drugs	Mechanism of Action (MOA)	Effect of increased dopamine, inhibitory effect on dopa decarboxylase		
Therapeutic Classes[*3] (3rd level)	Anti-Parkinson Drugs				
Indication	Improvement of diurnal variation (wearing-off), one of the symptoms of parkinson's disease, which is not sufficiently effective with existing medical treatment such as levodopa-containing preparations				
Manufecturer	Abbive	Marketer	Abbive	Originator/s	AbbVie
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥13,277	Peak Sales (Predicted[*4])	¥9.6 Billion
Total Sales of the Therapeutic Category (Anti-Parkinson Drugs) [*5]					¥95 Billion
Contribution of the Brands in the Category (Anti-Parkinson Drugs) [*5]					63%
Hospital (≥100 beds) Sales Ratio in the Category (Anti-Parkinson Drugs) [*5]					43%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Omvoh (Maintenance therapy)

Drug Profile - Omvoh					
Molecule Type	Biologics(mAb)	Molecule	Mirikizumab (genetical recombination)	Brand	Omvoh
Launch Month	June 2023	Form	Injection	Strength	300mg/15mL/vial
Therapeutic Classes[*3] (2nd level)	Intestinal Disorder Products	Mechanism of Action (MOA)	Inhibitory effect on Interleukin-23 (IL-23) p19		
Therapeutic Classes[*3] (3rd level)	Inflammatory Bowel Disorder Products				
Indication	Remission induction therapy for moderate to severe ulcerative colitis (limited to cases with inadequate response to existing treatment)				
Manufecturer	Eli Lilly Japan	Marketer	Mochida Pharmaceutical	Originator/s	Eli Lilly and Company
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥192,332	Peak Sales (Predicted[*4])	¥2.4 Billion
Total Sales of the Therapeutic Category (Inflammatory Bowel Disorder Products) [*5]					¥62 Billion
Contribution of the Brands in the Category (Inflammatory Bowel Disorder Products) [*5]					80%
Hospital (≥100 beds) Sales Ratio in the Category (Inflammatory Bowel Disorder Products) [*5]					57%

Palynziq

Drug Profile - Palynziq					
Molecule Type	Biologics(not mAb)	Molecule	Pegvaliase (genetical recombination)	Brand	Palynziq
Launch Month	May 2023	Form	Injection	Strength	2.5mg/0.5mL/syringe 10mg/0.5mL/syringe 20mg/mL/syringe
Therapeutic Classes[*3] (2nd level)	Other Alimentary Tract and Metabolism Products	Mechanism of Action (MOA)	Enzyme replacement therapy for Phenylalanine Ammonia Lyase (PAL) enzyme		
Therapeutic Classes[*3] (3rd level)	Other Alimentary Tract and Metabolism Products				
Indication	Phenylketonuria				
Manufecturer	Biomarin Pharmaceutical Japan	Marketer	Biomarin Pharmaceutical Japan	Originator/s	IBEX Technologies
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥61,606, ¥64,155, ¥65,468	Peak Sales (Predicted[*4])	¥3.6 Billion
Total Sales of the Therapeutic Category (Other Alimentary Tract and Metabolism Products) [*5]					¥110 Billion
Contribution of the Brands in the Category (Other Alimentary Tract and Metabolism Products) [*5]					59%
Hospital (≥100 beds) Sales Ratio in the Category (Other Alimentary Tract and Metabolism Products) [*5]					67%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Atgam

Drug Profile - Atgam					
Molecule Type	Small Molecule	Molecule	Anti-human thymocyte immunoglobulin, equine	Brand	Atgam
Launch Month	July 2023	Form	Injection	Strength	250mg/5mL/tube
Therapeutic Classes[*3] (2nd level)	Sera and Gamma-globulin	Mechanism of Action (MOA)	Immunosuppressive effect (T-cell suppression)		
Therapeutic Classes[*3] (3rd level)	Other Specific Immunoglobulins				
Indication	Moderate to severe Aplastic Anemia (AA)				
Manufecturer	Pfizer	Marketer	Pfizer	Originator/s	Pfizer
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥75,467	Peak Sales (Predicted[*4])	¥0.81 Billion
Total Sales of the Therapeutic Category (Other Specific Immunoglobulins) [*5]					¥1 Billion
Contribution of the Brands in the Category (Other Specific Immunoglobulins) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Other Specific Immunoglobulins) [*5]					67%

