Regulatory news

Pre-market assessment

Strategic approach to development of children’s medicine

European Union, United States of America — The EMA and the U.S. FDA have finalized their joint proposal to promote the use of innovative approaches in the development of medicines for Gaucher disease. The proposed strategies can apply to medicines development for rare diseases in children in general.

The strategy document encourages medicine developers to make better use of extrapolation of available clinical data from adults to children through modelling and simulation, and to conduct multi-arm, multi-company clinical trials on several new medicines at the same time, with the same control arm serving more than one medicine under evaluation. The overall aim is to reduce the number of patients in clinical trials while maintaining high quality standards, thus reducing the burden on children and their families.


Generic products in the U.S.

United States of America — The FDA has taken two steps to expedite market entry of needed generic medicines. These actions are among the first taken under the Agency’s Drug Competition Action Plan announced in late May.

Firstly, to encourage generic drug development, the FDA posted a list of branded drugs that have no listed patents or exclusivities and for which the agency has yet to approve an Abbreviated New Drug Application (ANDA). The Agency intends to expedite the review of generics on this list, which will be refined and updated periodically.

Secondly, the FDA has announced a change to its policy on prioritizing the review of needed generics. The review of applications for a given medicine will be expedited until there are three FDA-approved generics for that medicine. This policy change is based on data indicating that significant price reductions occur when there are multiple FDA-approved generics available.


Revised EMA clinical trial guidelines

European Union — The EMA has released its revised guidelines for first-in-human clinical trials. The revision takes into account the increasing complexity of trial protocols. It provides guidance on the calculation of the starting dose, subsequent dose escalations and criteria for the maximum dose. Guidance is also provided on criteria to stop a study, the rolling review of emerging data especially regarding safety, and the handling of adverse events in relation to stopping a trial or progressing to the next dosing level.


Joint EU assessment platform

European Union — The EMA and the European Network for Health Technology Assessment (EUnetHTA) have launched a new joint platform that will facilitate
alignment of data requirements with evidence being generated for both regulators as well as the bodies that provide recommendations to payers and other decision-makers.

The platform will enable medicine developers to obtain simultaneous, coordinated advice and health technology assessment bodies. Patient representatives will be involved in parallel consultations on a routine basis. The improved consultation, coordination and streamlined logistics are expected to lead to more robust outcomes.


Emergency importation list

Canada – Health Canada has published an initial list of medicines for which there is an urgent public health need, and which are authorized for sale in the U.S., the EU or Switzerland, but not yet in Canada. Health Canada will permit these drugs to be imported for use in Canada. Provisions are in place for reporting of adverse reactions and organizing recalls.

The initial list includes medicines to treat opioid use disorder and tuberculosis. Medicines will remain on the list for one year, renewable if there is a continued need for access. Additional medicines may be added to the list in the future, for example to treat pandemic viruses or to address other public and military health emergencies.


Standardized testing panel for Zika

United States of America – The FDA has made available a panel of human plasma samples to aid in the regulatory evaluation of serological tests to detect recent Zika virus infection.

The sample panel consists of plasma samples from anonymous individuals infected with Zika, West Nile, or dengue viruses. Although the panel is not for research purposes, diagnostic developers can use these samples to assess whether their tests can help distinguish recent Zika virus infection from infection with West Nile or dengue viruses. Using the same serological panel to evaluate different devices available under Emergency Use Authorization (EUA) will help public health professionals compare the performance of different Zika virus tests. The FDA panel is available to developers who have interacted with the Agency through the pre-EUA process and have devices that are in the final stages of validation. Other developers interested in requesting a panel may contact the Agency.


Post-market monitoring

EMA platform gains trade mark

European Union – The EU Intellectual Property Office (EUIPO) has approved the registration of the name “EU PAS Register” as a European Union trade mark.

The EU electronic Register of Post-Authorisation Studies (EU PAS Register) was developed through the European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCePP), which is coordinated by EMA. Launched in November 2010, this openly accessible platform currently includes information on more than 1 100 observational post-authorization studies, of which about a third are finalized. The trade mark will reinforce the EMA’s legal control over the name of the platform and its content.


