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FROM DEEP SEAS TO DEEP SPACE: TURKISH SCIENTISTS TRACE THE FOOTPRINTS OF LIFE

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WHAT IS LABMEDYA ?
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DEADLY HEATWAVE DEVASTATED PACIFIC OCEAN ECOSYSTEMS FROM PLANKTON TO WHALES

New study warns of climate-driven marine heatwaves as harbingers of a warming ocean future.

A historic marine heatwave that scorched the northeastern Pacific Ocean from 2014 to 2016 triggered widespread ecological collapse along North America's west coast, disrupting marine life from microscopic plankton to giant whales, according to a new study from the University of Victoria.

The heatwave, the longest and most intense ever recorded in the region, raised ocean temperatures by 2 to 6°C above average for months on end. The event decimated kelp forests, forced hundreds of species to migrate, caused mass die-offs, and devastated fisheries—offering a sobering preview of how climate change may reshape ocean ecosystems in the years ahead.

Oceanic Chaos on an Unprecedented Scale

Drawing on 331 scientific studies and government reports, researchers at UVic's Baum Lab conducted the most comprehensive analysis yet of the heatwave's ecological fallout.

"The 2014–2016 heatwave triggered ecological upheaval across thousands of kilometers of coastline," said lead author Samuel Starko, a former postdoctoral fellow at UVic. "Our synthesis reveals how profoundly such events can alter marine ecosystems and highlights the growing threat of future marine heatwaves."

Among the most striking findings: over 240 marine species were observed outside their typical ranges, with many shifting hundreds or even thousands of kilometers north. This included unusual sightings of species like the northern right whale dolphin and the colorful sea slug Placida cremoniana far beyond their known habitats.

Kelp Forests Collapse, Iconic Species Perish

The record-breaking ocean temperatures ravaged vital kelp and seagrass habitats. Entire kelp forests, foundational to coastal marine life, withered and disappeared.

Mass mortality events swept across species from sea stars to seabirds. A crucial coastal predator, the sunflower sea star (Pycnopodia helianthoides), was driven to the brink of extinction. Meanwhile, temperature-linked diseases such as sea star wasting syndrome surged, compounding ecosystem collapse.

The ripple effects were extensive: declining populations of small forage fish impacted larger predators, while plankton communities reorganized, and ocean productivity patterns shifted. "These were cascading impacts," Starko noted, "where losses in one part of the food web reverberated through the entire ecosystem."

Economic Toll Reaches Hundreds of Millions

Beyond the ecological consequences, the marine heatwave delivered a massive economic blow. The collapse of key fisheries—fueled by shifting species, disease outbreaks, and habitat loss—resulted in losses estimated in the hundreds of millions of dollars.

A Warning for the Future Oceans

"This heatwave is a warning shot," said Dr. Julia Baum, UVic marine ecologist and climate advisor. "As marine heatwaves become more frequent and intense due to climate change, we must prepare for a future where such disruptions are the norm rather than the exception."

Baum emphasized the urgent need for forward-looking, ecosystem-based conservation strategies and robust climate mitigation efforts. "What happened in the Pacific could soon become a global pattern. We must act now to safeguard ocean life."

Reference: "Ecological Responses to Extreme Climatic Events: A Systematic Review of the 2014–2016 Northeast Pacific Marine Heatwave" by BySamuel Starko, Graham Epstein, Lia Chalifour, Kevin Bruce, Daisy Buzzoni, Matthew Csordas, Sean Dimoff, Rebecca Hansen, Dominique G. Maucieri, Jennifer McHenry, Kristina L. Tietjen, Brian Timmer, Julia K. Baum, 2025, Oceanography and Marine Biology: An Annual Review.