Nexobrid

Drug Profile - Nexobrid					
Molecule Type	Small Molecule	Molecule	Anacaulase-bcdb (Purified pineapple stem juice)	Brand	Nexobrid
Launch Month	August 2023	Form	Gelling Agent	Strength	5g/bottle (with mixing gel)
Therapeutic Classes[*3] (2nd level)	Other Dermatological Preparations	Mechanism of Action (MOA)	Necrotic tissue removal through proteolytic activity		
Therapeutic Classes[*3] (3rd level)	Other Dermatological Preparations				
Indication	Removal of necrotic tissue in deep dermal burn or deep burns				
Manufecturer	Kaken Pharmaceutical	Marketer	Kaken Pharmaceutical	Originator/s	MediWound
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥162,995.9	Peak Sales (Predicted[*4])	¥0.88 Billion
Total Sales of the Therapeutic Category (Other Dermatological Preparations) [*5]					¥10 Billion
Contribution of the Brands in the Category (Other Dermatological Preparations) [*5]					93%
Hospital (≥100 beds) Sales Ratio in the Category (Other Dermatological Preparations) [*5]					11%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Sunlenca (Oral)

Drug Profile - Sunlenca					
Molecule Type	Small Molecule	Molecule	Lenacapavir sodium	Brand	Sunlenca
Launch Month	September 2023	Form	Tablet	Strength	300mg/tablet
Therapeutic Classes[*3] (2nd level)	Antivirals for Systemic Use	Mechanism of Action (MOA)	Capsid inhibition		
Therapeutic Classes[*3] (3rd level)	HIV Antivirals				
Indication	Multidrug resistant HIV-1 infection				
Manufacturer	Gilead Sciences	Marketer	Gilead Sciences	Originator/s	Gilead Sciences
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥94,814.2	Peak Sales (Predicted[*4])	¥0.0033 Billion
Total Sales of the Therapeutic Category (HIV Antivirals) [*5]					¥72 Billion
Contribution of the Brands in the Category (HIV Antivirals) [*5]					99%
Hospital (≥100 beds) Sales Ratio in the Category (HIV Antivirals) [*5]					85%

Sunlenca (Injection)

Drug Profile - Sunlenca					
Molecule Type	Small Molecule	Molecule	Lenacapavir sodium	Brand	Sunlenca
Launch Month	September 2023	Form	Injection	Strength	1.5mL/2vials/set
Therapeutic Classes[*3] (2nd level)	Antivirals for Systemic Use	Mechanism of Action (MOA)	Capsid inhibition		
Therapeutic Classes[*3] (3rd level)	HIV Antivirals				
Indication	Multidrug resistant HIV-1 infection				
Manufacturer	Gilead Sciences	Marketer	Gilead Sciences	Originator/s	Gilead Sciences
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥3,208,604	Peak Sales (Predicted[*4])	¥0.45 Billion
Total Sales of the Therapeutic Category (HIV Antivirals) [*5]					¥72 Billion
Contribution of the Brands in the Category (HIV Antivirals) [*5]					99%
Hospital (≥100 beds) Sales Ratio in the Category (HIV Antivirals) [*5]					85%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Lytgobi

Drug Profile - Lytgobi					
Molecule Type	Small Molecule	Molecule	Futibatinib	Brand	Lytgobi
Launch Month	September 2023	Form	Tablet	Strength	4mg/tablet
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	Fibroblast growth factor receptor (FGFR) inhibition		
Therapeutic Classes[*3] (3rd level)	Protein Kinase Inhibitor Antineoplastics				
Indication	FGFR2 fusion-positive unresectable biliary tract cancer that exacerbated after cancer chemotherapy				
Manufecturer	Taiho Pharmaceutical	Marketer	Taiho Pharmaceutical	Originator/s	Taiho Pharmaceutical
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥10,252.5	Peak Sales (Predicted[*4])	¥0.37 Billion
Total Sales of the Therapeutic Category (Protein Kinase Inhibitor Antineoplastics) [*5]					¥505 Billion
Contribution of the Brands in the Category (Protein Kinase Inhibitor Antineoplastics) [*5]					90%
Hospital (≧100 beds) Sales Ratio in the Category (Protein Kinase Inhibitor Antineoplastics) [*5]					73%

