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

DIYARYO KABITENYO

Nagmamalasakit sa lalawigan

Vol. 23 No. 48 | December 21-27, 2020

Be alert, stand firm in the faith, be brave, be strong.

525 ornamental plant helpers receive assistance

[illegible]

30 Kawit residents nabbed for violating quarantine rules

[illegible]

DIYARYO KABITENYO
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ARNULFO BARCO
Publisher - Editor

GENER BARCO
Operations Manager

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Zika virus affects eye development before but not after birth

While the SARS-CoV-2 virus has dominated the news this past year, researchers continue to study the health effects of the Zika virus, which has been reported in 86 countries globally.

The Zika virus is primarily transmitted by the bite of an infected mosquito from the Aedes genus. However, it can also be passed through sexual contact, blood transfusions, organ transplants, and between mother and baby during pregnancy. The virus has been documented to cause a range of birth defects, including microcephaly and various neurological, musculoskeletal, and eye abnormalities.

A new study from Glenn Yiu, associate professor in the Department of Ophthalmology, and Koen Van Rompay, a core scientist at the California National Primate Research Center, found that Zika infection during the first trimester of pregnancy can impact fetal retinal developement and cause congenital ocular anomalies. The virus does not appear to affect ocular growth postnatally, however.

"It has been known that congenital infection with the Zika virus can lead to eye defects, but it was unclear if the virus continues to replicate or affect eye development after birth," Yiu said. "Our study in rhesus monkeys suggest that the virus primarily affects fetal development during pregnancy, but not the growth of eye after birth."

In this collaboration between the UC Davis Eye Center and the California National Primate Research Center, two pregnant rhesus monkeys were infected with Zika virus late in the first trimester. The ocular development of the Zika-exposed infants was then studied for two years following their birth.

The Zika-exposed infant monkeys did not display microcephaly or apparent neurological or behavioral deficits. The infants did exhibit several ocular birth defects, however. The defects included large colobomas, a missing gap in the eye due to abnormal development. The Zika-exposed infant monkeys also exhibited a loss of photoreceptors — the light-sensing cells of the retina — and retinal ganglion neurons, which helps transmit visual information to the brain.

Despite congenital ocular malformations at birth, their eyes appeared to follow normal development during their first two years.

The findings suggest that ocular defects due to Zika infection primarily occur in utero and likely do not have a continued impact on ocular development after birth.

Rhesus macaques are natural hosts of the virus and share similar immune and ocular characteristics to humans, including blood-retinal barrier characteristics and the unique presence of a macula, making them superior animal models of the infection than typical laboratory animals like mice and rats.

Errant DNA boosts immunotherapy effectiveness

DNA that ends up where it doesn't belong in cancer cells can unleash an immune response that makes tumors more susceptible to immunotherapy, the results of two UT Southwestern studies indicate. The findings, published online December 17, 2020 in Cancer Cell, suggest that delivering radiation — which triggers DNA release from cells — before immunotherapy could be an effective way to fight cancers that are challenging to treat.

Nearly a decade ago, the Food and Drug Administration approved checkpoint inhibitors, a type of immunotherapy that removes defenses that allow cancer cells to masquerade as healthy cells, prompting the immune system to attack them. In 2015, researchers showed that these therapies had particular promise for cancers prompted by defects in cells' "mismatch repair" system, which proofreads DNA as it is copied.

DEED OF EXTRAJUDICIAL SETTLEMENT OF ESTATE OF THE DECEASED SPOUSES GUILLERMO S. ILANO AND PACITA V. ILANO
(With Deed of Absolute Sale)

NOTICE is hereby given that the estate of the deceased **Spouses GUILLERMO S. ILANO and PACITA V. ILANO** who both died intestate on September 16, 2010 and March 17, 2018, respectively, consisting of the house and lot which is also the Family Home located at No. 829 del Pilar Village, Bayan Luma VI, Imus City, Cavite, with a land area of 205 square meters, more or less, and covered by and more particularly described in Transfer Certificate of Title (TCT No.) T-117058 of the Registry of Deeds for the Province of Cavite has been adjudicated and extrajudicially settled by and among their heirs in equal portions; and for and in consideration of the sum of TWO MILLION PESOS (P2,000,000.00), Philippine Currency, the HEIRS do hereby SELL, TRANSFER, CONVEY and DELIVER, by way of ABSOLUTE SALE, unto RICHIE C. HEIMAN, married to MARK J. HEIMAN, their heirs, assigns and successors-in-interest, the property above-described with all the improvements existing thereon on October 7, 2020 at the City of Imus, Cavite before Notary Public Atty. Carlos Emmanuel C. Montoya and entered in his Notarial Register as Doc. No. 79, Page No. 16, Book No. XXXV, Series of 2020.

