



# DIYARYO KABITENYO

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## papi

Publishers Association of the Philippines, Inc.

## Study finds dopamine, biological clock link to snacking, overeating and obesity

During the years 1970 through 1980, 15% of U.S. adults were obese. Today, about 40% of adults are obese. Another 18% are overweight.

Conceding with this increase in weight are eye-opening rates of heart disease, diabetes, cancer and health complications caused by obesity, such as hypertension. Even Alzheimer's disease may be partly attributable to obesity and physical inactivity.

"The diet in the U.S. and other nations has changed dramatically in the last 50 years or so, with highly processed foods readily and cheaply available at any time of the day or night," Ali Güler, a

professor of biology at the University of Virginia, said. "Many of these foods are high in sugars, carbohydrates and calories, which makes for an unhealthy diet when consumed regularly over many years."

In a study published January 2, 2020 in the journal *Current Biology*, Güler and his colleagues demonstrate that the pleasure center of the brain that produces the chemical dopamine, and the brain's separate biological clock that regulates daily physiological rhythms, are linked, and that high-calorie foods — which bring pleasure — disrupt normal feeding schedules, resulting in overconsumption.

## Research identifies changes in neural circuits underlying self-control during adolescence

The human brain is organized into circuits that develop from childhood through adulthood to support executive function — critical behaviors like self-control, decision-making, and complex thought. These circuits are anchored by white matter pathways which coordinate the brain activity necessary for cognition. However, little research exists to explain how white matter matures to support activity that allows for improved executive function during adolescence — a period of rapid brain development.

Researchers from the Lifespan Brain Institute of the Perelman

School of Medicine at the University of Pennsylvania and Children's Hospital of Philadelphia applied novel brain network analysis to identify how anatomical connections in the brain develop to support neural activity underlying these key areas. The findings were published in the Proceedings of the National Academy of Sciences.

"By charting brain development across childhood and adolescence, we can better understand how the brain supports executive function and self-control in both healthy kids and those with different mental health experiences," said the study's senior

author, Theodore Satterthwaite, MD, an assistant professor of Psychiatry at Penn. "Since abnormalities in developing brain connectivity and deficits in executive function are often linked to the emergence of mental illness during youth, our findings may help identify biomarkers of brain development that predict cognitive and clinical outcomes later in life."

In this study, the researchers mapped structure-function coupling — the degree to which a brain region's pattern of anatomical connections supports synchronized neural activity. This could be thought of like a highway, where the anatomical

connections are the roads and the functional connections are the traffic flowing along those roads. Researchers mapped and analyzed multi-modal neuroimaging data from 727 participants ages 8 to 23 years, and three major findings emerged.

First, the team found that regional variability in structure-function coupling was inversely related to the complexity of the function a given brain area is responsible for. Higher structure-function coupling was found in parts of the brain that are specialized for processing simple sensory information, like the visual system.

(SANGLEY... from page 1)

ly using lighter aircraft.

The field at Sangley operated as Danilo Atienza Air Base, its location on Sangley Point, a peninsula which has been a naval facility since

Spanish times, means it is surrounded by navigable waters which will require extensive reclamation if it is to be expanded, making it expensive to redevelop as a big-gar hub.

Department of Transportation (DoT) officials said in October that the new airport will have "turbo-prop" as the maximum aircraft that will operate in Sangley."

The airport's run-

way will serve as the "bird runway" of Ninoy Aquino International Airport with a maximum capacity of 20 movements per hour, referring to both landings and take-offs, the DoT said.

Republic of the Philippines  
Fourth Judicial Region  
REGIONAL TRIAL COURT  
BRANCH 90  
City of Zamboanga, Cebu

**IN THE MATTER OF CANCELLATION  
OF ANNOTATION OF LEGITIMATION  
AND THE REGISTERED AFFIDAVIT OF  
LEGITIMATION IN THE CERTIFICATE  
OF LIVE BIRTH OF KIMBERLY JOANNE  
DENOSTA.**

SE PROC. NO. DC-080-18

**KIMBERLY JOANNE DENOSTA,**  
Petitioner.

**O R D E R**

This verified petition for cancellation of the annotation of affidavit of legitimation and possession and the registered affidavit of legitimation in the Certificate of Live Birth of Kimberly Joanne Denosta was filed on July 2, 2018, by the above-captioned petitioner, through counsel, praying that, after due notice, publication and hearing, judgment be rendered favoring the City Civil Registrar of Zamboanga City, Cebu to cancel the annotation of legitimation and the registered affidavit of legitimation under Republic Act No. 2039-84 as amended in the Certificate of Live Birth of petitioner with Local Civil Registry No. 92-1512.

