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

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

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DTI Rizal conducts bamboo industry benchmarking visit in Cavite

The Department of Trade and Industry (DTI) Rizal conducted an industry benchmarking visit in Cavite on Oct. 9 to help bamboo micro, small and medium enterprises (MSMEs) and Shared Service Facility (SSF) cooperators learn established industry practices, explore product development opportunities and strengthen local businesses.

The delegation was led by OIC Provincial Director Sharon F. Dioco, together with STIDS Marlene De Luna, TIDA Paolo Garrovillas and Negosyo Center Cardona Business Counselor Faye Javier.

Participants included representatives from the Municipality of Cardona, Cardona Multipurpose Cooperative, AITECH IDEA Fablab and Narisa Piscos of ARTe Filipino Souvenir Shop. The group visited three establishments in Cavite to learn about production practices, enterprise development and the commercial potential of local industries.

At Kawayang Maragondon, operated by the local government of Maragondon, participants learned about the Bamboo Shared Service Facility supported by DTI Cavite and how its equipment and production capabilities helped bamboo-based businesses. The delegation also visited Noraben Food Manufacturing, a graduate of DTI Cavite's Kapatid Mentor Me program, which processes patis or fish sauce. The visit provided insights into food processing, production operations and business development.

At Kawayan Eco Park, participants explored bamboo-related initiatives and learned about the material's potential for sustainable livelihood and business opportunities. DTI Rizal said the activity supported knowledge sharing, innovation and cooperation among MSMEs and SSF cooperators. It also aimed to help participating businesses identify ways to improve their products, strengthen operations and develop more competitive local industries.



Calabarzon workers receive P45 wage hike

Around 1.56 million minimum wage earners in Calabarzon were set to benefit from a wage increase of up to P45 starting Oct. 26, according to the Regional Tripartite Wages and Productivity Board (RTWPB).

The regional wage board said the adjustment was equivalent to an additional P1,170 per month and had been approved through a tripartite process involving labor, employers and government representatives.

Under Wage Order IVA-23, daily wage increases varied across the region depending on the industry sector and the classification of each municipality.

Department of Labor and Employment Secretary Francis Tolentino said the agency would closely monitor the implementation of the order to ensure establishments

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DIYARYO KABITENYO

News Publishing Service

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ARNULFO BARCO
(May 14, 1951 - September 2, 2024)
Founder

GENER BARCO
Publisher-Editor

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(CALABARZON...from page 1)

complied with the new wage rates and that wage policies remained effective in Calabarzon.

Aside from minimum wage earners, around 201,000 domestic workers were also expected to receive a monthly wage increase of P750, raising their minimum monthly salary to P7,500.

Wage Order RB-IVA-DW-06 covered live-in and live-out domestic workers across the region, including general household helpers, yayas, cooks, gardeners and laundry workers.

Family drivers, service providers and occasional or sporadic workers were excluded from the coverage.

The National Wages and Productivity Commission, chaired by Tolentino and composed of representatives from labor unions, employer groups and government agencies, approved the adjustments after considering regional economic and social conditions, the needs of domestic workers and employers' capacity to pay.

Calabarzon comprises the provinces of Cavite, Laguna, Batangas, Rizal and Quezon.

How to unlock growth, fat loss, and mental clarity through better sleep

A good night's sleep does much more than leave you feeling refreshed, as during deep sleep the body releases growth hormone, a powerful chemical messenger that helps build muscle, strengthen bones, and regulate fat metabolism, making sufficient sleep especially important for teenagers who rely on this hormone to reach their full height potential.

While scientists have long known that insufficient sleep can interfere with growth hormone production, it remained unclear exactly how the brain controls this process, particularly during non-REM sleep, the deep, restorative stage that typically dominates the earlier part of the night.

Now, researchers at the University of California, Berkeley, have uncovered the brain circuitry behind this relationship; in a study published in the journal Cell, the team identified the neurons that regulate growth hormone release during sleep and discovered a previously unknown feedback system that helps maintain a delicate balance between hormone levels and wakefulness.

The discovery reveals that the relationship works in both directions: sleep stimulates growth hormone production, but growth hormone also sends signals back to the brain that influence when we wake up, findings that could eventually help scientists develop new approaches to treating sleep disorders associated with metabolic diseases such as diabetes, as well as neurological conditions including Parkinson's and Alzheimer's.

