PIPELINE REPORT
Third Quarter 2014

Information on recently approved, soon-to-be-approved and Phase III trial specialty medications

The Walgreens Pipeline Report provides a summary of the specialty medications that may be approved by the FDA within the next few years. While not all-inclusive, this report focuses on medications in Phase III studies that may impact treatment for certain specialty disease states or conditions. It also highlights select, recently approved or soon-to-be-approved specialty medications of interest to the marketplace. Drug information for approved products should be reviewed using the PI (prescribing information). For full PI, please refer to the DailyMed website. The medications with an asterisk indicate they have a boxed warning.

Note: This report is not intended for use by patients.

Walgreens

Medications to watch

Here is a closer look at a few recently approved or soon-to-be-approved medications that may have a significant impact on therapeutic classes and treatment for specific disease states and conditions.

Pembrolizumab

Pembrolizumab is a programmed cell death 1 (PD-1) checkpoint inhibitor which activates the immune system to target cancer cells. Merck is conducting an ongoing open-label, single-arm, phase Ib trial (KEYNOTE-001), evaluating pembrolizumab in 411 patients with advanced melanoma. In this trial, seven groups of patients with advanced melanoma were enrolled, including patients with varying stages of disease and those that had received previous therapies. Pembrolizumab is administered as an intravenous (IV) infusion with a proposed dose of 2 mg/kg once every three weeks. In KEYNOTE-001, the estimated overall survival (OS) rate at one year was 69 percent across all patient groups, with a rate of 74 percent in patients without prior Yervoy* (ipilimumab*) treatment and a rate of 65 percent in patients who progressed on or following Yervoy. At 18 months, the estimated OS was 62 percent. The median OS of the trial has not been reached yet. Two Phase III trials of pembrolizumab in melanoma are also ongoing.

Pembrolizumab has been granted breakthrough therapy designation. In May 2014, the FDA accepted the biologics license application (BLA) for pembrolizumab in the treatment of unresectable or metastatic melanoma in patients who have been previously treated with ipilimumab. The FDA granted priority review status to the application. A response to the BLA is expected in October 2014.

Panobinostat

Novartis has filed a new drug application (NDA) for panobinostat in the treatment of relapsed or refractory multiple myeloma (MM). MM is a blood cancer that affects plasma cells with most people relapsing or becoming refractory to treatment. Panobinostat is an orally administered histone deacetylase inhibitor that inhibits cell growth and survival.

PANORAMA-2 was an open-label, Phase II trial of panobinostat in combination with Velcade (bortezomib) and dexamethasone. Fifty-five patients with relapsed and bortezomib-refractory MM (progressed on or within 60 days of the last bortezomib-containing regimen) who had received at least two prior therapies including an immunomodulatory drug, Revlimid (lenalidomide) or Thalomid (thalidomide), were enrolled in the trial. Patients were treated in two phases, both with a two-week-on and one-week-off schedule. Phase one consisted of eight three-week cycles of panobinostat 20 mg by mouth three times per week, bortezomib 1.3 mg/m2 intravenous (IV) injection two times per week, and dexamethasone 20 mg by mouth four times per week on weeks 1 and 2. For patients who benefited from phase one, treatment continued in phase two with six-week cycles of panobinostat three times per week, bortezomib one time per week, and dexamethasone two times per week on weeks 1, 2, 4 and 5. The primary endpoint of the trial was overall response rate (ORR) after eight cycles of treatment. The ORR was 34.5 percent, leading the researchers to conclude that panobinostat, when combined with bortezomib and dexamethasone, can recapture responses in heavily pretreated, bortezomib-refractory MM patients. The most common side effects reported were diarrhea, fatigue, thrombocytopenia, nausea and anemia.

PANORAMA-1 was a randomized, double-blind, placebo-controlled, Phase III trial. In this trial, 768 patients with relapsed or relapsed and refractory MM who failed on at least one prior treatment were enrolled and randomized to receive treatment with panobinostat in combination with bortezomib and dexamethasone or bortezomib and dexamethasone alone. The same dosing schedule from PANORAMA-2 was used. The primary endpoint of this trial was progression-free survival (PFS). PFS was 12 months in the panobinostat group versus eight months in the placebo group which was considered statistically significant.

Panobinostat is designated as an orphan drug. The FDA accepted the NDA and granted priority review status to the application in May 2014.