Holding the several petitions to be sufficient in form and substance, this Court hereby sets the hearing thereof at the Regional Trial Court, Branch 90, Zamboanga Community Center Building, Congressional Road, Brgy. Buzal 1, Zamboanga City, Cebu, on January 13, 2020, at 2:00 o'clock in the afternoon, whereby any interested persons may appear and show cause, if any, why the petition should not be granted.

Let this Order be published, at the expense of the petitioner in a newspaper of general circulation, which will be notified by the Regional Trial Court, Branch 90, City of Zamboanga, Cebu, within the daily newspaper or papers in the Province of Cebu, before the scheduled date of hearing, at least once a week for three consecutive weeks.

The Notice of Appointment of the Office of the Solicitor General for herein case is NOTED.

Let the Office of the Solicitor General and the Local Civil Registrar of Zamboanga City, Cebu be furnished with copies of this Order.

Notify all parties concerned.  
SO ORDERED.

City of Zamboanga, Cebu, November 30, 2019.  
(Sgd.) SOHELYN D. LARA-DE LUNA  
Assistant Judge.

Cc:

Richardson Julian Denosta  
Block 5, Lot 21, Mague Village  
Buzal 1V, Zamboanga City, Cebu.

Atty. Gerald C. Sergio  
Counsel for the Petitioner  
2nd Floor, Old Mill Bldg.  
Don P. Camino Ave., Case III  
City of Zamboanga, Cebu.

Office of the Solicitor General  
134 Arroyo St., Lugo Village, Makati City.

The City Civil Registrar of Zamboanga  
City of Zamboanga, Cebu.

Civil Registrar General/ Administrative  
Philippine Statistics Authority  
Publication: DIYARVO KABITENYO  
Date: December 30, 2019, January 6 & 13, 2020

**DEED OF EXTRAJUDICIAL SETTLEMENT  
OF ESTATE OF THE LATE APOLINAR NAQUELA  
WITH SPECIAL POWER OF ATTORNEY**

NOTICE is hereby given that the estate of the late APOLINAR NAQUELA who died testate on December 28, 1988, consisting of the following property acquired from Pardo Balala on July 7, 1977:

"A portion of a parcel of land containing 20 two (2) public lots designated which form part of that parcel of land described and recorded as follows:

"Situated at San Miguel, Dagupan, Bulacan, under Tax Dec. No. 10-813, bounded on the North, by Pinaric Navitas East, by Arroyo and Antonio Balala, South, by Sergio DelaRosa and West, by Pardo Balala."

was covered by Original Certificate of Title No. 42402, Free Patent No. 151231 620862 issued on May 8, 1981 registered in the name of Pablo Balala.

Has been adjudicated and adjudicationally settled by and among his heirs equally, the parties hereto agreed to name, appoint and authorize their mother MARIA BERNARDITA N. DILCOT, as their attorney-in-fact to do and perform the following acts and things:

- To facilitate the processing of the annotation of the Adverse Claim at the back of OCT No. 42402, Free Patent No. 151231 620862 with the Register of Deeds for the Province of Bulacan.
- To pay the required fees and taxes with the proper government offices, agencies and duly keep the receipts and other documents issued in accordance therewith.
- To execute and sign documents relative of the foregoing and to render an accounting of the amount received by her and the expenses incurred.

on November 12, 2019 at Inaas City, Cebu before Notary Public Atty. Joel G. Gerolito and entered in his Notarial Register at Inaas, No. 121, Page No. 23; Book No. 703-B Series of 2019.

(Sgd.) Heirs

Publication: DIYARVO KABITENYO  
Date: December 30, 2019, January 6 & 13, 2020

Republic of the Philippines  
Local Civil Registry Office  
Province: Cebu  
City/Municipality: Butate

**NOTICE FOR PUBLICATION**

In compliance with Section 3 of Republic Act No. 2009, a notice is hereby served to the public that **MENANDRO B. YUJO** has filed with this Office a petition for change of first name from **JOSE MENANDRO** to **MENANDRO** in the birth certificate of **JOSE MENANDRO BENJAMIN YUJO** who was born on **26 MAY 1982** at **BERNARDO CASTLE** and whose parents are **ONCAR D. YUJO** and **SILVIA B. BUSTRAW**.

