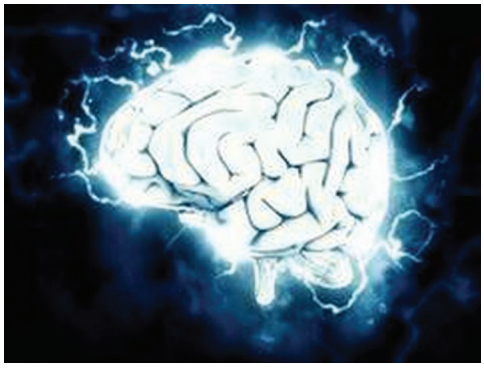
Treatment of Brain Disorders with Nanoparticle Drug-Delivery System

Researchers have identified biological pathways leading to neurodegenerative diseases and developed promising molecular agents to target them in the past few decades. However, the translation of these findings into clinically approved treatments has progressed at a much slower rate, in part because of the challenges scientists face in delivering therapeutics across the blood-brain barrier (BBB) and into the brain. To facilitate successful delivery of therapeutic agents to the brain, a team of bioengineers, physicians, and collaborators at Brigham and Women's Hospital and Boston Children's Hospital created a nanoparticle platform, which can facilitate therapeutically effective delivery of encapsulated agents in mice with a physically breached or intact BBB. In a mouse model of traumatic brain injury (TBI), they observed that the delivery system showed three times more accumulation in brain than conventional methods of delivery and was therapeutically effective as well, which could open possibilities for the treatment of numerous neurological disorders. Findings were published in *Science Advances*.

The technology could enable physicians to treat secondary injuries associated with TBI that can lead to Alzheimer's, Parkinson's, and other neurodegenerative diseases, which can develop during ensuing months and years once the BBB has healed.

The therapeutic used in this study was a small interfering RNA (siRNA) molecule designed to inhibit the expression of the tau protein, which is believed to play a key role in neurodegeneration. Poly (lactic-co-glycolic acid), or PLGA, a biodegradable and biocompatible polymer used in several existing products approved by the U.S. Food and Drug Administration, was used as the base material for nanoparticles. The researchers systematically engineered and studied the surface properties of the nanoparticles to maximize their penetration across the intact, undamaged BBB in healthy mice. This led to the identification of a unique nanoparticle design that maximized the transport of the encapsulated siRNA across the intact BBB and significantly improved the uptake by brain cells.



A 50 percent reduction in the expression of tau was observed in TBI mice who received anti-tau siRNA through the novel delivery system, irrespective of the formulation being infused within or outside the temporary window of breached BBB. In contrast, tau was not affected in mice that received the siRNA through a conventional delivery system.

In addition to targeting tau, the researchers have studies underway to attack alternative targets using the novel delivery platform.

Remote Exam Kit to Conduct Basic Medical Exams at Home

TytoHome is a remote exam kit that allows everyone to conduct a basic medical exam at home. A must-have during the coronavirus pandemic, this groundbreaking health gadget then pairs with a teleconferencing app that connects the user with a certified healthcare provider for a remote consultation, as well as diagnosis, treatment plan, and a prescription if needed.

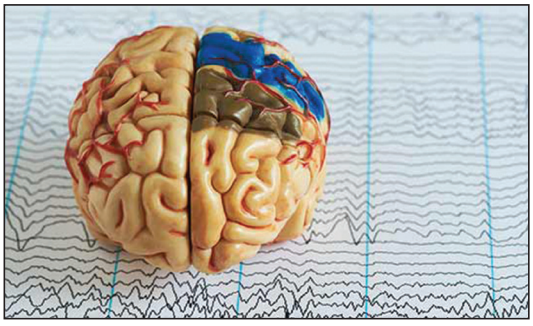
Besides the Tyto device itself, which comes equipped with a digital camera and thermometer, the at-home diagnostic kit also includes accessories like a tongue depressor for examining your throat, an otoscope for ears, and a stethoscope for heart, lungs, and abdomens.

