

FDA Compounding Quality Center of Excellence

On December 19, 2019, the U.S. Food and Drug Administration (FDA) announced the creation of its Compounding Quality Center of Excellence, an initiative designed “to enhance collaboration among and provide educational programs for outsourcing facilities aimed at improving the overall quality of compounded medicines.” The Center of Excellence, supported by a contract awarded by the FDA to Deloitte (New York, NY), will have 3 main areas of focus: in-person and online education and training; a conference to provide outsourcing facilities, stakeholders, and FDA opportunities to exchange ideas and best practices; and market research to help inform the FDA on key issues faced by outsourcing facilities.

In-person training will target registered outsourcing facilities—and, as space allows, pharmacies that are considering becoming outsourcing facilities—by focusing on key aspects of current good manufacturing practice (CGMP) and FDA policies. Courses will be scheduled throughout 2020 and beyond. Participants may earn continuing education credits while enhancing their understanding of necessary procedures and guidelines. Topics for in-person trainings will include sterile compounding, environmental monitoring, investigating quality issues, initiating corrective and preventive actions, and proper cleanroom design and practices. Portions of this training will be in a laboratory environment to enhance hands-on learning. Training will be offered in small settings with free registration for outsourcing facility personnel.

Online education programs will also focus on key aspects of CGMP, as well as other facets of drug compounding. These courses will be free for participants and will provide continuing education credits. As part of this new initiative, the FDA will also host a Center of Excellence Conference in September 2020 in Dallas, TX, as a forum in which outsourcing facilities and related stakeholders can offer feedback on policies and regulatory issues.

Market research will be another key area of the Center of Excellence. With this information, the agency will be able to better understand possible barriers and opportunities outsourcing facilities may encounter in several areas, such as: business growth and viability, adherence to CGMP regulations, and interactions with the FDA. This research will provide a better analysis of the outsourcing facility sector, so the agency can enhance the Center of Excellence to make it as valuable as possible for all stakeholders.

“By providing comprehensive, accessible learning tools, we will support outsourcing facilities in reliably producing high-quality compounded products that meet FDA’s standards. While engagement is voluntary, this initiative will provide an increased awareness and understanding of common issues and provide innovative ways to address challenges outsourcing facilities may face,” said Janet Woodcock, MD, director of the FDA Center for Drug Evaluation and Research. “The FDA looks forward to ongoing engagement with outsourcing facilities.” Additional information is available at: <https://www.fda.gov/drugs/human-drug-compounding/compounding-quality-center-excellence>.

U.S. Food and Drug Administration

DOE Delays Ban on Highly Enriched Uranium Export

On January 2, 1 day before the expiration of a previously set deadline, the U.S. Department of Energy (DOE) issued a letter to the U.S. House Committee on Energy and Commerce certifying that the current global supply of ^{90}Mo produced without the use of highly enriched uranium (HEU) is not sufficient to meet needs in the United States. Therefore, the January 3, 2020, deadline for implementation of a ban on HEU export from the United States will be extended for a minimum of 2 years, with the potential for another 4-y extension. The purpose of the extension is to ensure adequate domestic supply of $^{99\text{m}}\text{Tc}$ in the United States.

The American Medical Isotopes Production Act (AMIPA) of 2012 strongly encouraged a move to low-enriched uranium (LEU) for medical isotope production by 2020. On December 23, SNMMI submitted comments, noting that “on multiple occasions over the past several years, members throughout the United States reported limited supplies of $^{99\text{m}}\text{Tc}$ for clinical imaging because of disruptions in the production of ^{99}Mo ” and that “the supply of non-HEU ^{99}Mo needs to be significantly more robust before we feel confident that the supply is reliable enough to meet day-to-day patient-care needs.”

*U.S. Department of Energy
SNMMI*

Increasing Brown Fat Activity in Healthy Women

In an article e-published on January 21 ahead of print in the *Journal of Clinical Investigation*, researchers from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health (NIH) (Bethesda, MD) reported that chronic treatment with mirabegron, a β -adrenergic receptor (β -AR) agonist approved only for treatment of overactive bladder, activated brown fat (BAT) in a small group of healthy women and had several other beneficial metabolic effects. The research was led by Aaron Cypess, MD, PhD, at NIDDK. The study included 14 healthy women of diverse ethnicity (ages, 27.5 ± 1.1 y; body mass index, 25.4 ± 1.2 kg/m²) who received 100 mg mirabegron (Myrbetriq extended-release tablet; Astellas Pharma, Tokyo, Japan) for 4 wk. ^{18}F -FDG PET/CT identification of changes in BAT metabolic activity over this period was the primary study endpoint. Secondary endpoints included resting energy expenditure (REE), plasma metabolites, and glucose and insulin metabolism as assessed by repeat sampled intravenous glucose tolerance tests.

