Oncology

| Origin | Product Name | Major | r Indication | Basic Information |
|--------|-----------------------|------------|--------------------------------|--|
| In- | Alecensa [®] | > A | ALK fusion gene-positive | Alecensa, an oral, small molecule targeted molecular therapy created |
| house | ALK inhibitor | uı | inresectable, advanced, or | by Chugai, inhibits the activity of the tyrosine kinase anaplastic |
| | Generic name: | re | ecurrent non-small cell lung | lymphoma kinase (ALK) with EML4-ALK (<i>ALK</i>) fusion gene expressed |
| | alectinib | Ca | ancer (NSCLC) | in about 2 to 5 percent of NSCLC. In addition to being the first |
| | Launch in Japan: | > A | Adjuvant therapy for | product from Chugai research to be granted breakthrough therapy |
| | September 2014 | A | ALK fusion gene-positive | designation by the U.S. FDA as a secondline treatment in 2013, |
| | | N | ISCLC | Alecensa received the same designation as a first-line treatment in |
| | | | | 2016, and it is contributing to the treatment of patients around the |
| | | | | world. Alecensa is marketed all over the world including Europe and |
| | | | | the United States by Roche. |
| Roche | Avastin [®] | > U | Inresectable, advanced, or | Avastin is a humanized monoclonal antibody targeting vascular |
| | Anti-VEGF humanized | re | ecurrent colorectal cancer | endothelial growth factor (VEGF). It is the first therapeutic agent in |
| | monoclonal antibody | > U | Inresectable, advanced, or | the world that inhibits angiogenesis, which is the growth of the |
| | (Generic name: | re | ecurrent NSCLC | network of blood vessels that supply nutrients and oxygen to the |
| | bevacizumab) | ➤ Ir | noperable or recurrent breast | cancer. Unlike conventional anticancer agents that act directly on |
| | Launch in Japan: June | ca | ancer | cancer cells, Avastin acts on the cancer microenvironment. |
| | 2007 | > M | lalignant glioma | |
| | | > O | Ovarian cancer | |
| | | > A | Advanced or recurrent cervical | |
| | | Ca | ancer | |
| | | ≻ U | Inresectable HCC | |

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| Roche | FoundationOne® CDx | - | FoundationOne CDx Cancer Genomic Profile (F1CDx), developed by |
| | Cancer Genomic | | U.Sbased Foundation Medicine, Inc., is a nextgeneration |
| | Profile | | sequencing-based diagnostic device. It detects substitutions, |
| | Launch in Japan: June | | insertion and deletion alterations, and copy number alterations in |
| | 2019 | | 324 genes and select gene rearrangements, as well as genomic |
| | | | signatures including microsatellite instability (MSI) and tumor |
| | FoundationOne [®] | | mutational burden (TMB). The program is available as a companion |
| | Liquid CDx | | diagnostic for multiple moleculartargeted drugs approved in Japan. |
| | Cancer Genomic | | FoundationOne Liquid CDx Cancer Genomic Profile is a liquid biopsy |
| | Profile | | test for solid tumors using blood samples. It detects alterations of |
| | Launch in Japan: | | 324 genes from tumor DNA circulating in blood (ctDNA). It can be |
| | August 2021 | | used in cases where tumor tissue is difficult to sample. The product |
| | | | is expected to bring further advances in PHC, including by allowing |
| | | | tissue samples and blood samples to be used selectively at different |
| | | | stages of treatment. |
| Roche | Herceptin [®] | HER2-overexpressing breast | Herceptin is a humanized monoclonal antibody that targets human |
| | Anti-HER2 humanized | cancer | epidermal growth factor receptor type 2 (HER2),8 which contributes |
| | monoclonal antibody | HER2-overexpressing, | to tumor cell growth. The earliest PHC-based anticancer agent, |
| | Generic name: | advanced/recurrent gastric | Herceptin has built a solid reputation as an essential treatment for |
| | trastuzumab | cancer not amenable to | HER2-positive breast cancer since its launch in 2001. Overexpression |
| | Launch in Japan: June | curable resection | of HER2 is found in about 15 to 20 percent of breast cancers. Such |
| | 2001 | Advanced or recurrent HER2- | cancer is diagnosed as HER2-positive. HER2-positive breast cancer |