DOI: 10.1201/9781003589600-2

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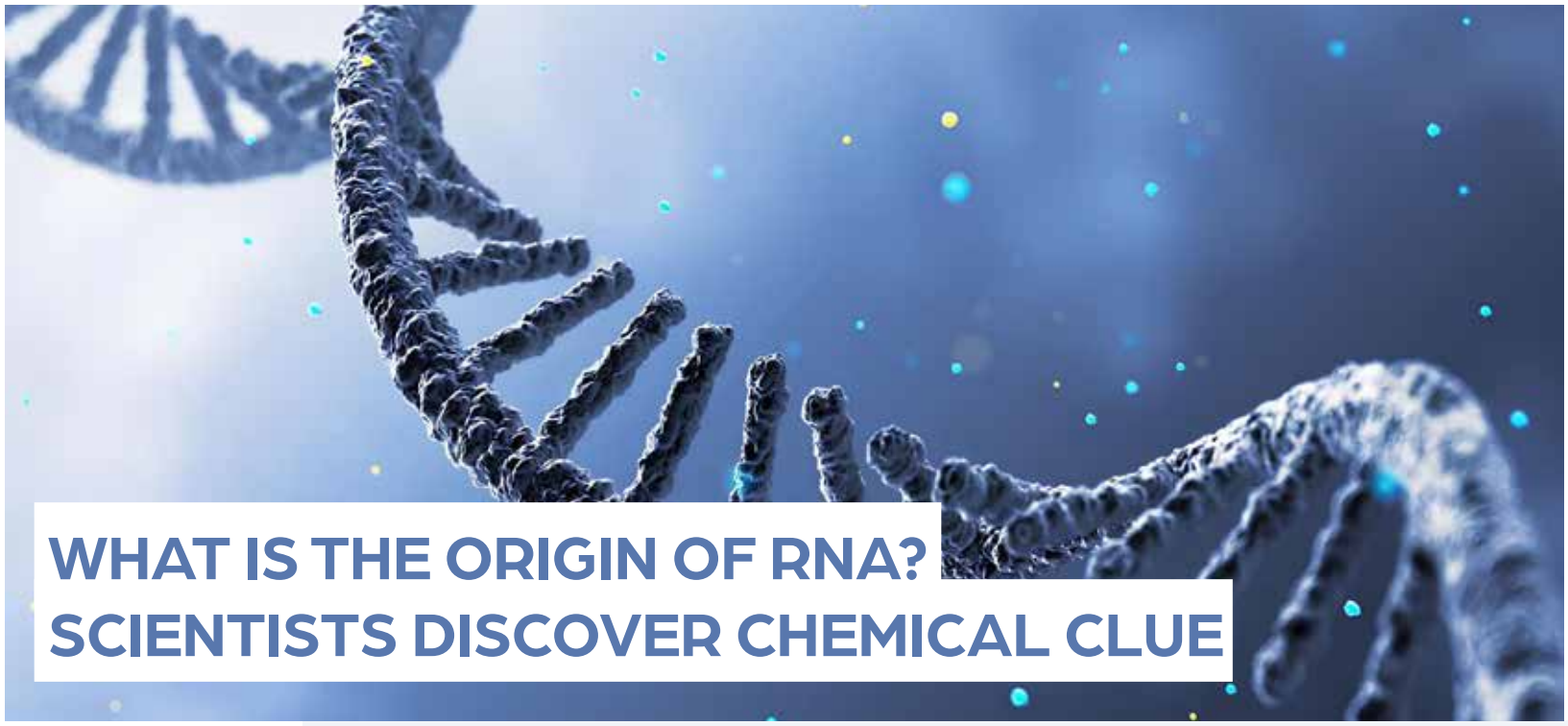


WHAT IS THE ORIGIN OF RNA? SCIENTISTS DISCOVER CHEMICAL CLUE

Scientists at Scripps Research have uncovered new findings about why ribose may have been nature's preferred sugar for building RNA. This discovery sheds light on how the molecular foundations of life formed before biological life began.

Today, cells rely on enzymes to synthesize complex molecules like RNA and DNA. But billions of years ago, before enzymes and life existed, how did these vital molecules come together? Moreover, why were certain molecules selected as life's building blocks while others were discarded? A new study from Scripps Research offers important clues to answer these fundamental questions.

Why Was Ribose Advantageous as RNA's Building Block?

In a study published in Angewandte Chemie, researchers examined the role of ribose in RNA's early evolution. Experiments showed that ribose binds to phosphate (another critical component of RNA) faster and more efficiently than similar sugars. This natural advantage may have influenced why ribose became a key molecule in the chemistry that led to life.

"This finding supports the idea that prebiotic chemistry could have produced RNA's building blocks, which might have eventually led to structures exhibiting lifelike properties," said study co-author Ramanarayanan Krishnamurthy, a chemistry professor at Scripps Research.

What Are Nucleotides, and Why is Ribose Important?

Nucleotides, the building blocks of RNA and DNA, consist of:

•A five-carbon sugar molecule (ribose or deoxyribose)

•A phosphate group

•A nitrogenous base (the part encoding genetic information, e.g., A, C, G, or U)

Krishnamurthy's team sought to understand how these complex molecules could have emerged on early Earth. The study specifically focused on phosphorylation—the step in nucleotide formation where ribose bonds with phosphate.

"Phosphorylation is one of life's fundamental chemical processes; it's essential for structure, function, and metabolism," Krishnamurthy explained. "We wanted to investigate whether this process also played a key role in the primordial chemistry that started it all."

Ribose Reacts Faster Than Other Sugars

To test this, researchers used controlled chemical reactions to compare how ribose is phosphorylated by diamidophosphate (DAP) versus three other sugars with the same chemical composition but different structures (arabinose, lyxose, and xylose). They then analyzed the reaction products using nuclear magnetic resonance (NMR) spectroscopy.

The results showed that while DAP phosphorylated all four sugars, it reacted with ribose much faster. Additionally:

•Ribose formed exclusively five-membered rings (matching RNA's structure)

•Other sugars produced a mix of five- and six-membered rings

When DAP was added to a mixture containing equal amounts of all four sugars, it preferentially phosphorylated ribose. While the other sugars stalled at intermediate reaction stages, a significant portion of ribose molecules converted into a form suitable for nucleotide formation.

Next Steps: Testing in Protocells

The researchers caution that while these reactions can occur abiotically, they don't prove how life originated.

