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

ISSN 2651-8278
DIYARYO KABITENYO
Nagmamalasakit sa lalawigan

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

Entered as FIRST CLASS MAIL at Imus Post Office with Business Mail Permit No. IC-19-06-249
Vol. 24 No. 51 February 7-13, 2022 P 10.00

Malls in Cavite operate at longer hours under Alert Level 2

The provincial government of Cavite allowed malls in the province to operate at longer hours, from 9 am to 10 pm, under Alert Level 2.

They will operate with 50% indoor capacity for the fully vaccinated and minors even unvaccinated, according to Executive Order No. 4 Series of 2022.

Outdoor venues can operate until 70% capacity as long as their workers are fully vaccinated and they comply with the health protocols of the Inter-Agency Task Force.

Same cap is given to restaurants, kiosks, commissaries, and eateries.

Turn to page 2

Kawit holds milk feeding program for children

KAWIT, Cavite – Mayor Angelo Aguinaldo led the milk feeding program for children in this municipality recently.

The mayor disclosed that around 361 Kawiteño children were given carabao milk supplements for them to be healthy and strong.

He thanked the Dairy Raiser Multi-Purpose Cooperative, Philippine Carabao Center-Los Baños, Department of Social Welfare and Development and the Municipal Social Welfare and Development Office for their support to the program.

DIYARYO KABITENYO

ISSN 2651-8218

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 Block 13 Lot 1 Liwayway Homes Subdivision, Anabu I-C, City of Imus, Cavite. It is registered at the Department of Trade and Industry-Region 4-A by No. 06354. Our cellphone number is 09170490918.

Subscription Rate:
1 month - P 40.00
3 months - 120.00
6 months - 240.00

Advertising Rate:
Commercial - P200.00/col. cm.
Legal - 100.00/col. cm.

papi

Publishers Association of the Philippines, Inc.

Are scientists being fooled by bacteria?

For decades, a small group of cutting-edge medical researchers have been studying a biochemical, DNA tagging system, which switches genes on or off. Many have studied it in bacteria and now some have seen signs of it in, plants, flies, and even human brain tumors. However, according to a new study by researchers at the Icahn School of Medicine at Mount Sinai, there may be a hitch: much of the evidence of its presence in higher organisms may be due to bacterial contamination, which was difficult to spot using current experimental methods.

To address this, the scientists created a tailor-made gene sequencing method which relies on a new machine learning algorithm to accurately measure the source and levels of tagged DNA. This helped them distinguish bacterial DNA from that of human and other non-bacterial cells. While the results published in Science supported the idea that this system may occur naturally in non-bacterial cells, the levels were much lower than some previous studies reported and were easily skewed by bacterial contamination or current experimental methods. Experiments on human brain cancer cells produced similar results.

"Pushing the boundaries of medical research can be challenging. Sometimes the ideas are so novel that we have to rethink the experimental methods we use to test them out," said Gang Fang, PhD, Associate Professor of Genetics and Genomic Sciences at Icahn Mount Sinai.

(MALLS... from page 1)

They were also advised to give priority to frontline health workers.

"The above rules shall be without prejudice to the implementation of other measures imposed by mall operators and the Department of Trade and Industry and other relevant government agencies," the EO stated.

Genetic study suggests more sensitive people respond better to couple's therapy

How well someone responds to couple's therapy could be determined by their genes, according to a new study led by Queen Mary University of London and Denver University.

The well-established 'Prevention and Relationship Education Program' (PREP) has been shown to improve communication skills and the quality of relationships as well as prevent divorce among married couples. However, the effects of PREP can be inconsistent with some people benefiting more than others.

Previous studies have shown that individual differences in sensitivity can impact on people's responses to positive and negative experiences including psychological therapies. Therefore, the researchers set out to explore whether differences in an individual's sensitivity could explain the varying responses observed with the program.

As almost half of the differences in peoples' sensitivity can be explained by genetic factors the research team collected DNA from over 150 US couples taking part in PREP to explore if genes known to be associated with sensitivity impacted on an individual's response to the program. They found that those individuals that were more genetically sensitive, benefitted more from this type of therapy.