EU PAS Register®
Automated FDA field alert reports

United States of America – After the successful completion of a four-year pilot phase, the FDA has released a new version of its automated Form FDA 3331a for electronic submission of field alert reports for pharmaceutical products. The new form does not require signatures, requires no additional software or licenses beyond Adobe Acrobat Reader and an email client, and enables the FDA to import data directly to its systems.

Field alert reports enable the regulators to quickly identify quality defects in distributed products that may present a potential safety threat. The Agency is working on the technical requirements for receiving field alert reports as part of the electronic Common Technical Document (eCTD) through the electronic submissions gateway.

► FDA Notice to Industry, 15 June 2017.

GMP compliance

Indian manufacturers to submit self-certification

India – The Drugs Controller General of India has issued a notice requesting pharmaceutical manufacturers to submit their self-assessment reports and self-certification of compliance with good manufacturing practice (GMP) and good laboratory practice (GLP) requirements to the State Licensing Authorities and to the Central Drugs Standard Control Organization (CDSCO) by 30 August 2017. The notice states that issues related to the possibility of self-certification, followed by third-party certification and detailed audit, have been deliberated at the highest level.

An earlier notice requesting mandatory self-audits and submission of self-assessment reports had been issued in July 2015, and CDSCO had provided companies with a checklist of GMP and GLP requirements as specified under Schedule M and Schedule L-1 of the Drugs and Cosmetics Act and Rules of India. However, CDSCO is yet to receive self-inspection reports from manufacturers.


Collaboration

China Food and Drug Administration joins ICH

Montreal – At its meeting held in Montreal, Canada on 27 May to 1 June 2017, the Assembly of the The International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) approved the China Food and Drug Administration (CFDA) as a new Regulatory Member, and the Pharmaceutical Inspection Co-operation Scheme (PIC/S) as a new Observer. With these new parties, ICH now has 14 members and 23 observers. Full details are available on the ICH website.

At the meeting the ICH Assembly also agreed to begin work on two new topics: a harmonized guideline on the use of extrapolation in children’s medicine development, and revised general considerations for clinical trials. The Assembly further adopted new guidance documents and made some revisions to its Articles of Association and rules of procedure to keep operations streamlined with a growing number of members and observers.

► ICH Press release, 19 June 2017.


1 http://www.ich.org/about/membership.html
U.S.-EU cooperation in inspections

The European Commission (EC), the U.S. FDA and the EMA have signed a new confidentiality commitment that allows the US regulator to share non-public and commercially confidential information – including trade secret information relating to medicine inspections – with EU regulators. This confidentiality commitment is a milestone in the ongoing implementation of the mutual recognition of inspections of medicine manufacturing sites.

The EU and the U.S. have had confidentiality arrangements in place since 2003, allowing for the exchange of confidential information as part of their regulatory and scientific processes. However, complete exchange of information was not possible under these arrangements. The new confidentiality commitment formally recognises that FDA’s EU counterparts have the authority and demonstrated ability to protect the relevant information. This step will now allow the sharing of full inspection reports, allowing regulators to make decisions based on findings in each other’s inspection reports and to make better use of their inspection resources to focus on manufacturing sites of higher risk.

IGDRP, IPRF initiatives to join

Montreal – The International Generic Drug Regulators Programme (IGDRP) and the International Pharmaceutical Regulators Forum (IPRF) have agreed to consolidate their collaborative initiatives. The decision was taken at the 5th IGDRP meeting, held in Montreal, Canada, on 5–8 June 2017. The joint initiative will be operational in January 2018; the first face-to-face meeting of the consolidated management committee is planned for June 2018.

The agreement follows an in-depth review of various governance models. The consolidation is expected to realize several opportunities, including: enabling a shared vision for information exchange and regulatory cooperation; maximising synergies and avoiding duplication of effort; creating a regulatory hub for pharmaceuticals that covers all medicinal products, enabling closer linkages with initiatives to simplify the numerous forms of international regulatory collaboration; and improving governance for the management committees and technical working groups.

