NEW DRUGS

Krystexxa, an Enzyme for Gout

Savient Pharmaceuticals, Inc., has won approval for a gout drug, pegloticase (Krystexxa) for patients who do not respond to conventional therapy.

Gout has been associated with obesity, high blood pressure, high cholesterol levels, diabetes, alcohol, and protein-rich diets. It occurs more often in men, in women after menopause, and in patients with kidney disease. The condition results from an excess of uric acid, which is eventually deposited as crystals in the joints or soft tissues; the crystals can cause swelling, redness, heat, pain, and stiffness in the joints.

Gout is typically treated with anti-inflammatory drugs and steroids. Krystexxa is derived from an animal hormone that converts excess uric acid into a harmless chemical that is easily excreted in the urine. It is administered every two weeks as an intravenous (IV) infusion.

Because 25% of patients experienced a severe allergic reaction when receiving an infusion of Krystexxa in clinical trials, a corticosteroid and an antihistamine should be given to patients beforehand to minimize the risk of such a reaction. Other reactions have included gout flare, nausea, injection-site bruising, irritation of the nasal passages, constipation, chest pain, and vomiting. The product will include a Risk Evaluation and Mitigation Strategy and a medication guide.

Sources: FDA, Bloomberg, September 14, 2010

Gilenya Capsules for MS

Fingolimod 0.5-mg capsules (Gilenya, Novartis) have been approved to reduce relapses and in patients with relapsing multiple sclerosis (MS). This is the first oral drug indicated for slowing the progression of disability and decreasing the frequency and severity of symptoms.

Fingolimod is an alternative to injectable agents. It is the first in a new class of drugs that block some blood cells in lymph nodes, reducing their migration to the brain and spinal cord; it is thought that this action lessens the severity of the disease.

Fingolimod is linked to a risk of infection and macular edema. Adverse reactions have included headache, influenza, diarrhea, back pain, elevated liver enzymes, and cough.

Source: FDA, September 22, 2010

NEW INDICATIONS

Saphris Has Two New Uses In Mental Disorders

Merck’s schizophrenia drug asenapine (Saphris, Schering-Plough/Merck) has been approved for the ongoing treatment of schizophrenia and for the treatment of acute mania or manic-depressive behavior, along with lithium or the anti-seizure drug valproate, in adults with bipolar disorder. Asenapine was approved in August 2009 for treating acute schizophrenia episodes in adults and acute mania or manic-depressive behavior in adults with bipolar disorder.

A boxed warning is included in the prescribing information because of the nearly doubled risk of death in elderly patients with dementia. Asenapine also carries a risk of stroke, heart problems, hyperglycemia and diabetes, suicide, seizures, fainting, decreased white blood cell counts, sedation and impaired thinking, and neuroleptic malignant syndrome, a life-threatening neurological disorder.


Protopam, an Antidote For Poisoning in Children

The FDA has approved the pediatric use of pralidoxime chloride (Protopam Chloride, Baxter Healthcare) for treating poisoning by organophosphate pesticides and chemicals. The drug is given either by IV or intramuscular (IM) injection. It can be difficult to use IV drugs in children, and having a new option of IM injection can help facilitate administration.

Pralidoxime was approved in 1964 to treat pesticide and chemical poisoning in adults. Adverse reactions in adults and children have included blurred and double vision, dizziness, headache, drowsiness, nausea, difficulty breathing, increased heart rate, and elevated blood pressure.

Source: FDA, September 9, 2010

NEW FORMULATION

Suboxone Film For Opioid Dependence

Buprenorphine/naloxone (Suboxone, Reckitt Benckiser), a sublingual (SL) film for patients with opioid dependence, has been approved.

The film delivers a quick-dissolving therapeutic dose of buprenorphine, a partial opioid agonist, and naloxone, an opioid antagonist. These drugs are rapidly absorbed under the tongue to ensure compliance. During clinical studies, the SL film dissolved more quickly than Suboxone sublingual tablets. Because of this action and the taste, patients preferred the film.

As a Schedule III agent, Suboxone should be used as part of a complete treatment plan to include counseling and psychosocial support. Doses are the same as those with Suboxone SL tablets.