*These medications have a boxed warning.

Asfotase alfa

Alexion Pharmaceuticals initiated a rolling BLA submission in April 2014 for asfotase alfa for the treatment of hypophosphatasia. Hypophosphatasia is an ultra-rare metabolic disease characterized by impaired phosphate and calcium regulation, leading to progressive damage to multiple vital organs including destruction and deformity of bones, profound muscle weakness, seizures, impaired renal function and respiratory failure. There are no approved treatments for hypophosphatasia. Asfotase alfa is a targeted enzyme replacement therapy designed to normalize the genetically defective metabolic process by targeting alkaline phosphatase directly to the deficient tissue.

Infants and young children with life-threatening or debilitating perinatal or infantile hypophosphatasia were enrolled in an open-label, Phase I/II trial. All patients received a single 2 mg/kg IV infusion of asfotase alfa, followed by 1 mg/kg subcutaneous injections three times per week. The subcutaneous dose could be increased up to 3 mg per kg if there were worsening failure to thrive, deteriorating pulmonary function or no radiographic evidence of skeletal improvement. The primary endpoint of the trial was the number of patients showing radiographic response after 24 weeks of treatment. Ten patients completed at least 24 weeks of treatment and substantial radiographic improvement in skeletal abnormalities was noted in all but one patient. The most common side effect reported was a subcutaneous injection site reaction.

Asfotase alfa is designated as an orphan drug with fast-track status. The FDA has also granted asfotase alfa breakthrough therapy designation. Alexion plans to complete the rolling BLA submission in the third quarter of 2014.

Medications recently approved

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Approval date	Comments
Bleeding disorders					
Biogen Idec/Eloctate (antihemophilic factor [recombinant], Fc fusion protein)	For the control and prevention of bleeding episodes, perioperative (surgical) management and routine prophylaxis in adults and children with hemophilia A	Promotes blood clotting/Factor replacement therapy	IV infusion	6/6/14	• First hemophilia A therapy to extend the interval between prophylactic infusions
Novo Nordisk/NovoSeven RT* (coagulation factor VIIa [recombinant])	For the treatment of bleeding episodes and perioperative management in adults and children with Glanzmann's thrombasthenia with refractoriness to platelet transfusions, with or without antibodies to platelets	Promotes blood clotting/Factor replacement therapy	IV injection	7/7/14	• Previously approved for the treatment of hemophilia A or B with inhibitors, acquired hemophilia, and congenital factor VII deficiency
Octapharma/Octagam 10% (immune globulin intravenous [human])	For the treatment of chronic immune thrombocytopenic purpura (ITP) in adults	Mechanism of action in ITP unknown/Immune globulin	IV infusion	7/17/14	• Octagam 5% previously approved for treatment of primary humoral immunodeficiency
Hereditary angioedema					
Salix Pharmaceuticals and Pharming Group NV/Ruconest (C1 esterase inhibitor [recombinant])	For the treatment of acute attacks in adult and adolescent patients with hereditary angioedema (HAE)	Replaces deficient C1 esterase inhibitor/C1 esterase inhibitor replacement therapy	IV injection	7/16/14	• First recombinant C1 esterase inhibitor therapy approved for HAE
Inflammatory diseases					
Takeda/Entyvio (vedolizumab)	For the treatment of adults with moderately to severely active ulcerative colitis (UC) and Crohn's disease (CD) in patients who have had an inadequate response with, lost response to, or were intolerant to a tumor necrosis factor (TNF) blocker or immunomodulator, or had an inadequate response with, were intolerant to, or demonstrated dependence on corticosteroids	Modulates the inflammatory response/α4β7 integrin inhibitor	IV infusion	5/20/14	• First treatment for UC and CD designed specifically to target receptors in the gut

*These medications have a boxed warning.