(Sgd) **All Heirs**

Publication : DIYARYO KABITENYO
Dates : December 7, 14 & 21, 2020

DEED OF EXTRA JUDICIAL PARTITION OF ESTATE WITH WAIVER OF RIGHTS

NOTICE is hereby given that the estate of the late **DOROTEA G. FERNANDEZ** who died intestate on May 25, 2013 in Cavite City, Philippines, consisting of a parcel of land situated in Trece Martires City, Isl. of Luzon and covered by Transfer Certificate of Title No. (T-[illegible]) T-4021, containing an area of ONE THOUSAND (1,000) SQUARE METERS has been adjudicated and extra-judicially settled by and among her heirs with waiver of shares, interest and participation in TCT No. (T-[illegible]) T-4021 in favor of LAILA G. FERNANDEZ on December 2, 2020 at City of Cavite, Philippines before Notary Public Atty. Antonio B. Cabuso and entered in her Notarial Register as Doc. No. 284, Page No. 57, Book No. LXII, Series of 2020.

(Sgd) **All Heirs**

Publication : DIYARYO KABITENYO
Dates : December 7, 14 & 21, 2020

Republic of the Philippines
OFFICE OF THE MUNICIPAL CIVIL REGISTRAR
Indang, Cavite

In the matter of Change of First Name in the Certificate of Live Birth (SECPA) of

FELILIA DIESTA GARCIA CFN-0006-2020

EDITHA D. GARCIA
Petitioner

NOTICE OF PUBLICATION

There is a petition filed for the change of first name in Certificate of Live Birth (SECPA) of **FELILIA DIESTA GARCIA** from **"FELILIA"** to **"EDITHA"**.

NOTICE IS HEREBY GIVEN that any interested person is cited to notify this office and show cause why the same should not be granted.

Let this NOTICE be published at least once a week for two (2) consecutive weeks in a newspaper of general circulation as required under Section 5 of Republic Act No. 9048.

(Sgd.) **MERCI A. CHAVEZ**
Municipal Civil Registrar

DIYARYO KABITENYO - December 14 & 21, 2020

Republic of the Philippines
OFFICE OF THE MUNICIPAL CIVIL REGISTRAR
Indang, Cavite

In the matter of Change of First Name in the Certificate of Live Birth (SECPA) of

REBECCA E. AVILLA CFN-0008-2020

REBECCA MILDRED A. GAANAN
Petitioner

NOTICE OF PUBLICATION

There is a petition filed for the change of first name in Certificate of Live Birth (SECPA) of **REBECCA E. AVILLA** from **"REBECCA"** to **"REBECCA MILDRED"**.

NOTICE IS HEREBY GIVEN that any interested person is cited to notify this office and show cause why the same should not be granted.

Let this NOTICE be published at least once a week for two (2) consecutive weeks in a newspaper of general circulation as required under Section 5 of Republic Act No. 9048.

(Sgd.) **MERCI A. CHAVEZ**
Municipal Civil Registrar

DIYARYO KABITENYO - December 14 & 21, 2020

Republic of the Philippines
OFFICE OF THE MUNICIPAL CIVIL REGISTRAR
Indang, Cavite

Publication Notice
R.A. NO. 10172

NOTICE TO THE PUBLIC

07 December 2020

CFN-0007-2020
CCE-0019-2020 R.A. NO. 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 the public that **LUCILA M. MASICA** has filed with this Office, a petition for ***change of first name*** from **LUCENA** to **LUCILA** *and* ***correction of entry in the date of birth*** from **January 28, 1956** to **January 7, 1956** in the Civil Registry Form No.1A of **LUCENA N. MASICAP** of Indang, Cavite and whose parents are **Bonifacio Masicap** *and* **Julia Saurin**.

