The Lord is like a strong tower, where the righteous can go and be safe.
Proverbs 18:10

DIYARYO
KABITENYO
Nagmamalasakit sa lalawigan

ISSN 2651-8318
Entered as FIRST CLASS MAIL at Imus Post Office with Business Mail Permit No. IC 19-06-219
Vol. 23 No. 8 | April 13-19, 2020 | P 10.00

Be alert, stand firm in the faith, be brave, be strong.
1 Corinthians 16:13

PCSO provides P2.5M to govt hospital in Bacoor

CITY OF BACOOR, Cavite — The Philippine Charity Sweepstakes Office (PCSO) in Cavite has provided P2.5 million worth of financial assistance to the Southern Tagalog Regional Hospital (STRH) in this city to support urgent medical and community needs of the hospital in combating the novel coronavirus.

PCSO Cavite Branch Manager Paloma Malimas said in a statement that she handed over the calamity check to Dr. Jocelyn Caballes, acting chief of STRH.

"The amount given to the hospital

Turn to page 2

ABS-CBN expands 'Pantawid ng Pag-ibig,' extends help to Cavite, Bulacan, Laguna, Rizal

ABS-CBN has extended the operations of "Pantawid ng Pag-ibig" to Cavite, Bulacan, Laguna, and Rizal as it continues to bring help to Filipinos who are unable to make a living and provide for their families due to the enhanced community quarantine (ECQ).

The network delivered products like rice, canned goods, noodles, biscuits, milk, coffee, shampoo, soap, detergent, and vitamins to Caloocan, Las Piñas, Malabon, Makati, Mandaluyong, Manila, Marikina, Muntinlupa, Navotas, Parañaque, Pasay, Pasig, Pateros, Quezon City, San Juan, Taguig, and Valenzuela.

The amount used to purchase these items came from donations received by "Pantawid ng Pag-ibig" from all over the world. As of April 7, the campaign has received a total of P524.8 million in cash donations and pledges. From this amount, P263.7 million was already used to purchase goods. So far, P134

Turn to page 7

DIYARYO KABITENYO
ISSN: [illegible]
ARNULFO BARCO
Publisher - Editor
GENER BARCO
Operations Manager
DIYARYO KABITENYO is published weekly and circulated throughout the province of Cavite. It has its editorial and business offices at [illegible] Cavite. It is registered at the Department of Trade and Industry [illegible]. Our telephone number is [illegible].
Subscription Rate: 1 month - P 40.00; 3 months - 120.00; 6 months - 240.00
Advertising Rate: Commercial - P200.00/col. cm.; Legal - 180.00/col. cm.
PAPI
Publishers Association of the Philippines, Inc.

Repairing stroke-damaged rat brains

Researchers at Lund University in Sweden have succeeded in restoring mobility and sensation of touch in stroke-afflicted rats by reprogramming human skin cells to become nerve cells, which were then transplanted into the rats' brains. The study has now been published in the Proceedings of the National Academy of Sciences (PNAS).

"Six months after the transplantation, we could see how the new cells had repaired the damage that a stroke had caused in the rats' brains," says Professor Zaal Kokaia, who together with senior professor Olle Lindvall and researcher Sara Palma-Tortosa at the Division of Neurology is behind the study.

Several previous studies from the Lund team and others have shown that it is possible to transplant nerve cells derived from human stem cells or from reprogrammed cells into brains of rats afflicted by stroke. However, it was not known whether the transplanted cells can form connections correctly in the rat brain in a way that restores normal movement and feeling.

"We have used tracking techniques, electron microscopy and other methods, such as light to switch off activity in the transplanted cells, as a way to show that they really have connected correctly in the damaged nerve circuits. We have been able to see that the fibres from the transplanted cells have grown to the other side of the brain, the side where we did not transplant any cells, and created connections. No previous study has shown this," says Zaal Kokaia, who even though he and colleague Olle Lindvall have studied the brain for several decades, is surprised by the results.

"It is remarkable to find that it is actually possible to repair a stroke-damaged brain and recreate nerve connections that have been lost. The study kindles hope that in the future it could be possible to replace dead nerve cells with new healthy nerve cells also in stroke patients, even though there is a long way to go before achieving that," says Olle Lindvall.