Bedside EEG Test Potentially Aids Prognosis in Unresponsive Brain Injury

A team at the University of Birmingham has shown that responses to speech can be measured using electroencephalography, a non-invasive technique used to record electrical signals in the brain. The strength of these responses can be used to provide an accurate prognosis that can help clinicians make the most effective treatment decisions.

Significantly the assessments can be made while the patient is still in intensive care and does not require any conscious response from the patient.

In the study, published in *Annals of Neurology*, the team assessed 28 patients with acute traumatic brain injury (TBI) who were not under sedation, and who failed to obey commands. The patients were assessed within just a few days of their injury. They were played streams of sentences and phrases made up of monosyllabic words while their brain activity was monitored using EEG.



In healthy individuals, EEG activity only synchronizes with the rhythm of phrases and sentence when listeners consciously comprehend the speech. The researchers assessed the level of the unresponsive patients' comprehension by measuring the strength of this synchronicity. They found the outcomes significantly correlated with the strength of the patients' response to speech measured by the EEG.

Patients with traumatic brain injury are commonly assessed by their behavior or by a CT scan, but some patients who remain unresponsive pose a significant challenge. Recent studies have shown that TBI patients can be shown to 'imagine' themselves following commands. This activity can also be tracked using EEG. However, this approach requires a fairly sophisticated response from the patient, so patients with lower brain capabilities may be overlooked.

Chemotherapy Medication Outperforms Remdesivir against COVID-19

Researchers from the Shenzhen Institutes of Advanced Technology in Shenzhen, China said that a chemotherapy medication originally developed to treat lymphoma has outperformed the popular remdesivir drug against SARS-CoV-2 in lab settings, and could potentially be repurposed to treat COVID-19.

A novel computational drug screening strategy combined with lab experiments suggest that pralatrexate drug is a promising candidate for COVID-19 patients.

The novel screening approach identified four promising drugs, which were then tested against SARS-CoV-2 in lab experiments.

Two of the drugs, pralatrexate and azithromycin, successfully inhibited replication of the virus.

Further lab experiments showed that pralatrexate more strongly inhibited viral replication than did remdesivir, a drug that is currently used to treat some COVID-19 patients, said Haiping Zhang of the Shenzhen Institutes of Advanced Technology in Shenzhen, China.

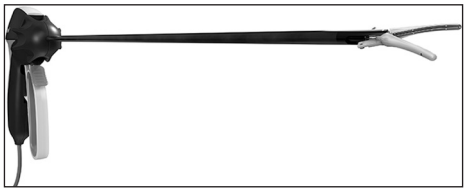
Zhanh and team screened 1,906 existing drugs for their potential ability to inhibit replication of SARS-CoV-2 by targeting a viral protein called RNA-dependent RNA polymerase (RdRP).

The findings, published in open-access journal *PLOS Computational Biology*, suggest that pralatrexate could potentially be repurposed to treat COVID-19.

"However, this chemotherapy drug can prompt significant side effects and is used for people with terminal lymphoma, so immediate use for Covid-19 patients is not guaranteed. Still, the findings support the use of the new screening strategy to identify drugs that could be repurposed," the researchers noted.

CoolSeal Series Launched for Quick and Safe Vessel Sealing

Bolder Surgical, a Louisville, Colorado firm previously called JustRight Surgical, has released the CoolSeal vessel sealing platform. The initial product offerings are the CoolSeal Trinity device, a 5mm laparoscopic sealer, and the 3mm CoolSeal Mini, both of which work with the CoolSeal generator.

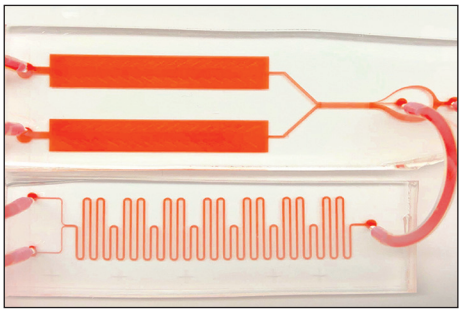


The CoolSeal Trinity is able to dissect, seal, and divide vessels using bipolar RF technology in a matter of seconds, while generating a thermal spread of less than one millimeter. This low power capability helps to prevent damage to any sensitive nearby tissues, and the outer jaws are kept constantly cool so they can't really harm anything accidentally at any time.