Medicines labels

Improved labelling in Australia

Australia – The TGA has introduced improvements to help align medicine labels with international best practice. The changes will be implemented over a four-year period. Under the new rules, the names of active ingredients will be updated to be in line with nonproprietary names used internationally, and medicines names will be displayed more prominently on the labels. Critical information will be displayed in a standardized manner and will include mandatory declaration of some additional allergens. The changes will also provide for easier dispensing.

IPRF News, 30 August 2017

TGA. Labelling changes: information for health professionals. 28 July 2017.
European Union – Comments are invited to an EMA reflection paper on aspects to consider in development of medicines for older people. Comments are particularly invited on the accuracy of tablet breaking, the administration of medicines through feeding tubes, and on multiple compliance aids and drug dispensing systems.

► EMA News, 1 August 2017.
Closing date: 31 January 2018.

European Union – The EMA has released for public consultation a concept paper on the development and lifecycle of personalized medicines and companion diagnostics that allow identifying patients who are most likely to benefit from a specific medicine, and those likely to be at increased risk of serious adverse reactions. Recently revised EU legislation foresees cooperation between medicines regulators and EU notified bodies, which conduct the conformity assessment of diagnostics in the EU.

Closing date: 15 November 2017.

European Union – A concept on the non-clinical development of radiopharmaceuticals has been released for public comment on the EMA website. The draft guidance complements existing guidelines, and applies to radiodiagnostics as well as radiotherapeutics. It will focus on targeted non-clinical programmes for specific development settings and product types. The paper is not intended to duplicate guidance on dosimetry.

► EMA Consultation, 1 August 2017.
Closing date: 31 October 2017.

European Union – The EMA has proposed revised guidelines on pharmacovigilance for medicines used in children and adolescents up to 18 years of age. The revision takes into account the improved situation with regard to off-label use, and considers medicine-related risks in the context of school and sports performance, alcohol and nicotine consumption and possible diversion of medicines to friends. The revised guidance should also be of interest to non-regulatory groups such as parents, caregivers and healthcare professionals.

► EMA Consultation, 2 August 2017.
Closing date: 13 October 2017.

European Union – The EMA has released a concept paper on revision of its guideline on clinical development of vaccines. The revision of the current guideline is proposed to incorporate lessons learned in clinical development of new and improved vaccines since 2007, as well as aspects of developing
Under discussion

vaccines administered during pregnancy with the main or sole intent of providing a benefit to the unborn child.

► EMA Consultation, 23 June 2017.
  Closing date: 30 September 2017.

Ireland – The Minister for Health of Ireland has announced the opening of a public consultation on biosimilar medicines. The consultation will inform the development of Ireland's first National Biosimilar Medicines Policy, with the aim of increasing the use of these more cost-effective medicines in Ireland.

  Consultation closing date: 22 September 2017.

Australia – The TGA is seeking comments on proposed options on whether there is a need in Australia for additional naming requirements for biological medicines as a way of strengthening traceability and pharmacovigilance.

► TGA Consultation, 28 July 2017.
  Closing date: 8 September 2017.

Geneva – WHO has sought comments on its pilot procedure for WHO prequalification of similar biotherapeutic products. This pilot project is a step towards making some of the most expensive treatments for cancer more widely available. The first invitation for expression of interest to prequalify rituximab- and trastuzumab-containing products is planned to be published in October 2017.

  Closing date: 16 August 2017.

Canada – Health Canada has opened a consultation on proposed changes to regulations that would make it mandatory for certain health care institutions to report serious adverse drug reactions and medical device incidents.

► Health Canada Consultation, 28 June 2017.
  Closing date: 11 August 2017.

India – The Office of the Drug Controller General of India has published a notice listing some of the steps taken in the past to streamline regulatory procedures, and has asked industry to provide feedback on other proposed approaches that would allow to streamline the regulatory process further.

► CDSCO Notice, 27 June 2017.
  Closing date: 31 July 2017.

India – The Central Drugs Standard Control Organisation of India has published a draft standard operating procedure for declaring a sample as being of substandard quality.

