

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

Proverbs 18:10

# DIYARYO KABITENYO

Nagmamalasakit sa lalawigan

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

1 Corinthians 16:13

## Duque meets with Cavite officials on province's dengue status

GENERAL TRIAS CITY, Cavite — Department of Health (DOH) Secretary Francisco Duque III met last August 5 with the Cavite governor, mayors, and legislators here to discuss preparedness and response plan on the dengue outbreak.

Duque expressed concern on the growing number of dengue cases in the country with some cities, towns, and provinces declaring "state of calamity" and immediate release of health and calamity funds to avoid an epidemic, if not properly and immediately addressed.

Besides meeting with local chief

Turn to page 2



Department of Health (DOH) Secretary Francisco Duque III checks on the health status of one of the patients at the dengue ward in General Emilio T. Aguinaldo Memorial Hospital during his hospital visit and a meeting with the local chief executives and legislators at the Cavite Collaboration Center for Public Health in General Trias City, Cavite on August 5, 2019. Duque assessed preparedness and response plan on the dengue outbreak.

### Maliksi gives barangay execs one week to remove road obstructions

IMOUS CITY, Cavite — Mayor Emmanuel Lomasaga Maliksi has given barangay chairmen at least one week to remove the obstructions on roads and sidewalks in their areas of jurisdiction.

The one-week ultimatum was made by Maliksi in a recent meeting with concerned department heads, local barangay officials, and special teams to deliberate on the actions pertaining

to the clearing of illegal structures, vendors, and illegally parked vehicles, among others, in the road vicinity. The mayor also created a task force that will oversee the anti-road obstruction

implementation in the city's 97 barangays (villages), particularly in markets and "talipapa" ( flea markets) and other crowded areas. The task force will be headed by the mayor himself, with the police,

the City Engineer and Risk Reduction Management, Engineering, Planning and General Services and other concerned offices. City Engineer Christian Merino S. Turn to page 2

# DIYARYO KABITENYO

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ARNULFO BARCO

Publisher - Editor

GENER BARCO

Operational Manager

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## Papi

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## Home births as safe as hospital births: International study suggests

A large international study led by McMaster University shows that low risk pregnant women who intend to give birth at home have no increased chance of the baby's perinatal or neonatal death compared to other low risk women who intend to give birth in a hospital.

The results have been published by The Lancet's *Evidence-Based Medicine* journal.

"More women in well-resourced coun-

tries are choosing birth at home, but concerns have persisted about their safety," said Helen Hutton, professor emerita of obstetrics and gynecology at McMaster, founding director of the McMaster Midwifery Research Centre and first author of the paper.

"This research clearly demonstrates the risk is no different when the birth is intended to be at home or in hospital."

The study examined the safety of place of

birth by reporting on the risk of death at the time of birth or within the first four weeks, and found no clinically important or statistically different risk between home and hospital groups.

The study, which is the first systematic review and meta-analysis to use a previously published, peer-reviewed protocol for the research, used data from 21 studies published since 1990 comparing home and hospital birth outcomes

in Sweden, New Zealand, England, Netherlands, Japan, Australia, Canada and the US. Outcomes from approximately 300,000 intended home births were compared to similar numbers of births intended to occur in hospital in these eight countries.

"Our research provides much needed information to policy makers, care providers and women and their families when planning for birth," said Hutton.

(MALIKSI... from page 1)

Sarno said that letters there were instructions notices will be issued by the Office of the Mayor to barangay captains for them to comply with the directives.

"We will be seeing actions in one or two weeks. The assigned team will demolish the illegal structures or any obstructions (on sidewalks or roads) if the barangay officers will defy the orders," Sarno said.

Imua Department of the Interior and Local Government (DILG) Officer Desinaime Toledo de Pano said that her office will monitor and report regularly to her superiors the actions and progress of the clearing operation.

De Pano said that

from DILG Carin Provincial Director Eleasa G. Rosal and DILG Region IV-A Director Manuel Q. Gato for

her and her assistants to lead and oversee the implementation of the Memorandum Circular No. 2019-121 that DILG Secretary Eduardo M. Año issued last July 29.

"We will be monitoring the actions taken and progress on the obstruction drive and reporting weekly and quarterly to our superiors," De Pano said.

Cavite, with eight districts comprising seven cities and 16 municipalities, is the country's most densely populated province.