Medications recently approved (continued)

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Approval date	Comments
Oncology					
Eli Lilly/Cyramza (ramucirumab)	As a single-agent for the treatment of patients with advanced or metastatic, gastric or gastro-esophageal junction adenocarcinoma with disease progression on or after prior fluoropyrimidine- or platinum-containing chemotherapy	Reduces tumor cell growth and blood supply/ Vascular endothelial growth factor receptor 2 (VEGFR2) antagonist	IV infusion	4/21/14	• First FDA-approved treatment for this indication
Gilead Sciences/Zydelig (idelalisib)	In combination with rituximab, for the treatment of patients with relapsed chronic lymphocytic leukemia (CLL) for whom Rituxan* (rituximab) alone would be considered appropriate therapy due to other comorbidities For the treatment of patients with relapsed follicular B-cell non-Hodgkin lymphoma who have received at least two prior systemic therapies For the treatment of patients with relapsed small lymphocytic lymphoma who have received at least two prior systemic therapies	Inhibits cell growth and survival/ Phosphoinositide 3-kinase (PI3K) delta inhibitor	Oral	7/23/14	• First-in-class PI3K delta inhibitor
GlaxoSmithKline and Genmab/Arzerra* (ofatumumab)	In combination with chlorambucil,* for the treatment of previously untreated patients with CLL for whom fludarabine*-based therapy is considered inappropriate	Targets the CD20 protein on malignant B-cells/Anti-CD20 antibody	IV infusion	4/17/14	• Previously approved for the treatment of patients with CLL refractory to fludarabine* and alemtuzumab*
Janssen/Sylvant (siltuximab)	For the treatment of patients with multicentric Castleman's disease (MCD) who are human immunodeficiency virus (HIV) negative and human herpesvirus-8 (HHV-8) negative	Interferes with the inflammatory response/ Interleukin (IL)-6 inhibitor	IV infusion	4/22/14	• First FDA-approved treatment for this indication
Novartis/Zykadia (ceritinib)	For the treatment of patients with anaplastic lymphoma kinase (ALK)-positive metastatic non-small cell lung cancer (NSCLC) who have progressed on or are intolerant to Xalkori (crizotinib)	Inhibits cell growth and survival/ ALK inhibitor	Oral	4/29/14	• First FDA-approved treatment for this indication
Spectrum Pharmaceuticals/ Beleodaq (belinostat)	For the treatment of patients with relapsed or refractory peripheral T-cell lymphoma	Inhibits cell growth and survival/Histone deacetylase inhibitor	IV infusion	7/3/14	• Granted accelerated approval based on tumor response rate and duration of response; an improvement in survival or disease-related symptoms has not been established yet

*These medications have a boxed warning.

Pipeline medications in Phase III trials

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Comments
Bleeding disorders				
Baxter/BAX 111 (recombinant von Willebrand factor)	For the treatment of bleeding in patients with von Willebrand disease	Promotes blood clotting/Factor replacement therapy	IV infusion	• Designated as an orphan drug • Primary endpoint achieved in Phase III trial April 2014 • BLA filing planned for 2014
Baxter/BAX 855 (recombinant factor VIII)	For the treatment and prevention of bleeding in patients with hemophilia A	Promotes blood clotting/Factor replacement therapy	IV infusion	• Completed enrollment of Phase III trial November 2013 • Regulatory filings planned for late 2014
Baxter/OBI-1 (recombinant antihemophilic porcine sequence factor VIII)	For the treatment of bleeding in patients with acquired hemophilia A	Promotes blood clotting/Factor replacement therapy	IV infusion	• Designated as an orphan drug with fast-track status • BLA filed December 2013
Cystic fibrosis				
Vertex Pharmaceuticals/ Lumacaftor (VX-809)	In combination with Kalydeco (ivacaftor) in patients with cystic fibrosis (CF) who have two copies of the F508del mutation in the cystic fibrosis transmembrane conductance regulator *(CFTR)* gene	Increases the movement of *CFTR* to the cell surface/*CFTR* corrector	Oral	• Designated as an orphan drug • FDA granted breakthrough therapy designation • NDA filing planned for fourth quarter 2014
Endocrine disorders				
NPS Pharmaceuticals/Natpara (recombinant human parathyroid hormone)	For the treatment of hypoparathyroidism	Replaces deficient hormone/ Hormone replacement therapy	Subcutaneous injection	• Designated as an orphan drug • BLA filed October 2013 • A response to the BLA is expected October 2014
Fertility				
Merck/Corifollitropin alfa	For the development of multiple follicles and pregnancy in women participating in an assisted reproductive technology program	Stimulates ovarian follicular growth/ Sustained follicle stimulant	Subcutaneous injection	• NDA accepted for standard review September 2013
Growth disorders				
Aeterna Zentaris/Macrilen (macimorelin acetate)	For the evaluation of adult growth hormone deficiency	Stimulates the secretion of growth hormone/Ghrelin receptor agonist	Oral	• Designated as an orphan drug • NDA filed November 2013 • A response to the NDA is expected November 2014