► CDSCO Notice, 27 June 2017.
  Closing date: 31 July 2017.
  SOP for handling of Not of Standard Quality (NSQ) drugs samples. Draft.

Australia – The TGA has published feedback on its proposed criteria to identify comparable overseas regulators (CORs) as providers of assessment reports and possible work-sharing partners in the assessment of medicine registration applications. A final guideline is expected to be published in December 2017.

### Approved

**L-glutamine** for sickle cell disease  
**Product name:** Endari®  
**Dosage form:** Oral powder  
**Class:** Amino acid  
**Approval:** FDA (orphan drug designation)  
**Use:** To reduce the acute complications of sickle cell disease in adults and children 5 years of age and older  
**Benefits:** Fewer and shorter hospital visits for sickle cell crises, fewer occurrences of acute chest syndrome than with placebo.  
**Notes:** Only one other medicine is approved in the U.S. for sickle cell disease.  
► FDA News release, 7 July 2017.

**Betrixaban** to prevent venous thromboembolism in certain patients  
**Product name:** BevyxXa®  
**Dosage form:** Capsules  
**Class:** Anticoagulant, Factor Xa inhibitor  
**Approval:** FDA  
**Use:** Prophylaxis of venous thromboembolism (VTE) in adult patients hospitalized for an acute medical illness who are at risk for thromboembolic complications  
**Benefits:** In a clinical trial, betrixaban was more efficacious than enoxaparin in preventing thrombotic events.  
**Safety information:** Patients treated with betrixaban who are receiving neuraxial anaesthesia or undergoing spinal puncture are at risk of spinal/epidural haematoma. The risk may be increased by the use of in-dwelling epidural catheters or the concomitant use of medical products affecting haemostasis. These haematomas may result in long-term or permanent paralysis.  
► Prescribing information for BevyxXa®, revised 6/2017.

**C1 esterase inhibitor (human)** to prevent hereditary angioedema  
**Product name:** Haegarda®  
**Dosage form:** Lyophilized concentrate for subcutaneous injection  
**Class:** C1-esterase inhibitor (C1-INH)  
**Approval:** FDA (orphan drug designation)  
**Use:** Prevention of hereditary angioedema attacks in adolescent and adult patients  
**Benefits:** Reduced number of attacks, compared to placebo.  
**Notes:** Hereditary angioedema causes attacks of rapid swelling of the hands, feet, limbs, face, intestinal tract or airway. These attacks can occur spontaneously, or can be triggered by stress, surgery or infection. The product is not suitable to treat acute attacks.  
► FDA News release, 22 June 2017.

**Meropenem and vaborbactam** for complicated urinary tract infection  
**Product name:** Vabomere®  
**Dosage form:** Sterile powder for injection for intravenous use  
**Class:** Combination of a penem antibacterial (meropenem) and a beta-lactamase inhibitor (vaborbactam)  
**Approval:** FDA (priority review, qualified infectious disease product (QIDP) designation)  
**Use:** Treatment of adults with complicated urinary tract infections (cUTI). To reduce the risk of drug-resistance, the product should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria.  
**Benefits:** Additional treatment option for cUTI  
**Safety information:** This product can cause allergic reactions and seizures. It should not be used in patients with a history of anaphylaxis in response to beta-lactams  

**Delafloxacin** for acute bacterial skin infections  
**Product name:** Baxdela®  
**Dosage form:** Tablets; injection for intravenous use  
**Class:** Fluoroquinolone antibiotic  
**Approval:** FDA
**Approved**

**Use:** Treatment of acute bacterial skin and skin structure infections caused by designated susceptible bacteria. Delafloxacin should be used only to treat infections that are proven or strongly suspected to be caused by bacteria.

**Benefits:** No less effective than a combination of vancomycin and aztreonam in two multicentre clinical trials.

**Safety information:** Like other fluoroquinolones delafloxacin is associated with: (1) a risk of disabling and potentially irreversible serious adverse reactions that can occurred together, including tendinitis and tendon rupture, peripheral neuropathy and central nervous system effects; and (2) a risk of exacerbation of myasthenia gravis.