(DUQUE... from page 1)

local government units (LGUs) to establish hydration stations in all rural health units (RHUs) for those suffering from high fever to prevent dehydration, and ensure the necessary medical treatment and health services are in place in all levels of care to support communities with dengue cases.

"Dapat lahat ng ating mga lokal na pamahalaan ay handa na makipaghiwalay ng suporta sa mga biktima ng dengue lahat na ngayon patuloy na tumatag sa mga bago ditto sa Cavite, kailangan nating dalubong pag-ingat," he said.

Duque also urged

local government units (LGUs) to establish hydration stations in all rural health units (RHUs) for those suffering from high fever to prevent dehydration, and ensure the necessary medical treatment and health services are in place in all levels of care to support communities with dengue cases.

The Cavite Provincial Epidemiology and Surveillance Unit (PESU) has recorded a total of 6,232 dengue cases from January 1 to

August 5 this year, with 27 reported deaths.

It reported that this year's figure is 98 percent higher compared to the same period last year with 3,127 cases, which prompted the provincial government to declare a "state of calamity" last July 18 this year over rising cases of dengue.

The province of Cavite also called for intensified intervention measures to address the outbreak.

Dengue cases in the province have an age

range of one month to 92 years old, with male patients comprising about 53 percent.

Top five cities with the most number of cases are Dasmariñas with 1,542 cases followed by General Trias with 575 cases, Bacoor-310, Jena - 307, and the town of Silang 475 cases.

In his visit to the General Emilio T. Aguinaldo Memorial Hospital (GEAMH), Duque checked on the health status of dengue patients in the hospital ward.

REPUBLIC OF THE PHILIPPINES  
REGIONAL TRIAL COURT  
OFFICE OF THE CLERK OF COURT  
& EX-OFFICIO SHERIFF  
Davao, CAVITE

HOME DEVELOPMENT MUTUAL FUND, (otherwise known as PAG-IBIG-FUND) Mortgagee.

EXTRA-JUDICIAL FORECLOSURE OF REAL ESTATE MORTGAGE UNDER ACT 3153 AS AMENDED BY ACT 3414  
FC CASE NO. 1888-19

JUNE MABUNGA-GUYARRA, Mortgagee.

**NOTICE OF EXTRA-JUDICIAL SALE**

Upon Extra-Judicial Petition for Sale under Act 3153 as amended by Act 3414 filed by PAG-IBIG FUND OR HOME DEVELOPMENT MUTUAL FUND, with business address at 127 Floor, JELP Business Solutions Center, No. 409 Shaw Boulevard, Mandaluyong City against JUNE MABUNGA-GUYARRA, Mortgagee, with residence and postal address at Lot 1, Blk. 1, Bismarkville Subd., Alapan, Iloilo, Cebu monthly the mortgage indebtedness which as of May 10, 2019 amounts to NINE HUNDRED FORTY FIVE THOUSAND SEVEN HUNDRED SEVENTEEN PESOS & 80/100 (P94,617.00), Philippine Currency, including interest and penalties, but excluding attorney's fees, sheriff's fees and all other charges incident to the foreclosure and sale of the subject land will sell at public auction on **October 15, 2019 at 2:00 P.M.** or soon thereafter at the main entrance of the Provincial Capitol, City of Davao, Davao Region, Philippines, to wit: the highest bidder, the CAJH and in Philippine Currency, the following property with all improvements thereon, to wit:

**TRANSFER CERTIFICATE OF TITLE NO. 87-2018-1434**

A parcel of land (Lot 12, Blk. 1 of the subdivision, Plan No. 04210-00003), being a portion of the area of Lots 102-A & 102-B, Pld. 04-00024 L.R.C. Raz. No. 3, situated in the Brg. of Alapan, Mun. of Iloilo, Prov. of Cebu, in all areas bounded on the NW, along line 1-2 by Lot 12, Blk. 1, on the NE, & NW, along lines 2-3 & 4 by Lot 4, on the NE, along line 5-5 by Lot 18, Blk. 1, all of the same, and on the SE, along line 2-4 by Lot 1260, Iloilo Estate, and on the SW, along line 6-1 by Lot 12, Blk. 1, all of the same, total area of NINETY FIVE (95) SQUARE METERS  $\pm$  x x.

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 **SEPTEMBER 16, 2019 at 2:00 P.M.** without further notice.