Adverse events have included numbness and redness of the mouth, a sore tongue, headache, nausea, vomiting, sweating, constipation, signs and symptoms of withdrawal, insomnia, pain, swelling of the limbs, disturbance of attention, palpatations, and blurred vision.

Sources: MonoSol Rx/Reckitt Benckiser, August 31, 2010; Medical News Today, September 1, 2010
Allergan Owes $600 Million for Promoting Off-Label Botox

The Department of Justice has announced a $600 million settlement with Allergan for promoting Botox for unapproved off-label medical uses such as headache, pain, and cerebral palsy treatment. Botox is approved as a cosmetic agent for smoothing wrinkles. Other approved uses include treating severe underarm sweating and muscle spasms in the neck. The FDA also approved Botox for upper-limb spasticity—one previously off-label treatment involved in the case—earlier this year. Allergan said it expects the FDA to rule this year on the application to market Botox for treating migraine headaches.

Sources: Fierce Biotech.com and The Wall Street Journal, September 2, 2010

Warnings Added For Gadolinium Agents

The FDA is requiring that gadolinium-based contrast agents carry new warnings on their labels about the risk of a rare and potentially fatal condition known as nephrogenic systemic fibrosis (NSF) in certain patients with kidney disease.

Three agents—Magnevist (Bayer Healthcare), Omniscan (GE Healthcare), and Optimark (Covidien)—are considered inappropriate for patients with acute kidney injury or chronic severe kidney disease. These IV drugs are approved for use with magnetic resonance imaging (MRI) or magnetic resonance angiography (MRA). All new labels will emphasize the need to screen patients to detect kidney problems beforehand.

In patients with NSF, excess fibrous connective tissue forms in the skin, joints, eyes, and internal organs, resulting in hardening and tightening of the skin, red or dark patches on the skin, and stiffness. NSF may lead to death, especially if it involves body organs.

The FDA recommends that kidney function be tested and that these agents be avoided in patients with impaired drug elimination. Patients should be given a contrast agent only once during an imaging session.

Source: FDA, September 9, 2010

Both Avandia and Actos Pose Risk of Heart Disease; FDA Restricts Avandia

Because of the risk of heart attacks in patients taking the diabetes drug rosiglitazone (Avandia, GlaxoSmithKline), patients in the U.S. will be allowed access to it only if they have tried all other diabetes agents and have been made aware of the heart risks. Patients now taking the drug may continue to take it. In Europe, Avandia will not be available at all.

In a related development, a study published in Circulation in 2010 found that another diabetes drug, pioglitazone (Actos, Takeda), might be causing as many heart problems as Avandia. In that study, patients taking either drug were 4% more likely to experience heart attacks, heart failure, or death. Both drugs work by increasing the body’s sensitivity to insulin.

Earlier studies had found that Avandia patients faced a greater risk of heart attacks compared with patients using other medications or placebo. Actos became the market leader after a 2007 study showed a 43% higher chance of heart attacks compared with patients using Avandia. The 2007 study indicated that patients using Avandia were 64% more likely to die of cardiovascular causes, although those findings might have resulted from chance. Yet at the time, the FDA decided that Avandia’s benefits outweighed its risks. The 2010 study suggests that the heart risks might be tied to the thiazolidinedione drug class itself.

A Takeda spokesperson said that Avandia will not be available at all. Avandia will not be available at all. Actos was safe and that studies conducted over the preceding 11 years in more than 20,000 diabetic patients had shown no association with an increased risk of heart attacks, strokes, or death.


Valcyte Label Changes For Use in Children

Doses of valganciclovir oral tablets and solution (Valcyte, Genentech/Roche) are being updated for children and adolescents who receive kidney or heart transplants. The update is intended to prevent overdosing in children with low body weight, low body surface area, and very low serum creatinine levels.

The revised recommendations now include an upper limit on calculated creatinine clearance. High levels of creatinine may signal poor kidney function, and low levels may be observed in patients who are not muscular.

Valganciclovir is an antiviral agent that helps to prevent cytomegalovirus (CMV) disease in children from 4 months to 16 years of age who have undergone transplantation and who are at a high risk of acquiring CMV infection. The drug is also used to treat CMV retinitis in adults with AIDS.