(PCSO... from page 1)

is intended for the procurement of testing kits, reagents, medical/ diagnostic equipment, personal protective equipment (PPE) and medicines," she added.

The financial aid also targets to cover the cost of laboratory diagnostic procedures and confinement of Covid-19 patients, noting that because STRH is government-owned, there will be no more room charges and doctors' fees.

PCSO General Manager Royina Garma said the funding was part of the PCSO's approved financial assistance of P447 million to 81 government hospitals across the country that seeks to boost their financial capacity to aid more Covid-19 patients.

The STRH, formerly known as Bacoor District Hospital, is a Level 1 health facility with a 50-bed capacity.

(ABS-CBN... from page 1)

[illegible] worth of goods were already delivered to the LGUs.

ABS-CBN is thankful for the trust and support of kind-hearted individuals and corporations for their generosity at this difficult time. The network is also grateful of the cooperation of LGUs, the Armed Forces of the Philippines, and private companies working alongside the network to assist our countrymen while they are advised to stay at home to help stop the spread of COVID-19.

Aside from "Pantawid ng Pag-ibig," ABS-CBN has also assisted 37 hospitals through donating N95 masks, surgical masks, hygiene kits, goggles, and suits that health care workers need as they continue to care for the sick.

People may donate via ABS-CBN Lingkod Kapamilya Foundation Inc./Sagip Kapamilya bank accounts: BPI peso account 3051-11-33-88, Metrobank peso account 636-3-636-08408-1, PNB peso account 1263-7000-4128, BDO peso account 0039301-14199, or BDO dollar account 1039300-81622. They may also course donations through Cebuana Lhuillier, PayPal, Pass it Forward, and GCash.

False-negative COVID-19 test results may lead to false sense of security

As COVID-19 testing becomes more widely available, it's vital that health care providers and public health officials understand its limits and the impact false results can have on efforts to curb the pandemic.

A special article published in Mayo Clinic Proceedings calls attention to the risk posed by overreliance on COVID-19 testing to make clinical and public health decisions. The sensitivity of reverse transcriptase-polymerase chain reaction (RT-PCR) testing and overall test performance characteristics have not been reported clearly or consistently in medical literature, the article says.

As a result, health care officials should expect a "less visible second wave of infection from people with false-negative test results," says Priya Sampathkumar, M.D., an infectious diseases specialist at Mayo Clinic and a study co-author.

"RT-PCR testing is most useful when it is positive," says Dr. Sampathkumar. "It is less useful in ruling out COVID-19. A negative test often does not mean the person does not have the disease, and test results need to be considered in the context of patient characteristics and exposure."

Even with test sensitivity values as high as 90%, the magnitude of risk from false test results will be substantial as the number of people tested grows. "In California, estimates say the rate of COVID-19 infection may exceed 50% by mid-May 2020," she says. "With a population of 40 million people, 2 million false-negative results would be expected in California with comprehensive testing. Even if only 1% of the population was tested, 20,000 false-negative results would be expected."

The authors also cite the effects on health care personnel. If the COVID-19 infection rate among the more than 4 million people providing direct patient care in the U.S. were 10% -- far below most predictions — -- more than 40,000 false-negative results would be expected if every provider were tested.

This poses risks for the health care system at a critical time. "Currently, CDC (Centers for Disease Control and Prevention) guidelines for asymptomatic health care workers with negative testing could lead to their immediate return to work in routine clinical care, which risks spreading disease," says Colin West, M.D., Ph.D., a Mayo Clinic physician and the study's first author. Victor Montori, M.D., a Mayo Clinic endocrinologist, also is a co-author.