Oncaspar

Drug Profile - Oncaspar					
Molecule Type	Biologics(not mAb)	Molecule	Pegaspargase	Brand	Oncaspar
Launch Month	October 2023	Form	Injection	Strength	3,750IU/vial
Therapeutic Classes[*3] (2nd level)	Antineoplastics	Mechanism of Action (MOA)	Asparagine deamidation effect		
Therapeutic Classes[*3] (3rd level)	All Other Antineoplastics				
Indication	Acute Lymphocytic Leukemia (ALL), Malignant Lymphoma (ML)				
Manufecturer	Nihon Servier	Marketer	Nihon Servier	Originator/s	Enzon Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥230,637	Peak Sales (Predicted[*4])	¥0.52 Billion
Total Sales of the Therapeutic Category (All Other Antineoplastics) [*5]					¥44 Billion
Contribution of the Brands in the Category (All Other Antineoplastics) [*5]					100%
Hospital (≧100 beds) Sales Ratio in the Category (All Other Antineoplastics) [*5]					84%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Acthib

Drug Profile - Acthib					
Molecule Type	Others (Vaccine)	Molecule	Haemophilus b conjugate vaccine (tetanus toxoid conjugate)	Brand	Acthib
Launch Month	December 2008	Form	Injection	Strength	10μg/vial (with solution)
Therapeutic Classes[*3] (2nd level)	Vaccines	Mechanism of Action (MOA)	Activation of B cells and production of specific antibodies (IgG) to the Haemophilus influenzae type B		
Therapeutic Classes[*3] (3rd level)	Bacterial Vaccines				
Indication	Prevention of Haemophilus influenzae type b infection				
Manufacturer	Sanofi	Marketer	Sanofi	Originator/s	Sanofi
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥4,941	Peak Sales (Predicted[*4])	¥0.00089 Billion
Total Sales of the Therapeutic Category (Bacterial Vaccines) [*5]					¥18 Billion
Contribution of the Brands in the Category (Bacterial Vaccines) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Bacterial Vaccines) [*5]					11%

Luxturna

Drug Profile - Luxturna					
Molecule Type	Regenerative Medical Product	Molecule	Voretigene neparvovec	Brand	Luxturna
Launch Month	August 2023	Form	Injection	Strength	0.5mL/vial (with 2 diluents)
Therapeutic Classes[*3] (2nd level)	Ophthalmologicals	Mechanism of Action (MOA)	RPE65 gene supplementation therapy		
Therapeutic Classes[*3] (3rd level)	Other Ophthalmologicals				
Indication	Hereditary retinal dystrophy due to RPE65 biallelic mutations				
Manufacturer	Novartis Pharma	Marketer	Novartis Pharma	Originator/s	The Childrens Hospital of Philadelphia
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥49,600,226	Peak Sales (Predicted[*4])	¥0.5 Billion
Total Sales of the Therapeutic Category (Other Ophthalmologicals) [*5]					¥2 Billion
Contribution of the Brands in the Category (Other Ophthalmologicals) [*5]					96%
Hospital (≥100 beds) Sales Ratio in the Category (Other Ophthalmologicals) [*5]					17%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Korsuva

Drug Profile - Korsuva					
Molecule Type	Small Molecule	Molecule	Difelikefalin acetate	Brand	Korsuva
Launch Month	December 2023	Form	Injection	Strength	17.5μg/0.7mL/syringe 25μg/0.7mL/syringe 35μg/0.7mL/syringe
Therapeutic Classes[*3] (2nd level)	Anti-pruritics, Including Topical Antihistamines, Anaesthetics, etc	Mechanism of Action (MOA)	Selective kappa-opioid receptor agonist		
Therapeutic Classes[*3] (3rd level)	Anti-pruritics, Including Topical Antihistamines, Anaesthetics, etc				
Indication	Improvement of pruritus in hemodialysis patients (limited to cases with inadequate response to existing treatment)				
Manufecturer	Maruishi Pharmaceutical	Marketer	Kissei Pharmaceutical	Originator/s	Ferring Pharmaceuticals
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥2,971, ¥3,609, ¥4,341	Peak Sales (Predicted[*4])	¥4.4 Billion
Total Sales of the Therapeutic Category (Anti-pruritics, Including Topical Antihistamines, Anaesthetics, etc) [*5]					¥9 Billion
Contribution of the Brands in the Category (Anti-pruritics, Including Topical Antihistamines, Anaesthetics, etc) [*5]					18%
Hospital (≥100 beds) Sales Ratio in the Category (Anti-pruritics, Including Topical Antihistamines, Anaesthetics, etc) [*5]					34%