Source: FDA, September 15, 2010

Probiotics or Antibiotics Best for Bacterial Vaginosis?

Although the cause of bacterial vaginosis (BV) hasn’t been fully elucidated, most studies say recurrence is a result of relapse, not re-infection. Further, abnormalities of the vaginal flora often persist even in the absence of clinical symptoms. Using probiotics, say researchers from Shanghai, China, dramatically reduces recurrence by balancing the flora.

In a double-blind, placebo-controlled study, the researchers assessed the effectiveness of vaginal probiotic capsules in 120 healthy women with a history of...
recurrent infection. The women used the probiotic capsules daily for seven days on, seven days off, and seven days on.

Over 11 months of follow-up, nine of 57 women (16%) using probiotic prophylaxis had recurrent episodes of BV, compared with 27 of 60 women (45%) receiving placebo. Probiotics also lowered rates of *Gardnerella vaginalis* through two months (two women in the probiotic group and 11 in the placebo group).

This trial represents the first report of vaginal probiotic capsules used solely to prevent BV recurrence. The capsules compared favorably with daily yogurt consumption and metronidazole (Flagyl, Pfizer). Studies had shown poor compliance with yogurt intake. In fact, a recent Cochrane Review reported that vaginal *Lactobacillus* tablets were more effective than metronidazole for BV.

Although recurrence rates are similar for metronidazole and the probiotic capsules, the drug’s side effects are concerning. By comparison, the capsules are well tolerated. However, although probiotic prophylaxis reduced discharge, lowered vaginal pH, and reduced clue cells, it had little effect on odor.

Source: *Am J Obstet Gynecol* 2010;203: 120.e1–e6

**Adacolumn and Inflammatory Bowel Disease**

Inflammatory bowel disease (IBD), like ulcerative colitis and Crohn’s disease, is characterized by high levels of granulocytes, lymphocytes, plasma cells, and macrophages, which produce cytokines that further stimulate local inflammation. Researchers from Stockholm, Sweden, sought to determine whether the known anti-inflammatory effects of granulocyte–monocyte adsorptive apheresis (GMA, Adacolumn, Jimro Co. Ltd.) would help patients with IBD who hadn’t responded to standard treatment.

The open-label observational study involved 15 patients hospitalized with ulcerative colitis and 25 with Crohn’s disease. Both groups had chronic active inflammation that was refractory to treatment with corticosteroids, 5-amino salicylates, azathioprine, or 6-mercaptopurine. Patients received weekly GMA sessions for five to 10 weeks, with up to three additional sessions if needed.

Of the 40 patients, 34 (85%) responded to GMA. Further, 26 patients achieved clinical as well as endoscopic remission for an average of 14 months—in one case, 58 months. All 26 responders remained steroid-free during the follow-up period, suggesting substantial steroid-sparing effects for GMA. Close to 100% of patients who initially responded to a course of GMA also responded to subsequent GMA retreatment, which may serve as a guide to selecting responders. During the follow-up period, 14 of 26 patients who initially achieved remission experienced relapse. The patients were re-treated with GMA;
13 achieved a second remission. Following further relapses, seven patients were successfully treated again for a third time, three patients for a fourth time, and one patient for a fifth time. Two patients, however, experienced deterioration in the second and fourth re-treatment. One patient went into remission after receiving additional IV corticosteroids, the other patient after receiving infliximab (Remicade, Centocor Ortho Biotech Inc.).

Source: BMC Gastroenterol 2010;10:73

**Toxicity with Ticlid**

Although ticlopidine (Ticlid, Roche) has been associated with serious side effects, most are mild and transitory. Clinicians from Milan, Italy, report that agranulocytosis and hepatic toxicity developed when a patient was given the drug after a verteobasilar stroke.

A 70-year-old woman was admitted to the rehabilitation ward because of gait ataxia after a stroke, which had occurred 10 days earlier. She had no history of hematological or liver disease, alcohol abuse, or blood transfusions. She was taking aspirin and atorvastatin/amlodipine (Caduet, Pfizer). Immediately after her stroke, she stopped taking aspirin and started ticlopidine 250 mg twice daily.