Any person adversely affected by said petition shall file his written opposition with this Office not later than **28 JANUARY 2020**.

(Sgd.) MARIA RIZABELE SORIANO  
Municipal Civil Registrar

DIYARVO KABITENYO, January 6 & 13, 2020

REPUBLIC OF THE PHILIPPINES  
Fourth Judicial Region  
Regional Trial Court  
Branch 10  
Iloilo, Cebu

**PHILIPPINE SAVINGS BANK,**  
Mortgages.

Extra-Judicial Functionary of Real Estate Mortgage Under Act No. 3153 as Amended, Republic Act No. 6118

**SPS. JEFERSON BAUTISTA NETERAL AND NEVA HARLABO NETERAL,**  
Mortgages.

RTC No. 14877-19

**NOTICE OF EXTRA-JUDICIAL SALE**

Upon extra-judicial petition for sale under Act 3153 as amended by Act 6118 filed by **PHILIPPINE SAVINGS BANK**, with office address at 7500th Street, 7777 Purok de Estacion, Antabon St., Makati City against **SPS. JEFERSON BAUTISTA NETERAL AND NEVA HARLABO NETERAL**, with combined addresses at Lot 17, Road 48 of 41, Valdez Place Pk-4, Pasay Branch, Iloilo, Cebu, 6108; A, Lot 17, St. Agustin St., BE Toppan House II, Valdez VI, Bacoor, Cavite to satisfy the mortgage indebtedness which is of November 11, 2019 amount to **ONE MILLION FIVE THOUSAND SEVEN HUNDRED SEVENTY PISO AND 9/100 (P1,500,770/100)** Philippine currency, including interest and penalty charges, attorney's fee, sheriff's fee and all other charges incidental to the foreclosure and sale, the undersigned Sheriff, will sell all of said mortgagor's real estate, **PHILIPPINE SAVINGS BANK**, as trustee of the trust contract of the Office of the Clerk of Court, RTC, Makati City, Philippines, at Camarines, Aginaldo Highway, Iloilo, Cebu, to the highest bidder in cash and in Philippine currency, the following property with all the improvements thereon to wit:

**TRANSFER CERTIFICATE OF TITLE  
No. 197-21845293**

A PARCEL OF LAND LOT 17 OF THE CONSOLIDATION-BUILDING PLAN PCS-64-0805 BEING A PORTION OF THE CONSOLIDATION OF LOTS 1102, BLOCK 11 PCS-64-0805, L.R.C. REC. NO. 884, SITUATED IN THE BARANGAY OF PASONG BUAYAR, MUNICIPALITY OF BUKID, PROVINCE OF CAVITE, ISLAND OF LUZON, BOUNDDED ON THE SE-ALONG LINE 1-2 BY LOT 18 OF THE CONS. BUILDING CONTRACT, ALONG LINE 3-3 BY ROAD LOT 41 (30.00 M. WIDE) PCS-64-0805, ON THE SW-ALONG LINE 3-4 BY LOT 12 ON THE NE, ALONG LINE 4-1 BY LOT 16 AND LOT 16-1 PCS-64-0805, PLAN BEGINSING AT A POINT MARKED "A" AS SHOWN IN AN ANNEX MAP OF FIFTY FIVE (55) SQUARE METERS.

All unpaid tax shall be submitted to the appropriate tax authority at the stated time and date.

In the event the public auction should not take place on the said date, it shall be held on **February 18, 2020** at **10:00 a.m.**, without prior notice.