Megludase

Drug Profile - Megludase					
Molecule Type	Biologics(not mAb)	Molecule	Glucarpidase (genetical recombination)	Brand	Megludase
Launch Month	January 2024	Form	Injection	Strength	1,000/bottle
Therapeutic Classes[*3] (2nd level)	All Other Therapeutic Products	Mechanism of Action (MOA)	Methotrexate degradation		
Therapeutic Classes[*3] (3rd level)	Detoxifying Agents for Antineoplastic Treatment				
Indication	Detoxification during delayed methotrexate excretion using methotrexate-leucovorin rescue therapy				
Manufecturer	Ohara Pharmaceutical	Marketer	Ohara Pharmaceutical	Originator/s	Health Protection Agency Porton Down
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥2,674,400	Peak Sales (Predicted[*4])	¥0.84 Billion
Total Sales of the Therapeutic Category (Detoxifying Agents for Antineoplastic Treatment) [*5]					¥6 Billion
Contribution of the Brands in the Category (Detoxifying Agents for Antineoplastic Treatment) [*5]					33%
Hospital (≥100 beds) Sales Ratio in the Category (Detoxifying Agents for Antineoplastic Treatment) [*5]					91%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Zilbrysq

Drug Profile - Zilbrysq					
Molecule Type	Small Molecule	Molecule	Zilucoplan sodium	Brand	Zilbrysq
Launch Month	February 2024	Form	Injection	Strength	16.6mg/0.416mL/syringe 23mg/0.574mL/syringe 32.4mg/0.81mL/syringe
Therapeutic Classes[*3] (2nd level)	Other Drugs for Disorders of the Musculo-skeletal System	Mechanism of Action (MOA)	Inhibiting cleavage of C5 and binding of C5 and C6 by binding to human complement protein (hc5)		
Therapeutic Classes[*3] (3rd level)	All Other Musculoskeletal Products				
Indication	Generalized myasthenia gravis (limited to cases with inadequate response to steroids or non-steroidal immunosuppressants)				
Manufecturer	UCB Japan	Marketer	UCB Japan	Originator/s	Ra Pharmaceuticals
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥69,580, ¥96,347, ¥135,661	Peak Sales (Predicted[*4])	¥8.9 Billion
Total Sales of the Therapeutic Category (All Other Musculoskeletal Products) [*5]					¥112 Billion
Contribution of the Brands in the Category (All Other Musculoskeletal Products) [*5]					77%
Hospital (≥100 beds) Sales Ratio in the Category (All Other Musculoskeletal Products) [*5]					58%

Alhemo

Drug Profile - Alhemo					
Molecule Type	Biologics(mAb)	Molecule	Concizumab (genetical recombination)	Brand	Alhemo
Launch Month	February 2024	Form	Injection	Strength	15mg/1.5mL/kit 60mg/1.5mL/kit 150mg/1.5mL/kit
Therapeutic Classes[*3] (2nd level)	Blood Coagulation System Products	Mechanism of Action (MOA)	Hemostasis/Suppressing the inhibitory effect of activated blood coagulation factor X by tissue factor pathway inhibitor (TFPI)		
Therapeutic Classes[*3] (3rd level)	Blood Coagulation Products				
Indication	Supression of bleeding tendency in patients with congenital hemophilia who have inhibitors to blood coagulation factor VIII or IX				
Manufecturer	Novo Nordisk Pharma	Marketer	Novo Nordisk Pharma	Originator/s	Novo Nordisk
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥249,546, ¥844,727, ¥1,893,013	Peak Sales (Predicted[*4])	¥2.0 Billion
Total Sales of the Therapeutic Category (Blood Coagulation Products) [*5]					¥151 Billion
Contribution of the Brands in the Category (Blood Coagulation Products) [*5]					100%
Hospital (≥100 beds) Sales Ratio in the Category (Blood Coagulation Products) [*5]					78%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

