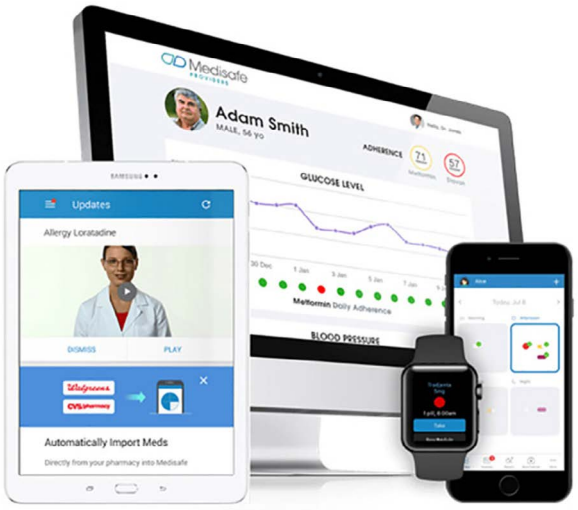
Medisafe and Boehringer Ingelheim PARTNER TO SUPPORT U.S. PRADAXA PATIENTS

▶ ***Trend Watch:*** *Pharma-backed digital health solutions improve patient care and adherence.*



Patient adherence app developer Medisafe is partnering with Boehringer Ingelheim to provide Pradaxa patients with educational materials, including health literacy videos, relevant health tips, and a Pradaxa Savings Card. Medisafe also features adherence tracking, alerts, biometric tracking, and MedFriend, a service that notifies friends and family when the user is nonadherent. Prescribing physicians can access Medisafe's physician portal, which allows them to see the patients' adherence information. According to reports, this is one of Medisafe's first partnerships with a pharmaceutical company. "At Boehringer Ingelheim, we are committed to advancing patient care, not only through our medicines, but also by providing services and solutions that can help patients on their treatment journey," says Christine Marsh, VP, market access, Boehringer Ingelheim. Pradaxa is indicated for atrial fibrillation.

Medisafe has also teamed up with other companies to provide mobile medication management solutions that improve patient adherence, including working with IQVIA on a study that showed that previously non-adherent HIV patients increased their prescription refills after they started using the Medisafe mobile app.

Roche Expands Access to the mySugr Integrated Diabetes Management Solution IN THE U.S. AND CANADA

Roche strengthens its position in digital health with a strategic partnership and investment in Care Innovations, a provider of telehealth solutions that remotely connect people living with chronic diseases with their care teams.

Last year's acquisition of mySugr strengthened Roche's portfolio, and through the partnership with Care Innovations, Roche will be able to offer remote care and expand how optimal care is being provided to people with diabetes in the United States and Canada.

The two will collaborate on integrating mySugr into the Care Innovations telehealth platform to provide connected remote care for integrated personalized diabetes and population health management to the broad range of Care Innovations' customer base that includes health insurance companies, health networks, and clinics. The partnership will enable health insurance companies and care providers to offer high-quality therapy management for people with diabetes via remote care delivery. MySugr's solution allows people with diabetes to receive advice from certified diabetes educators via the mySugr app and benefit from the convenience of having their diabetes management supplies, including an Accu-Chek Guide blood glucose meter and test strips, delivered directly to their homes.

"Digitization is the key to success in managing chronic conditions," says Carole Nuechterlein, head of the Roche Venture Fund. "Having a broad range of payer, insurance, and hospital customers Care Innovations is well-positioned to become the leader in remote patient management solutions, not just for people with diabetes but people with other acute or chronic medical conditions."

Virtual Reality Training Program for ORTHOPEDIC SURGEONS

The Johnson & Johnson Institute has created a global virtual reality (VR) training program for surgeons and nurses. The program currently includes three unique VR training modules for orthopedic surgery — total knee replacement, total hip replacement with direct anterior approach, and hip fracture treatment with a proximal femoral nail — to help improve surgical techniques and drive greater patient outcomes.

All instruments and implants in the VR training modules are designed to simulate real-world experience in an operating room, while anatomy and biomechanics provide an accurate scenario for the user.

"The introduction of this tech-forward training solution builds on our deep commitment to enhance human health through professional education in innovative ways," says Sandra Humbles, VP of global education solutions at Johnson & Johnson medical devices companies. "Our new VR training is part of our growing digital ecosystem, and will help drive greater standardization in surgical procedures and ultimately transform the way professional education impacts patient care."

A study conducted in 2017 with the first Johnson & Johnson VR education module found that 80% of 107 orthopedic surgeons interviewed would like to use VR frequently for training, and 90% would recommend VR training to their peers.

The technology is available at J&J Institute sites in Sao Paulo, Brazil; Hamburg, Germany; Beijing, China; Tokyo, Japan; and Raynham, Mass. The Johnson & Johnson Institute has already deployed 50 VR systems, with the goal of including these experiences in basic courses and expanding to other institutes around the world.

With clinically relevant, real-life scenarios, these modules address an important need — enabling surgeons, nurses and residents to practice at their own pace and as often as they want until they master a certain procedure.