Any person adversely affected by said petition may file his/her written opposition with this Office not later than **December 28, 2020**.

(Sgd.) **MERCI A. CHAVEZ**
Municipal Civil Registrar

DIYARYO KABITENYO - December 14 & 21, 2020

Optogenetic method can reveal how gut microbes affect longevity

Research has shown that gut microbes can influence several aspects of the host's life, including aging. Given the complexity and heterogeneity of the host gut environment, elucidating how a specific microbial species contributes to longevity has been challenging. To explore the influence of bacterial products on the aging process, researchers at Baylor College of Medicine and Rice University developed a method that uses light to directly control gene expression and metabolite production from bacteria residing in the gut of the laboratory worm Caenorhabditis elegans.

They report in the journal eLife that green light-induced production of colanic acid by resident E. coli bacteria protected gut cells against stress-induced cellular damage and extended the worm's lifespan. The researchers indicate that this method can be applied to study other bacteria and propose that it also might provide in the future a new way to fine-tune bacterial metabolism in the host gut to deliver health benefits with minimal side effects.

"We used optogenetics, a method that combines light and genetically engineered light-sensitive proteins to regulate molecular events in a targeted manner in living cells or organisms," said co-corresponding author Dr. Meng Wang, Robert C. Fyfe Endowed Chair on Aging and professor of molecular and human genetics and the Huffington Center on Aging at Baylor

EXTRAJUDICIAL SETTLEMENT OF THE ESTATE OF CRISPINO TORRES WITH DEED OF ABSOLUTE SALE

NOTICE is hereby given that the estate of the late **CRISPINO LICTAC TORRES** who died intestate on January 5, 2015 in Capitol Highway, Portland, Oregon, U.S.A., consisting of a 1/2 conjugal share in the following properties:

a. A parcel of land situated in the Bo. of Lancaan, Mun. of Dasmariñas, Prov. of Cavite, Is. of Luzon, and covered by TCT No. 057-2011009434, containing an area of NINETY FIVE (95) square meters.

b. A residential house erected on the above-described parcel of land more particularly described under Tax Declaration No. 23700120000531;

has been adjudicated and extrajudicially settled by and among his heirs as follows:

1/2 share - ERLINDA TORRES

1/2 share - to be divided equally, pro indiviso, among Alberto Torres, Melchor Torres, Miguel Torres, Angelina T. Virgel De Dios, Ma. Mildred T. Barruga, Josephine Torres, Romeo Torres, Mark Torres, Emilie Torres, Evangeline T. Sarmcarlan, Reynaldo L. Torres, Elena T. Bilano, and Angelito Torres;

That for and in consideration of the amount of EIGHT HUNDRED THOUSAND PESOS (800,000.00), hereby SELL, TRANSFER, CONVEY the said parcel of land and residential house, in favor of RACHEL CENON TIMBANG on February 4, 2020 in Silang, Cavite, before Notary Public Atty. Daisy L. Medina and entered in her Notarial Register as Doc. No. 314; Page No. 63; Book No. 13; Series of 2020.

(Sgd) **ANGELITO TORRES for himself and as Attorney-In-Fact for the other heirs**

Publication : DIYARYO KABITENYO
Dates : December 14, 21 & 28, 2020

AFFIDAVIT OF SELF ADJUDICATION

NOTICE is hereby given that the estate of the late **RAFAEL B. DAYAO** who died intestate on June 01, 2003 at Cabiao, Nueva Ecija, consisting of a parcel of land covered by TCT No. T-173224 located at Bisita, Binakayan, Kawit, Province of Cavite, containing an area of Six Hundred and Sixty (660) square meters, more or less, has been self-adjudicated by his sole heir JENNY EMELDA HUNT GAÑA on October 9, 2020 in City of Manila, Philippines before Notary Public Atty. Joel A. Baker and entered in his Notarial Register as Doc. No. 433, Page No. 48, Book No. CXXX, Series of 2020.

(Sgd) Sole Heir

Publication : DIYARYO KABITENYO
Dates : December 14, 21 & 28, 2020

No guy has a magic.
Magic is in the heart of the girl
loving the guy who can send
her whole being up in 'Cloud
Nine' even with the mere touch
on her fingertips.