Prospective bidders/buyers are hereby required to investigate for themselves the title to the said property and circumstances thereof, if any thing be:

Iloilo, Cebu, Philippines, November 11, 2019.  
(Sgd.) ANNE MARIE R. BAGEUNAN, JR.  
Sheriff IV

Approved:  
(Sgd.) REGALADO E. ESPERIO  
Clerk of Court XI  
and Ex-Officio Sheriff

Copy Forwarded:  
**PHILIPPINE SAVINGS BANK**  
PH Bank, Cebu, 777 Purok de Estacion, Antabon St., Makati City

**SPS. JEFERSON BAUTISTA NETERAL AND NEVA HARLABO NETERAL**  
Lot 17, Road Lot 41, Valdez Place Pk-4, Pasay Branch, Iloilo, Cebu, 6108; A, Lot 17, St. Agustin St., Toppan House II, Valdez VI, Bacoor, Cavite.

Publication: DIYARVO KABITENYO  
Date: January 13, 20 & 27, 2020

Republic of the Philippines  
Province of Cavite  
Municipality of Marikina  
Office of the Municipal Civil Registrar

**NOTICE TO THE PUBLIC**

CCF-001-2020  
CCF-004-2019

Date: November 28, 2019

In Compliance with the publication requirements and pursuant to OCRG Memorandum Circular No. 2013-1, Guidelines in the Implementation of the Administrative Order No. 1, Series of 2012 (OR, or R.A. 10172), Notice is hereby served to the public that the Name of Document Owner has filed with this Office, a petition for CORRECTION OF GENDER from "FEMALE" to "MALE" and CHANGE OF FIRST NAME from "ADRIANA" to "ADRIANO" in the certificate of live birth of **ADRIANO SINIG BELLO** who was born on **March 5, 1958** at **Maragondon, Cavite** and whose parents are **CRISTINCOS BELLO** and **MARASIEL**.

Any person adversely affected by said petition, may file his written opposition with this Office not later than **JANUARY 27, 2020**.

(Sgd.) LEONORA V. LOYOLA  
Municipal Civil Registrar

DIARYO KABITENYO - January 13 & 20, 2020

Republic of the Philippines  
Province of Cavite  
Municipality of Marikina  
Office of the Municipal Civil Registrar

**NOTICE TO THE PUBLIC**

CCF-013-2019

Date: December 23, 2019

In Compliance with the publication requirements and pursuant to OCRG Memorandum Circular No. 2013-1, Guidelines in the Implementation of the Administrative Order No. 1, Series of 2012 (OR, or R.A. 10172), Notice is hereby served to the public that the Name of Document Owner has filed with this Office, a petition for CHANGE OF FIRST NAME from "MARLENE" to "MARITES", in the certificate of live birth of **MARLENE ANGGLO YVANGELISTA** who was born on **March 28, 1972** at **Maragondon, Cavite** and whose parents are **VICTORINO BALICHA YVANGELISTA** and **SOCORRO ANILO ANILO**.

Any person adversely affected by said petition may file his written opposition with this office not later than **JANUARY 27, 2020**.

(Sgd.) LEONORA V. LOYOLA  
Municipal Civil Registrar

DIARYO KABITENYO - January 13 & 20, 2020

Republic of the Philippines  
MUNICIPAL CIVIL REGISTRAR OFFICE  
Municipality of Davao  
Province of Cavite

**NOTICE TO THE PUBLIC**

30 January 2020

CCF-001-2020  
CCF-004-2019 RA 10172

In compliance with the publication requirements and pursuant to OCRG Memorandum Circular No. 2013-1, Guidelines in the Implementation of the Administrative Order No. 1, Series of 2012 (OR or R.A. 10172), Notice is hereby served to the public that the Name of Document Owner has filed with this Office, a petition for CHANGE OF FIRST NAME from "MALUZVIMINDA" to "LEZVIMINDA" and CORRECTION OF CLERICAL ERROR in CHILD'S DATE OF BIRTH from "October 12, 1958" to "May 01, 1958" in the Certificate of Live Birth of **MA. LUVIMINDA D. ANILAN**, who was born on October 12, 1958 at **Tanza, Cavite** and whose parents were **Agapito Anilano & Remedios Davao**.

Any person adversely affected by said petition may file his/her written opposition with this Office not later than **JANUARY 27, 2020**.

(Sgd.) MA. THERESA S. GESA  
Municipal Civil Registrar

DIARYO KABITENYO - January 13 & 20, 2020

## Pathways that extend lifespan by 500% identified

Scientists at the MDM Biological Laboratory, in collaboration with scientists from the Buck Institute for Research on Aging in Novato, Calif., and Nanjing University in China, have identified synergistic cellular pathways for longevity that amplify lifespan fivefold in *C. elegans*, a nematode worm used as a model in aging research.