Couples completed questionnaires to assess communication, bonding, marital satisfaction, and likelihood of divorce both before and after treatment, and then at six-month intervals over a two-year follow-up period. The researchers found that an individual's genetic sensitivity had more impact in the years following treatment than in the short-term.

AFFIDAVIT OF SELF-ADJUDICATION
AS SOLE HEIR

NOTICE is hereby given that the estate of the late **FLORENTINA M. CERRERO** who died intestate on December 19, 2021 at No. 2001-L, Montano Street, Amaya IV, Tanza, Cavite, consisting of bank deposit with Philippine National Bank - Tanza, Cavite branch under the names below account:

ACCOUNT NAME	SAVING ACCOUNT NO.	BALANCE AS OF JAN. 19, 2022
FLORENTINA M. CERRERO	2441082906	PHP 65,625.00

has been self-adjudicated by her sole heir RENATO E. CERRERO on January 19, 2022 in the Municipality of Tanza, Cavite, Philippines before Notary Public Atty. Julius B. Ayta and entered in his Notarial Register as Doc. No. 232; Page No. 47; Book No. XLI; Series of 2022.

(Sgd.) **Affiant**

Publication : DIYARYO KABITENYO
Dates : January 24, 31 and February 7, 2022

RA Form No. 10.0 (LCRO)

Republic of the Philippines
Office of the Municipal Civil Registrar
Rosario, Cavite

NOTICE FOR PUBLICATION

CCE-0005-2022 R.A. 10172

In compliance with the publication requirement and pursuant to OCRG Memorandum Circular No. 2013-1 Guidelines in the Implementation of the Administrative Order No. 1 Series of 2012 (IRR on R.A. 10172) Notice is hereby served to its public that **ROMGIE ZABLAN REYES** has filed with this office, a petition for *Correction of Entry in Sex/Gender* from **MALE** to **FEMALE** in the Certificate of Live Birth of **ROMGIE ZABLAN REYES** at Rosario, Cavite and whose parents are **Romeo Gubit Reyes** and **Myrna Paba Zablan**.

Any person adversely affected by said petition may file his written opposition with this Office not later than **14 February 2022**.

(Sgd.) **MARIA ROSARIO C. SORIANO**
Municipal Civil Registrar

DIYARYO KABITENYO - January 31 and February 7, 2022

Republic of the Philippines
Province of Cavite
OFFICE OF THE CITY CIVIL REGISTRAR
Trece Martires City

Publication Notice
R.A. 10172

NOTICE TO THE PUBLIC

In compliance with the publication requirement and pursuant to OCRG Memorandum Circular No. 2013-1, Guidelines in the Implementation of the Administrative Order No. 1 Series of 2012 (IRR on R.A. 10172), Notice is hereby served to the public that **GIEF NIEL N. MENDOZA** has filed with this Office a Petition for Correction of Entry in the Child's sex from **"FEMALE" to "MALE"** in the Certificate of Live Birth of **LEI AXEL DE TAZA MENDOZA** born on **MARCH 28, 2016** at **Trece Martires City, Cavite** and whose parents are **GIEF NIEL N. MENDOZA** and **JOLINA C. DE TAZA**

Any person adversely affected by said petition may file his/her written opposition with this office not later than **February 14, 2022.**

(Sgd.) **MAXIMO JR. L. LONTOC**
City Civil Registrar

DIYARYO KABITENYO - January 31 and February 7, 2022

AFFIDAVIT OF SOLE ADJUDICATION

NOTICE is hereby given that the estate of the deceased **MARIA LAARNI PAREDES SERRAON** who died single and intestate on March 21, 2017 in Imus City, Cavite, consisting of two (2) savings deposit accounts with the BPI FAMILY BANK, Imus Public Market Branch, Imus City, Cavite under Peso Savings Account Nos. 6646271906 with a balance of P77,678.43 and 6646290447 with a balance of P25,288.77 has been self-adjudicated by her surviving heir LILIAN P. SERRAON and hereby requests the BPI FAMILY BANK, Imus Public Market Branch to release to her the entire proceeds of the said deposits; for and in consideration of the said release, she hereby expressly and absolutely remises, releases and forever discharges the BPI FAMILY BANK, its administrators and assigns and/or any of its officers or employees from any and all claims, suits or actions against the said bank and she hereby undertakes to indemnify the said bank, its officers and assigns for any loss or damage which they may sustain arising out of or in connection with the release to her of the aforesaid accounts on December 3, 2021 at the City of Imus, Cavite before Notary Public Carlos Emmanuel C. Montoya and entered in his Notarial Register as Doc. No. 241; Page No. 49; Book No. XVII; Series of 2021.