► **Prescribing information for Baxdela®, revised 6/2017.**

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**Glecaprevir and pibrentasvir for hepatitis C**

**Product name:** EU: Maviret®; U.S.: Mavyret®

**Dosage form:** Film-coated tablets

**Class:** Fixed-dose combination of two direct-acting antivirals, a HCV NS3/4A protease inhibitor (glecaprevir), and HCV NS5A inhibitor (pibrentasvir)

**Approval:** EMA (accelerated approval); FDA (priority review, breakthrough therapy)

**Use:** Treatment of chronic hepatitis C virus (HCV) infection in adults

**Benefits:** Highly effective against all genotypes of HCV. Can be used in patients with severe renal impairment, including in those on dialysis.

► EMA Press release, 23 June 2017.


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**Sofosbuvir, velpatasvir and voxilaprevir for hepatitis C**

**Product name:** Vosevi®

**Dosage form:** Film-coated tablets

**Class:** Fixed-dose combination of three direct antivirals: a nucleotide analogue non-structural protein NS5B polymerase inhibitor (sofosbuvir), an HCV NS5A inhibitor (velpatasvir) and a novel pangenotypic HCV NS3/4A protease inhibitor (voxilaprevir).

**Approval:** FDA (priority review, breakthrough therapy; orphan drug designation)

**Use:** Treatment of adult patients with newly diagnosed therapy-related AML, or AML with myelodysplasia-related changes

**Benefits:** Longer overall survival than with separate treatments of daunorubicin and cytarabine.

**Safety information:** The product has been associated with serious or fatal bleeding events. This product should not be interchanged.


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**Cladribine for relapsing multiple sclerosis**

**Product name:** Mavenclad ®

**Dosage form:** Tablets

**Class:** Antimetabolite; **ATC code:** L01BB04

**Approval:** EMA

**Use:** Treatment of adult patients with highly active relapsing multiple sclerosis as defined by clinical or imaging features.

**Benefits:** Ability to reduce the frequency of relapses and to delay disease progression

**Safety information:** Cladribine can cause lymphopenia, which can be severe and long-lasting, and infections including herpes zoster.

► EMA/CHMP Summary of opinion, 22 June 2017.

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**Daunorubicin and cytarabine for two types of acute myeloid leukaemia (AML)**

**Product name:** Vyxeos®

**Dosage form:** Liposome for injection for intravenous use

**Class:** Fixed-dose combination of an anthracycline topoisomerase inhibitor (daunorubicin) and a nucleoside metabolic inhibitor (cytarabine)

**Approval:** FDA (priority review, breakthrough therapy; orphan drug designation)

**Use:** Treatment of adult patients with newly diagnosed therapy-related AML, or AML with myelodysplasia-related changes

**Benefits:** Longer overall survival than with separate treatments of daunorubicin and cytarabine.

**Safety information:** The product has been associated with serious or fatal bleeding events. This product should not be interchanged.

with other daunorubicin- and/or cytarabine-containing products.

**Note:** This is the first FDA-approved treatment specifically for patients with either of these two types of high-risk AML.


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**Gemtuzumab ozogamicin** for acute myeloid leukaemia (AML)

**Product name:** Mylotarg®

**Dosage form:** Lyophilized cake or powder for injection

**Class:** CD33-directed antibody-drug conjugate

**Approval:** FDA (orphan drug designation)

**Use:** Treatment of adults with newly diagnosed CD33-positive AML; treatment of patients aged 2 years and older with relapsed or refractory CD33-positive AML.

**Benefits:** Longer event-free survival period than with chemotherapy alone; longer median overall survival than with best supportive care.

**Safety information:** Severe side effects include liver damage, hepatic veno-occlusive disease, low blood counts, infections, infusion-related reactions and severe bleeding.

**Notes:** (1) Mylotarg® was originally received accelerated FDA-approval in May 2000 as a stand-alone treatment for older patients with CD33-positive AML who had experienced a relapse. The product was voluntarily withdrawn from the market after subsequent confirmatory trials failed to verify clinical benefit and demonstrated safety concerns, including a high number of early deaths. The 2017 approval includes a lower recommended dose, a different schedule in combination with chemotherapy or on its own, and a new patient population.