"Studying these chemical processes helps us understand how life's building blocks may have formed," Krishnamurthy said. "But we're not claiming this is how RNA and DNA emerged—that's a much bigger leap. Many other steps would be needed."

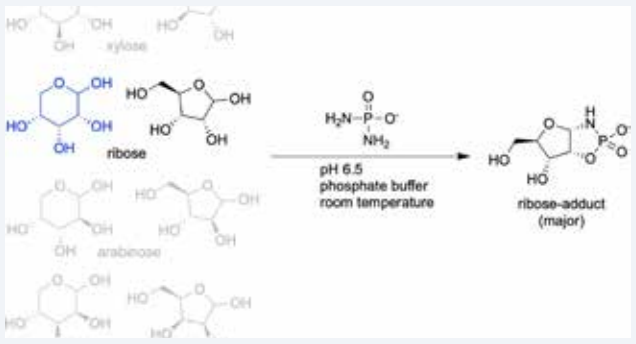
Next, the team plans to test whether these reactions can occur inside protocells—primitive cell-like structures that may have preceded life.

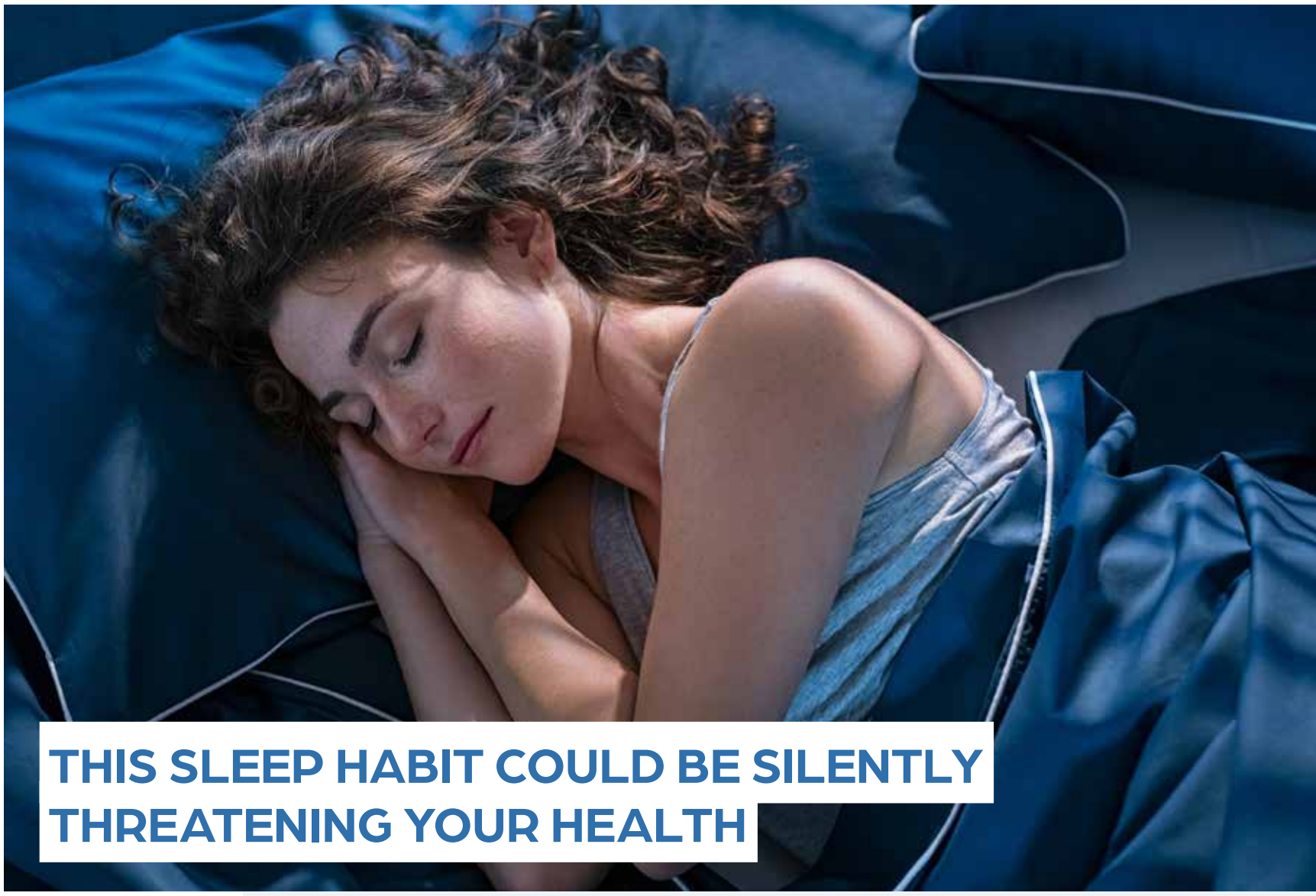
"Can ribose be selectively enriched inside a protocell and further react to form nucleotides? If so, this could create the conditions for protocell growth and division—a fundamental aspect of life," Krishnamurthy added.