The increase in lifespan would be the equivalent of a human

years, according to one of the scientists.

The research draws on the discovery of two major pathways governing aging in *C. elegans*, which is a popular model because it shares many of its genes with humans and because its short lifespan of only three to four weeks allows scientists to quickly assess the effects of genetic and environmental interventions to extend healthy lifespan.

REPUBLIC OF THE PHILIPPINES  
LOCAL CIVIL REGISTRY OFFICE  
PROVINCE OF CAVITE  
MUNICIPALITY OF NARI  
**NOTICE OF PUBLICATION**

In compliance with Sec. 5 of R.A. 9048, a notice is hereby served to the public that (Petitioner) has filed with this Office a petition for Change of First Name from **BELEN ANDY BUSTAMANTE** to the birth certificate of **BELEN ANDY BUSTAMANTE**, born on **MAY 21, 1987** at **NARI, CAVITE**, child of spouses **RODOLFO TRINIDAD SANTIAGO** and **MAXIMA HINAYON VIRAY**.

Any person adversely affected by said petition, may file his written opposition to this Office not later than **JANUARY 27, 2020**.

(Sgd.) GLORIA P. BAGO  
Municipal Civil Registrar

DIARYO KABITENYO - January 13 & 20, 2020

Because these pathways are "conserved," meaning that they have been passed down to humans through evolution, they have been the subject of intensive research. A number of drugs that extend healthy lifespan by altering these pathways are now under development. The discovery of the synergistic effect opens the door to even more effective anti-aging therapies.

The new research uses a double mutant in which the insulin signaling (IIS) and TOR

Republic of the Philippines  
Province of Cavite  
Municipality of Ternate  
OFFICE OF THE MUNICIPAL CIVIL REGISTRAR

RA Form No. 11-1 (LCBO)

**NOTICE FOR PUBLICATION**

In Compliance with Section 5 of R.A. 9048, a notice is hereby served to the public that **ELIZABETH RIZLO ANIT-DIQUIN** has filed in this office a petition for Change of First Name from "ISABELITA" to "ELIZABETH" in the Certificate of Live Birth of **ISABELITA BELLO ANIT** who was born on **September 05, 1962** at **Ternate, Cavite** and whose parents are **ARCANGEL BALTARTA ANIT** and **MARUSA RAMOS SILLAO**.

Any person adversely affected by said petition may file his written opposition with this office not later than **27 January 2020**.

(Sgd.) MARIETA W. LOZANO  
Municipal Civil Registrar

DIARYO KABITENYO - January 13 & 20, 2020

pathways have been genetically altered. Because alteration of the IIS pathways yields a 100 percent increase in lifespan and alteration of the TOR pathway yields a 30 percent increase, the double mutant would be expected to live 130 percent longer. But instead, its lifespan was amplified by 500 percent.

EXTRAJUDICIAL SETTLEMENT OF THE ESTATE OF MANUEL VELAZCO MEDINA

NOTICE is hereby given that the estate of the late MANUEL VELAZCO MEDINA who died intestate on January 5, 2019 in Montalupa City, consisting of the following properties:

- 1. 0.73 share (388.00 sq. m.) in a lot measuring 3,196 sq. m. located in Sabana, Sibang, Cavite covered by TCT No. T-80582
- 2. 0.15 share (81.00 sq.m.) in a lot measuring 207 sq. m. located in Sabana, Sibang, Cavite covered by TCT No. T-80583
- 3. 0.13 share (137.51 sq.m.) in a lot measuring 812.8 sq. m. located in Tagaytay City covered by TCT No. T-80584
- 4. 4.0 share (78 sq.m.) in a lot measuring 234 sq. m. located in Hives, Sibang, Cavite and covered by TCT No. T-80585
- 5. 0.73 share (388 sq.m.) on a parcel of land measuring 2,400 sq.m. located in Bn, Sibang, Cavite covered by TD No. 18 0023 00109
- 6. 0.12 share (179 sq. m.) in a lot measuring 279 sq. m. located in Sabana, Sibang, Cavite, covered by TCT No. T-80585
- 7. A lot measuring 268 sq. m. located in Sabana, Sibang, Cavite, covered by TCT No. T-80586
- 8. A residential house located in Poblacion 1, Sibang Cavite, measuring 393 sq. m. and covered by TD No. 18 0001 00033
- 9. A one-story structure measuring 23 sq. m. located in Poblacion 1, Sibang, Cavite covered by TD No. 18 0001 00039
- 10. ALPHI Marine Market Fund, Inc. (RPI Investment Management, Inc.) in the amount of P75,830.72, as of November 4, 2019
- 11. Toyota Corolla share particularly described under COR No. WBCD7110 with plate No. AGA4495 registered at P500,000.00
- 12. Toyota Fortuner share particularly described under COR No. 28482343 with plate No. VY7995 registered at P750,000.00