Special Nanoparticles Cloaked in Tumor Cells DELIVER PROTEIN TO KILL CANCER

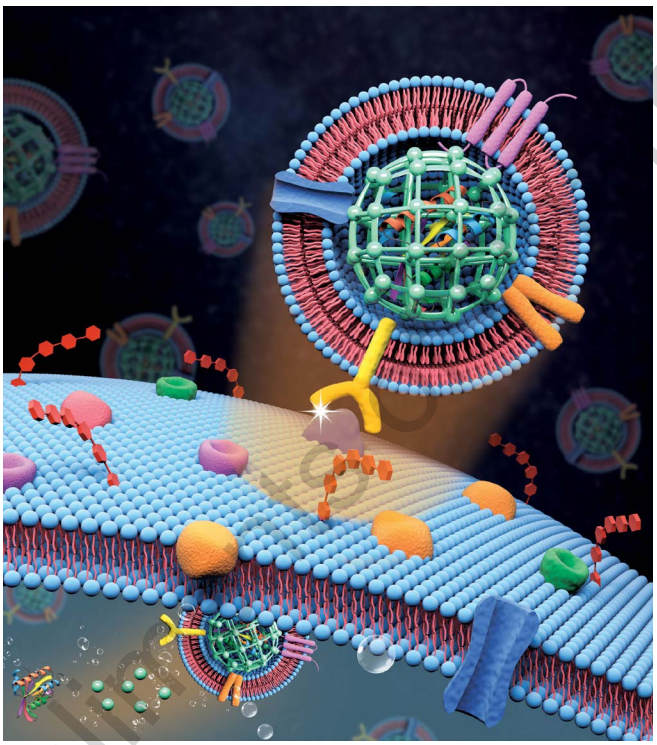
A team of Penn State researchers has developed a biomimetic nanosystem to deliver therapeutic proteins to selectively target cancerous tumors. Using a protein toxin from a plant found in the Himalayan mountains, called gelonin, the researchers caged the proteins in self-assembled metal-organic framework (MOF) nanoparticles to protect them from the body's immune system. To enhance the longevity of the drug in the bloodstream and to selectively target the tumor, the team cloaked the MOF in a coating made from cells from the tumor itself.

This is relevant because blood is a hostile environment for drug delivery. The body's immune system attacks alien molecules or flushes them out of the body through the spleen or liver. But cells, including cancer cells, release small particles called extracellular vesicles that communicate with other cells in the body and send a "don't eat me" signal to the immune system.

The nanoparticle system circulates in the bloodstream until it finds the tumor and locks on to the cell membrane. The cancer cell ingests the nanoparticle in a process called endocytosis. Once inside the cell, the higher acidity of the cancer cell's intracellular transport vesicles causes the metal-organic framework nanoparticles to break apart and release the toxic protein into cytosol and kill the cell.

The researchers studied the effectiveness of the nanosystem and its toxicity in a small animal model and reported their findings in a cover article in the Journal of the American Chemical Society.

The researchers believe their nanosystem provides a tool for the targeted delivery of other proteins that require cloaking from the immune system. Penn State has applied for patent protection for their technology. Penn State's Materials Research Institute and Huck Institutes of the Life Sciences, and the National Institutes of Health supported the work.



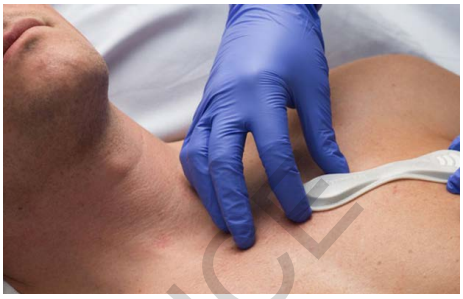
Novartis Launches Mobile App for the NEUROENDOCRINE TUMOR CANCER COMMUNITY

Novartis has launched its Galaxies of Hope app, a digital experience created to support the neuroendocrine tumor (NET) community. Galaxies of Hope engages users through the art of visual storytelling, using the actual words and voices of patients, caregivers, and physicians who are part of the NET cancer community.

Novartis collaborated with Numinous Games, award-winning video game developers, to create the app. It is a content-rich, poetic, and interactive digital experience that presents a new and unique way for NET cancer patients, caregivers, and physicians to learn more about the emotional course of this disease.

This digital experience is divided into three different "journey" types, one for each of these groups. Users can explore the different galaxies within the journeys to connect with the experiences of patients, caregivers, and physicians involved in the NET patient journey.

Novartis reports that raising awareness of NET cancer in creative ways is important in improving understanding and management of this rare disease.



Janssen Funds Cancer Study Using Vital Connect, PHYSIQ TECH

Netherlands-based Haga Teaching Hospital has teamed up with physIQ and VitalConnect to evaluate how wearable biosensors and AI-based analytics can augment clinical care for patients in treatment. The study is being funded by Janssen Pharmaceuticals, a Johnson & Johnson company. In the investigator-initiated study, patients being treated with either erythrocyte transfusion or chemotherapy, either with or without immunotherapy, are provided VitalPatch biosensors that collect and stream physiological data via physIQ's pinpointIQTM platform. The goal of the study is to evaluate how continuous physiological data coupled with sophisticated personalized analytics can provide early clinical indication of adverse events sometimes associated with anti-cancer treatment.

Through the physIQ pinpointIQ solution, clinical-grade vital signs stream continuously, 24/7, from the VitalPatch biosensor to the cloud. Patients begin wearing the biosensor several days prior to the treatment to allow the physIQ AI-based analytics to develop a pre-treatment personalized baseline. Patients then continue to wear the VitalPatch, both during and after treatment in the clinic. By comparing each patient to their own personalized baseline, clinicians are able to continuously monitor their physiological response throughout treatment and afterwards, even when the patients have returned home.

"AI-based analytics and wearable biosensors hold great promise for monitoring at-risk patient populations at home, at work, in the clinic, and all places in between," says Dr. Stephen Ondra, chief medical officer of physIQ. "The oncology space is one that has enormous unmet need with respect to how we deliver care and support patients as they undergo and manage these potentially life-saving therapies. Too often, patients must discontinue therapy because of adverse events that could be avoided or minimized through early detection. We are excited by the prospect of evolving the standard of care to use personalized proactive information to improve outcomes."