Thumbmarked by Affiant/Heir

Publication : DIYARYO KABITENYO
Dates : February 7, 14 & 21, 2022

Untangling mixed (neural) signals

During sensorimotor processing in the brain, neurons are constantly bombarded with information from other neurons. When we use our eyes to interact with our environment, thousands of neurons communicate with each other to make sense of all the information coming in and react to it. If someone throws you a ball, your eyes track the ball, and a chain of neuron communication informs your hand where it must go to catch it.

But how these neurons communicate in between seeing and acting is a complex -- and important -- consideration. New research led by the Cognition and Sensorimotor Integration Lab at the University of Pittsburgh Swanson School of Engineering has uncovered how neurons encode and decode that information and differentiate between motor and sensory signals.

"We wanted to figure out how a decoder knows exactly when to initiate a movement if it is also getting signals when a movement isn't desired," said Uday K.

Jagadisan, lead author and former graduate student in the Cognition and Sensorimotor Integration Lab. "We not only were able to uncover a reliable temporal pattern in the neuron activity that was tied to movement, but we were also able to replicate it with microstimulation."

Perception study may explain promising depression therapy

Rather than constantly repainting a new canvas with a picture of the surrounding world each time it takes in information, the human brain appears to build a working model supported by predictions constantly checked and rechecked against the sights and sounds it already expects.

Researchers from the University of Wisconsin-Madison have demonstrated the top-down nature of this world view by disrupting it with tiny doses of an anesthetic drug called ketamine. Their study reveals the importance of a specific type of connection between brain cells and may also explain ketamine's promise as a treatment for depression.

A bottom-up understanding of perception has been prevalent for decades and says that sensory information moves from lower-order parts of the brain to "higher" parts that use it to perform executive functions like focusing and planning.

Form 2B (Revised June 2014)