have been adjudicated and extrajudicially settled by and between his heirs since December the following properties in equal shares, per centum:

- TCT No. T-80582 (No. 1 above)
- TCT No. T-80583 (No. 2 above)
- TCT No. T-80584 (No. 3 above)
- TCT No. T-80585 (No. 4 above)
- TD No. 18-002300109 (No. 5 above)
- TCT No. T-80586 (No. 7 above)
- ALPHI Marine Market Fund (No. 10 above)
- Toyota Landry (No. 11 above)

That ROGAND Y. MEDINA, widow and executrix of her late husband participated in the following properties:

- Residential house - TD 18 0001 00035 (No. 8 above)
- 1-story structure - TD No. 18 0001 00034 (No. 9 above)
- Toyota Fortuner (No. 12 above)

That XAVIER VELAZCO MEDINA, widow and executrix of her late husband participated in TCT No. T-161781 (No. 6 above)

on December 21, 2019 at Sibang, Cavite before Hon. Judge Public, Atty. Grace M. del Lad-Manning and entered in her Notarial Register at Doc. No. 418. Page No. 45; Book No. 1, Series of 2019.

(Sgt.) ROGAND VELAZCO MEDINA for himself and in Absence of XAVIER VELAZCO MEDINA

Particulars: JIMMY K. KABITENYO  
Date: January 13, 20 & 27, 2020

ERRATUM

As per Notice of Extrajudicial Foreclosure of Real Estate Mortgage filed by HOME DEVELOPMENT MUTUAL FUND (HOME-FMG) in JC-MC-88-18 published in the above (1) insertive issue of DIARYO KABITENYO dated May 9-15, 2016; May 16-22, 2016 and May 23-29, 2016, the name of the Debtor/Mortgagor should have been: ADDA A. MOKAMAD, for herself and in Absence of her husband, ADAPEN MOKAMAD. - The Editor

How US sewage plants can remove medicines from wastewater

A study of seven wastewater treatment plants in the Eastern United States reveals a mixed record when it comes to removing medicines such as antibiotics and antidepressants.

The research points to two treatment methods — granular activated carbon and ozonation — as being particularly promising.

Each technique reduced the concentration of a number of pharmaceuticals, including certain antidepressants and antibiotics, in water by more than 95%, the scientists' analysis found.

Activated sludge, a common treatment process that uses microorganisms to break down organic contaminants, serves as important purpose in wastewater treatment but was much less effective at destroying persistent drugs.

AUCTION SALE

To be sold by PUBLIC SALE of immovables and kind similar in single lot under No. AGN07019 in single auction at origin:

- JARDI FARMHOUSE/PRODUCTION
- Lot 1770000 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770001 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770002 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770003 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770004 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770005 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770006 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770007 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770008 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770009 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770010 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770011 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
- Lot 1770012 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
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- Lot 1770019 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
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- Lot 1770031 Agribusiness/Horticulture, Taguig, Manila, City of Manila, Cavite
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LANCELA HERRERA Auctioneer

# Persistence of gut microbial strains in twins, living apart after cohabitating for decades

Your fingerprints stay the same all your life. But what about the "fingerprint" of microbial strains that are shared in the guts of childhood twins? Using a genomic strain-tracking bioinformatics tool developed at the University of Alabama at Birmingham, researchers investigated whether these shared bacterial strains remain stable and resilient to changes in diet or environment after adult twins — who had lived together for decades — began to live apart.