Cuvitru

Drug Profile - Cuvitru					
Molecule Type	Others	Molecule	pH4 treated human normal immunoglobulin	Brand	Cuvitru
Launch Month	January 2024	Form	Injection	Strength	2g/10mL/vial 4g/20mL/vial 8g/40mL/vial
Therapeutic Classes[*3] (2nd level)	Sera and Gamma-globulin	Mechanism of Action (MOA)	Antigen neutralization/phagocytosis-enhancing action/immunomodulation		
Therapeutic Classes[*3] (3rd level)	Polyvalent Immuno-globulins - Intramuscular				
Indication	Aggammaglobulinemia or hypogammaglobulinemia				
Manufecturer	Takeda Pharmaceutical	Marketer	Takeda Pharmaceutical	Originator/s	Baxter International
Price Maintenance Premium (PMP)	Not applied	Unit Price (at the time of first listing)	¥21,882, ¥43,195, ¥85,266	Peak Sales (Predicted[*4])	¥2.9 Billion
Total Sales of the Therapeutic Category (Polyvalent Immuno-globulins - Intramuscular) [*5]					¥10 Billion
Contribution of the Brands in the Category (Polyvalent Immuno-globulins - Intramuscular) [*5]					100%
Hospital (≧100 beds) Sales Ratio in the Category (Polyvalent Immuno-globulins - Intramuscular) [*5]					61%

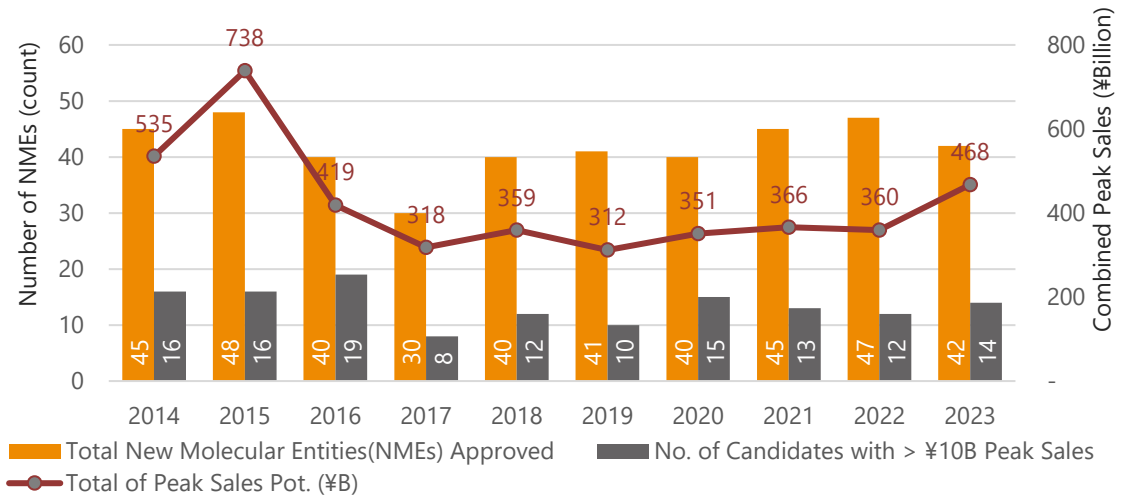
Fetroja

Drug Profile - Fetroja					
Molecule Type	Small Molecule	Molecule	Cefiderocol tosilate sulfate hydrate	Brand	Fetroja
Launch Month	December 2023	Form	Injection	Strength	1g/vial
Therapeutic Classes[*3] (2nd level)	Systemic Antibacterials	Mechanism of Action (MOA)	Inhibition of bacterial cell wall synthesis		
Therapeutic Classes[*3] (3rd level)	Cephalosporins				
Indication	<Applicable bacterial species> E. coli, Citrobacter, Klebsiella pneumoniae, Klebsiella, Enterobacter, Serratia marcescens, Proteus, Morganella morganii, Pseudomonas aeruginosa, Burkholderia, Stenotrophomonas maltophilia, Acinetobacter that are susceptible to Cefiderocol. However, this is limited to strains that are resistant to carbapenems. <Indication> Various infections				
Manufecturer	Shionogi	Marketer	Shionogi	Originator/s	Shionogi
Price Maintenance Premium (PMP)	Applied	Unit Price (at the time of first listing)	¥20,203	Peak Sales (Predicted[*4])	¥1.5 Billion
Total Sales of the Therapeutic Category (Cephalosporins) [*5]					¥58 Billion
Contribution of the Brands in the Category (Cephalosporins) [*5]					74%
Hospital (≧100 beds) Sales Ratio in the Category (Cephalosporins) [*5]					51%