LOLC BANK PHILIPPINES INC (A THRIFT BANK)
Name of Bank

PUBLISHED BALANCED SHEET

(Head Office and Branches)
As of December 31, 2021

CONTROL PROOFLIST

	Account Code	Current Quarter	Previous Quarter
Cash and Cash Items	10800000000000000	13,152,908.58	13,979,828.62
Due from Bangko Sentral ng Pilipinas	10515000000000000	14,627,896.05	25,832,896.05
Due from Other Banks	10520000000000000	267,303,151.24	236,031,414.24
Financial Assets at Fair Value through Profit or Loss	11200000000000000	0.00	0.00
Available-for-Sale Financial Assets-Net	19520000000000000	0.00	0.00
Held-to-Maturity (HTM) Financial Assets-Net	19525000000000000	0.00	0.00
Unquoted Debt Securities Classified as Loans-Net	19530000000000000	0.00	0.00
Investments in Non-Marketable Equity Security-Net	19535000000000000	589,198,178.09	573,684,996.10
Loans and Receivables - Net	19540000000000000	8,790,424.28	11,271,747.49
Other Financial Assets	14800000000000000	0.00	0.00
Equity Investment in Subsidiaries, Associates and Joint Ventures-Net	19545250000000000	57,631,472.47	62,653,428.46
Bank Premises, Furniture, Fixture and Equipment-Net	19555805000000000	14,970,011.17	14,970,011.17
Real and Other Properties Acquired-Net	19550100000000000	0.00	0.00
Non-Current Assets Held for Sale	15015000000000000	17,523,690.38	16,600,957.48
Other Assets-Net	15200000000000000	0.00	0.00
Net Due from Head Office/Branches/Agencies, if any (Phil. branch of a foreign bank)	15525000000000000	1,003,197,132.26	955,025,279.61
TOTAL ASSETS	10000000000000000	0.00	0.00
Financial Liabilities at Fair Value through Profit or Loss	20800000000000000	673,293,050.39	600,690,920.03
Deposit Liabilities	21500000000000000	0.00	0.00
Due to Other Banks	22005000000000000	0.00	0.00
Bills Payable	22010000000000000	0.00	0.00
Bonds Payable-Net	29520150000000000	0.00	0.00
Unsecured Subordinated Debt-Net	29520200000000000	0.00	0.00
Redeemable Preferred Shares	22025000000000000	0.00	0.00
Special Time Deposit	22030000000000000	0.00	0.00
Due to Bangko Sentral ng Pilipinas	23035000000000000	0.00	0.00
Other Financial Liabilities	24005000000000000	14,878,290.35	14,502,702.66
Other Liabilities	24010000000000000	68,258,884.82	291,198,228.19
Net Due to Head Office/Branches/Agencies (Philippine branch of a foreign bank)	23085000000000000	0.00	0.00
TOTAL LIABILITIES	20000000000000000	756,430,225.56	906,391,850.88
TOTAL STOCKHOLDERS' EQUITY	30000000000000000	246,766,906.70	48,633,428.73
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	90500000000000000	1,003,197,132.26	955,025,279.61
TOTAL CONTINGENT ACCOUNTS	40000000000000000	0.00	0.00
ADDITIONAL INFORMATION			
Gross total loan portfolio (TLP)	49902000000000000	770,072,337.23	720,818,322.70
Specific allowance for credit losses on the TLP	49930000000000000	177,386,163.05	143,432,120.79
Non-Performing Loans (NPLs)			
a. Gross NPLs	49910050000000000	276,705,717.02	191,917,315.77
b. Ratio of gross NPLs to gross TLP (%)	49913050000000000	35.93%	26.62%
c. Net NPLs	49910100000000000	109,043,418.38	65,592,811.53
d. Ratio of Net NPLs to gross TLP (%)	49915100000000000	14.16%	9.10%
e. Ratio of total allowance for credit losses to gross NPLs (%)	49915150000000000		
f. Ratio of specific allowance for credit losses on the gross TLP to gross NPLs (%)	49915200000000000	64.11%	74.74%
Capital Adequacy Ratio (CAR) on Solo Basis, as prescribed under existing regulations			
a. Total CAR (%)	49965050050000000	22.17	5.10
b. Tier 1 Ratio (%)	49965050100000000	21.86	4.75
c. Common Tier 1 Ratio (%) [1]	49965050150000000	0.00	0.00

[1] Common Equity Tier 1 is only applicable to all Universal and Commercial Banks and their subsidiary banks.

I hereby certify that all matters set forth in this Published Balance Sheet are true and correct, to the best of my knowledge and belief.

(SGD). ROMAN G. LEUS
President-CEO

Publication : DIYARYO KABITENYO
Date : February 7-13, 2022

Scientists unveil promising new approach to diabetes prevention

A team of scientists from Scripps Research has conducted promising early tests of a new strategy that might one day be used to prevent or treat type 2 diabetes.

The scientists, whose results are reported in Nature Communications, tested an experimental compound called IXA4 in obese mice. They showed that the compound activates a natural signaling pathway that protects the animals from harmful, obesity-driven metabolic changes that would normally lead to diabetes.

"We were able to activate this pathway in both the liver and the pancreas with this one compound, and that added up to a significant overall improvement in metabolic health of obese animals," says Scripps Research's Luke Wiseman, PhD.

"This is the first time anyone has shown that a small molecule activating this pathway in this manner works to treat disease in a live animal," adds Enrique Saez, PhD.

The study was a collaboration between the laboratories of Saez and Wiseman, who are both professors in the Department of Molecular Medicine at Scripps Research and co-senior authors on the new paper.