"The 360-degree capability of CoolSeal Trinity's fine-tipped, dual-action jaws allow for precise dissection and quick sealing times with minimal thermal distribution around important structures. It will be a nice addition to my repertoire of surgical instruments," said Irving J. Zamora, MD, MPH, Monroe Carell Jr. Children's Hospital at Vanderbilt, in a Bolder press release.

Continuous Blood Testing with Real-time ELISA

Researchers at Stanford University have created a device that can constantly track concentrations of just about any protein, antibody, or hormone found in blood.



ELISA provides a continuous stream of snapshots of readings that can be used to view trends of analyte concentrations in near real-time.

Dubbed as "Real-time ELISA," the prototype microfluidic device was initially designed to measure insulin and glucose levels, though many other biomolecules can be used as targets. Tested in lab rats, the device employs a needle that sources blood from a vessel and moves it through its microfluidic channels. This happens repeatedly while ELISA is continuously performed on the blood.

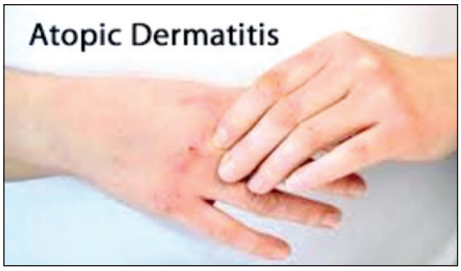
The trick to actually being able to run an ELISA test over and over depends on a "protein sandwich" that consists of two antibodies stuck together. One seeks out and attaches to the protein being searched, while the other, a fluorescent marker, is made to activate when the connection is made. Using a high-speed camera, the now glowing marker can be detected and its brightness can be used to quantify the amount of target analyte in the sample.

The Stanford team believes that the technology can help to closely monitor patients during events such as cytokine storms, as well as for biomedical research in order to quickly see what effect different therapies have on blood chemistry. The study is published in *Nature Biomedical Engineering*.

The team is already working on another version of the device that can measure IL-6, an important cytokine involved in the progression of sepsis. Currently IL-6 tests take up to three days to complete, but sepsis doesn't wait on the results as it develops.

Researchers Discover New Therapeutic Target for Atopic Dermatitis

Researchers from Trinity have discovered a key mechanism underlying bacterial skin colonization in atopic dermatitis, which affects millions around the globe.



The researchers, from Trinity's School of Genetics and Microbiology and School of Clinical Medicine, set out to identify the human and bacterial factors that enable S. aureus to interact with skin by studying the attachment of the bacterium to "corneocytes", which are dead, flattened skin cells in the outer layer of the skin.

The findings, recently published in the prestigious journal *Proceedings of the National Academy of Sciences* of the U.S., show that S. aureus binds to a specific region of human corneodesmosin, a protein located on the surface of AD patient

corneocytes.

Bacterial binding to corneocytes in the lab is reduced if the relevant region of corneodesmosin is blocked with an antibody, indicating the importance of this interaction during S. aureus attachment to human skin.

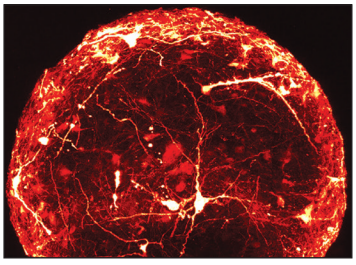
In lab experiments, Dr. Aisling Towell, Ph.D. graduate in Microbiology at Trinity, showed that bacterial interaction with corneodesmosin relies on two proteins attached to the surface of S. aureus, FnBPB and ClfB.