[*3]...Encise's Anatomical Therapeutic Chemical Classification
[*4]...according to the Ministry of Health, Labour and Welfare (MHLW)
[*5]...therapeutic category sales based on ATC 3 level in year 03/2024
Source: Encise Research Center, MHLW disclosures

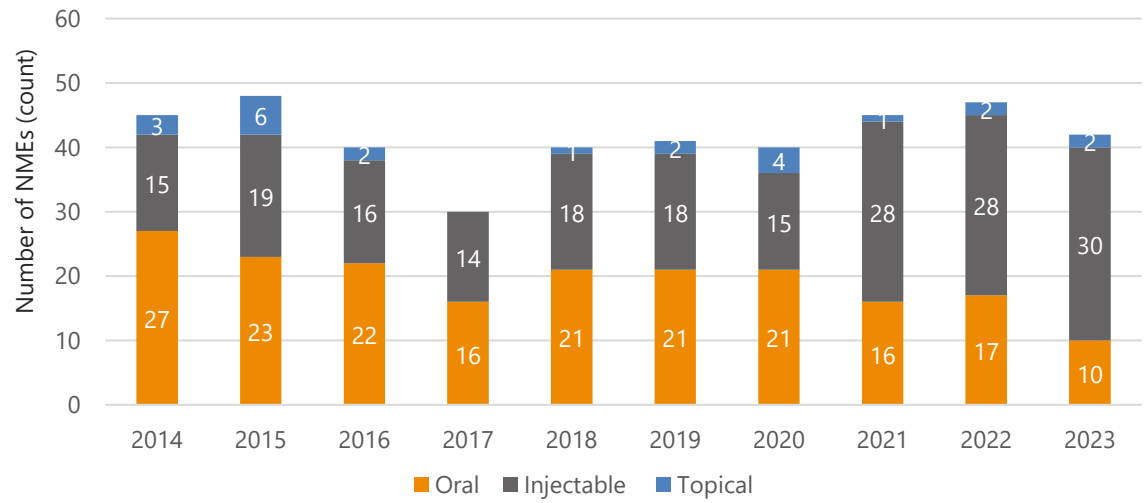
Appendix: New Molecular Entities Approvals in Past 10 Years - Key Statistics (Figures only)