Pipeline medications in Phase III trials (continued)

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Comments
Hepatitis				
AbbVie/ABT-450 + ritonavir* ombitasvir (ABT-267) dasabuvir (ABT-333)	In combination with ribavirin for the treatment of chronic hepatitis C virus (HCV) infection in genotype 1 patients	Prevents virus replication/Protease inhibitor (ABT-450 + ritonavir), NS5A inhibitor (ABT-267), non-nucleoside polymerase inhibitor (ABT-333)	Oral	• FDA granted breakthrough therapy designation • NDA filed April 2014 • FDA granted priority review status • A response to the NDA is expected December 2014
Bristol-Myers Squibb/Daclatasvir and asunaprevir	For the treatment of chronic HCV infection in genotype 1b patients	Prevents virus replication/NS5A inhibitor (daclatasvir), NS3 inhibitor (asunaprevir)	Oral	• FDA granted breakthrough therapy designation • NDA filed March 2014 • FDA granted priority review status • A response to the NDA is expected November 2014
Bristol-Myers Squibb/Daclatasvir	In combination with other agents for the treatment of chronic HCV infection	Prevents virus replication/NS5A inhibitor	Oral	• NDA filed March 2014
Gilead Sciences/Ledipasvir	In fixed-dose combination with Sovaldi (sofosbuvir) for the treatment of chronic HCV infection in genotype 1 patients	Prevents virus replication/NS5A inhibitor	Oral	• FDA granted breakthrough therapy designation • NDA filed February 2014 • FDA granted priority review status • A response to the NDA is expected October 2014
Human immunodeficiency virus				
Gilead Sciences/Elvitegravir	For the treatment of HIV infection in treatment-experienced patients	Prevents virus replication/Integrase inhibitor	Oral	• NDA filed June 2012 • Received complete response letter April 2013 • FDA accepted resubmission of NDA April 2014 • A response to the NDA is expected October 2014
Immune Response BioPharma/ Remune	To boost the immune system in HIV patients receiving antiviral treatment	Induces an HIV-specific T-cell response/Therapeutic vaccine	Intramuscular (IM) injection	• Designated as an orphan drug for pediatric patients • Planning a new Phase II trial
Hypercholesterolemia				
Amgen/Evolocumab	For the treatment of hypercholesterolemia	Increases the removal of low-density lipoprotein cholesterol from the blood/Proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitor	Subcutaneous injection	• Designated as an orphan drug for the treatment of homozygous familial hypercholesterolemia • Global regulatory filings planned for 2014
Inflammatory diseases				
Novartis/Secukinumab (AIN457)	For the treatment of plaque psoriasis	Interferes with the inflammatory response/IL-17A inhibitor	Subcutaneous injection	• BLA filed October 2013 • A response to the BLA is expected January 2015
Sanofi and Regeneron Pharmaceuticals/Sarilumab	For the treatment of rheumatoid arthritis (RA)	Interferes with the inflammatory response/IL-16 inhibitor	Subcutaneous injection	• Coprimary endpoints achieved in Phase III trial November 2013 • Six phase III trials ongoing

*These medications have a boxed warning.

Pipeline medications in Phase III trials (continued)