The UAB study, published in the journal PLOS ONE, analyzed two metagenomic sequencing databases from pairs of twins — one for children who were still

living together and the other from adult twins, ages 36 to 80, who then lived apart for periods from one to 34 years. "Adult twins, ages 36 to 80 years old, showed that a certain strain or strains between a pair of twins was shared post-separation," said Casey Marrow, Ph.D., professor emeritus in UAB's Department of Cell, Developmental and Integrative Biology. "While we do not know the origins of these shared microbes in the twins, these results suggest the possibility of strains shared between non-cohabitating twins for decades. As a corollary to these studies, our tool

establishes a timeline for stability of microbial strains in the

human gut." The study used a strain-tracking bioinformatics tool previously developed by UAB, called WinSIS, called WinSIS. Similar to single-nucleotide variant, or WSS, Hyumin Koo, Ph.D., UAB Department of Genetics and Genomics Core, led the informatics analysis. The research generated about six terabytes of data, which was analyzed with the help of the Cheaha UABgrid supercomputer, and the UAB Information Technology's Research Computing group.

Marrow and colleagues have used this microbe fingerprint in several previous studies to establish a timeline for stability of microbial strains in the

gut. The study used a strain-tracking bioinformatics tool previously developed by UAB, called WinSIS, called WinSIS. Similar to single-nucleotide variant, or WSS, Hyumin Koo, Ph.D., UAB Department of Genetics and Genomics Core, led the informatics analysis. The research generated about six terabytes of data, which was analyzed with the help of the Cheaha UABgrid supercomputer, and the UAB Information Technology's Research Computing group.

The current study used metagenomic sequencing databases from fecal samples of eight twin child individuals and 50 twin adult individuals.

The UAB researchers found significantly more shared strain pairs in childhood twins who still lived

together, as compared with adult twins after living apart for periods of time. Among the adult twins, those who had lived apart less than 10 years shared significantly more related strain pairs than twins living apart for longer periods, from 10 to 60 years.

Specifically, 80-year-old twins who had lived together for 79 years then were apart for 1 year showed the highest number of related strain pairs. The next highest numbers of related strain pairs were found in 56-year-old twins who had lived together for 31 years then apart for five years, in 73-year-old twins who lived together for 66 years and then apart for seven years, and in 36-year-

old twins separated for 19 years.

Single-shared strains were seen in three twin sets who had lived apart between 22 to 54 years, but these sporadic shared strains did not show a correlation with the length of living apart.

"While certain gut microbial strains can be stable in people, in some cases for decades, changes in the host environmental conditions over time can impact the stability landscape of the gut microbial community," Marrow said. "This might result in the appearance of new strains that could potentially impact the microbial interactions that are essential for function in human health."

# New study reveals the origin of complex malaria infections

New technology employing single cell genome sequencing of the parasite that causes malaria has yielded some surprising results and helps pave the way for possible new intervention strategies for this deadly infectious disease, according to Texas Biomedical Research Institute Assistant Professor Ian Cheeseman, Ph.D. Dr. Cheeseman was Principal Investigator of a three-year study published in the January 2020 edition of *Cell Host & Microbe*, a high-impact peer-reviewed publication.

Malaria is caused by *Plasmodium* parasites spread to people by the bite of infected *Anopheles* mosquitoes.

"We don't know what it inside malaria infections," Dr. Cheeseman said. "We don't know how many different genetically distinct strains of parasites there are. We don't know how related they are to each other. We don't know how many mosquitoes they came from."

To help answer these questions, Dr.

Cheeseman and his collaborators turned to single cell genome sequencing. Using this technology, individual malaria parasite cells are isolated and their genome amplified before being analyzed by a genome sequencer. Single cell sequencing allows researchers to capture the genetic mutations present in a single cell, and has been adopted by cancer researchers to understand how tumors evolve. This is the first time the technology was used to study malaria transmission.

Dr. Cheeseman and his international team studied single malaria-infected cells from malaria patients in Malawi, a country heavily burdened by this infectious disease. Malaria patients, who donated malaria-infected blood samples used in this study reside in Chikhwawa, a region with a large mosquito population. In this region, people may be bitten by a malaria-infected mosquito every 48 hours.

The single cell sequencing approach applied in this study

provides a fresh picture of how often bites from an infected mosquito lead to a malaria infection. What researchers discovered went against conventional wisdom. Nearly all the infections they studied likely came from one mosquito bite.