Alan Irvine, Professor of Dermatology at Trinity, said, "AD is both a common and incredibly uncomfortable condition that has a massive impact on quality of life in both children and adults. Colonization of the skin with S. aureus is a major driver of AD and a cause of disease flares. By identifying a major mechanism through which S aureus binds to the skin of patients with AD we have opened the possibility of targeting this pathway as a therapeutic option in AD."

3D Imaging to Illuminate Internal Structure of Brain Spheroids

Researchers at the Wyss Center in Geneva and collaborators have developed novel imaging and labeling techniques to view the internal structure of brain spheroids, and observe the morphology of single neurons in 3D. Brain spheroids, which the researchers term "mini brains," are a cluster of different types of brain cells, and are cultured from induced pluripotent stem cells. Used as a research tool, including in drug development, the mini brains will be more useful to researchers if their structure can be accurately assessed without having to cut them into slices for microscopy.

Brain spheroids have a wide array of uses, from testing drugs to studying neurological disease. However, at present, if researchers want to look at their internal structure they typically have to cut them into small sections and place these on microscope slides.



Unfortunately, this makes it very difficult to accurately determine their internal structure or observe the structure of individual neurons. Moreover, the sectioning process can damage the spheroids, making subsequent imaging less valuable and informative.

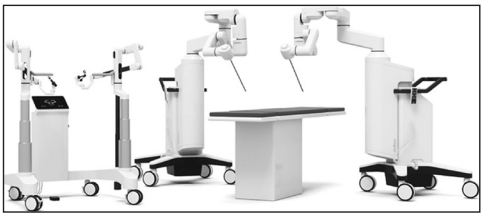
"Despite advances in growing 'mini-brains', it has been difficult to understand in detail what is going on inside – until now," said Professor Adrien Roux a researcher involved in the study.

"Typically, to look inside a 'mini-brain', we slice it thinly and view it on a slide under a microscope," said Dr Subashika Govindan, another researcher involved in the study. "This is a slow process that can damage the sample. Now, for the first time, we have produced high resolution 3D images of single neurons within intact 'mini-brains', revealing their remarkable complexity."

To address this, these researchers have developed an array of imaging techniques to allow them to peer inside the intact spheroids. These involve a method to make the spheroids completely transparent, so that imaging can take place. The researchers also used viral vectors to label specific neurons, allowing them to create striking 3D images of individual neurons within the spheroids.

"Human 'mini-brains' have a life span of more than a year and, with our new ability to visualize them in more detail, we can envision benefits such as reducing some animal testing," said Dr Laura Batti, another researcher involved in the study.

Dexter Surgical Robot that Works with All Laparoscopy Tools



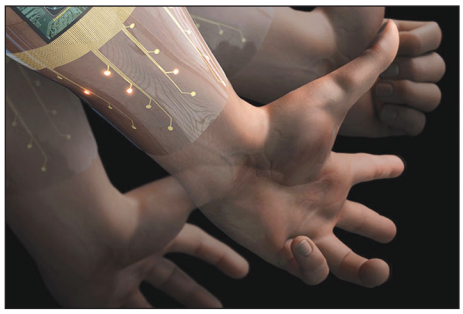
Distalmotion, a Swiss firm, has won European regulatory clearance to introduce its Dexter Surgical Robot that works with any laparoscopic tools. The Dexter is designed to be easy to bring in and out of the surgical space and used when robotic manipulation can help with increased precision, dexterity, and ergonomics. Switching between robotic surgery and laparoscopy for the surgeon is pretty much a matter of getting up from the console and grabbing the tools by hand. The Dexter also comes with its own single-use 8 mm instruments for routine use in dissection and suturing, both mono- and bipolar.

Distalmotion claims that the Dexter can be used alongside any commercial laparoscopic tower, allowing for 4k, 3D, ICG or any other existing or future imaging technology to be integrated along with it.

The console can be raised and lowered, like a standing desk, to allow the surgeon to operate sitting down or standing up.