► FDA News release, 1 September 2017.

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**Enasidenib** for certain types of AML

**Product name:** Idhifa®

**Dosage form:** Tablets

**Class:** Isocitrate dehydrogenase-2 inhibitor

**Approval:** FDA (priority review; orphan drug designation)

**Use:** Treatment of adult patients with relapsed or refractory acute myeloid leukaemia (AML) who have a specific genetic mutation

**Benefits:** Ability to achieve complete remission in some patients and a reduction in the need for both red cell and platelet transfusions lasting several months.

**Safety information:** An adverse reaction known as differentiation syndrome can occur and can be fatal if not treated. If differentiation syndrome is suspected, patients should be treated with corticosteroids and closely monitored until symptoms resolve.

**Note:** The product is approved for use with a companion diagnostic, the RealTime IDH2 Assay, which is used to detect specific mutations in patients’ IDH2 gene.

► FDA News release, 1 August 2017.

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**Neratinib** to reduce risk of breast cancer

**Product name:** Nerlynx®

**Dosage form:** Tablets

**Class:** Kinase inhibitor

**Approval:** FDA

**Use:** For the extended adjuvant treatment of early-stage, HER2-positive breast cancer in adult patients previously treated with trastuzumab

**Benefits:** Reduced risk of breast cancer recurrence

**Safety information:** Severe potential adverse effects include diarrhoea and liver damage. Patients should be given loperamide for the first 56 days of treatment and as needed thereafter, together with additional antidiarrheals, fluids and electrolytes as clinically indicated to help manage diarrhoea. Neratinib may cause harm to a developing foetus or a newborn child.


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**Tivozanib** for kidney cancer

**Product name:** Fotivda®

**Dosage form:** Hard capsules

**Class:** Protein kinase inhibitor; ATC code: L01XE34

**Approval:** EMA

**Use:** First line-treatment of adult patients with advanced renal cell carcinoma (RCC) and treatment of certain adult patients following
Approved disease progression after one prior cytokine therapy for advanced RCC.

**Benefits:** Ability to improve progression-free survival in patients with advanced disease

► EMA/CHMP Summary of opinion, 22 June 2017.

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**Guselkumab for plaque psoriasis**

**Product name:** Tremfya®

**Dosage form:** Subcutaneous injection

**Class:** Interleukin-23 blocker; 
**ATC code (temporary):** L04AC16

**Approval:** FDA

**Use:** Treatment of adult patients with moderate to severe plaque psoriasis who are candidates for systemic therapy or phototherapy.

**Benefits:** Additional treatment option for psoriasis.

**Safety information:** Guselkumab may increase the risk of infection. Patients should be evaluated for tuberculosis before starting treatment

► FDA prescribing information for Tremfya®; revised July 2017.

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**Benznidazole for Chagas disease**

**Dosage form:** Oral tablets

**Class:** Nitroimidazole derivative; 
**ATC code:** P01CA02

**Approval:** FDA (accelerated approval, priority review; orphan product designation)

**Use:** Treatment of children aged 2 to 12 years with Chagas disease

**Benefits:** Significantly more seroconversions from positive to negative antibody test compared with placebo.

**Safety information:** Benznidazole can cause serious skin reactions, nervous system effects and bone marrow depression. Based on findings from animal studies, benznidazole could cause foetal harm.

**Notes:** Chagas disease is a parasitic infection that can cause serious heart illness and can affect swallowing and digestion in the long term. This is the first FDA-approved treatment for Chagas disease.


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**Ciclosporin paediatric eye drops for rare eye allergy in children**

**Product name:** Verkazia®

**Dosage form:** Eye drops

**Class:** Immunosuppressant; 
**ATC code:** S01XA18

**Approval:** EMA (orphan designation; accelerated assessment)

**Use:** Treatment of severe vernal keratoconjunctivitis in children from 4 years of age and adolescents

**Benefits:** Ability to improve ocular surface damage and reduce symptoms of severe vernal keratoconjunctivitis in children and adolescent patients.