Reference: Harold A. Cruz ve Ramanarayanan Krishnamurthy, "Selection of Ribofuranose-Isomer Among Pentoses by Phosphorylation with Diamidophosphate", Angewandte Chemie International Edition (27 Haziran 2025). DOI: 10.1002/anie.202509810

Funding: NASA Astrobiology Program (80NSSC22K0509)

The sugar ribose is more quickly phosphorylated compared to other sugars with the same chemical formula but a different shape. This selective phosphorylation could explain how ribose became the sugar molecule in RNA. Credit: Scripps Research





THIS SLEEP HABIT COULD BE SILENTLY THREATENING YOUR HEALTH

New research shows that not only the amount of sleep but also irregular sleep patterns may significantly increase the risk of numerous diseases.

According to a comprehensive international study published in Health Data Science, irregular sleep patterns may be linked to 172 different diseases. By analyzing objective sleep data from 88,461 adults in the UK Biobank, researchers found that consistent sleep routines—particularly stable bedtimes and biological rhythms (circadian cycles)—play a far more critical role in long-term health than previously assumed.

Led by scientists from Peking University and the Army Medical University in China, the study monitored participants using actigraphy (motion-tracking devices) over an average of 6.8 years. The findings reveal that poor sleep habits account for more than 20% of the risk for 92 diseases.

Sleeping After 12:30 AM Increases Cirrhosis Risk 2.5 Times

One of the study's most striking findings is that going to bed after 12:30 a.m. raises the risk of liver cirrhosis by 2.57 times. Additionally, low interdaily stability—a marker of disrupted sleep-wake rhythms—was linked to a 2.61 times greater risk of developing gangrene.

These results show that it's not just how much we sleep, but when and how regularly we sleep that can have serious health consequences.

In the study's visual models, sleep characteristics such as sleep duration, onset timing, efficiency, and number of awakenings are represented by circular icons surrounding the human body. Statistically, sleep-related traits account for an average of 23.01% of the disease burden in the affected disease categories.

Rethinking "Long Sleep": Challenging Popular Misconceptions

The research also challenges a widely held belief: that sleeping for long periods (≥9 hours) is inherently harmful. While subjective reports have associated long sleep with stroke and heart disease, objective measurements found this link in only one disease.

This discrepancy is likely due to misclassification: 21.67% of so-called "long sleepers" actually slept less than six hours—indicating that time spent in bed is often mistaken for actual sleep time.

Professor Shengfeng Wang, the senior author of the study, stated:

"Our findings highlight the often-overlooked importance of sleep regularity. It's no longer sufficient to define good sleep by duration alone."

The research team confirmed these associations in U.S. populations as well and pointed to inflammatory pathways as a possible biological mechanism. Future studies will explore whether these sleep patterns are a direct cause of disease and evaluate how interventions targeting sleep regulation may impact chronic health conditions.

Reference: "Phenome-wide Analysis of Diseases in Relation to Objectively Measured Sleep Traits and Comparison with Subjective Sleep Traits in 88,461 Adults"

By Wang Yimeng, Wen Qiaorui, Luo Siwen, Tang Lijuan, Zhan Siyan, Cao Jia, Shengfeng Wang, and Qing Chen

Health Data Science, June 3, 2025

DOI: 10.34133/hds.0161

HAVE YOU EVER TRIED TURKISH CUISINE?

Every country has a language. In Türkiye, that language often speaks from a plate—when the bottom of a copper pan is scraped or bread is baked on the stone of an old oven. Because in Türkiye, food doesn't merely satisfy hunger; it tells stories, reveals geography, and touches the soul.

In this piece, I'm taking you on more than just a culinary journey. We're traveling into the heart of culture, history, and the rich flavors that rise from Anatolia's fertile soil. If you're ready, let's begin with the comforting aroma of soup rising in the steam.

Gaziantep: The Capital of Fire and Flavor

The cuisine of Antep is a treasure protected by UNESCO. Here, a kebab is not just meat meeting fire—it is patience, craftsmanship, and culture on a skewer.

Ali Nazik, with its smoky eggplant mingling with cool yogurt and crowned with sautéed lamb, becomes a masterpiece.

Pistachio kebabs and golden-layered baklava delight both the eyes and the palate.

To sit at an Antep table is to engage not only with food, but with history and human connection.

The Black Sea: A Thousand Faces of Anchovy

The Black Sea table is as varied as its waves. On one side, anchovy rice; on the other, hearty cornbread. Each dish is distinct, each with its own identity.

While crispy fried anchovies dance in a hot pan, collard green rolls simmer with quiet strength. Mıhlama (or kuymak), where cornmeal and melted butter unite with cheese, represents not just a regional breakfast, but the essence of the Black Sea spirit.

Food here is an identity—reflecting stormy seas and patient hearts.

The Aegean: A Song of Olive Oil

Aegean cuisine is nature's gentle touch. The simplicity yet depth of artichokes braised in olive oil, the delicacy of stuffed zucchini blossoms picked at dawn—these are signs of love and care.

Knowing your herbs here is part of the culture: radika, cibez, wild radish greens... When these greens meet olive oil, they form not only a healthy meal but an emotional bond with the table.