Figure 7. New Molecular Entities vs Peak Sales



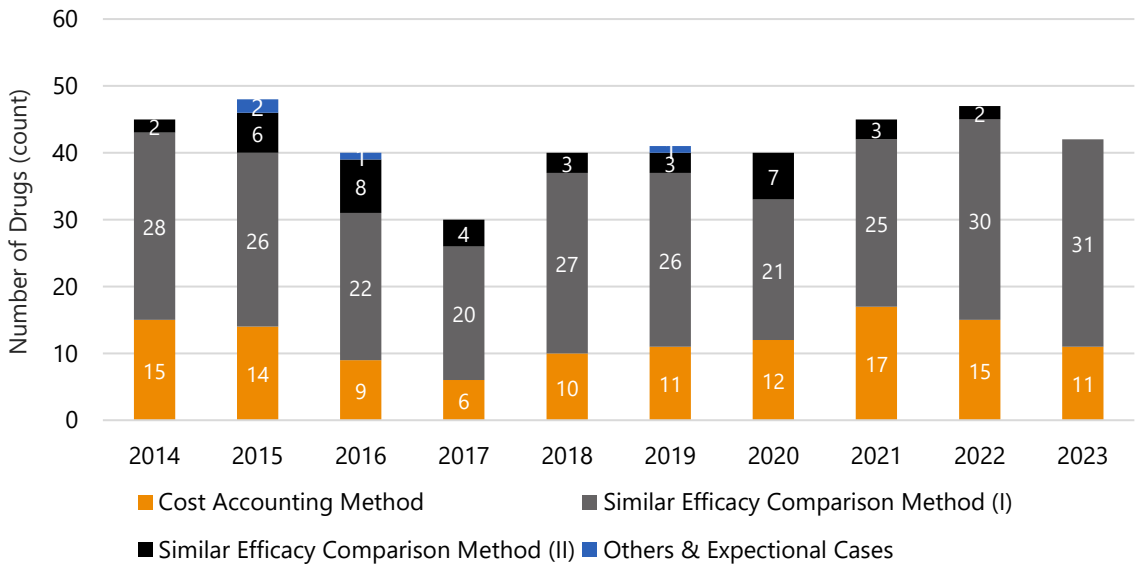
Source: MHLW, Encise Research Center

Figure 8. New Molecular Entities Listing by Formulation Type



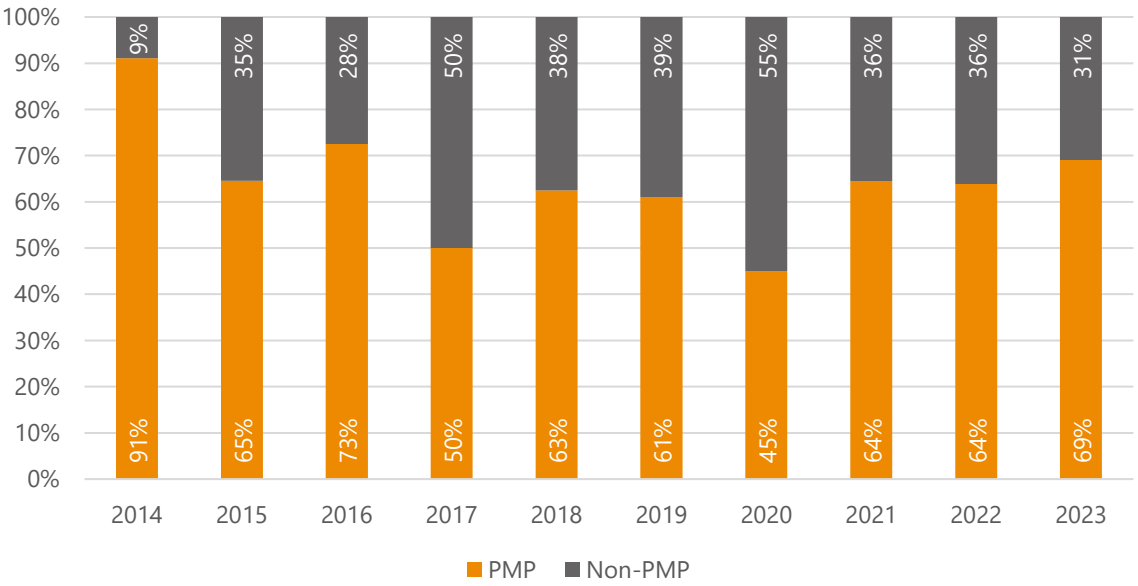
Source: MHLW, Encise Research Center

Figure 9. New Molecular Entities Listing by Pricing Method



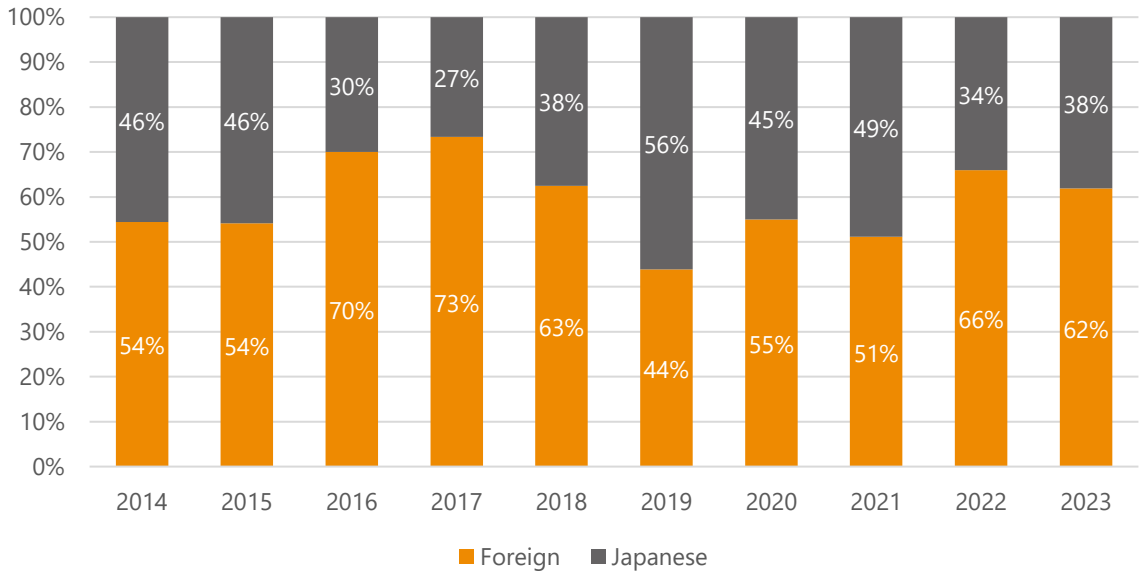
Source: MHLW, Encise Research Center

Figure 10. New Molecular Entities Listing by PMP vs Non-PMP