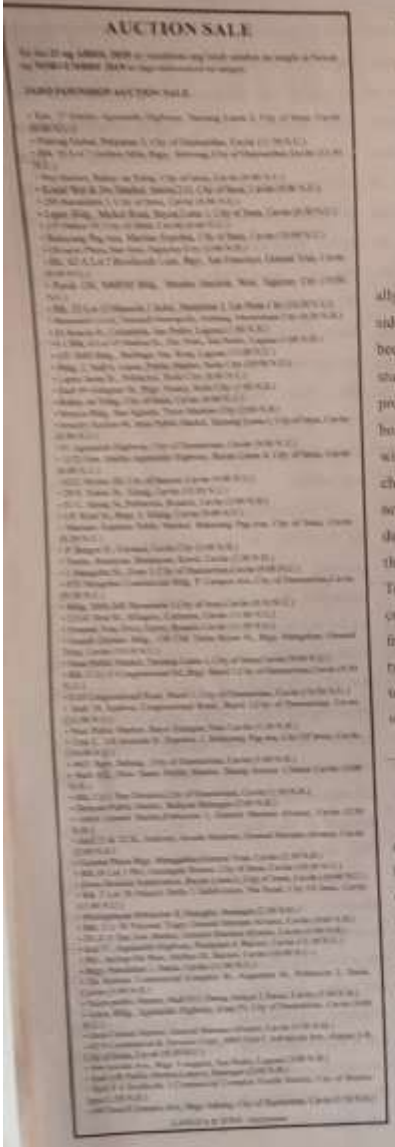
While dealing with the enormity of the growing COVID-19 pandemic, it's important for public health officials to stick to principles of evidence-based reasoning regarding diagnostic test results and false-negatives. Four recommendations are outlined in the Mayo Clinic article:

Continued strict adherence to physical distancing, hand-washing, surface disinfection and other preventive measures, regardless of risk level, symptoms or COVID-19 test results. Universal masking of both health care workers and patients may be necessary.

Development of highly sensitive tests or combinations of tests is needed urgently to minimize the risk of false-negative results. Improved RT-PCR testing and serological assays -- blood tests that identify antibodies or proteins present when the body is responding to infections such as COVID-19 -- are needed. Risk levels must be carefully assessed prior to testing, and negative test results should be viewed cautiously, especially for people in higher-risk groups and in areas where widespread COVID-19 infection has been confirmed.

Risk-stratified protocols to manage negative COVID-19 test results are needed, and they must evolve as more statistics become available.

"For truly low-risk individuals, negative test results may be sufficiently reassuring," says Dr. West.



AUCTION SALE

Ear's inner secrets revealed with new technology

What does it actually look like deep inside our ears? This has been very difficult to study as the inner ear is protected by the hardest bone in the body. But with the help of synchrotron X-rays, it is now possible to depict details inside the ear three-dimensionally. Together with Canadian colleagues, researchers from Uppsala University have used the method to map the blood vessels of the inner ear.

The study, which was published in the scientific journal Scientific Reports, can provide an explanation for why it is so effective to treat deafness in people with cochlear implants (CI). This is a method that means that an electrode that electrically stimulates the auditory nerve is operated into the inner ear. To-date, around 500,000 people worldwide have been treated with this technique. In Uppsala, the operation is also performed on patients with severe hearing loss, but who can perceive sounds with lower frequencies.

"We need to get better at understanding the micro-anatomy of the human auditory organ and how electrodes operated in affect structures in the cochlea. It can lead to an improved electrode design and better hearing results. 3D reconstructions mean that we can study new surgical paths to the auditory nerve," says Helge Rask-Andersen, Senior Professor in Experimental Otology at the Department of Surgical Sciences.

To be able to study the blood vessels in the inner auditory organ, the researchers used the synchrotron system in Saskatoon, Saskatchewan, Canada. The system, which is one of eight in the world, is as large as a football pitch and accelerates particles with very high energy. This makes it possible to create pictures of the smallest parts of the inner ear.

How silver ions kill bacteria

The antimicrobial properties of silver have been known for centuries. While it is still a mystery as to exactly how silver kills bacteria. University of Arkansas researchers have taken a step toward better understanding the process by looking at dynamics of proteins in live bacteria at the molecular level.

Traditionally, the antimicrobial effects of silver have been measured through bioassays, which compares the effect of a substance on a test organism against a standard, untreated preparation. While these methods are effective, they typically produce only snapshots in time, said Yong Wang, assistant professor of physics and an author of the study, published in the journal Applied and Environmental Microbiology.