The Aegean is remembered not for its lightness, but for its elegance in simplicity.

Eastern Anatolia: The Silent Strength of Meat and Spice

Eastern Anatolian food speaks less but says more. A slow-roasted lamb from a tandır oven or a smoky cağ kebab doesn't just fill the belly—it leaves a lasting impression.

Mornings start with Kars's aged gruyère cheese, while in Erzurum, thin flatbread holds fresh tulum cheese.

The cuisine here, like the people, is dignified and strong.

Central Anatolia: Meals Baked in the Chest of the Steppe

In Central Anatolia, meals are modest but deeply satisfying. A freshly baked etli ekmek fills the streets with its scent. Mantı—Kayseri's handmade dumplings—are each a tiny masterpiece, topped with garlicky yogurt and drizzled butter, transforming into edible art.

Soup is essential here: tarhana, cracked wheat, yogurt-based broths... Each one feels like a warm embrace from home.

Here, food is grace in simplicity.

Marmara: A Table of Transitions and Encounters

From the royal kitchens of Istanbul to rustic village breakfasts of Thrace, Marmara's cuisine carries the richness of crossroads.

From Ottoman-style lamb tandır to Edirne's fried liver, from delicate stuffed vine leaves to the pilafs of Istanbul, the cuisine reflects a fusion of cultures.

Bursa's famed Iskender kebab or Tekirdağ's savory köfte—each tells a different story.

Final Note:

Turkish cuisine is not just local—it's universal. Because behind every dish lies a story, and within every recipe, a memory.

Those who visit these lands don't just see and walk—they taste, smell, and share. At the table begins acquaintance; sometimes a coffee sparks friendship, sometimes a soup offers healing.

In Türkiye, food is not just nourishment—it's a narrative. And this narrative is an open invitation to travelers from every corner of the world.

WHY DIDN'T THE EARTHQUAKE IN RUSSIA TRIGGER A MASSIVE TSUNAMI?

Tsunami warnings were issued along the Pacific coasts, but the expected devastation did not occur. Here's the geological explanation for why.

The 8.8-magnitude earthquake that struck off the coast of Russia's Kamchatka Peninsula sparked deep concern among scientists. This region, located at a convergence where the Pacific plate subducts beneath a branch of the North American plate and lies close to the Eurasian plate, is known for its potential to generate widespread and destructive tsunamis. In fact, a 9.0-magnitude earthquake in 1952 wiped out a nearby Russian town and caused major damage in Hawaii.

At 11:24 a.m. local time on Wednesday (7:24 p.m. EDT on Tuesday), when the seafloor off Kamchatka suddenly shifted, it seemed likely that a dangerous tsunami was on its way. Scientists predicted that many countries around the Pacific Rim would be affected. Millions of people were evacuated from coastal areas of Japan, and residents in Hawaii were instructed to move to higher ground. Similar warnings were issued in Central and South America. As the first small tsunami wave appeared off Japan's Hokkaido island, there were fears that waves could reach up to three meters in height.

However, as of this writing, many countries that were in the path of potential destruction did not experience the expected wall of water. The waves that reached Japan and Hawaii slightly exceeded 1.2 meters, prompting authorities to downgrade tsunami alerts and cancel some evacuation orders. A tourist in Hawaii told the BBC, "The disaster we were expecting didn't happen." In California, water levels rose to about 2.5 meters, but no significant damage was reported.

Why didn't this massive undersea earthquake produce a larger tsunami?

The short answer: the fault that ruptured during the earthquake produced exactly the tsunami it was capable of generating. While our instincts may have led us to expect more destruction, the resulting tsunami matched the geophysical potential of the fault.

According to Diego Melgar, an earthquake and tsunami expert at the University of Oregon, "The very fact that a tsunami warning was issued is a success story in itself." A tsunami doesn't need to consist of towering waves to cause devastation; even relatively modest waves can easily sweep away people and structures. The fact that casualties have remained low is largely due to effective warnings and timely evacuations.

In Kamchatka and surrounding areas, some localized damage did occur. The eastern Russian city of Petropavlovsk-Kamchatsky was shaken severely, with some buildings sustaining damage. In Severo-Kurilsk, a town in the Kuril Islands just south of Kamchatka, tsunami waves reached up to five meters, damaging homes and sections of the port.

Each country has slightly different procedures for issuing tsunami warnings. Generally, however, if a dangerous tsunami is anticipated, evacuation orders are given for affected coastal regions. Initial predictions often include wave height estimates, but these early figures are subject to uncertainty.

Independent earthquake scientist Amilcar Carrera-Cevallos explains that "tsunami energy does not radiate symmetrically across the ocean." Faults don't break in neat, linear lines, and seafloor movements aren't always smooth or unidirectional. This leads to variations in wave intensity across different regions.

Diego Melgar adds, "Initial warnings are based solely on the estimated size and location of the quake, but that's not enough to determine how much water is displaced or where the waves will concentrate." More detailed insights—such as the extent of fault slip and how close it occurred to the trench—usually emerge one or two hours after the tsunami appears.