Upon admission, her blood tests were normal. About four weeks later, agranulocytosis occurred. Liver function tests revealed a mixed cholestasis and hepatocellular injury. The patient had no fever and no symptoms. Bilirubin and coagulation tests were normal. An abdominal ultrasound scan revealed liver steatosis but did not highlight any alterations in the intrahepatic and extrahepatic biliary pathways and showed no signs of dilatation.

Ticlopidine was stopped immediately, and aspirin and dipyriramole (Persantine, Boehringer Ingelheim), a platelet inhibitor, were prescribed. She was also given granulocyte–colony-stimulating factor. On the second day, her white blood cell count was normal, and liver function progressively improved, returning to normal after four weeks.

The cause of the toxic effects associated with ticlopidine is unclear. No test can confirm the diagnostic hypothesis of the drug toxicity, apart from excluding other possible causes and the return of blood tests to normal after the drug is stopped, which is what happened with their patient.

In this study, the latent period (between starting ticlopidine and the appearance of liver toxicity) ranged from one week to six months, but in most patients it appeared within two to 12 weeks. Hepatic toxicity is not dose-dependent and is not related to duration of treatment, the authors say. When the drug is discontinued, symptoms and liver abnormalities usually resolve within one to three months.

Hepatic toxicity induced by ticlopidine is underestimated, the authors warn. Because those first three months are critical in determining whether the drug is producing toxic effects, they strongly urge regular checks of liver function.

Source: J Med Case Reports 2010;4:269

**Angiotensin Blockers Before Heart Surgery?**

Because giving angiotensin-blocking drugs before cardiac surgery has been linked to atrial fibrillation after surgery, the practice is controversial. However, researchers from Case Western Reserve University and the Cleveland Clinic who conducted a large observational study found no evidence of an association.

They analyzed data on 10,552 patients who underwent coronary artery bypass grafting (CABG), with or without valve surgery, between 1997 and 2003. Preoperative angiotensin-blocking drugs were given to 4,795 patients; of these, 1,725 (36%) developed postoperative atrial fibrillation before discharge, compared with 1,908 (33%) of 5,757 patients who did not receive preoperative therapy.

Patients receiving angiotensin blockers before surgery did not differ from untreated patients in terms of acute myocardial infarction, stroke, ventricular arrhythmias, cardiac arrest, or in-hospital mortality. This observation suggests that short-term benefits from the preoperative treatment in the surgical setting may be limited and that withdrawal does not increase the propensity of any of those adverse outcomes.

The study results provide no rationale to recommend preoperative angiotensin blockers before cardiac surgery in patients who do not have other compelling indications for such therapy. Whether rapid restoration of angiotensin-blocking therapy after cardiac surgery has a positive effect on outcomes has not been determined.

Source: Am Heart J 2010;160:329.e1–336.e1

**Cochrane Reviews**

**Little Relief for Morning Sickness**

There are currently no reliably safe or effective treatments for morning sickness, according to Cochrane investigators, who found limited evidence for all pharmaceutical and alternative therapies tested.

Women are increasingly turning to non-drug treatments, including complementary and alternative therapies, to treat symptoms. However, there is less evidence that these therapies work; they also tend to be less well regulated.

The review included 27 randomized controlled trials involving 4,041 women who were up to 20 weeks pregnant. There was minimal evidence of an effect of ginger in relieving nausea, as there was for vitamin B₆ (pyridoxine), antihistamines, and antiemetic drugs, includ-
Antibiotics for Ear Infections: A Short or Long Course?

The likelihood that the treatment of a middle-ear infection (acute otitis media) will fail is slightly higher for children who receive a shorter course of antibiotics.

The standard course in Britain is five days, whereas in North America it is 10 days. Because of concern about drug resistance caused by overuse and the increasing cost of providing these drugs, Cochrane researchers decided to update a previous review from 2000.

According to the results, the likelihood of treatment failure with long-course antibiotics was one in six compared to one in five with short-course antibiotics. A long course was defined as more than one week, and a short course was defined as less than one week. Treating for five days could slightly increase the risk of experiencing further symptoms, or a relapse, in the second to third week after starting treatment. However, they also noted that shorter courses can be safely used and generally produce fewer side effects.