"We found that complex malaria infections are predominantly caused by a single mosquito bite transmitting many genetically diverse but related parasites into the blood stream of a patient," Dr. Standwell Nkhoma, lead author on the

study and a Malawian national, stated.

Knowing this enables scientists to design more effective interventions to block mosquitoes from spreading malaria and build more sophisticated models to predict the spread of anti-malarial drug resistance and malaria transmission patterns. The rise of anti-malarial drug resistance is a major threat to malaria control globally as resistance to the anti-malarial drugs artemisinin and piperaquine continue to spread.

## Hundreds of novel viruses discovered in insects

New viruses which cause disease often come from animals. Well-known examples of this are the Zika virus transmitted by mosquitoes, bird flu viruses, as well as the MERS virus which is

associated with camels. In order to identify new viral diseases quickly and prevent possible epidemics, DZIF scientists at Charité – Universitätsmedizin Berlin are targeting their search at viruses in animals. In a

current study, they have now discovered hundreds of novel viruses in insects. The results have been published in *PLoS Pathogens*.

"Every new virus we find could be a cause of illnesses that was

previously unknown, both to humans and in livestock," explains Prof. Dr. Christian Drosten, Director of the Institute of Virology on Campus Charité Mitte. The scientist is a specialist for virus dis-

eases and diagnostic at the German Center for Infection Research (DZIF). For example, his team has defined the international standard approach for diagnosing MERS. He is currently focusing on rare virus diagnoses using new sequencing techniques. "The more viruses we identify and add to our database, the easier it is for us to recognize the cause of new and unusual illnesses," says Prof. Drosten.

## A molecular switch for stomach disease

Infectious diseases triggered by bacteria and other microbes are the most frequent cause of human mortality across the globe. Roughly half of the world's population carries the bacteria *Helicobacter pylori* (H. Pylori) in their stomach, known to be the most significant risk factor for ulcers, MALT lymphoma and adenocarcinoma in the stomach. The rapid spread of pathogens resistant to medication such as antibiotics is making it increasingly difficult to treat infections such as these using antimicrobial therapies. A research team from Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) has now revealed a new mechanism which con-

trols the causes of infection with H. Pylori, triggering the development of stomach diseases. It is hoped that these findings will lead in time to new therapies. The study was published in the journal *Nature Communications*.

A team of national and international scientists led by Prof. Dr. Steffen Backert from the Chair of Microbiology at FAU has investigated how the bacteria manipulate the host's immune system in order to ensure their long-term survival in the stomach. A chronic inflammation is the most common cause for stomach illnesses such as these. The researchers have identified a molecular switch which uses a previously unknown mechanism

to regulate the inflammation reaction in the stomach. The interaction between H. Pylori and stomach cells activates a spring-like pillar structure referred to as a type IV secretion system. A protein, CagA, is presented at the surface of this structure which allows the bacterial toxin known as CagA protein to be delivered into the stomach cells. The injected CagA then re-programmes the host cell so that stomach cancer can develop. It now appears that CagA also has another important function, however. The protein is recognised by the immune system via the receptor TLR5. Experiments in mouse models have demonstrated that TLR5 controls the infection efficiently.

## Findings on education, malnutrition 'deeply disturbing'

Despite progress toward global education targets, a new study reveals that 1 in 10 women ages 20-34 in low- and middle-income countries had zero years of schooling in 2017, and 1 in 6 had not completed primary school.

For the first time, researchers have mapped years of education and child malnutrition across all low- and middle-income coun-

tries at the level of individual districts. The findings include precision maps illuminating disparities within countries and regions often obscured by national-level analyses.

Nations with districts where high proportions of women had zero years of education in 2017 included Afghanistan, Niger, and the Gambia.

The research showed that gender inequality in education persists in many regions, with men achieving more years of education than women overall. A gap of more than three years between men and women was observed in nearly 140 districts in Yemen, Sudan, South Sudan, Nigeria, Kenya, the Democratic Republic of the Congo, Angola, and Afghanistan.



### Q & A on Consumer Rights

Q:

**PROBLEMA SA PRODUCT QUALITY AND SAFETY?**

A:

**WALA DAPAT!**  
MAY MGA QUALITY AT SAFETY STANDARDS UPANG MASIGURO ANG KALIGTASAN AT KASIYAHAN NG KONSUMER.

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