Modern tsunamis like today's are monitored in real-time using deep-ocean pressure sensors. Still, Melgar notes that "the sensor network is sparse, so it doesn't always capture the full complexity of wave energy moving across the basin."

The final height of a tsunami as it reaches the shore is also affected by the shape and depth of the seafloor (known as bathymetry), as well as the coastline's geography. Stephen Hicks, a seismologist at University College London, says, "Geographic features like bays can amplify wave heights, while waves can also be diffracted around islands."

Today's earthquake might naturally be compared to the 2011 magnitude 9.1 quake off Japan, which produced 130-foot-high waves and claimed over 15,000 lives. The 2004 magnitude 9.1 quake and tsunami in the Indian Ocean, which killed more than 280,000 people, also comes to mind.

However, today's 8.8-magnitude quake may not be as powerful as it seems. Earthquake magnitude is not measured on a linear scale; each increase in magnitude represents a dramatic rise in energy release. According to the U.S.

Geological Survey, a 9.1 quake releases nearly three times more energy than an 8.8.

Judith Hubbard, an earthquake expert at Cornell University, explains: "The 2004 and 2011 events were significantly larger than this one." As a result, they were much more capable of displacing vast volumes of ocean water.

Still, not knowing the exact wave height at every Pacific coastline in advance is a secondary concern. What truly matters is that tsunami warnings were issued quickly and that people were told when to expect waves at their location. As Hubbard notes, "The current strategy of preventative evacuation does a great job at saving lives."

FROM DEEP SEAS TO DEEP SPACE: TURKISH SCIENTISTS TRACE THE FOOTPRINTS OF LIFE

One of humanity's oldest questions still lingers: "Is there life beyond Earth?" A team of Turkish scientists is now seeking answers—not by looking up at the stars, but by plunging into the dark, unexplored depths of Earth's oceans. Led by the Institute of Marine Sciences at Middle East Technical University (METU), the DeepTrace project aims to uncover clues about habitable environments in space by diving as deep as 2,500 meters into the Black Sea, Atlantic, and Pacific Oceans.

At the helm of this groundbreaking scientific mission is Prof. Dr. Mustafa Yücel, Deputy Director of the Institute. Together with his team, he will explore the chemical and physical properties of hydrothermal vents, located in regions so deep that even sunlight cannot reach.

Why? Because according to researchers, similar hydrothermal systems may exist on Europa (a moon of Jupiter) and Enceladus (a moon of Saturn)—potential cradles of extraterrestrial life.

Secrets of Space Hidden in the Ocean Depths

Far more than a national undertaking, DeepTrace is a globally significant initiative. Supported by a €2.4 million Consolidator Grant from the European Research Council (ERC) and part of TÜBİTAK's Horizon Europe Program, the project also benefits from international collaboration.

The team's first expedition begins this week, launching a 36-day deep-sea research mission in the Pacific Ocean. The work will be conducted aboard the research vessel Atlantis, using the legendary Alvin submersible, the same vessel that discovered the Titanic's wreck. Each dive will last between 6 and 8 hours, with two scientists aboard, collecting water and sediment samples while conducting real-time measurements using advanced sensors.

A Role Model Beneath the Waves: Women Leading the Way

One of the scientists taking part in these dives is Dr. Suna Tüzün, who will descend into the deep aboard Alvin. Tüzün expressed her excitement, highlighting not only the scientific value but also the symbolic importance of the mission:

"This journey is a role model for women. Young girls should know that there are no limits in science. You can reach the deepest oceans—and even deeper space."

Laying the Foundation for the Next Generation of Space Data

According to Prof. Dr. Yücel, the mission is not only about understanding our own planet's seabeds, but also about preparing for the analysis of future data from NASA's and ESA's Europa missions in the 2030s. In particular, the team is focused on the study of nano-scale particles, which may be the most stable and revealing signatures in the plumes erupting from Europa and Enceladus.

"If we can understand the behavior of hydrothermal vents in our own oceans," Yücel explains, "we will be one step closer to understanding the possibility of life beyond Earth."

A Journey into the Depths—for Science and for Humanity

This visionary project is more than a scientific endeavor. It's an inspiration—for young researchers, for women in science, and for all who dare to explore the unknown.

This journey descends not only into the sea, but into the depths of human curiosity.

And perhaps, one day, it may whisper to us the secret of life beyond our world.

DUBAI AIMS TO BEAT THE TRAFFIC WITH 2026 JOBY AIR TAXI LIFTOFF

Dubai commuters may soon have a new way to skip traffic: air taxis.

Joby Aviation conducted the first test flight of its fully-electric air taxi in the emirate this week, a major milestone in the city's efforts to integrate airborne transport into existing mobility networks as early as next year.

Joby hopes its air-taxis will ease pressure on existing ground transportation and offer travelers a faster alternative as Dubai faces increasing congestion.

"We want to change the way people commute," Anthony Khoury, Joby's UAE General Manager, said.

A journey from Dubai's main airport DXB to Palm Jumeirah aboard the Joby Aerial Taxi will take roughly twelve minutes, the company predicts, as opposed to 45 minutes by car.