-Arnold S. Barco

REPUBLIC OF THE PHILIPPINES
FOURTH JUDICIAL REGION
REGIONAL TRIAL COURT
OFFICE OF THE CLERK OF COURT
TRECE MARTIRES CITY

BDO UNIBANK, INC.,
Mortgagee,

Foreclosure Case No. F-[illegible]-20

-versus-

JUNREY REVILLA DASIG, AS REPRESENTED BY HIS ATTORNEY-IN-FACT, ELIZABETH REVILLA DASIG,
Mortgagors.
x---x

NOTICE OF EXTRA-JUDICIAL SALE

Upon Extra-Judicial Petition for Sale under Act 3135, as amended by Act 4118, filed by Mortgagee, **BDO UNIBANK, INC.**, with business address at BDO Corporate Center, 7899 Makati Avenue, Makati City against the Mortgagors, **JUNREY REVILLA DASIG, AS REPRESENTED BY HIS ATTORNEY-IN-FACT, ELIZABETH REVILLA DASIG**, with residence and postal addresses at (1) Lot 38 Blk 1, Kensington 7, Lancaster New City, Brgy. Navarro, Gen. Trias Cavite; (2) Lot 37, Blk 1, Kensington 7, Brgy. Navarro, Gen. Trias, Cavite; and (3) No. 338-B, Julard Homes 1, Subd. Mod., Imus, 4103 Cavite, to satisfy the mortgage indebtedness as of **31 January 2020** amounts to **ONE MILLION EIGHT HUNDRED SEVENTY NINE THOUSAND FOUR HUNDRED SEVENTY TWO PESOS & 37/100 (Php1,879,472.37)**, Philippine Currency, including interest, penalties, and other charges as of said date but exclusive of all other expenses incidental to this foreclosure and sale, the undersigned Sheriff will sell at public auction on **February 25, 2021** at 10:00 o'clock in the morning at the main entrance of the Government Center Bldg. located at the Provincial Capitol Compound, Trece Martires City, to the highest bidder of CASH and in Philippine Currency, the following described property with all the improvements thereon, to wit:

TRANSFER CERTIFICATE OF TITLE No. 057-2016010693

LOT NO. 38 **BLOCK:** 1 **PLAN NO.** PCS-04-028223
PORTION OF: BLK 14, PSD-04-223001 AND LOT 3686, SPDME (FRS-04-000311)
LOCATION: BARANGAY OF NAVARRO, MUNICIPALITY OF GENERAL TRIAS, PROVINCE OF CAVITE, ISLAND OF LUZON
BOUNDARIES:

LINE	DIRECTION	ADJOINING LOT(S)
1-2	NW	ROAD LOT 8, PCS-04-028223
2-3	NE	LOT 37, BLOCK 1, PCS-04-028223
3-4	SE	LOT 38, BLOCK 1, PCS-04-028223
4-1	SW	LOT 39, BLOCK 1, PCS-04-028223

AREA : FORTY ONE SQUARE METERS (41), MORE OR LESS

All sealed bids must be submitted to the undersigned on the above-stated time and date.

In the event the public auction should not take place on the said date and time, it shall be held on **March 04, 2021** without further notice.

Prospective bidders/buyers are hereby requested to investigate for themselves the title to the said property and encumbrances thereon, if any there be.

Trece Martires City, **December 15, 2020**.

(Sgd.) **REYNALDO L. SALONGA**
Sheriff IV

Copy Furnished:

BDO UNIBANK, INC.
RISK MANAGEMENT GROUP/REMEDIAL MANAGEMENT UNIT
11th Floor, BDO South Tower, BDO Corporate Center
7899 Makati Avenue, Makati City 0726

JUNREY REVILLA DASIG and ELIZABETH REVILLA DASIG
(1) Lot 38 Blk 1, Kensington 7, Lancaster New City, Brgy. Navarro, Gen. Trias, Cavite
(2) Lot 37, Blk 1, Kensington 7, Brgy. Navarro, Gen. Trias, Cavite
(3) No. 338-B, Julard Homes 1, Subd. Mod., Imus, 4103 Cavite

WARNING: IT IS ABSOLUTELY PROHIBITED TO REMOVE, DEFACE, OR DESTROY THIS NOTICE OF EXTRA-JUDICIAL SALE ON OR BEFORE THE DATE OF SALE.