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Comments
Lambert Eaton Myasthenic Syndrome				
Catalyst Pharmaceutical Partners/ Firdapse (amifampridine phosphate)	For the treatment of symptoms associated with Lambert-Eaton myasthenic syndrome	Improves impulse conduction in nerve fibers/Potassium channel blocker	Oral	• Designated as an orphan drug • FDA granted breakthrough therapy designation • Phase III results are expected third quarter 2014
Lysosomal storage diseases				
Amicus Therapeutics and GlaxoSmithKline/Amigal (migalastat HCl)	For the treatment of Fabry disease	Binds to and stabilizes alpha-galactosidase/Alpha-galactosidase A enhancer	Oral	• Designated as an orphan drug • Primary endpoint not achieved in stage I of first Phase III trial December 2012 • Primary endpoint achieved in stage II of first Phase III trial April 2014 • Top-line results from second Phase III trial are expected third quarter 2014
Genzyme/Cerdelga (eliglustat)	For the treatment of adult patients with Gaucher disease type 1	Reduces the production of glucosylceramide/Glucosylceramide synthase inhibitor	Oral	• Designated as an orphan drug • NDA accepted and granted priority review December 2013
Synageva BioPharma/ Sebelipase alfa	For the treatment of early and late onset lysosomal acid lipase (LAL) deficiency	Replaces deficient LAL/Enzyme replacement therapy	IV infusion	• Designated as an orphan drug with fast-track status • FDA granted breakthrough therapy designation for early onset LAL deficiency • Top-line Phase III results are expected second half 2014
Metabolic disorders				
Alexion Pharmaceuticals/ Asfotase alfa	For the treatment of hypophosphatasia	Normalizes the genetically defective metabolic process/Targeted enzyme replacement therapy	Subcutaneous injection	• Designated as an orphan drug with fast-track status • FDA granted breakthrough therapy designation • Initiated rolling BLA submission April 2014
Multiple sclerosis				
Biogen Idec/Plegridy (peginterferon beta-1a)	For the treatment of relapsing-remitting multiple sclerosis (MS)	Unknown mechanism of action in MS/Interferon	Subcutaneous injection	• Dosed once every two or four weeks • FDA granted fast-track status • BLA accepted for standard review July 2013 • FDA extended the BLA review period by three months
Teva Pharmaceuticals/Laquinimod	For the treatment of relapsing-remitting MS	Inhibits autoimmune and inflammatory disease activity/ Immunomodulatory agent	Oral	• Third Phase III trial is ongoing, results are expected 2016 • This trial is being conducted under a special protocol assessment

Pipeline medications in Phase III trials (continued)

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Comments
Muscular dystrophy				
Prosensa Holding N.V./Drisapersen	For the treatment of Duchenne muscular dystrophy (DMD)	Enables production of a functional dystrophin protein/Exon skipping therapy	Subcutaneous injection	• Designated as an orphan drug • FDA granted breakthrough therapy designation • NDA filing planned for 2014
Sarepta Therapeutics/Eteplirsen	For the treatment of DMD	Enables production of a functional dystrophin protein/Exon skipping therapy	IV infusion	• Designated as an orphan drug with fast-track status • NDA filing planned for 2014
Oncology				
AstraZeneca, MedImmune/ Lynparza (olaparib)	For the treatment of platinum sensitive relapsed ovarian cancer patients who have a breast cancer (*BRCA*) mutation	Inhibits cell growth and survival/Poly ADP-ribose polymerase (PARP) inhibitor	Oral	• Designated as an orphan drug • NDA accepted priority review April 2014 • FDA advisory committee did not recommend accelerated approval June 2014 • Phase III trial ongoing
Bristol-Myers Squibb/Opdivo (nivolumab)	For the third-line treatment of squamous cell NSCLC	Activates immune system to target cancer cells/PD-1 checkpoint inhibitor	IV injection	• FDA granted fast-track status • Initiated rolling BLA submission April 2014; expecting to complete the application by the end of 2014
CTI BioPharma/Opaxio (paclitaxel poliglumex)	For the treatment of ovarian cancer	Inhibits cell division/ Microtubule inhibitor	IV infusion	• Links paclitaxel to a biodegradable polyglutamate polymer that delivers more chemotherapy to tumor cells • Completed enrollment of Phase III trial January 2014
Eisai/Lenvatinib	For the treatment of radioiodine-refractory differentiated thyroid cancer	Inhibits cell growth and survival/ Tyrosine kinase inhibitor (TKI)	Oral	• Designated as an orphan drug • Primary endpoint achieved in Phase III trial February 2014 • NDA filing planned for 2014
Eli Lilly/Necitumumab	For the treatment of metastatic squamous NSCLC	Reduces tumor cell growth and blood supply/Epidermal growth factor receptor inhibitor	IV infusion	• Primary endpoint achieved in Phase III trial • Filing anticipated by the end of 2014
Merck/Pembrolizumab (MK-3475) formerly lambrolizumab	For the treatment of patients with advanced melanoma who have been previously treated with Yervoy* (ipilimumab*)	Activates immune system to target cancer cells/ PD-1 checkpoint inhibitor	IV infusion	• FDA granted breakthrough therapy designation • BLA accepted for priority review May 2014 • A response to the BLA is expected October 2014
Novartis and Array BioPharma/ Binimetinib	For the treatment of neuroblastoma RAS viral (v-ras) oncogene homolog (NRAS) mutant melanoma	Inhibits cell growth and survival/ Mitogen-activated protein kinase (MEK) inhibitor	Oral	• Designated as an orphan drug • Regulatory filings planned for 2015
Novartis/Midostaurin	For treatment of patients with FLT-3 mutated acute myeloid leukemia (AML)	Inhibits cell growth and survival/ Signal transduction inhibitor	Oral	• Designated as an orphan drug • Regulatory filings planned for 2015