"People know that growth hormone release is tightly related to sleep, but only through drawing blood and checking growth hormone levels during sleep," said study first author Xinlu Ding, a postdoctoral fellow in UC Berkeley's Department of Neuroscience and the Helen Wills Neuroscience Institute.

"We're actually directly recording neural activity in mice to see what's going on. We are providing a basic circuit to work on in the future to develop different treatments." Although growth hormone is best known for its role in childhood development, its importance extends well into adulthood because it supports the maintenance of muscle and bone, helps the body regulate how it uses stored fat, and influences blood sugar levels, consequently, when sleep is consistently disrupted, growth hormone regulation can suffer, and because this hormone helps control glucose and fat metabolism, inadequate sleep may contribute to an increased risk of obesity, diabetes, and cardiovascular disease.

To understand how the brain coordinates these processes, the Berkeley researchers focused on the hypothalamus, a small but essential control center located deep within the brain that helps regulate hunger, body temperature, hormone production, and the daily cycle of sleeping and waking, functions preserved throughout mammalian evolution.

Within the hypothalamus, they examined neurons that produce growth hormone-releasing hormone (GHRH) and two distinct types of neurons that produce somatostatin, chemical messengers with opposing functions where GHRH encourages growth hormone secretion while somatostatin suppresses it, together controlling how much growth hormone enters the bloodstream largely by regulating its release from the pituitary gland.

The scientists also investigated how growth hormone influences the locus coeruleus, a region in the brainstem involved in alertness, attention, thinking, and the drive to explore new or unfamiliar experiences, noting that disruptions in this region's activity have been linked

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Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City of: Cavite

Date: September 29, 2026

NOTICE TO THE PUBLIC

In compliance with the publication requirement and pursuant to OCRG Memorandum Circular No. 2013 - 1 Guidelines in the implementation of the Administrative Order No. 1 Series of 2012 (IRR on R.A 10172), Notice is hereby served to the public that **MICHELLE D.T. RAMOS** has filed with this Office, a petition for **correction of clerical error in the entry of sex** from **"FEMALE"** to **"MALE"** in the certificate of live birth of **EDGARDO MIGUEL RAMOS PORTACIO** at Cavite City and whose parents are **EDGIE B. PORTACIO AND MICHELLE D.T. RAMOS.**

Any person adversely affected by said petition may file his written opposition with this Office.

(Sgd.) **FLORDELIZA M. ALEJO**
OIC-City Civil Registrar

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

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

JOSEFINA LUMAGUI SAMBRANO

CFN-0006-2026

JOSEPHINE S. PEJI
Petitioner

NOTICE OF PUBLICATION

There is a petition filed for the change of first name in Certificate of Live Birth **(SECPA)** of **JOSEFINA LUMAGUI SAMBRANO** from **"JOSEFINA"** to **"JOSEPHINE ".**

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

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

RA9048 Form 10.1

Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City/Municipality: Naic

NOTICE FOR PUBLICATION

In compliance with Section 5 of RA9048, a notice is hereby served to the public that **CARMELINA B. DIGAL** has filed with this Office, a petition for **Change of First name** from **CARLOTA** to **CARMELINA** in the birth certificate of **CARMELINA BERNAL DIGAL** who was born on 16 July 1967 at Naic, Cavite and whose parent/s is/are NENITA C. ROSAL and BENJAMIN B. BERNAL.

Any person adversely affected by said petition may file his written opposition with this Office not later than **19 October 2026.**

(Sgd.) **MARGARITA ACOSTA CATIBAYAN**
C/MCR or D/CR

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

Republic of the Philippines
Province of Cavite
MUNICIPALITY OF MENDEZ-NUÑEZ
OFFICE OF THE MUNICIPAL CIVIL REGISTRAR

CCE-0051-2026 RA 10172

In compliance with the publication requirement and pursuant to OCRG Memorandum Circular No. 2013-1 Guideline in the Implementation of the Administrative Order No. 1 Series of 2012 (IRR on RA 10172), Notice is hereby served to the public that **NILO PEREY PERIDO** has filed with this Office, a petition for Correction of Clerical Error in Date of Birth from **NOVEMBER 08, 1974** to **NOVEMBER 07, 1974** in the Certificate of Live Birth of **NILO PEREY PERIDO** at Mendez, Cavite and whose parents are **JUAN G. PERIDO** and **YOLANDA S. PEREY.**