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| | | positive colorectal cancer that has progressed following cancer chemotherapy and is not amenable to curative resection | progresses rapidly, and has been associated with a poor prognosis. However, treatment outcomes have improved significantly with the emergence of Herceptin and other medicines that target HER2. |
| Roche | Kadcyla [®] Anti-HER2 antibody- tubulin polymerization inhibitor conjugate Generic name: trastuzumab emtansine Launch in Japan: April 2014 | HER2-positive inoperable or recurrent breast cancer HER2-positive postoperative breast cancer | Kadcyla is an antibody-drug conjugate of the anti-HER2 humanized monoclonal antibody trastuzumab (product name: Herceptin) and the potent chemotherapeutic agent DM1, joined together with a stable linker. |
| Roche | Lunsumio® Anti-CD20/CD3 humanized bispecific antibody Generic name: mosunetuzumab Launch in Japan: March 2025 | Relapsed or refractory follicular lymphoma who have received two or more prior standard therapies | Lunsumio is a CD20/CD3 T cell-engaging bispecific antibody designed to target CD20 on B cells and CD3 on T cells. Lunsumio is expected to activate the immune system through cytotoxic T cells and have antitumor effects on CD20 expressing tumor cells. Furthermore, Lunsumio is a fixed-duration treatment based on the patient's response to therapy, and is expected to reduce the burden of treatment on patients. |

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|--------|-----------------------|----|---------------------------------|--|
| Roche | Perjeta [®] | > | HER2-positive inoperable or | Perjeta is a humanized monoclonal antibody and is the first molecular |
| | Anti-HER2 humanized | | recurrent breast cancer | targeted therapy that inhibits the dimerization of HER2. The |
| | monoclonal antibody | > | Neoadjuvant and adjuvant | combination of Perjeta and Herceptin, which also targets HER2, |
| | Generic name: | | therapy for HER2-positive | provides a more comprehensive blockade of HER signaling pathways |
| | pertuzumab | | breast cancer | associated with the proliferation of tumor cells. |
| | Launch in Japan: | > | Advanced or recurrent HER2- | |
| | September 2013 | | positive colorectal cancer that | |
| | | | has progressed following | |
| | | | cancer chemotherapy and is | |
| | | | not amenable to curative | |
| | | | resection | |
| Roche | Phesgo [®] | > | HER2-positive breast cancer | Phesgo, subcutaneous fixed-dose combination without preparation |
| | Anti-HER2 humanized | > | Advanced or recurrent HER2- | contains the same monoclonal antibodies as Perjeta and Herceptin, |
| | monoclonal | | positive colorectal cancer that | and also a vorhyaluronidase alfa (genetical recombination) combined |
| | antibody/hyaluronand | | has progressed following | in a single vial. It takes over eight minutes for a loading dose of |
| | egradation | | cancer chemotherapy and is | Phesgo and over five minutes for the subsequent doses. Reduction of |
| | enzyme combination | | not amenable to curative | administration time is expected to contribute to patients' daily life. |
| | Generic name: | | resection | |
| | pertuzumab, | | | |
| | trastuzumab and | | | |
| | vorhyaluronidase alfa | | | |
| | Launch in Japan: | | | |

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|--------|--|---------|---|---|
| | November 2023 | | | |
| Roche | Polivy® Antimicrotubule binding anti-CD79b monoclonal antibody Generic name: polatuzumab vedotin Launch in Japan: May 2021 | À | Diffuse large B-cell lymphoma | Polivy is an antibody-drug conjugate of an anti-CD79b monoclonal antibody and the microtubule inhibitor MMAE, joined together with a linker. In-licensed from Roche, the conjugate is designed to deliver MMAE directly into B cells via CD79b, which is expressed on B cells, so that the inhibitor can act. |
| Roche | Tecentriq® Anti-PD-L1 humanized monoclonal antibody Generic name: atezolizumab Launch in Japan: April 2018 | A A A A | Unresectable, advanced, or recurrent NSCLC Adjuvant treatment of PD-L1-positive NSCLC Extensive-stage small cell lung cancer (SCLC) PD-L1-positive, hormone receptor-negative and HER2-negative inoperable or recurrent breast cancer Unresectable hepatocellular carcinoma (HCC) | Tecentriq is an engineered anti-PD-L1 monoclonal antibody inlicensed from Roche. One way that tumor cells evade the immune system is by expressing a protein called programmed death-ligand (PD-L1) on their surface, which is believed to shield them from immune system attacks by binding to T cells. Tecentriq restores and maintains the immune response of T cells by binding to PD-L1, and is expected to demonstrate efficacy against cancer cells. Its mode of action differs from conventional treatments that attack cancer cells directly. Since it takes advantage of the patient's own immune response, it is also promising for use in combination with existing drugs and for various cancer types. |

Specialty (excl. Oncology)