Instead, Wang and his colleagues used an advanced imaging technique, called single-particle-tracking photoactivated localization microscopy, to watch and track a particular protein found in E. coli bacteria over time. Researchers were surprised to find that silver ions actually sped up the dynamics of the protein, opposite of what they thought would happen.

Making sense of scents: 3D videos reveal how the nose detects odor combinations

Every moment of the day we are surrounded by smells. Odors can bring back memories, or quickly warn us that food has gone bad. But how does our brain identify so many different odors? And how easily can we untangle the ingredients of a mixture of odors? In a new study in mice published April 9, 2020 in Science, Columbia scientists have taken an important step toward answering these questions, and the secret lies inside the nose.

"From garbage to cologne, the scents we encounter every day are comprised of hundreds or even thousands of individual odors," said Stuart Firestein, PhD, a Columbia professor of biological sciences and the co-senior author of the study. "You mornıng cup of coffee can contain more than 800 different types of odor molecules. Although much work has been done to understand how the nose and brain work together to identify individual odors, scientists have long struggled to explain how this system works when multiple odors are mixed together."

Using a cutting-edge 3D imaging method called SCAPE microscopy, the Columbia team monitored how thousands of different cells in the nose of a mouse responded to different odors – and mixtures of those odors. They found that the information that the nose sends to the brain about a mixture of scents is more than just the sum of its parts.

The cells in the nose that detect smells each have one of a wide range of different sensors, or receptors; humans, for example, have up to 400 different types of these receptors. For a pure, single odor, only the cells whose receptors are sensitive to that odor will become active, sending a code to the brain that it can identify as that odor. But for more complex mixtures of odors, this code would become increasingly complex to interpret.

The researchers expected to see that the cells activated by mixtures of odors would be equivalent to adding together responses to individual odors. In fact, they found that in some cases an odor can actually turn off a cell's response to another odor in a mixture; in other cases, a first odor could amplify a cell's response to a second odor.

Although we often perceive one odor dominating another, it was previously assumed that this processing occurred in the brain. These results show that signals being sent to the brain get shaped by these interactions within the nose.

The team's data challenged the traditional view that the brain makes sense of a mixture of scents by figuring out all of the individual components. It confirmed what perfumers have long known: combining different scents can create a certain experience on its own, essentially becoming an entirely new scent that can provide a completely different experience.

"We were excited to find that these changes in the code happened in the nose, before signals even get to the brain," said Lu Xu, a doctoral candidate in the Firestein lab and the co-first author of the study. "We think that these effects could help us to detect and identify a much larger range of odors and mixtures than a simple additive code could convey."

To reveal these inner workings of the olfactory system, the researchers harnessed the power of SCAPE microscopy, a technique developed by Elizabeth Hillman, PhD, a Zuckerman Institute principal investigator and the co-senior author of the Science paper. SCAPE microscopy creates high-speed, 3D images of living tissues in real time. It sweeps an angled sheet of light back and forth to create high-speed 3D movies of living cells and tissues in action.

The Firestein and Hillman labs customized SCAPE to illuminate and view tissues in the noses of mice. The researchers examined neuronal cells within the animals' noses that were labeled with fluorescence that flashed under the microscope when these cells were activated. They then exposed the animals' nasal tissues to a range of different scent combinations: one with a woody bouquet, and the other a mix of almond, floral and citrus scents.

Identical mice, different gut bacteria, different levels of cancer

Researchers at the University of Michigan Rogel Cancer Center are shedding new light on the way microorganisms that live in the gastrointestinal tract can affect the development of colorectal cancer.

Some types of gut bacteria are better than others at stimulating certain immune cells, specifically CD8+ T cells, in the body, they found. And while these CD8+ T cells normally help protect the body against cancer, overstimulating them may promote inflammation and exhaust the T cells — which can actually increase susceptibility to cancer, according to new mouse model study published in Cell Reports.

The work will help scientists pinpoint which populations of bacteria are tumor suppressive or tumor promoting and how, says study first author Amy Yu, a doctoral candidate in immunology at U-M.