Publication : DIYARYO KABITENYO
Dates : December 21, 28, 2020 and January 4, 2021

Cataract surgery in infancy increases glaucoma risk

Children who undergo cataract surgery as infants have a 22% risk of glaucoma 10 years later, whether or not they receive an intraocular lens implant. The findings come from the National Eye Institute (NEI)-funded Infant Aphakia Treatment Study, which December 17, 2020 published 10-year follow-up results in JAMA Ophthalmology. NEI is part of the National Institutes of Health.

"These findings underscore the need for long-term glaucoma surveillance among infant cataract surgery patients. They also provide some measure of assurance that it is not necessary to place an intraocular lens at the time of cataract surgery," said Michael F. Chiang, M.D., director of NEI.

REPUBLIC OF THE PHILIPPINES
FOURTH JUDICIAL REGION
REGIONAL TRIAL COURT
OFFICE OF THE CLERK OF COURT
TRECE MARTIRES CITY

SECURITY BANK CORPORATION
Mortgagee,

FORECLOSURE CASE NO. F-116-20

-versus-

EVA JOY DELA CRUZ ORO
Mortgagor

NOTICE OF EXTRA-JUDICIAL SALE

Upon Extra-Judicial Petition for Sale under Act 3135, as amended by Act 4118, filed by Mortgagee, **SECURITY BANK CORPORATION**, with business address at Security Bank Centre Building, 6776 Ayala Avenue, Makati City against the Mortgagor, **EVA JOY DELA CRUZ ORO**, with residence and postal addresses 650 BAYLE STREET, BRGY. 177, ZONE 16 DISTRICT 1, TONDO MANILA AND KENSINGTON PHASE 7 BLOCK 2 LOT 44, BRGY. NAVARRO, GENERAL TRIAS CAVITE to satisfy the mortgage indebtedness which as of **30 October 2020** amounts to **THREE HUNDRED NINETEEN THOUSAND TWO HUNDRED FORTY FOUR PESOS AND 11/100 (P319,244.11)**, Philippine Currency, including interest, penalties, and other charges as of said date but exclusive of all other expenses incidental to this foreclosure and sale, the undersigned Sheriff will sell at public auction on **February 25, 2021** at 10:00 o' clock in the morning at the main entrance of the Government Center Building located at the Provincial Capitol Compound, Trece Martires City, to the highest bidder for CASH and in Philippine Currency, the following described property with all the improvements thereon, to wit:

TRANSFER CERTIFICATE OF TITLE NO. 057-2016072008

Lot No. 44 Block No. 2 Plan No. Pcs-04-028223
Portion of: BLK. 16, PSD-04-225693 AND LOT 1688, SPDME (PRS-04-005310)
Location: BARANGAY OF NAVARRO, MUNICIPALITY OF GENERAL TRIAS, PROVINCE OF CAVITE, ISLAND OF LUZON

Boundaries:

LINE	DIRECTION	ADJOINING LOT(S)
1-2	SE	ROAD LOT 3, PCS-04-028223
2-3	SW	LOT 45, BLOCK 2, PCS-04-028223
3-4	NW	LOT 1668, SPDME
4-1	NE	LOT 43, BLOCK 2, PCS-04-028223

Area : FIFTY EIGHT SQUARE METERS (58), MORE OR LESS

All sealed bids must be submitted to the undersigned on the above stated time and date.

In the event the public auction should not take place on the said date and time, it shall be held on **March 04, 2021** without further notice.

Prospective bidders/buyers are hereby enjoined to investigate for themselves the title to the said property and encumbrances thereon, if any there be.

Trece Martires City, **December 15, 2020.**

(Sgd.) LUCIO C. ALEJO III
Sheriff IV

Copy Furnished:

SECURITY BANK CORPORATION
CARIDA PEREZ MANABO AND ARALLES
DOMINIQUE AVILA FULGENCIO & SALAS
Counsel for the Mortgagee
4th Floor, Security Bank Centre Building
6776 Ayala Avenue, Makati City

Eva Joy Dela Cruz Oro
650 Bayle Street, Brgy. 177, Zone 16 District 1, Tondo, Manila
And
Kensington Phase 7 Block 2 Lot 44, Brgy. Navarro, General Trias, Cavite

WARNING: It is absolutely prohibited to remove, deface or destroy this notice of extra-judicial sale on or before the date of sale.