Type 2 diabetes remains a major public health problem: about 30 million people are estimated to have it in the U.S. alone. Driven largely by overweight and obesity, it features the loss of normal blood sugar regulation, and brings a multitude of health issues including higher risks of heart disease, stroke, kidney disease, nerve damage, retinal degeneration, and some cancers. There are many drugs for treating type 2 diabetes, but none that works well for every patient.

For several years, Wiseman's lab has been studying a signaling pathway involving two proteins called IRE1 and XBP1s. When activated by a certain type of cellular stress, IRE1 activates XBP1s, which in turn alters the activity of a host of genes, including many metabolic genes, in an effort to reduce the cellular stress. Prior studies suggest that the activity of this pathway, at least in the short-term, can protect liver and fat cells from stresses caused by obesity -- stresses that can harm these cells in ways that promote diabetes.

The IRE1/XBP1s pathway is not a straightforward diabetes drug target, however. Past research has shown that keeping IRE1/XBP1 switched on chronically ends up harming cells, triggering inflammation and worsening overall metabolic dysfunction.

"IRE1/XBP1s signaling is a response to cellular stress, and keeping it on all the time essentially tells the cell that the stress can't be resolved -- so the cell in effect kills itself," Wiseman says.

In the new study, the researchers showed that a compound they identified a few years ago, IXA4, activates IRE1/XBP1s for just a few hours at a time. Because it otherwise allows IRE1 to turn off, it can in principle be given daily without triggering the deleterious signaling seen with constant IRE1 activation, making it a promising candidate to explore for human treatments.

The team used IXA4 to treat mice that were obese from a high-fat, high-calorie diet. After just eight weeks, the treated mice had improved glucose metabolism and insulin activity, less fat buildup and inflammation in the liver, and no loss of insulin-producing cells in the pancreas, compared to untreated obese mice.

IXA4 can reach only a limited set of tissues including the liver and pancreas, and so the team is now developing other compounds that can get into a broader set of cells including fat cells.

"We're also continuing to work with IXA4 as a potential treatment for other metabolic disorders such as fatty liver disease," Saez says.

The study's first authors were Aparajita Madhavan, PhD, then a graduate student in the Wiseman lab, and Bernard Kok, PhD, a postdoctoral research associate in the Saez lab.

Instability of brain activity during sleep and anesthesia underlies the pathobiology of Alzheimer's disease, study finds

A new study at Tel Aviv University revealed a pathological brain activity that precedes the onset of Alzheimer's first symptoms by many years: increased activity in the hippocampus during anesthesia and sleep, resulting from failure in the mechanism that stabilizes the neural network. The researchers believe that the discovery of this abnormal activity during specific brain states may enable early diagnosis of Alzheimer's, eventually leading to a more effective treatment of a disease that still lacks effective therapies.

The study was led by Prof. Inna Slutsky and doctoral students Daniel Zarhin and Refaela Atsmon from the Sackler Faculty of Medicine and the Sagol School of Neuroscience at Tel Aviv University. Additional participants in the study include: Dr. Antonella Ruggiero, Halit Baeloha, Shiri Shoob, Oded Scharf, Leore Heim, Nadav Buchhinder, Ortal Shinikamin, Dr. Ilana Shapira, Dr. Boaz Styr, and Dr. Gabriella Braun, all from Prof. Slutsky's laboratory. Collaborations with the laboratory teams of Prof. Yaniv Ziv of the Weizmann Institute, and Prof. Yuval Nir of TAU were essential for the project. Prof. Tamar Geiger, Dr. Michal Harel, and Dr. Anton Sheinin of Tel Aviv University, as well as researchers from Japan, also contributed to the study. The article was published in the scientific journal Cell Reports.

Prof. Slutsky: "According to the recent study published this month in the Lancet Public Health journal, the number of people with dementia worldwide will increase from 50m in 2019 to more than 150m in 2050, growing by ~370% in North Africa and the Middle East. In Israel, a 145% increase is predicted, compared to ~74% in Western Europe. This huge increase in the prevalence of Alzheimer's due to the expected rise in population growth and in life expectancy will continue unless we develop effective treatments. This is clearly an alert for investing in dementia research and its most frequent form -- Alzheimer's disease."