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|--------|--------------------------------|----|---------------------------------|---|
| In- | Actemra [®] | > | Rheumatoid arthritis | Actemra, created by Chugai and the first therapeutic antibody |
| house | Humanized anti- | > | Castleman's disease | originating in Japan, blocks the activity of IL-6, a type of cytokine. |
| | human IL-6 receptor | > | Adult Still's disease | There are two types of formulation; an intravenous infusion |
| | monoclonal antibody | > | SARS-CoV-2 pneumonia | formulation and a subcutaneous formulation with the aim of |
| | Generic name: | | (limited to patients requiring | improving convenience. In addition, Actemra is marketed all over the |
| | tocilizumab | | oxygen intervention) | world including Europe and the United States by Roche. |
| | Launch in Japan: June | | | |
| | 2005 | | | |
| Roche | CellCept® | > | Refractory rejections after | CellCept is used to treat refractory rejection after kidney transplants |
| | Immunosuppressant | | kidney transplant | and to prevent rejection after kidney, heart, liver, lung, and pancreas |
| | Generic name: | > | Suppression of rejections after | transplants. The need for transplantation medication has been rising |
| | mycophenolate mofetil | | the following organ | in Japan, driven by advances in transplantation therapy. |
| | Launch in Japan: | | transplants: kidney, heart, | |
| | November 1999 | | liver, lung and pancreas | |
| | | | transplants | |
| In- | Edirol [®] | > | Osteoporosis | Edirol, a vitamin D3 preparation born out of Chugai's many years of |
| house | Osteoporosis agent | | | research in vitamin D, is an agent that improves bone metabolism in |
| | (Active vitamin D ₃ | | | addition to calcium metabolism. In the 2015 osteoporosis prevention |
| | derivative) | | | and treatment guidelines, Edirol received a Grade A |
| | Generic name: | | | recommendation, the only one for an active vitamin D3 derivative, |
| | eldecalcitol | | | for its effectiveness in increasing bone density and preventing |

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|--------|------------------------|-------------------------------|--|
| | Launch in Japan: April | | vertebral fractures. |
| | 2011 | | |
| | Launch in China: July | | |
| | 2022 | | |
| In- | Enspryng [®] | > Prevention of relapses of | Enspryng is a next-generation therapeutic antibody that has shown |
| house | pH-dependent binding | neuromyelitis optica spectrum | success in blocking IL-6 receptors with a longer duration of action. |
| | humanized anti-IL-6 | disorder (NMOSD) | Chugai created Enspryng by applying its novel antibody engineering |
| | receptor monoclonal | | technology (Recycling Antibody® technology) that enables a single |
| | antibody | | antibody molecule to block the target antigen repeatedly. As a result, |
| | Generic name: | | a prolonged serum half-life has been demonstrated in clinical trials, |
| | satralizumab | | which will make a lower dosing frequency possible. Because IL-6 |
| | Launch in Japan: | | promotes the production of the anti-AQP4 antibodies that are the |
| | August 2020 | | primary cause of NMOSD, this drug is expected to improve (reduce |
| | | | recurrence of) the symptoms of these diseases as it inhibits the |
| | | | production of those antibodies by blocking the IL-6 signal. In the |
| | | | United States, it received breakthrough therapy designation for the |
| | | | treatment of NMOSD from the U.S. FDA in December 2018. Enspryng |
| | | | is approved in over 90 countries worldwide, including Japan, U.S. |
| | | | and European Union. |
| Roche | Evrysdi [®] | > Spinal muscular atrophy | Evrysdi is an SMN2 splicing modifier that increases generation of a |
| | Spinal muscular | | protein derived from the SMN2 gene. This protein is nearly identical |
| | atrophy agent | | to the protein made from the SMN1 gene, which is not functional in |