Publication : DIYARYO KABITENYO
Dates : December 21, 28, 2020 and January 4, 2021

DEED OF EXTRAJUDICIAL SETTLEMENT OF ESTATE

NOTICE is hereby given that the estate of the late **TERESITA GUTIERREZ MADLANGBAYAN** who died intestate on December 17, 2017 at 144 Holiday Village, Imus, Cavite, **BELLA GUTIERREZ ATLAS** who died intestate on December 18, 2018 at East Avenue Medical Center, Quezon City and **EMELITO RODRIGUEZ GUTIERREZ** who died intestate on August 16, 1998 at 1070 Sgt. Legaspi St., Wawa, Binakayan, Kawit, Cavite, consisting of one fifth each share of the parcel of land located at Binakayan, Kawit, Cavite containing an area of one thousand eighty three (1,083) square meters, more or less, covered by Transfer Certificate of Title No. TCT-T-141893 RT-071-2014139570457 issued by the Registry of Deeds for the Cavite City has been adjudicated and extrajudicially settled by and among their heirs as one of the children, particularly to CARITES MADLANGBAYAN DOMINGUEZ for the share of Teresita, to LEONARDO GUTIERREZ ATLAS for the share of Bella, to JOAN GUTIERREZ QUILATAN for the share of Emelito as Decreed 14, 2020 at Cavite City, Cavite, Philippines before Notary Public Atty. Carlos Emmanuel C. Montoya and entered in her Notarial Register as Doc. No. 130; Page No. 26; Book No. XXXVIII; Series of 2020.

(Sgd.) **All Heirs**

Publication : DIYARYO KABITENYO
Dates : December 21, 28, 2020 and January 4, 2021

EXTRA-JUDICIAL SETTLEMENT OF THE ESTATE OF THE DECEASED AGAPITO T. UMIPIG

NOTICE is hereby given that the estate of the deceased **AGAPITO T. UMIPIG** who died intestate on December 25, 2019 at Cavite City, Philippines, consisting of Savings Account with Land Bank of the Philippines (LBP) Cavite City Branch, with Account No. 0316-9699-59 has been adjudicated and extra-judicially settled by and among his heirs in equal shares pro indiviso on December 17, 2020 at City of Cavite, Philippines Notary Public Atty. Elnat V. Agbuya and entered in her Notarial Register as Doc. No. 1345; Page No. 47; Book No. 5; Series of 2020.

(Sgd.) **All Heirs**

Publication : DIYARYO KABITENYO
Dates : December 21, 28, 2020 and January 4, 2021

Protein linked to progressive lung scarring in scleroderma patients

Systemic sclerosis is an autoimmune disease associated with inflammation and fibrosis, or scarring, that affects organs including the skin, heart, kidney and lungs.

This form of scleroderma, this tightening and thickening of the skin, is a progressive, orphan disease that affects approximately 80,000 Americans and has no clear pathogenesis or FDA-approved treatment option, leaving a proportion of patients afflicted to develop scarring so severe that they need organ transplants.

Lung fibrosis is the major cause of mortality in systemic sclerosis patients, with its prevalence on the rise and no way to stabilize or reverse the damage, according to Dinesh Khanna, M.B.B.S, M.S.c, director of Michigan Medicine's Scleroderma Program.

"This is why I set out to identify biomarkers that help identify patients at higher risk of this progressive disease. A discovery is vital for successful clinical development of a novel treatment," he says.

Khanna forged a collaboration with Tiru Ramalingam, M.B.B.S, Ph.D., a scientist at Genentech with expertise in biomarkers related to fibrosis. Together, using Khanna's clinical expertise and rich database at the University of Michigan and Ramalingam's lab, the pair investigated the potential link between autoantibodies, myeloid cell activation and lung fibrosis progression in patients with systemic sclerosis and associated lung disease (Scl-ILD), discovering how individual factors do synergize together to promote and progress lung fibrosis.