"Innovative imaging technologies developed in recent years have revealed that amyloid deposits, a hallmark of Alzheimer's disease pathology, are formed in patients' brains as early as 10-20 years before the onset of typical symptoms such as memory impairment and cognitive decline. Unfortunately, most efforts to treat Alzheimer's disease by reducing the amount of amyloid-beta proteins and their aggregation have failed. If we could detect the disease at the pre-symptomatic stage, and keep it in a dormant phase for many years, this would be a tremendous achievement in the field. We believe that identifying a signature of aberrant brain activity in the pre-symptomatic stage of Alzheimer's and understanding the mechanisms underlying its development is a key to effective treatment."

The researchers used animal models for Alzheimer's, focusing on the hippocampal region of the brain, which plays a key role in memory processes, and is known to be impaired in Alzheimer's patients. At first, they measured cell activity in the hippocampus when the model animal was awake, active, and exploring its surroundings. For this they used advanced methods that measure brain activity at a resolution of single neurons.

Daniel Zarhin: "Previous studies have examined cell activity in the brains of anesthetized animals in a model for Alzheimer's and found overactivity in the hippocampus and cortex. To my surprise, when I examined the model animals, I found no difference between the activity of neurons and synapses in their hippocampus and corresponding activity in the control group of healthy animals."

In light of these findings, the researchers decided to examine activity in the hippocampus in other states of consciousness -- under anesthesia and during natural sleep. Refaela Atsmon: "It is known that neuronal activity of the hippocampus decreases during sleep in healthy animals. But when I examined model animals in early stages of Alzheimer's, I found that their hippocampal activity remained high even during sleep. This is due to a failure in the physiological regulation, never before observed in the context of Alzheimer's disease."

Mosquitoes are seeing red: These new findings about their vision could help you hide from these disease vectors

Beating the bite of mosquitoes this spring and summer could hinge on your attire and your skin. New research led by scientists at the University of Washington indicates that a common mosquito species – after detecting a telltale gas that we exhale – flies toward specific colors, including red, orange, black and cyan. The mosquitoes ignore other colors, such as green, purple, blue and white. The researchers believe these findings help explain how mosquitoes find hosts, since human skin, regardless of overall pigmentation, emits a strong red-or-ange "signal" to their eyes.

"Mosquitoes appear to use odors to help them distinguish what is nearby, like a host to bite," said senior author Jeffrey Riffell, a UW professor of biology. "When they smell specific compounds, like CO2 from our breath, that scent stimulates the eyes to scan for specific colors and other visual patterns, which are associated with a potential host, and head to them."

The results, published Feb. 4 in Nature Communications, reveal how the mosquito sense of smell – known as olfaction – influences how the mosquito responds to visual cues. Knowing which colors attract hungry mosquitoes, and which ones do not, can help design better repellants, traps and other methods to keep mosquitoes at bay.

"One of the most common questions I'm asked is 'What can I do to stop mosquitoes from biting me?'" said Riffell. "I used to say there are three major cues that attract mosquitoes: your breath, your sweat and the temperature of your skin. In this study, we found a fourth cue: the color red, which can not only be found on your clothes, but is also found in everyone's skin. The shade of your skin doesn't matter, we are all giving off a strong red signature. Filtering out those attractive colors in our skin, or wearing clothes that avoid those colors, could be another way to prevent a mosquito biting."

In their experiments, the team tracked behavior of female yellow fever mosquitoes, Aedes aegypti, when presented with different types of visual and scent cues. Like all mosquito species, only females drink blood, and bites from A. aegypti can transmit dengue, yellow fever, chikungunya and Zika. The researchers tracked individual mosquitoes in miniature test chambers, into which they sprayed specific odors and presented different types of visual patterns – such as a colored dot or a tasty human hand.

Without any odor stimulus, mosquitoes largely ignored a dot at the bottom of the chamber, regardless of color. After a spritz of CO2 into the chamber, mosquitos continued to ignore the dot if it was green, blue or purple in color. But if the dot was red, orange, black or cyan, mosquitoes would fly toward it.