Any person adversely affected by said petition may file his written opposition with this office not later than **October 19, 2026.**

(Sgd.) **NOREN A. PEROLA**
Municipal Civil Registrar

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

RA10172 Form 10.1

Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City/Municipality: Naic

NOTICE FOR PUBLICATION

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 RA10172), Notice is hereby served to the public that **NORINDA F. LANDONG** has filed with this Office, a petition for **correction of clerical error to correct the child's date of birth** from **JANUARY 18, 1964** to **JANUARY 13, 1964** in the Certificate of Live Birth of **NORINDA PELIÑA FRANCISCO** who was born on 18 January 1964 at Naic, Cavite and whose parent/s is/are VIRGINIA ILOG PELIÑA and JOSE AQUINO FRANCISCO.

Any person adversely affected by said petition may file his written opposition with this Office not later than **19 October 2026.**

(Sgd.) **MARGARITA ACOSTA CATIBAYAN**
C/MCR or D/CR

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

(HOW...from page 2)

to several psychiatric and neurological disorders.

"Understanding the neural circuit for growth hormone release could eventually point toward new hormonal therapies to improve sleep quality or restore normal growth hormone balance," said Daniel Silverman, a UC Berkeley postdoctoral fellow and study co-author. "There are some experimental gene therapies where you target a specific cell type. This circuit could be a novel handle to try to dial back the excitability of the locus coeruleus, which hasn't been talked about before." Conducted in the laboratory of Yang Dan, a professor of neuroscience and of molecular and cell biology at UC Berkeley, the research utilized electrodes implanted in mice brains to record neural activity while using light to stimulate specific hypothalamic neurons.

Mice are particularly useful for studying sleep regulation because their sleep patterns differ significantly from those of humans, as rather than sleeping through one long stretch each night, mice typically sleep in brief episodes lasting only several minutes scattered throughout the day and night, giving researchers repeated opportunities to examine how neural activity and growth hormone regulation changed as the animals moved between sleeping and waking.

Using advanced techniques to trace connections between brain cells, the team discovered that GHRH and somatostatin behave differently depending on the sleep stage: during rapid eye movement (REM) sleep, commonly associated with vivid dreaming, activity involving both hormones increases, and although they normally exert opposing effects, their coordinated activity contributes to increased growth hormone release, whereas during non-REM sleep, somatostatin activity decreases to reduce inhibitory influence while GHRH activity rises moderately, a combination that also promotes secretion. Perhaps the most surprising finding was that growth hormone does not simply respond to signals from the sleeping brain but also influences the circuits controlling wakefulness; as growth hormone gradually builds up during sleep, it stimulates neurons in the locus coeruleus, increasing their activity and helping promote the transition toward waking, creating a feedback loop where sleep encourages hormone release and the resulting activity helps regulate the sleep-wake cycle.

RA10172 Form 10.1

Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City/Municipality: Naic

NOTICE FOR PUBLICATION

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 RA10172), Notice is hereby served to the public that **ARNULFO S. BATALLA** has filed with this Office, a petition for **correction of clerical error to correct the child's sex** from **FEMALE** to **MALE** in the Certificate of Live Birth of **ARCHE FORMON BATALLA** who was born on 12 August 2012 at Naic, Cavite and whose parent/s is/are CHERYL ADINIG FORMON and ARNULFO SUMALDE BATALLA.

Any person adversely affected by said petition may file his written opposition with this Office not later than **19 October 2026.**

(Sgd.) **MARGARITA ACOSTA CATIBAYAN**
C/MCR or D/CR

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

RA Form No. 10.0 (LCRO)

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

NOTICE FOR PUBLICATION

CFN-0012-2026

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 **FLORINIA A. BOBADILLA** has filed in this office, a petition for ***Change of First Name*** from **BABY** to **FLORINIA** in the Certificate of Live Birth of **BABY AUSTRIA BOBADILLA** at Rosario, Cavite and whose parents are ***EDILBERTO BOBADILLA*** and ***ANGELITA AUSTRIA.***

Any person adversely affected by said petition may file his written opposition with this office not later than **19 October 2026.**