Source: Cochrane Library, September 8, 2010; *Cochrane Database Syst Rev* 2010(9), Art. No. CD004332.

30-Minute Drug Rule May Harm Patients

In a survey of nurses prepared by the Institute for Safe Medication Practices (ISMP), 90% responded that the “30-minute rule” should be changed. This rule requires scheduled medications in health care settings to be given within 30 minutes before or after the scheduled time. Many nurses suggested that they be able to exercise their judgment; 75% preferred 60 minutes before or after the scheduled time for agents given every four hours or less.

The Centers for Medicare & Medicaid Services (CMS) requires hospitals and other health care facilities to comply to receive Medicaid and Medicare payments. Nurses responded that the rule exposes patients to unsafe situations. Most respondents felt that the 30-minute rule was unrealistic, impractical, and virtually impossible to follow.

Nurses found it difficult to comply with the rule because of a high patient load; a high number of drugs to be given; understaffing; a lack of available drugs at the right time; interruptions and delays; meeting other patient needs; requiring time to assess patients and review, gather, prepare, and document the drugs. In addition, schedules did not always match their workflow.

Nurses mentioned that electronic technology could now report when a specific nurse was late. Many nurses felt the rule set them up to fail by compelling them to take shortcuts, such as removing drugs from automated dispensing cabinets well before administration time and gathering more than one patient’s medications at a time. Approximately 10% of respondents always took those shortcuts.

Source: ISMP Medication Safety Alert, September 9, 2010

RESEARCH NEWS

Stem Cells Heal the Heart

After a heart attack, damage to heart muscle is irreversible, with most patients eventually succumbing to congestive heart failure. Stem cells might now offer hope for mending a “broken” heart.

Scientists at the University of Washington have built a tiny tubular scaffold that supports the growth and integration of stem cell–derived, fragile cardiac muscle cells. Made from a jelly-like hydrogel material, the scaffold stabilizes the cardiac cells and can be injected into a damaged heart, where it will promote cell growth and eventually dissolve. The scaffold has the potential to accelerate the body’s ability to supply oxygen and nutrients to the transplanted tissue. Eventually, physicians would be able to seed the scaffold with stem cells from the patient or a donor and then implant it when the patient is being treated for a heart attack, before scar tissue has formed.

The scaffold is a flexible polymer with
Renin Test May Help in Picking The Right Hypertension Drug

It has been difficult to predict which drugs are best for lowering blood pressure (BP). New research indicates that some drug combinations work better for certain patients and suggests that measuring blood levels of renin, a hormone, might improve care. Taking the “wrong” drug might even cause a rise in BP. Some patients experience adverse effects with one agent, whereas others do not. With blood testing now easier and more reliable, some physicians say that it might be time to stop treating hypertension as a single condition.

Only about 50% of patients have hypertension under control. Most patients are started with a diuretic; other drugs that work in different ways are often added later. Most people end up using two or more drugs. Many doctors are reluctant to prescribe two- and three-drug combinations until they find the right mix.

Renin is secreted by the kidneys, and the amount in the blood may help determine whether the problem is one of fluid volume or constricted arteries. Physicians have recently learned that:

- patients with low renin levels respond best to a diuretic, but those with high renin levels respond best to angiotensin-converting enzyme (ACE) inhibitors, which target an artery-narrowing substance triggered by renin.
- Nearly 8% of patients experience an increase of at least 10 points in BP after starting therapy. Those most at risk have low renin levels yet receive anti-renin drugs like ACE inhibitors or beta blockers.
- The amount of renin that remains in the blood, when patients take a first medication can predict which additional drug is best to add.
- African-American patients tend to have lower renin levels than Caucasians, and they usually fare better with a diuretic than with a beta blocker. In a British study, African-Americans fared worse than Caucasians when they received a calcium-channel blocker with an ACE inhibitor; however, this combination was better for south Asian patients.

Some researchers think it’s best to start each patient with a two-drug combination (e.g., a diuretic plus an ACE inhibitor). Scientists are also searching for underlying genetic differences that might help guide drug selection.