Individuals with high ADHD-traits are more vulnerable to insomnia

Individuals with high ADHD-traits that do not meet the criteria for a diagnosis are less able to perform tasks involving attentional regulation or emotional control after a sleepless night than individuals with low ADHD-traits, a new study from Karolinska Institutet published in Biological Psychiatry: Cognitive Neuroscience and Neuroimaging reports.

While it can cause multiple cognitive impairments, there is considerable individual variation in sensitivity to the effects of insomnia. The reason for this variability has been an unresolved research question for long. In the present study, KI researchers investigated how sleep deprivation affects our executive functions, which is to say the central cognitive processes that govern our thoughts and actions. They also wanted to ascertain if people with ADHD tendencies are more sensitive to insomnia, with more severe functional impairments as a result.

ADHD (attention deficit hyperactivity disorder) is characterized by inattention, impulsiveness and hyperactivity; however, the symptoms vary from person to person and often also include emotional instability.

"You could say that many people have some subclinical ADHD-like symptoms but a diagnosis is only made once the symptoms become so prominent that they interfere with our everyday lives," says Predrag Petrovic, consultant and associate professor in psychiatry at the Department of Clinical Neuroscience at Karolinska Institutet, Sweden, who led the study along with Tina Sundelin and John Axelsson, both researchers at Karolinska Institutet and the Stress Research Institute at Stockholm University.

The study included 180 healthy participants between the ages of 17 and 45 without an ADHD diagnosis. Tendencies towards inattentiveness and emotional instability were assessed on the Brown Attention-Deficit Disorder (B-ADD) scale.

The participants were randomly assigned to two groups, one that was allowed to sleep normally and one that was deprived of sleep for one night. They were then instructed to perform a test that measures executive functions and emotional control the following day (a Stroop test with neutral and emotional faces).

The researchers found that the sleep-deprived group showed worse performance in the experimental tasks (including more cognitive response variability). Moreover, people with high ADHD-traits were more vulnerable to sleep deprivation and showed greater impairment than those with low ADHD-traits.

Green revolution saved over 100 million infant lives in developing world

New research from the University of California San Diego shows that since modern crop varieties were introduced in the developing world starting in 1961, they have substantially reduced infant mortality, especially for male babies and among poor households.

The study assessed mortality rates of more 600,000 children across 37 developing countries, revealing global diffusion of agricultural technology reduced infant mortality by up to 2.4 to 3.3 percentage points. This translates to around 3 to 4 million infant deaths averted per year by the year 2000.

The global scale of the study – the most sweeping to measure the green revolution's impact on child health – is critical because while the green revolution represents one of the most important technological transformations in modern history, it did not reach all parts of the world equally.

"If the green revolution had spread to sub-Saharan Africa like it did to South Asia, our estimates imply that infant mortality rates would improve by 31 percent," said Gordon McCord, study co-author and assistant teaching professor of economics at UC San Diego's School of Global Policy and Strategy.

Machine intelligence accelerates research into mapping brains

Scientists in Japan's brain science project have used machine intelligence to improve the accuracy and reliability of a powerful brain-mapping technique, a new study reports.

Their development, published on December 18th in Scientific Reports, gives researchers more confidence in using the technique to untangle the human brain's wiring and to better understand the changes in this wiring that accompany neurological or mental disorders such as Parkinson's or Alzheimer's disease.

"Working out how all the different brain regions are connected – what we call the connectome of the brain – is vital to fully understand the brain and all the complex processes it carries out," said Professor Kenji Doya, who leads the Neural Computation Unit at the Okinawa Institute of Science and Technology Graduate University (OIST).

To identify connectomes, researchers track nerve cell fibers that extend throughout the brain. In animal experiments, scientists can inject a fluorescent tracer into multiple points in the brain and image where the nerve fibers originating from these points extend to. But this process requires analyzing hundreds of brain slices from many animals. And because it is so invasive, it cannot be used in humans, explained Prof. Doya.

However, advances in magnetic resonance imaging (MRI) have made it possible to estimate connectomes non-invasively. This technique, called diffusion MRI-based fiber tracking, uses powerful magnetic fields to track signals from water molecules as they move – or diffuse – along nerve fibers. A computer algorithm then uses these water signals to estimate the path of the nerve fibers throughout the whole brain.

But at present, the algorithms do not produce convincing results. Just like how photographs can look different depending on the camera settings chosen by a photographer, the settings – or parameters – chosen by scientists for these algorithms can generate very different connectomes.