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

Davao, Cebu, July 18, 2019

(Sgd.) **WILMAR M. DE VILLA**  
Sheriff IV

APPROVED  
(Sgd.) **REGALADO E. SURENO**  
Clerk of Court III & Ex-Officio Sheriff

COPIES FURNISHED:  
HOME DEVELOPMENT MUTUAL FUND (otherwise known as PAG-IBIG FUND) 127 Floor, JELP Business Solutions Center, No. 409 Shaw Blvd., Mandaluyong City  
JUNE MABUNGA-GUYARRA 7777 Soledad St., Tondo, 770 Pasay City and Lot 12, Blk. 1, Bismarkville Subd., Alapan, Iloilo, Cebu

Publication Date: **DIYARYO KASINTENO** July 28, August 7 & 13, 2019

REPUBLIC OF THE PHILIPPINES  
REGIONAL TRIAL COURT  
FOURTH JUDICIAL REGION  
BRANCH 13  
TRECE MARTINES CITY

HOME DEVELOPMENT MUTUAL FUND, Mortgagee.

FORECLOSURE CASE NO. 7-06-19

CATALINO R. BERMAS, married to SOLEDAD M. BERMAS, Mortgagee.

**NOTICE OF EXTRA-JUDICIAL SALE**

Upon Extra-Judicial Petition for Sale under Act 3153, as amended by Act 3414, filed by Mortgagee: HOME DEVELOPMENT MUTUAL FUND, with business address at 127 Floor, JELP Business Solutions Center, No. 409 Shaw Boulevard, Mandaluyong City, against the Mortgagee's, **CATALINO R. BERMAS**, married to **SOLEDAD M. BERMAS**, with residence and postal address at Q-1-A Leon Pacific St., Sangay Point, Cavite City to satisfy the mortgage indebtedness which as of November 3, 2018 amounts to SEVEN HUNDRED THIRTY THREE THOUSAND FOUR HUNDRED EIGHTY SEVEN PESOS AND 80/100 (P73,487.39) Philippine Currency, including interest and penalties, charges as of said date but excluding foreclosure expenses and all other charges incident to this foreclosure and sale, the undersigned Sheriff will sell at public auction on **October 8, 2019 at 2:00 o'clock in the afternoon** at the main entrance of the Provincial Capitol Compound, Trece Martines City, to the highest bidder for CASH and in Philippine Currency, the following property with all the improvements thereon, to wit:

**TRANSFER CERTIFICATE OF TITLE NO. 7-2018-06001**

A parcel of land (Lot 6, Blk. 1 of the subdivision, Plan Pld-04-06001), being a portion of Lot 2178 New S.C.M. Estate, L.R.C. Raz. No. 3, situated in the Brg. of San Agustin, City of Trece Martines, in all areas bounded on the NE, along line 1-2 by Lot 5, on the SE, along line 2-3 by Rd. Lot 4, (6.50 M. Wide) on the SW, along line 3-4 by Lot 7, all of the same, plus beginning at a pt. marked "7" on plan, a x x containing an area of ONE HUNDRED (100) SQUARE METERS  $\pm$  x x.

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 **October 15, 2019** without further notice.

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

Trece Martines City, July 18, 2019.

(Sgd.) **LUCIO C. ALEJO III**  
Sheriff IV

Copy Furnished:  
HOME DEVELOPMENT MUTUAL FUND 127 Floor, JELP Business Solutions Center No. 409 Shaw Boulevard, Mandaluyong City  
CATALINO and SOLEDAD M. BERMAS Q-1-A Leon Pacific St., Sangay Point, Cavite City

WARNING: It is absolutely prohibited to receive, deliver or destroy the Notice of Extra-Judicial Sale on or before the date of sale.

Publication Date: **DIYARYO KASINTENO** August 5, 12 & 19, 2019

REPUBLIC OF THE PHILIPPINES  
REGIONAL TRIAL COURT  
FOURTH JUDICIAL REGION  
BRANCH 13  
TRECE MARTINES CITY

HOME DEVELOPMENT MUTUAL FUND, Mortgagee.

FORECLOSURE CASE NO. 4-06-19

GABRIEL R. GADAZA, married to ANGELA J. GADAZA, Mortgagee.