Wearable Sensor that Converts Forearm Signals to Control Prosthetic Hands

Researchers at the University of California, Berkeley have developed a wearable sensor that can measure electrical signals in the forearm and use AI to correlate them with hand gestures, such as the movements of individual fingers. The team demonstrated that the system can control a robotic prosthetic hand and that it may provide a way for amputees to perform delicate movements with such devices.



The flexible sensor can measure electrical signals at 64 discrete areas on the forearm and an electrical chip then uses AI to interpret these signals as specific hand gestures. A user can train the system to recognize unique hand gestures, and so far, the team has successfully trained it to accurately recognize 21 different gestures, including a flat hand, a thumbs up, and a fist.

"When you want your hand muscles to contract, your brain sends electrical signals through neurons in your neck and shoulders to muscle fibers in your arms and hands," said Ali Moin, a researcher involved in the study. "Essentially, what the electrodes in the cuff are sensing is this electrical field. It's not that precise, in the sense that we can't pinpoint which exact fibers were triggered, but with the high density of electrodes, it can still learn to recognize certain patterns."

The system uses AI to interpret the signals. This occurs on-board, and does not rely on cloud computing, which makes the data interpretation faster and helps to keep patient data secure and private. The researchers included an AI system, which is called a hyperdimensional computing algorithm. For instance, if the electrical signals change because a user's skin becomes sweaty, the system can incorporate this new information into its data interpretation.

The researchers hope that the system will allow for delicate prosthetic control.

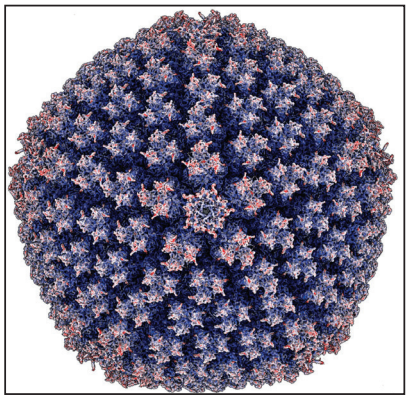
Breakthrough on Diarrhea Virus may Provide Newer Approach at COVID Vaccine Development

Researchers at Umeå University in Sweden have for the first time have succeeded in mapping what a virus looks like at the atomic level that causes diarrhea and annually kills about 50,000 children in the world. The discovery may in the long run provide the opportunity for completely new types of treatments for other viral diseases such as COVID-19.

"The findings provide an increased understanding of how the virus gets through the stomach and intestinal system. Continued research can provide answers to whether this property can also be used to create vaccines that ride 'free rides' and thus be given in edible form instead of as syringes," says Lars-Anders Carlson, researcher at Umeå University.

The virus that the researchers have studied is a so-called enteric adenovirus. It has recently been clarified that enteric adenoviruses are one of the most important factors behind diarrhea among infants, and they are estimated to kill more than 50,000 children under the age of five each year, mainly in developing countries.

With the help of the advanced cryo-electron microscope available in Umeå, the researchers have now managed to take detailed images of an enteric adenovirus that it has been possible to put a three-dimensional puzzle that shows what the virus looks like right down to the atomic level. The virus is one of the most complex biological structures studied at this level. The shell that protects the virus' genome when it is spread between humans consists of two thousand protein molecules with a total of six million atoms.



The researchers were able to see that the enteric adenovirus manages to keep its structure basically unchanged at the low pH value found in the stomach. They could also see other differences compared to respiratory adenoviruses in how a particular protein is altered in the shell of the virus as well as new clues to how the virus packs its genome inside the shell. All in all, it provides an increased understanding of how the virus manages to move on to create disease and death.