While Joby's long-term ambition is to make its aerial taxis "affordable for everybody to use," Khoury says, they acknowledge early pricing will likely target higher-income travelers. "As with any novel technology, early days might be a bit more premium."

The demonstration flight was held on Monday at an isolated desert site southeast of Dubai's downtown and was designed to emulate a typical aerial taxi journey, according to Joby Aviation officials.

In a ceremony attended by senior government officials, transport executives and company representatives, the experimental aircraft executed a vertical takeoff, flew for several miles, and then returned for a vertical landing.

The Joby Aerial Taxi, the flagship electric vertical take-off and landing (eVTOL) aircraft developed by the California-based company, can fly distances of up to 160 kilometers (100 miles) at speeds reaching 320km/hr (200mph).

Fully electric, with zero operating emissions, Joby's air-taxi is designed to be both eco-friendly and quiet enough for commercial use in dense urban areas.

"It will be flying in the city, next to residential areas, and hopefully people will barely notice it," Khoury said.

While eVTOLs such as Joby's have been hailed as the future of urban air the industry still faces major hurdles -- including securing regulatory approval and developing sufficient vertiport infrastructure.

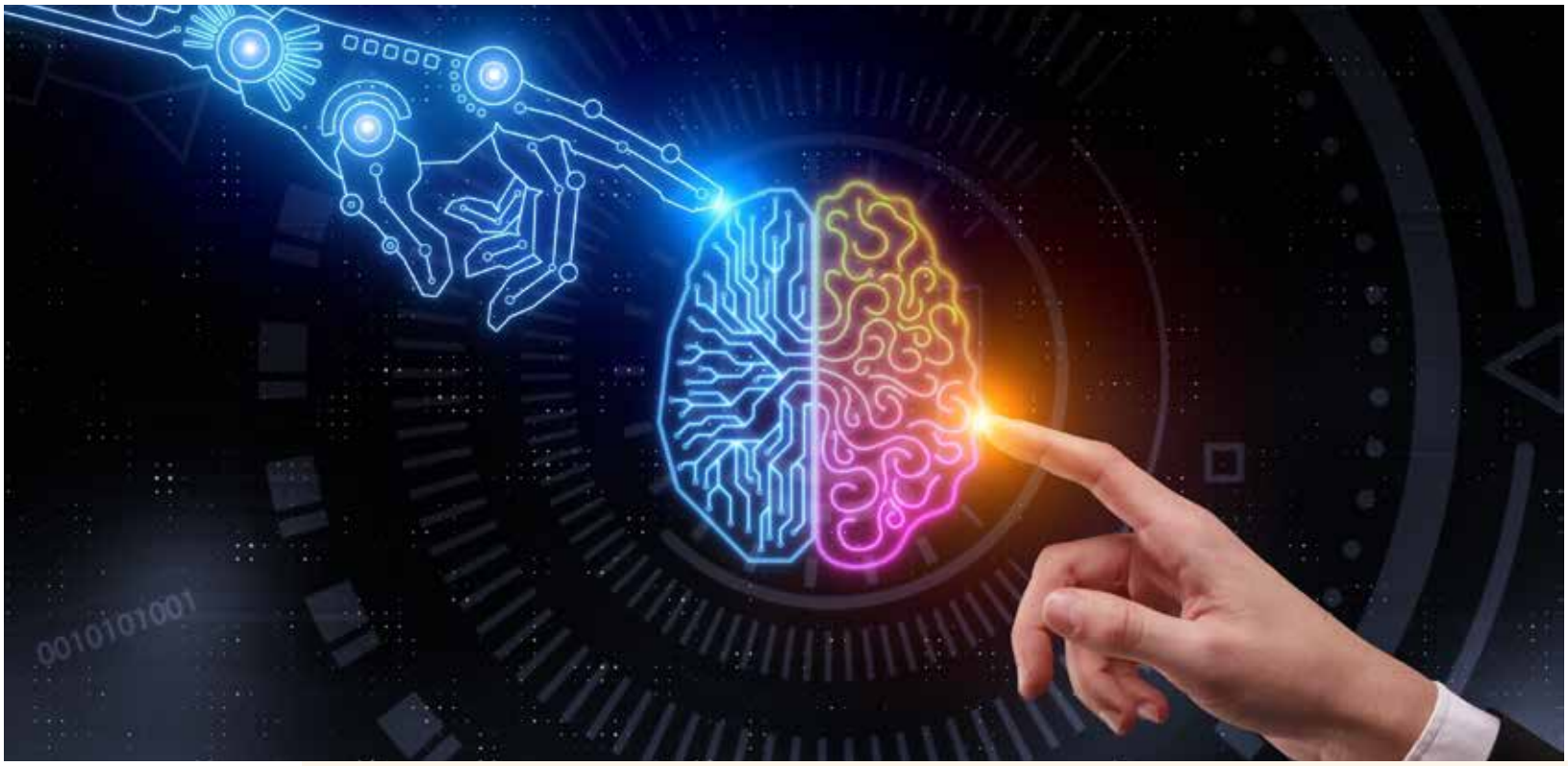
Morgan Stanley downgraded Joby's stock price target from $10 to $7 in April, flagging near-term execution risks and broader aerospace industry concerns, including tariffs and supply-chain issues. Joby is currently trading at $10.55.