Humans can't smell CO2, which is the gas we and other animals exhale with each breath. Mosquitoes can. Past research by Riffell's team and other groups showed that smelling CO2 boosts female mosquitoes' activity level -- searching the space around them, presumably for a host. The colored-dot experiments revealed that after smelling CO2, these mosquitoes' eyes prefer certain wavelengths in the visual spectrum.

It's similar to what might happen when humans smell something good.

"Imagine you're on a sidewalk and you smell pie crust and cinnamon," said Riffell. "That's probably a sign that there's a bakery nearby, and you might start looking around for it. Here, we started to learn what visual elements that mosquitoes are looking for after smelling their own version of a bakery."

Most humans have "true color" vision: We see different wavelengths of light as distinct colors: 650 nanometers shows up as red, while 450 nanometer wavelengths look blue, for example.

The researchers do not know whether mosquitoes perceive colors the same way that our eyes do. But most of the colors the mosquitoes prefer after smelling CO2 -- orange, red and black -- correspond to longer wavelengths of light.

DIYARYO KABITENYO
Nagmamalasakit sa lalawigan
Vol. 24 No. 51 February 7-13, 2022 P 10.00

First virus infection linked with infections later in life

Asymptomatic viral infections in the first days and weeks of a baby's life are associated with an increased risk of respiratory infections later in life, research suggests.

Viruses were found to interact with newborns' immune systems and microbiomes -- the community of microbes that live in our body -- in a way that affected both a child's risk and number of subsequent infections.

Prevention of such early viral infections, or strengthening immune systems with specially designed probiotics, may avert this risk, experts say.

The microbiome of a newborn baby can be influenced by many things, including delivery method -- vaginal or caesarean section -- breastfeeding, antibiotics and the hospital environment.

Respiratory infections are a major health concern. They are responsible for 15 per cent of deaths for children under the age of five globally and are one of the three main causes of doctors' visits and hospital admittance in the first years of life.

Researchers from the University of Edinburgh and University Medical Center Utrecht examined mucosa samples taken from inside the noses of 114 babies at various stages of life as part of the Microbiome Utrecht Infant Study, which has been running for six years.

The team analysed the gene activity of the babies' nasal mucosa -- tissue that lines the nasal cavity, the microbes present in the lining of the nose and any viruses that infected the children.

Tweaked genes borrowed from bacteria excite heart cells in live mice

Biomedical engineers at Duke University have demonstrated a gene therapy that helps heart muscle cells electrically activate in live mice. The first demonstration of its kind, the approach features engineered bacterial genes that code for sodium ion channels and could lead to therapies to treat a wide variety of electrical heart diseases and disorders.

The results appeared online February 2 in the journal Nature Communications.

"We were able to improve how well heart muscle cells can initiate and spread electrical activity, which is hard to accomplish with drugs or other tools," said Nenad Bursac, professor of biomedical engineering at Duke. "The method we used to deliver genes in heart muscle cells of mice has been previously shown to persist for a long time, which means it could effectively help hearts that struggle to beat as regularly as they should."

Sodium-ion channels are proteins in the outer membranes of electrically excitable cells, such as heart or brain cells, that transmit electrical charges into the cell. In the heart, these channels tell muscle cells when to contract and pass the instruction along so that the organ pumps blood as a cohesive unit. Damaged heart cells, however, whether from disease or trauma, often lose all or part of their ability to transmit these signals and join the effort.

One approach researchers can take to restoring this functionality is gene therapy. By delivering the genes responsible for creating sodium channel proteins, the technique can produce more ion channels in the diseased cells to help boost their activity.

In mammals, sodium channel genes are unfortunately too large to fit within the viruses currently used in modern gene therapies in humans. To skirt this issue, Bursac and his laboratory instead turned to smaller genes that code for similar sodium ion channels in bacteria. While these bacterial genes are different than their human counterparts, evolution has conserved many similarities in the channel design since multi-cellular organisms diverged from bacteria hundreds of millions of years ago.

Several years ago, Hung Nguyen, a former doctoral student in Bursac's laboratory who now works for Fujifilm Diosynth Biotechnologies, mutated these bacterial genes so that the channels they encode could become active in human cells.