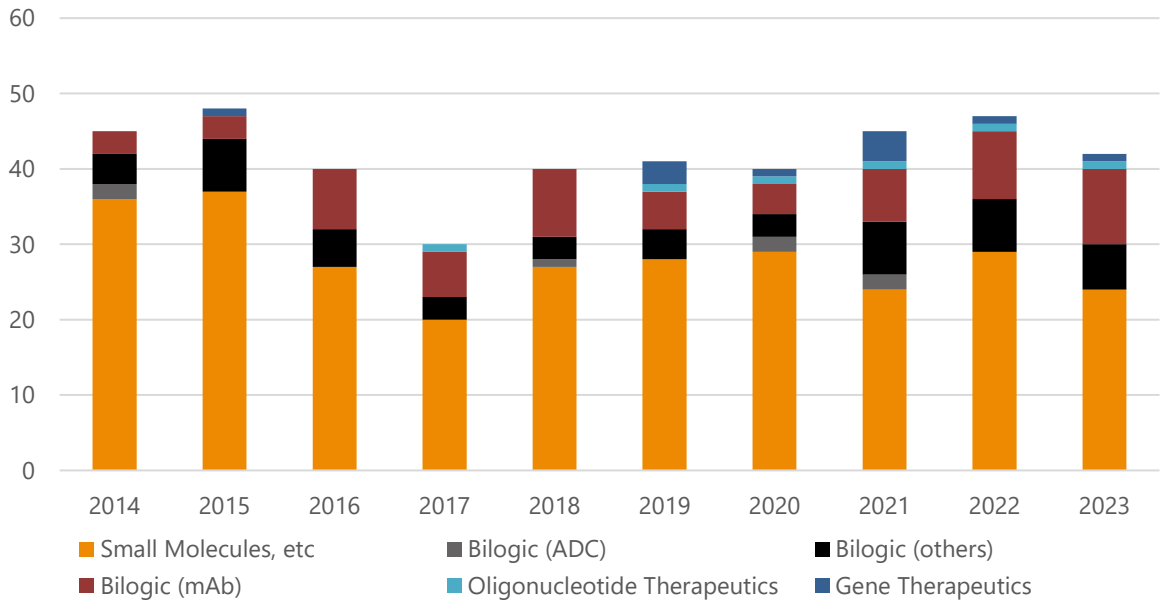
Source: MHLW, Encise Research Center

Figure 11. New Molecular Entities Listing by Sponsor's Origin of Country



Source: MHLW, Encise Research Center

Figure 12. New Molecular Entities Listing by Type of Modality



Source: MHLW, Encise Research Center

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Encise Research Center
MFPR Shibuya bldg., 2-5, Shibuya 1-chome, Shibuya-ku, Tokyo 150-0002, Japan
Phone: +81-3-6712-6339 Fax: +81-3-6712-6343