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|--------|-------------------------|---------------------------|---|
| | Generic name: | | SMA patients. Evrysdi shows promise in improving neural and |
| | risdiplam | | muscular function. Reduction in burden is expected by oral |
| | Launch in Japan: | | administration. |
| | August 2021 | | |
| In- | Hemlibra [®] | > Routine prophylaxis to | Hemlibra is a bispecific antibody that employs Chugai's innovative |
| house | Anti-coagulation factor | prevent or reduce the | antibody engineering technologies. Like factor VIII, which is low or |
| | IXa/X humanized | frequency of bleeding | missing in hemophilia A, Hemlibra simultaneously binds to factor IXa |
| | bispecific monoclonal | episodes in patients with | and factor X, stimulating the activation of factor X by activated factor |
| | antibody | congenital factor VIII | IX and promoting normal blood coagulation for hemostasis. |
| | Generic name: | deficiency | Unaffected by inhibitors, Hemlibra can prevent bleeding with |
| | emicizumab | > Routine prophylaxis to | subcutaneous injections once a week, once every two weeks, or once |
| | Launched in Japan: | prevent or reduce the | every four weeks, and is promising as a drug that can change the |
| | May 2018 | frequency of bleeding | existing system of treatment. Another key feature is that Chugai's |
| | | episodes in patients with | proprietary technology ART-Ig [®] is applied to Hemlibra, enabling |
| | | acquired hemophilia A | industrial production of bispecific antibodies. The drug received |
| | | | breakthrough therapy designation from the U.S. FDA in September |
| | | | 2015 for its potential to prevent bleeding in hemophilia patients with |
| | | | inhibitors, and in April 2018 for its potential to prevent bleeding in |
| | | | patients without inhibitors. |
| | | | Hemlibra is approved in over 120 countries worldwide. |
| Roche | Mircera [®] | > Renal anemia | Mircera is a drug that raises the stability of epoetin beta in the |
| | Long-acting | | bloodstream through pegylation. It is a type of renal anemia |

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|--------|------------------------|---------------------------|--|
| | erythropoiesis- | | treatment with the longest serum half-life among ESAs, enabling |
| | stimulating agent | | stable and sustained control of anemia. It stimulates erythropoiesis |
| | Generic name: epoetin | | through a different interaction with the EPO receptor on burst- |
| | beta pegol | | forming unit erythroid (BFU-E) cells in the bone marrow. |
| | Launch in Japan: July | | |
| | 2011 | | |
| In- | PiaSky [®] | > Paroxysmal nocturnal | PiaSky is an anti-C5 recycling antibody created with Chugai's |
| house | pH-dependent binding | hemoglobinuria | Recycling Antibody® technology. Recycling antibodies are designed to |
| | humanized anti- | | achieve pH-dependent antigen binding so that a single antibody |
| | complement (C5) | | molecule can bind with the antigen multiple times, enabling a longer |
| | monoclonal antibody | | efficacy compared with a conventional antibody. Crovalimab is |
| | Generic name: | | designed to target C5, a key component of the complement system, |
| | crovalimab | | and is expected to control complement activity. It is also expected to |
| | Launch in Japan: May | | reduce the treatment burden for patients and their caregivers |
| | 2024 | | through subcutaneous administration. Since crovalimab binds to |
| | | | complement C5 at a different site from existing antibody drugs, it |
| | | | can be an effective treatment option for patients with a specific C5 |
| | | | gene mutation reported in Asia (appears in approximately 3.2% of |
| | | | Japanese patients with PNH), to which existing antibody drugs do not |
| | | | bind. |
| Roche | Ronapreve [®] | > SARS-CoV-2 infection | Ronapreve was designed specifically by Regeneron to block the |
| | anti-SARS-CoV-2 | Prevention of symptomatic | infectivity of SARS-CoV-2, the virus that causes COVID-19. The two |

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|--------|-----------------------|----|------------------------------|---|
| | monoclonal antibody | | SARS-CoV-2 infection | potent, virus-neutralizing antibodies that form casirivimab and |
| | Generic name: | | | imdevimab are believed to bind non-competitively to the critical |
| | casirivimab/imdevimab | | | receptor binding domain of the virus's spike protein. |
| | Launch in Japan: July | | | |
| | 2021 | | | |
| Roche | Tamiflu [®] | > | Treatment and prevention of | Tamiflu is an oral anti-influenza agent that is effective against both |
| | Anti-influenza agent | | influenza type A or B virus | type A and type B infections. It inhibits viral replication by blocking |
| | Generic name: | | infection | the action of neuraminidase, an enzyme essential for the |
| | oseltamivir | | | multiplication of the influenza virus. |
| | Launch in Japan: | | | |
| | February 2001 | | | |
| Roche | Vabysmo [®] | > | Age-related macular | Vabysmo is the first bispecific antibody in the field of ophthalmology |
| | Anti VEGF/anti Ang-2 | | degeneration associated with | designed to inhibit two disease pathways involved in many retinal |
| | bispecific antibody | | subfoveal choroidal | diseases by blocking the actions of vascular endothelial growth |
| | Generic name: | | neovascularization | factor-A (VEGF-A) and angiopoietin-2 (Ang-2). Intraocular injection |
| | faricimab | > | Diabetic macular edema | achieves durability of up to 16-week dosing interval and is expected |
| | Launch in Japan: May | > | Macular edema associated | to reduce the treatment burden on patients. |
| | 2022 | | with retinal vein occlusion | |