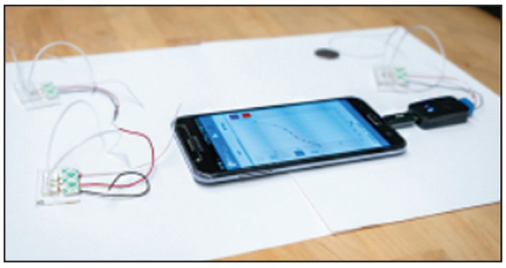
Several of the new vaccines be-

ing tested against COVID-19 are based on genetically modified adenovirus. Today, these adenovirus-based vaccines must be injected to work in the body. If a vaccine could instead be based on enteric adenovirus, the vaccine might be given in edible form. This would, of course, facilitate large-scale vaccination.

The virus that the researchers have studied is called HAdV-F41. The study is published in the scientific journal *Science Advances*. It is a collaboration between Lars-Anders Carlson's and Niklas Arnberg's research groups at Umeå University.

Researchers Develop 10 Second COVID Antibody Test on a Chip

Researchers at Carnegie Mellon University have developed a microfluidic chip that can provide rapid COVID-19 antibody tests. The electrochemical test can detect very low concentrations of antibodies in blood samples, and transmits the results to a smartphone. The test could help to measure patient responses to vaccines and determine if they have been previously exposed to SARS-CoV-2, the virus responsible for COVID-19.



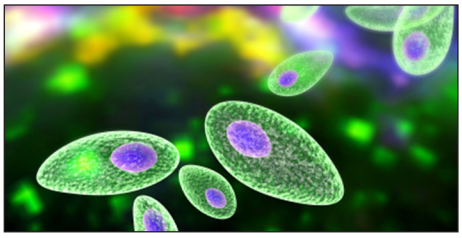
The researchers used a technique called aerosol jet nanoparticle 3D printing to create gold micropillar electrodes within the device. The rough surface of the pillars results from the deposition of aerosol droplets that are then thermally sintered together. This surface roughness increases the pillar surface area allowing for enhanced antibody binding to antigens on the electrode surface.

The researchers then coated the electrodes with reduced-graphene-oxide nanoflakes, and immobilized viral antigens on the electrode surface. This allows the electrochemical device to rapidly detect as little as 0.15 nanograms of antibody per mL of blood, although the device requires only one drop of blood to perform a test. The test can identify two antibodies against structures on the virus, including the spike S1 protein and the receptor binding domain.

The test can transmit its results to a generic smartphone and is a platform technology, meaning that it can easily be adapted to detect other viruses in blood samples, including HIV and Ebola.

Exposure to Common Food-Borne Pathogen Linked to Rare Brain Cancer

Recent study suggests a link between *toxoplasma gondii* (*T. gondii*) infection and the risk of glioma, a type of brain cancer, in adults. The report, appearing in the *International Journal of Cancer*, finds that people who have glioma are more likely to have antibodies to *T. gondii* (indicating that they have had a previous infection) than a similar group that was cancer free.



For the study, investigators led by James Hodge, JD, MPH and Anna Coghill, PhD examined the association between *T. gondii* antibodies measured several years before the cancer was diagnosed and the risk of developing a glioma. Study participants were from the American Cancer Society's Cancer Prevention Study-II (CPS-II) Nutrition Cohort and the Norwegian Cancer Registry's Janus Serum Bank (Janus). *T. gondii* is a common parasite that is most commonly acquired from undercooked meat, and may lead to the formation of cysts in the brain. These results suggest that reducing exposure to this common food-borne pathogen could provide a modifiable risk factor for highly aggressive brain tumors in adults.

The study notes an association between *T. gondii* antibodies and glioma was similar in two demographically different groups of people: the CPS-II cases were approximately 70 years old at the time of blood draw, while those in the Janus cohort were approximately 40 years old.

"The findings do suggest that individuals with higher exposure to the *T. gondii* parasite are more likely to go on to develop glioma," said Coghill. "However, it should be noted that the absolute risk of being diagnosed with a glioma remains low, and these findings need to be replicated in a larger and more diverse group of individuals."

The authors note that, "if future studies do replicate these findings, ongoing efforts to reduce exposure to this common pathogen would offer the first tangible opportunity for prevention of this highly aggressive brain tumor."