"There are genuine concerns with the reliability of this method," said Dr. Carlos Gutierrez, first author and postdoctoral researcher in the OIST Neural Computation Unit. "The connectomes can be dominated by false positives, meaning they show neural connections that aren't really there."

Furthermore, the algorithms struggle to detect nerve fibers that stretch between remote regions of the brain. Yet these long-distance connections are some of the most important for understanding how the brain functions, Dr. Gutierrez said.

In 2013, scientists launched a Japanese government-led project called Brain/MINDS (Brain Mapping by Integrated Neurotechnologies for Disease Studies) to map the brains of marmosets — small nonhuman primates whose brains have a similar structure to human brains.

The Brain/MINDS project aims to create a complete connectome of the marmoset brain by using both the non-invasive MRI imaging technique and the invasive fluorescent tracer technique.

"The data set from this project was a really unique opportunity for us to compare the results from the same brain generated by the two techniques and determine what parameters need to be set to generate the most accurate MRI-based connectome," said Dr. Gutierrez.

In the current study, the researchers set out to fine-tune the parameters of two different widely-used algorithms so that they would reliably detect long-range fibers. They also wanted to make sure the algorithms identified as many fibers as possible while minimally pinpointing ones that were not actually present.

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Cell atlas of tropical disease parasite may hold key to new treatments

The first cell atlas of an important life stage of Schistosoma mansoni, a parasitic worm that poses a risk to hundreds of millions of people each year, has been developed by researchers at the Wellcome Sanger Institute and their collaborators.

The study, published today (18 December 2020) in Nature Communications, identified 13 distinct cell types within the worm at the start of its development into a dangerous parasite, including new cell types in the nervous and muscular systems. The atlas provides an instruction manual for better understanding the biology of S. mansoni that will enable research into new vaccines and treatments.

S. mansoni has a complex life cycle that begins when larval forms of the parasite emerge from snails into rivers and lakes. These larvae then enter humans through the skin after contact with infested water. Once inside the body, the parasite begins what is known as the intra-mammalian stage of its life cycle, undergoing a series of developmental transitions as it matures to adulthood.

Adult worms live in human blood vessels and reproduce, releasing eggs that pass from the body into water to continue the life cycle. But some eggs remain trapped in the body, leading to the disease schistosomiasis.

Schistosomiasis is a debilitating long-term illness that can lead to the inability to work, organ damage and death.

Fibrous protein finding may lead to improved bioprinting, tissue engineering

Fibrous proteins such as collagen and fibrinogen form a thin solid layer on the surface of an aqueous solution similar to the "skin" that forms on warm milk, according to a team of Penn State Researchers, who believe this finding could lead to more efficient bioprinting and tissue engineering.

In the human body, fibrous proteins provide structural support for cells and tissues and aid in biomechanics. Collagen makes up 30% of our skin and 10% of our muscles, while fibrinogen helps in blood clotting by forming the hydrogel fibrin.

"Collagen and fibrinogen protein solutions are widely used as precursors of collagen and fibrin hydrogels in tissue engineering applications," said Hemanth Gudapati, graduate student in engineering science and mechanics. "This is because collagen and fibrin, which are used as structural materials for tissue engineering similar to their role in the human body, are nontoxic, biodegradable and mimics the natural microenvironments of cells."

Gudapati and fellow researchers report, in Soft Matter, for the first time that fibrous proteins form a solid layer on the surface of water due to aggregation of proteins at the air/water interface. This solid layer interferes with accurate measurements of the solution's rheology, which is the study of fluid properties such as flow. Previously, it was only demonstrated that the other main type of protein, globular proteins, formed these solid layers at the air/water interface.

Accurate rheology measurements are vital for successful bioprinting. Measurement of viscosity is important for identifying what protein solutions are potentially printable, and for detecting inconsistencies in flow behavior among different batches of fibrous proteins.

"Collagen and fibrinogen are extracted from animals, and their flow behavior changes from batch to batch and with time," Gudapati said.

This in turn leads to a challenge for consistent bioprinting results.

"Accurate measurement of flow behavior helps in reliable or consistent delivery of the protein solutions during bioprinting," Gudapati said.