"There has also been a lot of excitement about the role bacteria may play in improving the effectiveness of immunotherapy," says senior study author Grace Chen, M.D., Ph.D., an associate professor of hematology-oncology at Michigan Medicine and member of the Rogel Cancer Center. "This work suggests it may be a double edged sword — and that promoting T cell exhaustion is something researchers need to watch out for."

In the U.S., colorectal cancer is the third-leading cause of cancer-related death in both men and women, according to the American Cancer Society.

The current study builds on previous work from Chen's group, which found that disturbances of the gut microbiome can directly contribute to the development of cancer.

The group found that mice from two different research colonies had vastly different susceptibility to colorectal cancer when they were exposed to a carcinogen as well as an agent that promotes gastrointestinal inflammation.

The mice from the first colony grew an average of five tumors, while the mice from the second colony developed 15 tumors and had a more significant inflammatory response.

When the researchers sequenced fecal bacteria from the two different colonies, they found they had distinct microbiomes composed of different types of bacteria.

"This was exciting because my lab is very interested in which bacteria have the biggest impact on colorectal cancer risk, and by what mechanisms," Chen says.

To better understand what was causing the differences the researchers were seeing in the two different colonies of mice, they transplanted gut bacteria from each of the two colonies into germ-free mice that had been bred in a bacteria free environment. Once again, mice with bacteria from the second colony fared far worse.

"This showed that the different gut microbiota directly contributed to tumor development," Yu notes. "Our data ultimately revealed nine different bacterial populations that may have tumor-suppressive or tumor-promoting activity."

The team next conducted experiments to better understand what was driving the increased inflammation and tumor growth associated with the bacteria from the second mouse colony.

Through tetramer cell profiling, they found that there were more T cells in the colon tissue of mice with bacteria from the second colony, and many more of a type of cell called CD8+.

"It's a little counter intuitive, since T cells and CD8+ cells are usually associated with better outcomes in colorectal cancer patients," Chen says. "We hypothesized that these cells get over-activated in the presence of certain bacteria and then exhausted, leaving them less capable of killing tumor cells."

When the bacteria from the second mouse colony were transplanted into mice that were engineered to lack CD8+ T cells, fewer tumors developed, supporting T cells' role in promoting the growth of the cancer in the presence of certain bacteria, Chen notes.

Global trial fast tracks testing of hydroxychloroquine, other COVID-19 therapies

A novel clinical trial developed by researchers at the University of Pittsburgh School of Medicine launched April 9, 2020 at UPMC to address one of the most important debates during the COVID-19 pandemic: How should doctors decide between quickly adopting new therapies, such as the anti-malarial drug hydroxychloroquine, and waiting until they are tested in longer clinical trials?

"The solution is to find an optimal tradeoff between doing something now, such as prescribing a drug off-label, or waiting until traditional clinical trials are complete," said Derek Angus, M.D., M.P.H., professor and chair, Department of Critical Care Medicine at Pitt and UPMC. "We've developed a way to do that with an adaptive clinical trial model that relies on a type of artificial intelligence known as reinforcement learning to identify the best, evidence-backed therapy for COVID-19 much faster than using the traditional scientific approach."

Before COVID-19 emerged, Angus and a wide range of international collaborators had developed a platform, called REMAP-Community Acquired Pneumonia (REMAP-CAP), designed to find optimal treatments for severe pneumonia both in non-pandemic and pandemic settings. When COVID-19 began circulating, REMAP-CAP was rapidly adapted, as per its intent, to incorporate additional treatment regimens specifically targeting the SARS-CoV-2 virus. The international team describes the REMAP-CAP platform in a manuscript published today in the Annals of the American Thoracic Society (AnnalsATS).

REMAP (randomized, embedded, multi-factorial, adaptive platform) allows researchers to rapidly test multiple treatment approaches simultaneously at a lower cost and with fewer patients than traditional clinical trials. The REMAP design, first described by Angus in 2015 in the Journal of the American Medical Association (JAMA), is a flexible version of what are called "adaptive platform trials." "Adaptive platform trials are rapidly being endorsed by the U.S. Food and Drug Administration, the Bill & Melinda Gates Foundation and others as a long-needed revolution in clinical trials," said Angus, who holds the Mitchell P. Fink Endowed Chair at Pitt.