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**Lutetium oxodotreotide for certain gastroenteric cancers**

**Product name:** Lutathera®

**Dosage form:** Solution for infusion

**Class:** Radiolabelled peptide targeting subtype 2 somatostatin (sst2) receptors; 
**ATC code:** V10XX04

**Approval:** EMA (orphan designation)

**Use:** Treatment of gastro-entero-pancreatic neuroendocrine tumours

**Benefits:** Ability to improve progression-free survival compared with octreotide long-acting release (LAR), a somatostatin receptor agonist, in patients with certain types of tumours.


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**Gene cell therapy**

**Tisagenlecleucel for certain leukaemias**

**Product name:** Kymriah®

**Dosage form:** Autologous CAR T cells for infusion

**Class:** Genetically-modified autologous T-cell immunotherapy. chimeric antigen receptor (CAR) designed to kill B-cells with a C19 surface antigen.

**Approval:** FDA (fast track, priority review and breakthrough therapy designations)

**Use:** Treatment of children and young adults up to 25 years of age with B-cell precursor acute lymphoblastic leukaemia (ALL) that is refractory or in second or later relapse.
Benefits: Remission rate of 83% within three months in a clinical trial.

Safety information: The product carries a boxed warning about the risk of cytokine release syndrome (CRS), which causes high fever and flu-like symptoms, and the risk of neurological events. Both these events can be life-threatening. Other severe side effects of Kymriah include serious infections, hypotension, acute kidney injury, fever, and hypoxia. Most symptoms appear within one to 22 days following infusion.

Note: This is the first gene therapy available in the United States.

Early access

Idebenone for Duchenne’s muscular dystrophy

Product name: Raxone®
Reference product: Avastin®
Approval: MHRA Early Access to Medicines Scheme (EAMS)
Use: Treatment of patients aged 10 years and older with Duchenne’s muscular dystrophy not currently taking glucocorticoids and showing clear signs of deteriorating lung function.

Benefits: Ability to slow the decline of respiratory function

Note: The product is licensed in the U.K. for the treatment of Leber’s hereditary optic neuropathy, a rare eye condition.

Early access

Ibrutinib for graft-versus-host disease

Product name: Imbruvica®
Approval: FDA (priority review, breakthrough therapy; orphan drug designation)
Newly approved use: Treatment of chronic graft-versus-host disease (cGVHD)

Note: cGVHD is a serious and life-threatening condition that may occur in patients with blood cancer who receive a stem cell transplant. This is the first FDA-approved therapy for cGVHD.

Extensions of indications

Adalimumab

Product name: Imraldi®
Reference product: Humira®
Approval: EMA
Use: Treatment of rheumatoid arthritis, juvenile idiopathic arthritis, axial spondyloarthritis, psoriatic arthritis, psoriatic plaque psoriasis, hidradenitis suppurativa, Crohn’s disease, paediatric Crohn’s disease, ulcerative colitis and uveitis.

Biosimilars

Bevacizumab
Product name: Mvasi® (bevacizumab-awwb)
Reference product: Avastin®
Approval: FDA
Use: Treatment of adult patients with certain colorectal, lung, brain, kidney and cervical cancers.

Safety information: Like Avastin®, Mvasi® carries a Boxed Warning about an increased risk of gastrointestinal perforations; surgery and wound healing complications; and severe or fatal pulmonary, gastrointestinal, central nervous system and vaginal bleeding.

Note: Bevacizumab-awwb is the first biosimilar approved in the U.S. for the treatment of cancer.

Adalimumab

(1)
Product name: Imraldi®
Reference product: Humira®
Approval: EMA
Use: Treatment of rheumatoid arthritis, juvenile idiopathic arthritis, axial spondyloarthritis, psoriatic arthritis, psoriatic plaque psoriasis, hidradenitis suppurativa, Crohn’s disease, paediatric Crohn’s disease, ulcerative colitis and uveitis.

Note: This is the first gene therapy available in the United States.


EMA/CHMP Summary of opinion, 22 June 2017.

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