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

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

Republic of the Philippines.
Fourth Judicial Region
REGIONAL TRIAL COURT
OFFICE OF THE EXECUTIVE JUDGE
Bacoor City, Cavite.
email: rtc1bcrocc@judiciary.gov.ph
contact no.: 0927-370-7489

IN RE: PETITION FOR COMMISSION
AS NOTARY PUBLIC,

App. No. 2026-25

ATTY. MARK JOSE C. QUELNAN,
Petitioner.
x- -x

NOTICE OF HEARING

Notice is hereby given that a summary hearing on the Petition for Appointment as Notary Public shall be held on **October 27, 2026 at 2:00 in the afternoon.** Any person who has any cause or reason to object to the grant of the petition may file a verified written opposition thereto, received by the undersigned before the date of the summary hearing.

Let this notice be published once in the newspaper of general circulation in the Cities and Province of Cavite at the expense of the petitioner.

City of Bacoor, Cavite. October 8, 2026.

(Sgd.) **AMALIA S. GUMAPOS-RICABLANCA**
Executive Judge

Copy furnished:

ATTY. MARK JOSE C. QUELNAN
Roll No.98125
B15 L18 Pelican St., Amaris Home Subd., Molino IV,
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Publication : DIYARYO KABITENYO News Publishing Service
Date : October 12-18, 2026

RA10172 Form 10.1

Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City/Municipality: Rosario

NOTICE FOR PUBLICATION

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 RA10172), Notice is hereby served to the public that **Regino M. Abarracoso** has filed with this Office, a petition for **correction of clerical error to correct the child's sex** from (misplaced) **FEMALE** to **MALE** in the Certificate of Live Birth of **Regino Mendoza Abarracoso** who was born on 04 January 1994 at Rosario, Cavite and whose parent/s is/are Elisa Ebong Mendoza and Eleuterio Abaigar Abarracoso.

Any person adversely affected by said petition may file his written opposition with this Office not later than **19 October 2026.**

(Sgd.) **MARIA ROSARIO CONVENTO SORIANO**
C/MCR or D/CR

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 5 & 12, 2026

Unlocking the mystery of stubborn diabetic wounds

Chronic diabetic ulcers represent a formidable challenge in modern healthcare, affecting over 131 million people globally and incurring approximately $755 billion in annual costs while carrying serious risks including amputation and death, which underscores the critical need to understand their resistance to healing.

While immune cells are central to coordinating the body's response to injury, previous research has often overlooked how different immune populations change over time as diabetic wounds progress; however, a comprehensive review by Yi Ru and colleagues addresses this gap by examining the behavior of monocytes, macrophages, dendritic cells, neutrophils, mast cells, B cells, T cells, and natural killer cells throughout the healing process.

Monocytes and macrophages receive particular attention, with the authors assessing the debated M1/M2 macrophage polarization model: during normal healing, monocytes infiltrate damaged tissue and differentiate into macrophages that shift from pro-inflammatory M1 states to pro-reparative M2 states, allowing inflammation to subside and repair to proceed, whereas in diabetic wounds, this transition breaks down as macrophages remain locked in pro-inflammatory states, prolonging tissue damage. Neutrophils, among the first responders that destroy pathogens and trigger early inflammation, exhibit poorly regulated formation of neutrophil extracellular traps in diabetic wounds, leading to excessive protease and reactive oxygen species release that prolongs inflammation and damages tissue.

Mast cells contribute to healing by releasing histamine, serotonin, and growth factors that influence blood vessel permeability and cell recruitment, yet their degranulation differs substantially between normal and diabetic wounds, with excessive activation potentially maintaining chronic inflammation. Dendritic cells, including epidermal Langerhans cells and dermal dendritic cells, bridge innate and adaptive immunity by presenting antigens, but recent evidence indicates they become less effective at efferocytosis—the process of removing apoptotic cells—in diabetic wounds; when impaired, dead cellular material accumulates and continues triggering inflammatory signals, a process regulated by the SLC7A11 transporter, whose reduced activity

Turn to page 5

ADDENDUM
TO THE DEED OF EXTRAJUDICIAL SETTLEMENT OF ESTATE OF THE LATE PATERNO BARCO GACIS

Notice is hereby given that the legitimate sole heirs as widow and children of the late **PATERNO BARCO GACIS** who died intestate on February 10, 2024 at San Fernando City, La Union. Have executed Addendum to the Deed of Extrajudicial Settlement of Estate of the late PATERNO BARCO GACIS executed on September 17, 2026 in Imus City, Cavite was duly noted and entered into the Notarial Register Book of Atty. James M. Licayu as Doc. No. 194, Page No. 40, Book No. LXXXIV Series of 2026.