He compares the REMAP approach to a chef offering a prix fixe menu with appetizer, main course and dessert. The chef may try various combinations, serving sizes and options, sometimes leaving out the appetizer or dessert, and adjusting on the fly as plates come back scraped clean or barely touched, until hitting on the combination that sells best.

The UPMC-REMAP-COVID19 trial, built on the backbone of the REMAP-CAP platform, will be particularly powerful because it is being integrated with the electronic health record system at UPMC, noted Angus. "In a pandemic, doctors will not have the time to debate the pros and cons of every possible clinical trial. By building this one-stop solution at the point-of-care, we are rolling out an approach that can assure that every patient admitted with COVID-19, if they choose to, can be enrolled in the program."

"We must throw out old ways of thinking and fuse clinical care and clinical research into one extremely efficient system," said Angus, who authored a recent viewpoint in JAMA advocating for the "learning while doing" approach. "This is an unprecedented pandemic and we need an unprecedented response."

UPMC-REMAP-COVID19 will open across UPMC's 40-hospital system and begin with multiple treatments tested simultaneously as different combinations – including hydroxychloroquine, steroids and medications called immunomodulators that alter the responsiveness of the immune system. If new drugs need to be tested, they are simply rolled into the platform as study amendments, rather than turned to separate free-standing trials. All participants will receive the current standard of care, and most also will receive one, two or three of the experimental treatment options.

DIYARYO KABITENYO
Nagmamalasakit sa lalawigan
Vol. 23 No. 8 April 13-19, 2020 P 10.00

Scientists discover six new coronaviruses in bats

Researchers with the Smithsonian's Global Health Program have discovered six new coronaviruses in bats in Myanmar — the first time these viruses have been detected anywhere in the world. Future studies will evaluate the potential for transmission across species to better understand the risks to human health. According to the authors, the newly discovered coronaviruses are not closely related to coronaviruses Severe Acute Respiratory Syndrome (SARS CoV-1), Middle East Respiratory Syndrome (MERS) or COVID-19.

The findings, published April 8, 2020 in PLOS ONE, will help understand the diversity of coronaviruses in bats and inform global efforts to detect, prevent and respond to infectious diseases that may threaten public health, particularly in light of the ongoing COVID-19 pandemic.

"Viral pandemics around us have closely human health is connected to the health of wildlife and the environment," said Marc Valitutto, former wildlife veterinarian with the Smithsonian's Global Health Program and lead author of the study. "Worldwide, humans are interacting with wildlife with increasing frequency, so the more we understand about these viruses in animals — what allows them to mutate and how they spread to other species — the better we can reduce their pandemic potential."

Researchers detected these new viruses while conducting biosurveillance of animals and people to better understand the circumstances for disease spillover as part of the PREDICT project. PREDICT, an initiative funded by the U.S. Agency for International Development (USAID), supports the global discovery and surveillance of pathogens that have the potential to spread from animals to humans.

Time to encourage people to wear face masks as a precaution, say experts

It's time to encourage people to wear face masks as a precautionary measure on the grounds that we have little to lose and potentially something to gain, say experts in The BMJ April 9, 2020.

Professor Trisha Greenhalgh at the University of Oxford and colleagues say despite limited evidence, masks "could have a substantial impact on transmission with a relatively small impact on social and economic life."

The question of whether masks will reduce transmission of covid-19 in the general public is contested.

Although clinical trial evidence on the widespread use of facemasks as a protective measure against covid-19 is lacking at the time of writing increasing numbers of agencies and governments, including the US Centers for Diseases Control and Prevention, are now advocating that the general population wears masks, but others, such as the Word Health Organization and Public Health England are not.

Some researchers argue that people are unlikely to wear masks properly or consistently, and may ignore wider infection control measures like handwashing. Others say the public should not wear them since healthcare workers need them more.