*These medications have a boxed warning.

Pipeline medications in Phase III trials (continued)

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Route of administration	Comments
Oncology				
Novartis/Panobinostat	In combination with Velcade (bortezomib) and dexamethasone for the treatment of relapsed or refractory MM	Inhibits cell growth and survival/Histone deacetylase inhibitor	Oral	• Designated as an orphan drug • NDA accepted and granted priority review May 2014
Pfizer/Palbociclib	In combination with letrozole for the treatment of breast cancer	Prevents tumor cell progression/ Cyclin-dependent kinase inhibitor	Oral	• FDA granted breakthrough therapy designation • Primary endpoint achieved in Phase II trial February 2014 • Phase III trials ongoing • NDA filing planned for third quarter 2014
Primary immunodeficiency				
Baxter and Halozyme/HyQvia (immune globulin with recombinant human hyaluronidase)	For the treatment of adult patients with primary immunodeficiency	Replaces deficient immunoglobulin/ Replacement therapy	Subcutaneous infusion	• BLA filed July 2011 • Received complete response letter August 2012 • Amended BLA filed fourth quarter 2013 • FDA extended the BLA review period by three months
Pulmonary fibrosis				
Boehringer Ingelheim/Nintedanib	For the treatment of idiopathic pulmonary fibrosis (IPF)	Targets growth factors/TKI	Oral	• Designated as an orphan drug with fast-track status • FDA granted breakthrough therapy designation • NDA accepted and granted priority review status July 2014
InterMune/Pirfenidone	For the treatment of IPF	Suppresses fibrosis and inflammation/Anti-fibrotic agent	Oral	• Designated as an orphan drug with fast-track status • FDA granted breakthrough therapy designation • Received a complete response letter May 2010 • Resubmitted NDA May 2014
Pulmonary hypertension				
Actelion/Selexipag	For the treatment of pulmonary arterial hypertension (PAH)	Reduces vascular smooth muscle constriction/Prostacyclin receptor agonist	Oral	• Designated as an orphan drug • Primary endpoint achieved in Phase III trial June 2014

New dosage forms in the pipeline

Manufacturer/ Drug name	Indication	Mechanism of action/ Drug class	Current route of administration	Investigational route of administration†	Comments
Human immunodeficiency virus					
Viiv Healthcare/Trii (dolutegravir, abacavir,* lamivudine*)	For the treatment of HIV	Prevents virus replication/Integrase inhibitor, nucleoside reverse transcriptase inhibitors	Oral	Oral	• Single-tablet regimen • NDA filed October 2013
Multiple sclerosis					
Biogen Idec and AbbVie/ Daclizumab HYP (high-yield process)	For the treatment of relapsing-remitting MS	Binds to the CD25 receptor on T-cells/ Therapeutic antibody	IV infusion	Subcutaneous injection	• Primary endpoint achieved in Phase III trial June 2014 • Previously marketed as Zenapax* for the prevention of acute kidney rejection
Neuroendocrine disorders					
Novartis/Signifor LAR (pasireotide long-acting release)	For the treatment of acromegaly	Binds somatostatin receptors/Somatostatin analogue	Subcutaneous injection	IM injection	• Monthly IM injection • Primary endpoint achieved in Phase III trial July 2013 • Regulatory submissions planned for 2014

*These medications have a boxed warning.
†Dosage form is not available. Only investigational route of administration is available at this time.