The undersigned parties do hereby agree to make the following Addendum to the aforementioned Deed outline below:

a. That the deceased during his lifetime opened a joint account with KATHERINE TIBAYAN GACIS at Security Bank, Imus Branch under Account No. 0000059969263;

b. That the amount stated in the Deed of Extrajudicial Settlement of Estate (Php143,563.55) is the balance of the account as of the date of death;

c. That as the Joint Account stated in the Deed of Extrajudicial Settlement of Estate only the share of the deceased depositor forms part of the estate.

on October 9, 2026 in the City of Imus, Cavite, Philippines before Notary Public Atty. James M. Licayu and entered in his Notarial Register as Doc. No. 414; Page No. 84; Book No. LXXXIV; Series of 2026.

(Sgd.) **Heir/Widow, Heir/Son and Heir/Daughter**

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 12, 19 & 26, 2026

Publication Notice
R.A 10172

Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City of: Cavite

NOTICE TO THE PUBLIC

Date: October 5, 2026

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 **RAILE E. PINEDA** has filed with this Office, a petition for **correction of clerical error in the entry of sex** from **"FEMALE"** to **"MALE"** in the certificate of live birth of **RAILE E. PINEDA** at Cavite City and whose parents are **RONALD C. PINEDA AND JOSEPHINE P. ERAMIS**.

Any person adversely affected by said petition may file his written opposition with this office.

(Sgd.) **FLORDELIZA M. ALEJO**
OIC-City Civil Registrar

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 12 & 19, 2026

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

MARIA LUISA G. ZORO

CFN-0007-2026

MA. LUISA Z. ENCARNACION
Petitioner

NOTICE OF PUBLICATION

There is a petition filed for the **change of first name** in Certificate of Live Birth **(SECPA)** of **MARIA LUISA G. ZORO** from **"MARIA LUISA"** to **"MA. LUISA".**

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

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 12 & 19, 2026

Publication Notice
R.A 10172

Republic of the Philippines
Local Civil Registry Office
Province: Cavite
City of: Cavite

NOTICE TO THE PUBLIC

Date: October 6, 2026

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 DENNYS S. MIRANDA has filed with this Office, a petition for **correction of clerical error in the entry of sex** from "FEMALE" to "MALE" in the certificate of live birth of DENNY S. MIRANDA at Cavite City and whose parents are PHILIP B. MIRANDA AND MERNALYN H. SAID.

Any person adversely affected by said petition may file his written opposition with this office.

(Sgd.) **FLORDELIZA M. ALEJO**
OIC-City Civil Registrar

Publication : DIYARYO KABITENYO News Publishing Service
Dates : October 12 & 19, 2026

(UNLOCKING...from page 4)

in diabetes may weaken dendritic function and interfere with wound resolution. T lymphocytes, including regulatory T cells and γδ T cells, also help coordinate healing and regulate inflammation, but in diabetic wounds, both the number and function of regulatory T cells decline, slowing healing, while dendritic epidermal T cells, which produce insulin-like growth factor 1 and other factors to help keratinocytes multiply and close wounds, show lower activation and reduced cytokine production under diabetic conditions.

Although B cells and natural killer cells are less thoroughly studied, emerging evidence suggests they make meaningful contributions, B cells influence healing through antibody production and by affecting macrophage polarization, with recent data showing that their recruitment can encourage macrophages to adopt M2 states to reduce excessive inflammation, while natural killer cells regulate inflammation and new blood vessel formation through cytokine production and interactions with other immune cells. This deeper understanding of immune behavior in diabetic wounds could open the door to new treatments, as the review highlights advances in therapies designed to directly modify immune activity, including topical anti-cytokine biologics that disrupt persistent inflammatory signaling, approaches that influence macrophage polarization to encourage M2 states and speed wound closure, mesenchymal stem cell therapies and extracellular vesicles that may provide broad immune-regulating effects, advanced biomaterials and smart dressings for direct delivery of immune-modifying substances, Janus liposozyme technologies to regulate redox balance and immune homeostasis, macrophage-regulating drugs showing benefits in randomized clinical trials, and IL-15 superagonists that boost dendritic epidermal T cell activity.