Sources: Proc Natl Acad Sci, R&D Magazine, August 10, 2010

Metformin May Help Prevent Lung and Bowel Cancer

A drug commonly used to treat type-2 diabetes, metformin (Glucophage, Bristol-Myers Squibb), has shown potential in preventing tobacco-induced lung tumors, according to research conducted at the National Cancer Institute (NCI).

Metformin decreases levels of insulin-like growth factor-1 (IGF-1) and circulating insulin, and it may inhibit tumor growth as well. Metformin significantly decreased lung tumor burden in mice exposed to a nicotine-derived nitrosamine called NNK, the most prevalent carcinogen in tobacco. Metformin was previously shown to activate an enzyme called AMP-activated protein kinase, which inhibits mTOR, a protein that regulates cell growth and survival in tobacco carcinogen-induced lung tumors.

Mice receiving oral metformin showed 40% and 50% fewer tumors, whereas mice receiving a metformin injection had 72% fewer tumors. Clinical trials are being considered to determine whether this compound could be used as an effective chemoprevention agent for smokers at high risk of developing lung cancer.

Previous studies have suggested that diabetic patients who used metformin had a lower cancer risk. In another study, Japanese researchers showed that non-diabetic patients taking metformin had a lower rate of rectal aberrant crypt foci, a surrogate marker of colorectal cancer.

Sources: Cancer Prev Res, September 2010; American Association for Cancer Research, September 1, 2010

Dual Therapy Blocks Brain Cancer Recurrence

Researchers from the University of Massachusetts have combined chemotherapy with a targeted therapy to decrease the recurrence of glioblastoma multiforme, the most common and aggressive brain tumor. Temozolomide (Temodar, Schering-Plough) plus a Notch inhibitor was effective in treating tumor cells in culture and in mice.

Despite surgery, radiation, and chemotherapy, glioblastoma survival rates are poor, perhaps because cancer stem cells within the tumor are more resistant to these therapies, eventually allowing the tumor to recur.

Temozolomide is an alkylating agent that prolongs survival; two-year survival
rates increased from approximately 10% with radiation alone to 25% when temozolomide was combined with radiation. Data also indicate that the Notch signaling pathway is often overexpressed in glioma tissue and tumor cells.

The researchers combined the two agents in cell culture and in immunodeficient mice. In both models, the double therapy reduced tumor growth and recurrence more effectively than either agent alone. When each drug was used individually, tumor growth slowed only temporarily.

The effect of the two agents together has been dramatic. The team is investigating the mechanism of action for cell death. These results represent a promising approach to combat an extremely difficult tumor.

Source: Cancer Res September 2010; Fierce Biotech, August 25, 2010

**More Selenium, Less Bladder Cancer?**

According to a recent meta-analysis by Malats et al., a high selenium level may be associated with a decreased risk of bladder cancer. Risk factors include smoking tobacco, advanced age, Caucasian race, genes, and some chemicals (e.g., arsenic, rubber, dyes, textiles, and paint).

The lower the selenium level, the higher the risk of bladder cancer, said Dr. Malats at the Spanish National Cancer Research Center.

Selenium is an essential micronutrient that is incorporated into about 25 proteins, called selenoproteins. Most of these selenoproteins are enzymes with antioxidant properties that prevent cellular damage caused by the by-products of oxygen metabolism. Dietary sources include plant foods grown in selenium-rich soils, animals that graze on these soils, and selenium-enriched products.

Using data from seven previously published studies, Dr. Malats evaluated selenium levels in serum and toenails. A significant protective effect of selenium was noted, mainly among women, which might have resulted from gender-specific differences in the mineral’s accumulation and excretion. More studies are needed to confirm these findings.

Sources: Cancer Epidemiol Biomarkers Prev, September 2010; Association for International Cancer Research, www.aicr.org.uk/research.stm

**Can Frog Skin Fight Antibiotic-Resistant Bacteria?**

Antibiotic-resistant infections threaten millions of people worldwide. Scientists have reported that the skin of certain frogs contains secretions that may lead to new antibiotics to fight infections. In a report at the 240th National Meeting of the American Chemical Society, researchers from the United Arab Emirates identified more than 100 antibiotic substances in the skins of various frog species from around the world.