New indications in pipeline

Manufacturer/ Drug name	Current indication	Investigational indication	Mechanism of action/ Drug class	Route of administration	Comments
Cystic fibrosis					
Vertex Pharmaceuticals/ Kalydeco (ivacaftor)	For the treatment of CF in patients age 6 years and older who have one of the following mutations in the *CFTR* gene: *G551D*, *G1244E*, *G1349D*, *G178R*, *G551S*, *S1251N*, *S1255P*, *S549N*, or *S549R*	For the treatment of CF patients ages 18 and older who have the R117H mutation in the *CFTR* gene	Increases chloride ion transport across cell membranes/*CFTR* potentiator	Oral	• Supplemental new drug application (sNDA) filed June 2014
Inflammatory diseases					
AbbVie/Humira* (adalimumab)	For the treatment of RA, polyarticular juvenile idiopathic arthritis, psoriatic arthritis (PsA), ankylosing spondylitis, CD, UC and psoriasis	For the treatment of hidradenitis suppurativa	Targets TNF alpha, which is involved in the inflammatory process/TNF inhibitor	Subcutaneous injection	• Results from Phase III trials are expected 2014
Celgene/Otezla (apremilast)	For the treatment of adult patients with active PsA	For the treatment of psoriasis	Modulates the inflammatory response/ Phosphodiesterase 4 inhibitor	Oral	• NDA filed September 2013 • A response to the NDA is expected September 2014
Pfizer/Xeljanz* (tofacitinib)	For the treatment of RA	For the treatment of moderate-to-severe chronic plaque psoriasis	Interferes with the inflammatory and immune responses/Janus kinase (JAK) inhibitor	Oral	• sNDA filing planned for 2015
Multiple sclerosis					
Genzyme/Lemtrada (alemtuzumab)	For the treatment of B-cell CLL	For the treatment of relapsing MS	Binds to the CD52 antigen on B-cells and T-cells/Therapeutic antibody	IV injection	• FDA granted fast-track status • Supplemental biologics license application (sBLA) filed June 2012 • Received a complete response letter December 2013 • FDA accepted sBLA resubmission for review May 2014 • A response to the sBLA is expected fourth quarter 2014 • Marketed as Campath* for CLL indication
Oncology					
Celgene/Revlimid* (lenalidomide)	For the treatment of previously treated MM, myelodysplastic syndromes and relapsed or refractory mantle cell lymphoma	For the treatment of newly diagnosed MM	Possesses immunomodulatory, anti-inflammatory and antiangiogenic properties/Thalidomide analogue	Oral	• Primary endpoint achieved in Phase III trial July 2013 • sNDA filed April 2014

*These medications have a boxed warning.

New indications in pipeline (continued)

Manufacturer/ Drug name	Current indication	Investigational indication	Mechanism of action/ Drug class	Route of administration	Comments
Oncology					
Eli Lilly/Cyramza (ramucirumab)	In combination with chemotherapy for the second-line treatment of NSCLC	For the treatment of patients with advanced or metastatic, gastric or gastro-esophageal junction adenocarcinoma with disease progression on or after prior fluoropyrimidine- or platinum-containing chemotherapy	Reduces tumor cell growth and blood supply/VEGFR2 antagonist	IV infusion	• Primary endpoint achieved in Phase III trial February 2014 • First regulatory filing planned for second half 2014
Genentech/Avastin* (bevacizumab)	For the treatment of metastatic colorectal cancer, non-squamous NSCLC, glioblastoma, and metastatic renal cell carcinoma (RCC)	In combination with chemotherapy for the treatment of women with persistent, recurrent or metastatic cervical cancer or recurrent platinum-resistant ovarian cancer	Reduces tumor cell growth and blood supply/Vascular endothelial growth factor (VEGF) inhibitor	IV infusion	• sBLAs accepted and granted priority review July 2014 • A response to the sBLA for cervical cancer is expected October 2014, and for ovarian cancer November 2014
GlaxoSmithKline/ Votrient* (pazopanib)	For the treatment of RCC and soft tissue sarcoma	For the treatment of advanced epithelial ovarian cancer	Inhibits cell growth and survival/TKI	Oral	• Designated as an orphan drug • Primary endpoint achieved in Phase III trial June 2013 • Overall survival analysis of the Phase III trial does not support an overall positive benefit-risk for this indication
Incyte Corporation/ Jakafi (ruxolitinib)	For the treatment of patients with intermediate or high-risk myelofibrosis (MF), including primary MF, post-polycythemia vera MF and post-essential thrombocythemia MF	For the treatment of polycythemia vera	Inhibits the formation and development of blood cells/JAK inhibitor	Oral	• Designated as an orphan drug with fast-track status • Primary endpoint achieved in Phase III trial March 2014 • sNDA filing planned for 2014
Ipsen/Somatuline Depot (lanreotide)	For the long-term treatment of acromegalic patients who have had an inadequate response to surgery/ radiotherapy, or for whom surgery/ radiotherapy is not an option	For the treatment of gastroenteropancreatic neuroendocrine tumors	Binds somatostatin receptors/Somatostatin analogue	Subcutaneous injection	• sNDA filed July 2014
Medivation and Astellas Pharma/Xtandi (enzalutamide)	For the treatment of patients with metastatic castration-resistant prostate cancer (mCRPC) who have previously received docetaxel	For the treatment of patients with chemotherapy-naïve mCRPC	Inhibits cell growth and survival/ Androgen receptor inhibitor	Oral	• sNDA filed March 2014 • FDA granted priority review status • A response to the sNDA is expected September 2014