The researchers emphasize that effective treatment may depend not only on which immune cells are targeted but also on when they are targeted, as diabetic wounds pass through inflammatory, proliferative, and remodeling stages, each with a different immune environment, meaning therapies useful at one stage may not have the same effect at another.

Future approaches could include personalized treatment plans based on immune profiling of individual wounds, combination therapies targeting several immune cell populations simultaneously, and continued investigation into unresolved questions about macrophage classification, with the authors arguing that a better understanding of how immune cell populations interact over time could lead to more precise and effective treatments for diabetic ulcers, one of the most serious and persistent complications of diabetes.

New compound reverses fatty liver disease by restoring the gut-liver axis

An experimental drug developed at Michigan Medicine has reversed a serious form of fatty liver disease in animal studies by targeting an unexpected source of liver damage: the gut.

The compound, known as DT-109, works by reducing harmful gut bacteria, protecting the intestinal lining, and preventing inflammatory substances from reaching the liver; according to findings published in The Journal of Clinical Investigation, this approach successfully reversed metabolic dysfunction-associated steatohepatitis (MASH) in animal models, offering a promising new strategy for treating a disease that remains difficult to manage.

MASH affects approximately 7% of the world's population and is a severe form of fatty liver disease in which excess fat accumulates in the liver, causing inflammation and cellular damage that over time can progress to cirrhosis extensive liver scarring as well as liver cancer and liver failure, and although treatment options have improved in recent years, effective therapies remain limited. "We see clear evidence that DT-109 protects the gut epithelial barrier, reducing the systemic influx of harmful microbial products that are thought to contribute to MASH development and progression," said Eugene Chen, M.D., Ph.D., senior author of the study and Frederick G. L. Huetwell Professor of Cardiovascular Medicine at the University of Michigan Medical School, adding that "This compound shows benefits to the gastrointestinal system and has great potential as a treatment for MASH."

Chen's research team had previously demonstrated that DT-109, a glycine-based tripeptide a small molecule made from three amino acids, the building blocks of proteins could improve MASH in animal studies, but what remained unclear was exactly how the compound produced its protective effects, the latest research provides an explanation, revealing how changes in gut bacteria can set off a chain reaction that damages the liver and how DT-109 can interrupt that process.

Before examining the drug's effects, the scientists confirmed an important contributor to MASH, excessive growth of Clostridium perfringens, a bacterium that produces ammonia inside the intestines, and when ammonia levels rise they can damage the gut's protective inner lining, which normally helps prevent potentially harmful substances from escaping the digestive tract and entering the bloodstream.

As the barrier weakens, however, toxins and other products generated by gut microbes can travel to the liver, where they provoke inflammation and activate immune defenses in ways that worsen liver damage, including one response involving the excessive activation of CD8+ T cells, immune cells that normally help the body destroy infected or abnormal cells but which, when overactive, contribute to the inflammatory processes associated with MASH findings that help explain why a disease centered in the liver can be strongly influenced by events occurring elsewhere in the digestive system.

Through a series of experiments, researchers discovered that DT-109 disrupts this damaging cycle by improving the intestinal environment and reinforcing the gut's protective barrier: in both mice and nonhuman primates, the compound reduced levels of Clostridium perfringens and lowered ammonia production in the intestines, changes that helped strengthen the intestinal lining, limiting the movement of harmful microbial substances into the body and reducing their potential to damage the liver.

The results were particularly encouraging in nonhuman primates, whose liver biology and gut microbial communities more closely resemble those of humans than those of mice, since in these animals DT-109 reduced liver inflammation and lessened the severity of MASH, together showing how targeting harmful processes in the gut can produce beneficial effects in the liver even though the drug acts primarily within the gastrointestinal system.

"DT-109 connects microbiota modulation with liver protection by restoring gut barrier integrity and limiting the systemic translocation of ammonia and other pro-inflammatory microbial products within the gut-liver axis," said Jifeng Zhang, Ph.D., co-author and research professor of cardiovascular medicine at U-M Medical School, noting also that "We also found that DT-109 primarily acts in the gastrointestinal tract, but its reach stretches much further."