**NOTICE OF EXTRA-JUDICIAL SALE**

Upon Extra-Judicial Petition for Sale under Act 3153 as amended by Act 3414, filed by Mortgagee: HOME DEVELOPMENT MUTUAL FUND, with business address at 127 Floor, JELP Business Solutions Center, No. 409 Shaw Boulevard, Mandaluyong City against the Mortgagee's, **GABRIEL R. GADAZA**, married to **ANGELA J. GADAZA**, with residence and postal address at Lot 29, Block 4, Parcel 5, Capital Hills Executive Subdivision, Leganes, Trece Martines City, Cavite to satisfy the mortgage indebtedness which as of November 4, 2018 amounts to ONE MILLION TWO HUNDRED SIXTY THOUSAND FOUR HUNDRED TWELVE PESOS AND 80/100 (P1,206,412.00), Philippine Currency, including interest and penalties, charges as of said date but excluding foreclosure expenses and all other charges incident to this foreclosure and sale, the undersigned Sheriff will sell at public auction on **October 8, 2019 at 2:00 o'clock in the afternoon** at the main entrance of the Provincial Capitol Building, located at the Provincial Capitol Compound, Trece Martines City, to the highest bidder for CASH and in Philippine Currency, the following property with all the improvements thereon, to wit:

**TRANSFER CERTIFICATE OF TITLE NO. 4-2018-01120**

A parcel of land (Lot 29, Blk. 4 of the subdivision, Plan Pld-04-01120), being a portion of the area of Lots 23A, 40-41, 41-1 and 41-2 of Block 4, Lot 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 and 43 of Block 4, all of the same, plus beginning at the NW corner of the lot, along line 1-2 by Road Lot 1, (6.50 wide) on the NE, along line 2-3 by Lot 28, Blk. 4, on the SE, along line 3-4 by Lot 7, Blk. 4 and on the SW, along line 4-1 by Lot 10, Blk. 4, all of the same, total area of THIRTY NINE (39) SQUARE METERS  $\pm$  x x.

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 **October 15, 2019** without further notice.

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

Trece Martines City, July 18, 2019.

(Sgd.) **LUCIO C. ALEJO III**  
Sheriff IV

Copy Furnished:  
HOME DEVELOPMENT MUTUAL FUND 127 Floor, JELP Business Solutions Center No. 409 Shaw Boulevard, Mandaluyong City  
GABRIEL and ANGELA J. GADAZA Lot 29, Block 4, Parcel 5, Capital Hills Executive Subd., Leganes, Trece Martines City, Cavite

WARNING: It is absolutely prohibited to receive, deliver or destroy the Notice of Extra-Judicial Sale on or before the date of sale.

Publication Date: **DIYARYO KASINTENO** August 5, 12 & 19, 2019



Republic of the Philippines  
Province of Cavite  
Municipality of Alabang

OFFICE OF THE MUNICIPAL CIVIL REGISTRAR

Publication Notice  
R.A. 10172

**NOTICE TO THE PUBLIC**

Date: August 7, 2019

CEC-0074-2019 & R. 10172

In Compliance with the publication requirement and pursuant to OCRD Memorandum Circular No. 2013-11 Guidelines in the Implementation of the Administrative Order No. 1 Series of 2015 (R.A. 10172), Notice is hereby served the public that **ARLENE B. VIZCAYA** has filed with this office a petition for correction of entry in her 1968 "M" as "FEMALE" with certificate of live birth of **ARLDIN MOLLE ROTARIO** at Caviteangs, Alabang, Cavite and whose parents are **Felipe Rotario and Conchita Bala**.

Any person adversely affected by said petition may file his written opposition with this Office not later than **August 27, 2019**.

(Sgd.) TERESA A. GALANG  
Civil Registrar

DIYARVO KARTENYO / August 12 & 18, 2019

Republic of the Philippines  
Province of Cavite  
Municipality of Alabang

OFFICE OF THE MUNICIPAL CIVIL REGISTRAR

Publication Notice  
R.A. 10172

**NOTICE TO THE PUBLIC**

Date: August 7, 2019

CPN-0019-2019  
CEC-0077-2019 R.A. 10172

In Compliance with the publication requirement and pursuant to OCRD Memorandum Circular No. 2013-11 Guidelines in the Implementation of the Administrative Order No. 1 Series of 2015 (R.A. 10172), Notice is hereby served the public that **HELEN ZILLENIA GARCIA** has filed with this office a petition for change of live name from **FELIPE B. BENTA** and correction of entry in Date of Birth from **APRIL 21, 1951 to MARCH 21, 1951** in the certificate of live birth of **FELIPE PELLERVA** at MATAUBAC, ALIGONNO, Cavite and whose parents are **FELIPE PELLERVA and MACINA LEONOR**.