The skin of frogs contains chemicals that can kill bacteria, viruses, and fungi. Researchers have tried to isolate these chemicals and make them suitable for development into new antibiotics. However, these products tend to be toxic to human cells and are easily destroyed by substances in the bloodstream.

The team was able to tweak the molecular structure of frog skin antibiotics, making them less toxic to human cells but more powerful killers of germs. They also discovered a way to enable frog skin secretions to shrug off attack by destructive enzymes in the blood. These antibiotic substances make it difficult for disease-causing microbes to develop resistance.

Scientists are currently screening skin secretions from more than 6,000 species of frogs for antibiotic activity. So far, they have purified and determined the chemical structure of only 200. The team returns the frogs to the wild after swabbing their skin for the precious secretions.

One substance isolated from the skin secretions of the Foothill yellow-legged frog, which was once common in California and Oregon but is now facing extinction, shows promise for killing meticillin-resistant *Staphylococcus aureus* (MRSA) bacteria. MRSA has caused deadly infections in hospitals; now it is occurring in schools, nursing homes, and day care centers.

The skin of the mink frog also contains secretions that show promise for fighting *Iraqibacter*, caused by multi-drug-resistant *Acinetobacter baumannii*, responsible for drug-resistant infections in wounded soldiers returning from Iraq.

Some of the substances might be tested within the next five years, and drug companies might be able to develop the chemicals as creams or ointments for treating skin infections or as injectable drugs for treating drug-resistant infections. The research also underscores the importance of preserving biodiversity; some frog species are endangered because of the loss of their habitats and water pollution.

Sources: Drug Discovery Dev, United Arab Emirates University, August 26, 2010

**DEVICES IN THE NEWS**

**Recalls**

*Hip replacement implants.* Johnson & Johnson’s DePuy Orthopaedics is recalling its ASR XI Acetabular System and ASR Hip Resurfacing System because of a problem with the quality of design. The recall was initiated because a large number of patients needed a second hip replacement procedure owing to improper fit. Only days before this recall, DePuy was asked to stop marketing its Corail Hip System for unapproved
use. The ASR hip-resurfacing system was introduced in 2003 and is approved for use only outside the U.S. The ASR XL system was launched in 2004 and has been available worldwide.

Sources: The New York Times, August 26, 2010; Associated Press, August 26, 2010; Reuters, August 27, 2010

Balloon catheter. The FDA has issued a class I recall of AngioSculpt's AngioSculpt EX Percutaneous Transluminal Coronary Angioplasty Scoring Balloon Catheter because of the possibility of separation during use. In such an event, fragments could lodge in the coronary arteries and result in serious injury or death.

The product was distributed from January 30, 2009, through December 4, 2009. AngioSculpt issued the recall in December 2009, asking health care professionals to inspect potentially affected stock and to return any recalled units for replacement. Included in the recall are the EX catheter products with Part/REF Nos. 2034-XXYY with lot Nos. lower than the EX catheter products with Part/REF replacement. Included in the recall are stock and to return any recalled units for professionals to inspect potentially affected December 2009, asking health care professionals.

Medtronic and Physio-Control have been making and distributing these devices since 1998.

Sources: www.fda.gov; The Heart, www.theheart.org; July 5, 2010

NEW MEDICAL DEVICES

Marvin M. Goldenberg, PhD, RPh, MS

Name: Architect HIV Ag/Ab Combo Assay

Manufacturer: Abbott Laboratories, Abbott Park, Ill.

FDA Approval Date: June 21, 2010

Purpose: The assay is approved as an aid in the diagnosis of HIV-1 and HIV-2 infection in adults, including pregnant women, and it is the first assay to be used in the diagnosis of HIV-1/HIV-2 infection in children as young as two years of age. This sensitive device will be used in clinical and public health laboratories. It is not indicated for routine screening of blood donors, although it is approved to screen donors for HIV-1 and HIV-2 infections in emergencies when licensed blood donor screening tests are unavailable or when their use is impractical.