Scientists Discover New Class of Antibiotics Active against a Wide Range of Bacteria

Wistar Institute scientists have discovered a new class of compounds that uniquely combine direct antibiotic killing of pan drug-resistant bacterial pathogens with a simultaneous rapid immune response for combatting antimicrobial resistance (AMR). These finding were published in *Nature*.

Existing antibiotics target essential bacterial functions, including nucleic acid and protein synthesis, building of the cell membrane, and metabolic pathways. However, bacteria can acquire drug resistance by mutating the bacterial target the antibiotic is directed against, inactivating the drugs or pumping them out.

Farokh Dotiwala, M.B.B.S., Ph.D., assistant professor in the Vaccine & Immunotherapy Center and lead author and colleagues focused on a metabolic pathway that is essential for most bacteria but absent in humans, making it an ideal target for antibiotic development. This pathway, called methyl-D-erythritol phosphate (MEP) or non-mevalonate pathway, is responsible for biosynthesis of isoprenoids -- molecules required for cell survival in most pathogenic bacteria. The lab targeted the IspH enzyme, an essential enzyme in isoprenoid biosynthesis, as a way to block this pathway and kill the microbes. Given the broad presence of IspH in the bacterial world, this approach may target a wide range of bacteria.

Researchers used computer modeling to screen several million commercially available compounds for their ability to bind with the enzyme, and selected the most potent ones that inhibited IspH function as starting points for drug discovery.

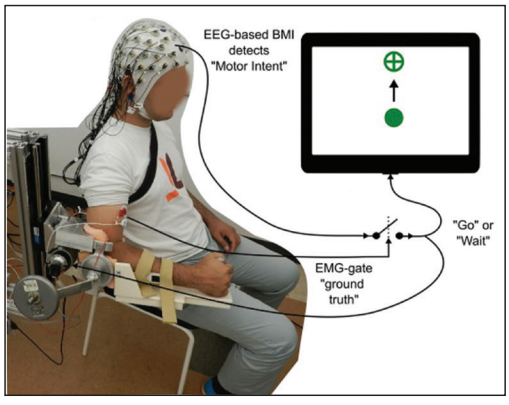
Since previously available IspH inhibitors could not penetrate the bacterial cell wall, Dotiwala collaborated with Wistar's medicinal chemist Joseph Salvino, Ph.D., professor in The Wistar Institute Cancer Center and a co-senior author on the study, to identify and synthesize novel IspH inhibitor molecules that were able to get inside the bacteria.

The team demonstrated that the IspH inhibitors stimulated the immune system with more potent bacterial killing activity and specificity than current best-in-class antibiotics when tested in vitro on clinical isolates of antibiotic-resistant bacteria, including a wide range of pathogenic gram negative and gram-positive bacteria. In preclinical models of gram-negative bacterial infection, the bactericidal effects of the IspH inhibitors outperformed traditional pan antibiotics. All compounds tested were shown to be nontoxic to human cells.

Improving Stroke Rehabilitation with Brain-Machine Interface and Exoskeleton

Researchers from a number of medical research institutions in Texas, spearheaded by a team at the University of Houston, have developed a system that combines a brain-computer interface and a robotic arm that responds to the actual intentions of treated patients. The system showed an impressive ability to improve arm and hand movements in patients who have stopped seeing benefits from conventional stroke rehab therapy. Moreover, the positive outcomes were maintained even two months after the new rehab sessions were over, pointing to long term benefits.

The volunteers in the study, who had limited arm movements following a stroke, wore EEG (electroencephalography) caps that provided access to their brain waves. An arm exoskeleton that was able to move the affected appendage was connected to a computer that detected user intentions in the EEG signal and moved the arm accordingly. If the intention was not detected, the exoskeleton did not move, which guaranteed the brain's involvement in every motion of the device.