Any person adversely affected by said petition may file his written opposition with this Office not later than **August 27, 2019**.

(Sgd.) TERESA A. GALANG  
Civil Registrar

DIYARVO KARTENYO / August 12 & 18, 2019

Republic of the Philippines  
City Civil Registry Office  
Province of Cavite  
City of Imus

**NOTICE OF PUBLICATION**

In compliance with section 7 of R.A. 1963, a notice is hereby served to the public that **ELMERA C. CALLEJERO** has filed with this Office a petition for change of live name from **ROSEL B. SIBALIANO** to the 1995 certificate of **ANSEL CRISTOFAL B. ANI** who was born on **July 25, 1962** at Imus, Cavite and whose parents are **ELISABETH B. BLOD and LEONORA M. CHRISTINA**.

Any person adversely affected by said petition may file his written opposition with this office not later than **August 27, 2019**.

(Sgd.) VERONICA F. SANCHEZ  
City Civil Registrar

DIYARVO KARTENYO / August 12 & 18, 2019

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

In the Matter of Change of True Name in the Certificate of Live Birth (CCLB) of

**ABRAHAM BARCELA CONSTANTE**

CPN-0012-2019

**ABRAHAM R. CONSTANTE JR.**  
Petitioner

**NOTICE OF PUBLICATION**

There is a petition filed for the change of live name in Certificate of Live Birth (CCLB) of **ABRAHAM BARCELA CONSTANTE** from "**ABRAHAM**" to "**ABRAHAM JR.**".

**NOTICE IS HEREBY GIVEN** that any interested person is invited to file his written opposition with this office and show cause why the same should not be granted.

12000 NOTICE is 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. 1963.

(Sgd.) MERCI A. CHAVEZ  
Municipal Civil Registrar

DIYARVO KARTENYO / August 12 & 18, 2019

## Fast-food availability near commute route linked to BMI

In a study of commuting workers, the number of different types of food stores available near residences and commute routes — but not near workplaces — had a significant association with body mass index (BMI). Adriana Durrell of Arizona State University, U.S., presents these findings in the open access journal *PLOS ONE* on August 7, 2019.

Previous research has revealed links between the food stores available in residential neighborhoods and residents' health outcomes, including BMI. However, few prior studies have also included food stores near workplaces, and none have examined food options along commute routes. The new study addresses the relationship between these three food envi-

ronments and BMI. Durrell and colleagues analyzed data from 730 commuters, many school employees in New Orleans, Louisiana. Drawing on existing data, she determined the number of supermarkets, grocery stores, full-service restaurants, and fast-food restaurants within 1 kilometer of the employees' residential and workplace addresses. She also determined the number and type of food stores within 1 kilometer of the shortest-distance commute path between each employee's residence and their workplace.

Adjusting for socio-demographic factors, statistical analyses showed that a greater number of fast-food restaurants near the commute route was associated with higher BMI. Higher BMI was also associated with a greater number of supermarkets, grocery stores, and fast-food restaurants near residences, while a greater number of full-service restaurants near residences was linked to lower BMI. The analysis did not find any links between BMI and the food stores available

near workplaces. A deeper understanding of these factors could help inform interventions to promote better health outcomes.

Durrell adds, "The most important finding of the study was to establish a significant relationship between BMI and multiple food environments, as well as looking at health

### AUCTION SALE

The following is a list of items to be sold at an auction sale to be held on **Monday, August 12, 2019** at 9:00 a.m. (subject to change)

- Lot 11 Twelve (12) 2014 Honda Civic, Yearling, 1st Year, City of Iloilo, Cavite (1000000)
- Parking Garage, Paligaya 1, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 1, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 2, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 3, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 4, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 5, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 6, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 7, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 8, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 9, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 10, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 11, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 12, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 13, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 14, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 15, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
- 1000 sq. m. Lot 16, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
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- 1000 sq. m. Lot 58, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)
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- 1000 sq. m. Lot 100, Tubbataha Reef, Paligaya, City of Zamboanga, Cavite (1000000)

LAURENCE M. SORIANO

# Researchers discover gel reduces scar tissue after surgery in animals

Researchers discover gel reduces scar tissue after surgery in animals

Researchers at Stanford University have found that spraying a gel on the internal tissues of animals after cardiac surgery greatly reduces adhesions, fibrous bands that form between internal organs and tissues. Adhesions can cause serious, even fatal, complications.