*These medications have a boxed warning.

New indications in pipeline (continued)

Manufacturer/ Drug name	Current indication	Investigational indication	Mechanism of action/ Drug class	Route of administration	Comments
Ophthalmology					
Regeneron Pharmaceuticals/ Eylea (aflibercept)	For the treatment of neovascular (wet) age-related macular degeneration and macular edema following central retinal vein occlusion	For the treatment of diabetic macular edema (DME) and macular edema following branch retinal vein occlusion (BRVO)	Binds vascular endothelial growth factor and placental growth factor/ Antiangiogenesis inhibitor	Intravitreal injection	• sBLA for DME accepted December 2013 and sBLA for macular edema following BRVO accepted February 2014 • A response to the sBLA for DME is expected August 2014 and for macular edema following BRVO October 2014

New biosimilars in pipeline

Manufacturer/ Drug name	Reference Manufacturer/Product	Investigational indication	Mechanism of action/ Drug class	Route of administration	Comments
Oncology					
Sandoz/Filgrastim	Amgen/Neupogen (filgrastim)	To decrease the incidence of infection, as manifested by febrile neutropenia, in patients with nonmyeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a significant incidence of severe neutropenia with fever	Stimulates production of neutrophils/Granulocyte colony-stimulating factor	Subcutaneous injection, IV infusion, or subcutaneous infusion	• BLA accepted July 2014

Glossary of terms

BLA

Stands for "biologics license application," similar to an NDA but used for investigational medications that are considered to be biologic agents.

Breakthrough therapy designation

Intended to expedite the development and review of a potential new drug for serious or life-threatening diseases.

Complete-response letter

Issued to let the applicant know that the review period for an investigational agent is complete, and that the NDA or BLA is not yet ready for approval.

Double-blind trial

A type of study in which the participants and the investigators are blinded to treatment. This type of study has less bias than nonblinded studies.

Fast track

Designation granted by the FDA to an investigational agent indicating an expedited review of the NDA or BLA; usually applies to medications that treat serious or life-threatening conditions and demonstrate the potential to address unmet medical needs.

NDA

Stands for "new drug application," the process by which a manufacturer submits information to the FDA to gain approval for the agent; conducted after Phase III development is completed.

Orphan drug

A medication that treats a rare disease that affects fewer than 200,000 Americans. A medication granted orphan drug status is entitled to seven years of marketing exclusivity.

Phase III

Last phase of medication development; involves safety and efficacy trials of the new medication. This phase of development can take years to complete.

Glossary of terms (continued)

Priority review

Designation granted by the FDA to an investigational agent after it has been submitted to the FDA for approval. A priority designation means that the FDA will review and take action on the application (approve or not approve) within six months instead of the standard 10 months for all other medication filings.

Rolling submission

Usually applies to fast-track medications; indicates that the review process can be started even before the FDA receives all the information. However, the FDA requires all the information before a final decision about approval can be made.

sBLA

Stands for "supplemental biologics license application," similar to sNDA but used for already approved investigational medications that are considered to be biologic agents.

sNDA

Stands for "supplemental new drug application;" the process by which a pharmaceutical company submits information to the FDA to gain approval for a new indication for an agent that has already been approved by the FDA.

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Information in the report is current as of July 2014, and was accessed on July 24, 2014.

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