At 4 wk, participants’ brown fat activity had more than doubled, although their body weight and body mass remained

the same. Other changes included: increased resting energy expenditure; higher levels of high-density lipoprotein cholesterol and bile acids; and improved processing and regulation of blood glucose. Adiponectin, a white adipose tissue-derived hormone with antidiabetic and antiinflammatory capabilities, increased with acute treatment and was 35% higher at study completion.

Doses in this study were higher than those currently approved by the FDA for overactive bladder treatment. Higher doses have been linked to cardiovascular risk, and participants in this study experienced increased heart rates and blood pressure that normalized after treatment ended.

The authors concluded that their findings indicate “that human BAT metabolic activity can be increased after chronic pharmacological stimulation with mirabegron and support the investigation of β 3-AR agonists as a treatment for metabolic disease.”

*National Institutes of Health
Journal of Clinical Investigation*

SNMMI/NCI Third Targeted Radionuclide Therapy Conference

SNMMI and the National Cancer Institute (NCI) held the Third Targeted Radionuclide Therapy Conference on December 16, 2019. Invited attendees, representing the major stakeholders in theranostics, including the U.S. Food and Drug Administration, NCI, academicians, clinical physicians, and pharmaceutical company executives, met at NCI Shady Grove (Rockville, MD) for a full day of in-depth discussions on maximizing dose to tumor while sparing normal tissue, the current state of the science, state-of-the-art clinical trial design, and strategies for achieving response.

This year’s conference included a global representation of 33 speakers from 3 continents, representing government agencies, academia, and industry. The program focused on 4 comprehensive sessions around the central topic of “What is the goal of radionuclide therapies: Palliative, curative, or adju-

vant treatment?” Complete PowerPoint presentations are available at: https://s3.amazonaws.com/rdcms-snmimi/files/production/public/FileDownloads/Meetings/_NCI_SNMMI_3TRT_Workshop_12-16-19.pdf.

In an online summary, SNMMI recognized the cochairs of this year’s meeting from SNMMI, including Daniel Lee, MD (Therapy Center of Excellence), John Sunderland, PhD (Clinical Trials Network), and Jon McConathy, MD, PhD (Clinical Trials Network); and from NCI, including Janet Eary, MD (Associate Director Cancer Imaging Program, NCI), Lalitha Shankar, MD, PhD (NCI), and Michael McDonald, MD, PhD (NCI). SNMMI also acknowledged the 2019 conference sponsors: Progenics; Actinium Pharmaceuticals; Advanced Accelerator Applications, A Novartis Company; Blue Earth Diagnostics; Hermes Medical Solutions; and Lucerno Dynamics.

SNMMI

New Nuclear Physics Facility to Be Built at Brookhaven

The U.S. Department of Energy (DOE) announced on January 9 the selection of Brookhaven National Laboratory (BNL; Upton, NY) as the site for a planned major nuclear physics research facility. The Electron Ion Collider (EIC), to be designed and constructed over 10 years at an estimated cost of \$1.6–\$2.6 billion, will produce protons and heavier atomic nuclei in what the DOE termed “an effort to penetrate the mysteries of the ‘strong force’ that binds the atomic nucleus together.” “The EIC promises to keep America in the forefront of nuclear physics research and particle accelerator technology, critical components of overall U.S. leadership in science,” said U.S. Secretary of Energy Dan Brouillette. “This facility will deepen our understanding of nature and is expected to be the source of insights ultimately leading to new technology and innovation.”

Design and construction of the EIC was recommended by the National Research Council of the National Academies of Science, which noted that such

a facility “would maintain U.S. leadership in nuclear physics” and “help to maintain scientific leadership more broadly.” Plans for an EIC were also endorsed by the federal Nuclear Science Advisory Committee. The Thomas Jefferson National Accelerator Facility (Newport News, VA) will be a major partner in realizing the EIC, and several other DOE laboratories are expected to contribute to EIC construction and to the groundbreaking nuclear physics research program at BNL. The EIC will include 2 intersecting accelerators, 1 producing an intense beam of electrons, the other a high-energy beam of protons or heavier atomic nuclei, which are steered into head-on collisions. These collisions will produce “freeze frame” tomographic 3D images of gluons in the nuclei, illuminating the ways in which gluons and quarks bind to form the particles that constitute most visible matter in the universe.

In its release announcing the project, the DOE stated that “the EIC will be a game-changing resource for the international nuclear physics community.” American researchers have benefited from DOE participation in international collaborations, such as CERN, and the international community is currently contributing to U.S. construction of the Long Baseline Neutrino Facility and the Deep Underground Neutrino Experiment. Among the benefits of the EIC cited by BNL was the long-term potential for “sparking scientific discoveries in a new frontier of fundamental physics” with advances that could lead to energy-efficient accelerators, thereby dramatically shrinking the size and operating costs of future accelerators used across science and industry to: make and test computer chips, treat cancer cells, design solar cells and batteries, develop drugs and medical treatments, and produce radioisotopes for diagnosis and treatment.

Funding for the EIC is subject to annual appropriations by Congress.

U.S. Department of Energy