The gel, developed at Stanford, delivered after 95% of surgeries, was far more effective than adhesion prevention materials currently on the market, the researchers said. It appeared to be safe in the animal study.

"The difference between what we see after using the gel and what we normally see after surgery was dramatic," professor and chair of cardiovascular surgery

and the Norman E. Shumway Professor,

A paper describing the research published August 7 in *Nature Biomedical Engineering*. Woo and Eric Appel, PhD, an assistant professor of materials science and engineering, are the senior authors. Lindsay Stapleton, a graduate student in his engineering, is the lead author.

Adhesions form after 95% of surgeries. Some are harmless, but when abdominal organs, they can twist or compress the intestines, causing life-threatening blockages. Gynecological surgery can also lead to adhesions that cause infertility. In cardiac re-operations, common for those born with heart defects, adhesions can increase the risk of complications. Methods to prevent

adhesions — including animal membranes,

sheets of rubber and mineral oil — have existed for more than 100 years, but they have mostly failed. Current adhesion barriers approved by the Food and Drug Administration are rarely used; they are difficult to deploy and are considered ineffective.

The Stanford researchers had long pioneered a solution to the adhesion problem. But one day, when Stapleton was working with lab rats to develop an injectable therapy to reduce tissue damage following a heart attack, Appel suggested she try spraying a polymeric composite hydrogel onto the hearts and surrounding tissues after surgery to see if it reduced the formation of adhesions. Weeks later, when she operated on the animals

again, she saw that no adhesions had formed.

"It was pretty striking," she said. "I thought, 'Oh, wow, we could be onto something here.'"

The researchers decided to conduct a study. First, they formulated four additional gels with a range of properties. Then, after inducing heart attacks in rats, they randomly divided the animals into eight treatment groups. Five that each received a different gel, two that received no treatment. Four weeks later, the rats that had received no treatment or either of the two commercial adhesion barriers had formed dense adhesions. Their hearts were connected to their chest walls.

# Forgotten immune cells protective in mouse model of multiple sclerosis

A seldom-studied class of immune cells may reduce the friendly fire that drives autoimmune disease, according to a new study by researchers at the Stanford University School of Medicine.

While the bulk of the study was done in mice, the researchers also showed that one of their central findings — an increase in CD8 T cells derived from stimulating these protective cells could lead to new therapies for diseases in which the immune system attacks the body's own tissues, such as multiple sclerosis and celiac disease.

The findings suggest that inflammatory and suppressive immune cells balance each other like children on a seesaw. Selectively activating suppressive CD8 T cells during autoimmune disease may help restore that balance, said Mark Davis, PhD, professor of microbiology and immunology and the study's senior author.

"We suddenly think that something like this is happening in human autoimmune diseases. It represents a mechanism that society and killed dis-

ease-causing immune cells. While the bulk of the study was done in mice, the researchers also showed that one of their central findings — an increase in CD8 T cells derived from stimulating these protective cells could lead to new therapies for diseases in which the immune system attacks the body's own tissues, such as multiple sclerosis and celiac disease.

ated. There's this whole subset of CD8 T cells that has a suppressive function," said Davis, who holds the Burn and Marion Avery Family Professorship and is also a Howard Hughes Medical Institute investigator. "If we could mobilize those cells to function, more effectively in patients with autoimmunity, then we'd have a novel treatment for diseases like multiple sclerosis."

In most cases, researchers don't know what molecules trigger autoimmune diseases, which affect 23.5 million Americans, according to the National Institutes of Health.

Multiple sclerosis is no exception. But scientists can trigger a similar disease in mice by injecting them with a small chunk, or peptide, of a protein called myelin oligodendrocyte glycoprotein, or

MOG. Mice with the disease, known as experimental autoimmune encephalomyelitis, develop paralysis just like patients with multiple sclerosis.

The researchers used this mouse model of the disease to investigate what different immune cells were doing during autoimmunity. They tracked the abundance of various classes of immune cells in mice injected with MOG.