Description: The device detects HIV-1 (specifically the p24 antigen) in addition to antibodies to HIV and can be used to detect HIV infection before the emergence of antibodies. Although nucleic acid testing is available for detecting the virus itself, it is not widely used in diagnostic settings.

Benefit: Most diagnostic tests today detect HIV antibodies only. This is the first assay approved to detect HIV antigen and antibodies simultaneously. The approval of this assay represents an advance in better diagnosis of HIV infection when nucleic acid testing is not available to detect the virus itself. Antibody-only tests miss up to 10% of new infections. The Architect assay enables more sensitive detection of recent HIV infection compared with antibody tests alone.

Source: www.fda.gov

Name: A-Fix Spinal System

Manufacturer: Aesculap Implant Systems LLC, Center Valley, Pa.

FDA Approval Date: July 20, 2010

Purpose: The A-Fix system is intended for spinal fusion procedures at one or two contiguous levels in the lumbar spine from L2 to S1 in skeletally mature patients with degenerative disc disease with up to grade 1 spondylolisthesis at the involved level.

Description: The stand-alone intervertebral body fusion device has been developed for the anterior surgical approach. The A-Fix spacers are made of Peek-Optima (Invibio Ltd.) and contain marker pins made of tantalum to ensure radiological visibility for inspecting the implant position. The A-Fix screws are made of titanium alloy. The Modular Anterior Construct System for the Thoracic and Lumbar Spine (MACS TL) is indicated for treating scoliosis, tumors, fractures, and degeneration of the thoracic and lumbar spine.

Benefit: The MACS TL anterior plating system accommodates open, mini-open, and endoscopic surgical techniques while allowing for variations in bone density, vertebral size, and additional posterior fixation. The MACS TL plate is positioned independently of the fixation screws. By targeting the fixation screw along the inferior aspect of the vertebral body, the surgeon can use additional posterior pedicle screws, thus accommodating 360 degrees of stabilization.

continued on page 559
**Contraindications:** The procedure should not be performed if the patient is skeletally immature, pregnant, or overweight. The device is not indicated for patients with an acute or chronic infection or a severe defect of the osseous structures of the vertebral bodies; bone tumors in the region of the implant anchoring; an inability to follow the postoperative instructions; osteoporosis; a systemic or metabolic illness; drug abuse or alcoholism; or psychosocial problems.

**Potential Risks:** Surgery may result in a loss of intervertebral disk height after healthy bone is removed; it may also lead to neurological complications caused by overdistraction or trauma of the nerve roots or dura. Complications can include pseudarthrosis, an incorrect implant position, spondylolisthesis, dislocation, loss of fixation, or migration.

**Source:** www.aesculapimplantsystems.com

**Name:** New Automated Total Bilirubin Assay on GEM Premier 4000 Critical Care Analyzer

**Manufacturer:** Instrumentation Laboratory, Anaheim, Calif.

**FDA Approval Date:** July 27, 2010

**Purpose:** This is the first rapid, laboratory-quality blood test for measuring total bilirubin in newborns. During the first few days of life, the infant’s body metabolizes fetal red blood cells (RBCs), producing bilirubin, a toxin that in high amounts can lead to kernicterus, a devastating, irreversible brain injury in neonates. If more bilirubin is produced than the liver can remove, it remains circulating in the blood, causing jaundice. Jaundice can progress to severe hyperbilirubinemia, which, if left untreated, can evolve into kernicterus.

**Description:** Blood gas, electrolyte, and metabolite analysis is provided with integrated carbon dioxide–oximetry testing. A real-time, automated, quality assurance system continuously detects, corrects, and documents to ensure accurate results and compliance, 24 hours per day, regardless of the operator’s location. The device was developed using cartridge-based technology.

**Benefit:** Clinicians are able to receive results in 90 seconds from whole blood in the neonatal intensive care unit (NICU) instead of waiting for up to an hour for laboratory results from traditional chemistry methods. The ability to assess bilirubin rapidly in the NICU helps to prevent brain injury and reduce hospital readmissions. Assays are not affected by moderate turbidity or hemolysis, ensuring accuracy. The American Academy of Pediatrics advises that a risk assessment for bilirubin be performed on every newborn.

**Source:** www.instrumentationlaboratory.com