"This is a novel way to measure what is going on in the brain in response to therapeutic intervention," added Dr. Gerard Francisco, professor and chair of physical medicine and rehabilitation at McGovern Medical School at The University of Texas Health Science Center at Houston and co-principal investigator. "This study suggested that certain types of intervention, in this case using the upper robot, can trigger certain parts of brain to develop the intention to move. In the future, this means we can augment existing therapy programs by paying more attention to the importance of engaging certain parts of the brain that can magnify the response to therapy."

Bio-Compatible Patch for Release of Non-Opioid Painkiller Directly to the Wound

A Duke-led team of scientists has developed a bio-compatible surgical patch that releases non-opioid painkillers directly to the site of a wound for days and then dissolves away.

The polymer patch provides a controlled release of a drug that blocks the enzyme COX-2 (cyclooxygenase-2,) which drives pain and inflammation. The study appears in the *Journal of Controlled Release.*

When they started "We were making hernia meshes and different antimicrobial films," said Matthew Becker, the Hugo L. Blomquist professor chemistry at Duke, and last author on the paper. "We thought you could potentially put pain drugs or anesthetics in the film if you just sew it in as you're stitching the person up, then you wouldn't necessarily have to prescribe any opioids," Becker said.

The polymer itself, comprised of poly(ester urea) homopolymers and co-polymers, is also special, Becker said.

"Most polymers that are used in medicine swell, and everything comes out at once," Becker said. But this polymer erodes slowly, and its painkiller dose and longevity can be controlled simply by varying the surface area and thicknesses. "The film is about like a piece of paper."

"If you can get four or five days of pain control out of the patch and not have to take those other pain drugs, not only do you avoid some of the side effects and risks of addiction, you're concentrating therapy where you need it," Becker said.

Becker said the patch should be able to provide three or four days of wound-pain management, which is the critical period for post-surgical pain. The implantable film would be particularly useful in endoscopic procedures and instances where the physicians and patients would like to avoid opioid exposure such as Cesarean births and pediatric surgeries. In studies with mice that mimic the neuropathic pain of diabetes, the pain patch was placed against a nerve and provided a four-day nerve block.

IIT-Bombay Researchers Develop AI-Based Model to Identify Malarial Parasites

In collaboration with three hospitals in the country, researchers from the Indian Institute of Technology-Bombay (IIT-B), have used proteomics technologies and made artificial intelligence based-models that can help in differentiating the two major species of malaria parasite — P falciparum and P vivax— for better malaria diagnosis.

The artificial intelligence (AI)-based models can be used for the diagnosis and prognosis of the two species of malaria parasite based on the changing trend of proteins in human blood. Funded by the department of biotechnology, Government of India, their study and findings were published in the journal *Communications Biology – Nature.*

As part of their project, the researchers collected blood samples from patients with severe and mild cases of falciparum malaria, vivax malaria, and dengue, as well as from a healthy group of people. These samples were collected from Medical College Hospital, Kolkata, a P falciparum endemic region; Sardar Patel Medical College, Bikaner, a P vivax endemic region, and Dr LH Hiranandani Hospital, Mumbai, a P vivax endemic region.

They comprehensively analysed all the proteins from the blood plasma and quantified and identified the human proteins. Having identified these proteins, the researchers compared their amount in mild and severe cases of falciparum malaria, vivax malaria, and dengue.

The standard method for diagnosing malaria is using a microscope to examine blood samples of suspected patients to spot the parasites. However, it may not help in the prognosis of the infection. Other ways of diagnosis include rapid diagnostics test (RDT) and nucleic acid amplification (NAA).

"In the case of malaria, P falciparum, P vivax and other species are not differentiable by using RDTs and ideally need an expert eye along with intensive work of looking at 100 fields of blood smear using microscopy, the gold standard for malaria diagnosis," said Shalini Aggarwal, research fellow, department of biosciences and bioengineering, IIT-B, who was part of the study.

Currently, the researchers, under the guidance of Sanjeeva Srivastava, professor, department of biosciences and bioengineering, IIT-B, are working on a diagnostic kit prototype.

+