They found that the number of T cells, which act like generals in directing the overall scale and strategy behind an immune response, rose and fell like waves. DNA sequencing showed that those waves were each made of groups of identical cells — so important clue.

When T cells encounter a pathogen, or antigen, single cells

that recognize some part of the pathogen divide and produce many copies of themselves," Davis said. "We're not trying to guess or hypothesize what they are recognizing."

The researchers found two peptides recognized by CD8 T cells involved in the disease. To understand the role of these peptides, they injected them into mice before, after or alongside MOG, to see if CD8 T cells are mainly known for killing cancerous and infected cells, the scientists suspected that activating these cells would worsen disease.

They were wrong. Activating the CD8 T cells by administering the two peptides actually prevented disease in the mice.

But what were these T cells responding to? Salazar first tested the most obvious suspect: MOG. He exposed the cells to 350 peptides derived from MOG but while MOG caused some T cells to proliferate, there was a group of CD8 T cells that didn't respond to any of the peptides.

So instead, the researchers cast a much wider net. They tested roughly 3 billion peptides. They used a molecular technique known as peptide display to generate an array of peptides attached to re-

dividual yeast cells.

"We are crowd-sourcing the T cells," Davis said. "We're asking the T cells, as the disease is progressing, what they are interested in," Davis said. "We're not trying to guess or hypothesize what they are recognizing."

The researchers found two peptides recognized by CD8 T cells involved in the disease. To understand the role of these peptides, they injected them into mice before, after or alongside MOG, to see if CD8 T cells are mainly known for killing cancerous and infected cells, the scientists suspected that activating these cells would worsen disease.

They were wrong. Activating the CD8 T cells by administering the two peptides actually prevented disease in the mice.

## Wearable motion sensors could save unborn babies

The thump, thump of a baby's heartbeat is a milestone in any pregnancy. Now, researchers at Stevens Institute of Technology have developed a technique that could allow expectant parents to hear their baby's heartbeat continuously at home with a non-invasive and safe device that is potentially more accurate than any fetal heart rate monitor currently available in the market.

The device, which uses the same commercial sensors used in smartphones to horizontally or vertically orient the device, can record vibrations sent through a mother's abdomen when her baby's heart beats so when the fetus squirms and kicks. Loaded by

physician, the device could potentially reduce an estimated 2.6 million stillbirths per year worldwide.

"Almost a third of stillbirths occur in the absence of complicating factors," said Nagar Tavassolian, an associate professor who led the work at Stevens. "Our device could let a pregnant woman know if her fetus is compromised and she needs to go to the doctor."

Many stillbirths are preceded by variations in fetal movement and heartbeat, so affordable, lightweight monitors that detect vibrations generated from a heart beat could be worn continuously in the final weeks of pregnancy to ensure that distressed fetuses receive prompt medical attention. The

work is reported in the early access issue of IEEE Sensors Journal.

Tavassolian and first author, Chensi Yang, a graduate student at Stevens, teamed up with Bruce Young and Clarel Antunez, two OB-GYNs at New York University Langone Medical Center to test their sensors. In experiments on 10 pregnant women, they found the device could detect fetal heart rate with about the same accuracy as fetal cardiograms (f-CUG), which measure the baby's heart electrical activity (EKG) together with mother's uterine contractions as — and considered the current standard for fetal monitoring.

## Tiny biodegradable circuits for releasing painkillers inside the body

Patients tired with an orthopedic prosthesis commonly experience a period of intense pain after surgery. In an effort to control the pain, surgeons inject painkillers into the tissue during the operation. When that wears off a day or two later, the patients are given morphine through a catheter placed near the spine. Yet catheters are not particularly comfortable, and the drugs

spread throughout the body, affecting all organs.

Researchers in TPFL's Microsystems Laboratory are now working on a biodegradable implant that would release a local anesthetic on demand over several days. Not only would this implant reduce patients' post-op discomfort, but there would be no need for further surgery to remove it. They developed a tiny biode-

gradable electronic circuit, made from magnesium, that could be heated wirelessly from outside the body.

Once integrated into the final device, the circuit will allow to release controlled amounts of anesthetic in a specific location over several days. After that, the implant will degrade safely inside the body. This research has been published in *Advanced Functional Materials*.



## 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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