The gut-liver axis refers to the close biological relationship between the digestive tract and the liver, since substances absorbed from the intestines travel to the liver through the bloodstream, making liver health particularly sensitive to changes in gut bacteria and intestinal barrier function; by targeting this connection, DT-109 may offer a way to address some of the processes driving liver inflammation rather than focusing exclusively on damage that has already occurred.

New research links increasing cancer incidence to factors beyond weight and lifestyle

Cancer rates are increasing among adults of different ages in England, but a new study has uncovered a particularly concerning pattern among younger people: rates of bowel and ovarian cancer have risen among younger adults (under 50), while the same increases have not been observed in older age groups.

The findings, published in the open-access journal BMJ Oncology, also show that several other cancers are becoming more common at a faster pace among younger adults than among those aged 50 and older, and although excess body weight appears to play an important role, researchers say obesity alone cannot account for the increases, suggesting that additional factors may be contributing to the growing burden of cancer in younger generations.

Similar increases in cancer among people under 50 have been reported outside England, yet scientists still do not fully understand whether changing lifestyle habits and other established risk factors can explain these trends, so to investigate, researchers examined cancer incidence records collected by England's National Disease Registry Service between 2001 and 2019, comparing trends in more than 20 cancer types among men and women aged 20 to 49 and adults aged 50 or older, while also analyzing national health survey data to track changes in established cancer risk factors including smoking, alcohol consumption, diet (high red/processed meat, low fiber intake), excess body weight (BMI), and insufficient physical activity, assessing how these factors changed across age groups and sexes and estimating how much they contributed to cancer cases.

The results revealed widespread increases in cancer incidence, with 16 of the 22 cancer types examined showing statistically significant increases among younger women and rates rising significantly for 11 of 21 cancers among younger men; of particular concern were 11 cancers associated with known behavioral risk factors that became significantly more common among adults under 50, including cancers of the thyroid, liver, kidney, gallbladder, bowel, pancreas, mouth, breast, and ovary, along with multiple myeloma and cancer of the uterine lining (endometrial).

Most of these cancers also increased significantly among adults over 50, however, bowel and ovarian cancers stood out because their incidence rose significantly among younger adults but not among older people, and the researchers also identified several cancers whose incidence increased more rapidly in younger women, including endometrial, kidney, pancreatic, multiple myeloma, and thyroid cancers, while among men, multiple myeloma was the only cancer found to be increasing significantly faster in the younger age group.

Examining how established lifestyle risks might help explain the increases, the team found that of the 11 cancers of particular interest, 10 were associated with obesity, with mouth cancer being the exception, six cancers (liver, bowel, mouth, pancreas, kidney, and ovary) were linked to smoking, four (liver, bowel, mouth, and breast) were associated with alcohol consumption, three (bowel, breast, and endometrial) were connected to physical inactivity, and one (bowel) was linked to dietary factors, yet the findings revealed an important contradiction because apart from excess weight, most of these established risk factors either remained relatively stable or improved among younger adults over the previous one to two decades.

Red meat consumption, for example, showed some of the largest reported improvements, with reductions of around 7% in the survey trends examined, as average daily consumption among younger men fell from 38 grams in 2008 to 17 grams in 2018 and dropped from 22 grams to 10 grams among younger women over the same period, while younger women also consumed substantially less processed meat than younger men, averaging about 10 grams per day compared with approximately 20 grams. Fiber intake remained a concern, with more than 90% of younger adults failing to consume enough fiber in 2018, nevertheless, average intake was generally stable or improved slightly among both sexes between 2009 and 2019, and older adults showed broadly similar dietary trends, raising questions about why cancer incidence continued to increase even as several recognized lifestyle risks were moving in a more favorable direction.

Despite these improvements, established behavioral risk factors were still associated with a substantial proportion of cancer cases, as the researchers estimated that for men in 2019, these factors accounted for 68% of mouth cancer cases among younger adults and 65% among older adults, with corresponding figures of 42% and 48% for liver cancer, 49% and 53% for bowel cancer, 29% and 33% for kidney cancer, and 36% and 34% for pancreatic cancer, while among women, the estimated proportions attributable to these risks were 52% for younger adults and 45% for older adults for mouth cancer, 35% and 42% for endometrial cancer, 44% and 46% for liver cancer, 38% and 42% for bowel cancer, 33% and 37% for kidney cancer, 31% and 28% for pancreatic cancer, and 19% and 24% for gallbladder cancer.

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Drug repurposing breakthrough may halt neuroinflammation at its source

Scientists may have discovered a new method to reduce harmful brain inflammation by targeting the P2X7 receptor, which can already be blocked with existing drugs, in research published in Brain and led by Professor Nicholas Barnes at the University of Birmingham. Identifying the P2X7 receptor as a key driver of neuroinflammation, the team used live cultures of human brain cells and tissue slices from neurosurgeries to demonstrate that blocking this receptor significantly reduced inflammation by inhibiting the release of cytokines, proteins that regulate inflammatory responses.

These findings hold potential implications for numerous neurological and psychiatric conditions where inflammation plays a role, including traumatic brain injury (TBI), Alzheimer's disease, Parkinson's disease, depression, and psychosis.

A major component of the study focused on microglia, the immune cells coordinating the brain's response to injury, for which the researchers developed a novel method to convert human peripheral monocytes into microglia-like cells, mirroring a natural cellular transformation observed during human aging.

This approach allowed the team to examine how microglia respond to inflammatory signals and to interfere with the signals released as these cells became damaged and died. Regarding the significance of the work, Professor Nicholas Barnes from the College of Medicine and Health at the University of Birmingham and corresponding author of the paper stated: "This exciting discovery marks a major step toward repurposing existing therapeutics to combat neuroinflammation at its source.

The identification of this receptor could have far-reaching implications for some of the most debilitating and widespread brain disorders such as Alzheimer's Disease, Parkinson's and Multiple Sclerosis, or inflammation-linked psychiatric conditions like schizophrenia and depression."

He further explained the methodological breakthrough: "Studying human microglia has long been a major challenge: once removed from their native brain environment, they rapidly lose their defining characteristics, likely due to the absence of critical regulatory signals.

Sugar intake may amplify antibiotic-induced gut microbiome disruption

New research indicates that consuming sugar while taking antibiotics may intensify the disruption those drugs cause to beneficial gut bacteria, a finding that underscores the critical role of the intestinal microbiome in supporting digestion, immune function, and overall health.

While antibiotics are widely prescribed, they often eliminate beneficial bacteria alongside harmful ones, reducing microbiome diversity and creating vulnerabilities to disease; however, a diverse microbiome generally resists the expansion of harmful pathogens.

To investigate this dynamic further, researchers from NYU Langone Health, City of Hope, and Memorial Sloan Kettering monitored 9,419 meals consumed by 173 hospitalized cancer patients, tracking changes in their gut microbiomes during treatment.

The study, published online on September 30 in the journal Nature, found that for every additional 100 grams of sugar eaten during the 48 hours before treatment, there was an additional 21% decline in alpha diversity, a key measure of beneficial bacterial variety.

The findings also revealed that sugary diets combined with antibiotic treatment were associated with increases in Enterococcus faecium, a species linked to difficult-to-treat infections, a result mirrored in mouse experiments where animals exposed to the antibiotic biapenem and dietary sucrose experienced a 16.3-fold increase in gut Enterococcus by day 3 and a 33.4-fold higher burden by day 6.

Commenting on the significance of these results, study co-senior author Jonas Schluter, PhD, assistant professor in the Department of Microbiology at NYU Langone, stated, "As we are learning how collateral damage of antibiotics to the microbiome are linked with long-term health problems, it's important to identify factors that limit these unintended health risks," adding that the study suggests modifying diet during and after antibiotics, specifically by reducing sweets intake, could help mitigate these risks.

The team focused on patients with blood cancers because they frequently receive antibiotics and their food intake can be closely monitored during hospitalization, a combination of detailed diet records and daily biological sampling that made the project one of the largest and most detailed studies of its kind.

Highlighting the clinical relevance, co-senior study author Marcel van den Brink, MD, PhD, chief physician executive at City of Hope, noted, "The microbiome is emerging as an important factor in cancer care," explaining that for patients undergoing intensive treatments such as bone marrow transplantation, the healthy diversity of the gut microbiome has important implications for outcomes and helps us better understand how everyday factors, including diet, may affect a delicate balance that influences how patients respond to treatment, recover, and experience side effects.