In early 2024, Joby signed a contract with Dubai's Roads and Transit Authority that awarded the company exclusive rights to operate aerial taxis in the city for the next six years.

The company plans to inaugurate the emirate's commercial air-taxi service in 2026, with four initial vertiports located at Dubai International Airport (DXB), Palm Jumeirah, Dubai Downtown and Dubai Marina.

"In aviation, you don't see transformations like this," said Didier Papadopoulos, Joby's President of Original Equipment Manufacturing.

"Every once in a while, you have this propulsive move into the future. What you're witnessing here is really exciting, and I'm excited for you to be riding this one point in the future."



UAE SECURES TOP SPOT IN GLOBAL AI TALENT RANKINGS

The UAE's AI ecosystem has quietly gained strength through long-term strategic investments, visionary policymaking, and global partnerships.. Photo: File photo

The UAE has been ranked among the world's top 20 nations for artificial intelligence (AI) talent density, alongside Saudi Arabia, in the latest Global AI Competitiveness Index published by the International Finance Forum (IFF) and Deep Knowledge Group (DKG).

With 0.7 per cent of the global AI talent pool, the UAE has outpaced countries such as Italy and Russia — affirming its growing stature as a global innovation powerhouse.

While much of the spotlight has been on Saudi Arabia's ambitious AI push, the UAE's AI ecosystem has quietly gained strength through long-term strategic investments, visionary policymaking, and global partnerships that position it at the forefront of AI development and governance.

The UAE's focus on AI began with the launch of the UAE Artificial Intelligence Strategy 2031, which aimed to integrate AI across key sectors including education, healthcare, transport, and space. The country was among the first in the world to appoint a Minister of State for Artificial Intelligence in 2017, and today it continues to expand AI readiness through initiatives such as the Mohammed bin Zayed University of Artificial Intelligence (MBZUAI) — a graduate-level, research-centric university that is already attracting global talent and publishing cutting-edge research.

MBZUAI is currently ranked among the world's top 50 institutions in AI research output, and is collaborating with global tech giants including IBM, NVIDIA, and BCG to foster research in machine learning, robotics, computer vision, and AI ethics. "The UAE's ecosystem is built not just on infrastructure, but on a vision of ethical AI, global cooperation, and a diversified economy driven by knowledge and innovation," said Dr. Eric Xing, President of MBZUAI.

The IFF report underscores the UAE's growing influence in global AI competitiveness by evaluating not only talent density but also the nation's institutional and innovation performance. The UAE ranked well above many traditional tech economies in per capita AI talent and research productivity, due in part to its business-friendly environment, tax-free salaries, and quality of life — factors that attract leading scientists, engineers, and entrepreneurs from around the world.

The report's co-author Dmitry Kaminskiy of Deep Knowledge Group remarked: "Saudi Arabia and the UAE's strategic focus on AI, coupled with visionary investments in talent and infrastructure, is setting the stage for a tectonic shift in global AI leadership."

According to the UAE's Ministry of Economy, the nation aims to increase the AI sector's contribution to GDP by up to 14 per cent by 2030 — translating to over $100 billion in economic output. Much of this is being driven by AI applications in logistics, government services, fintech, and smart city solutions, especially in hubs like Dubai and Abu Dhabi.

The Dubai Future Foundation, for instance, is pioneering large-scale AI use cases in government and urban mobility through its Dubai AI Roadmap. Similarly, Abu Dhabi's Hub71 and its partnership with global VCs and accelerators has made the UAE one of the fastest-growing AI startup ecosystems in the region.

As per data from Crunchbase and Startup Genome, AI-focused startups in the UAE raised more than $1.3 billion in venture capital in 2024 alone, with projections pointing to a 25 per cent increase in funding in 2025.

While Saudi Arabia is investing heavily in infrastructure-led projects like NEOM — where over 30 per cent of its $500 billion budget is earmarked for AI-powered technologies — the UAE's strength lies in policy innovation and ecosystem-building. This complementary approach is helping the broader Gulf region gain momentum as a global AI innovation corridor.

"The UAE provides a unique balance of global accessibility, talent development, and future-ready governance," noted Professor Patrick Glauner, IFF AI committee coordinator. "Its neutral diplomatic positioning and strong ties with both Western and Eastern tech partners make it a magnet for cross-border AI collaboration."

At the heart of this transformation is the battle for AI talent. The UAE's efforts in creating AI labs, reskilling programmes like the National Program for Coders, and special visas for AI professionals are enhancing its ability to attract and retain global talent.

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DISCOVER TÜRKİYE: FROM ANCIENT ROOTS TO MODERN WONDERS

Few countries in the world can match Türkiye's unique blend of geography and history. Here, you can wander through the remnants of ancient civilizations in the morning and find yourself swimming in the turquoise waters of the Aegean by afternoon. From mountain villages framed by stone houses to vast seascapes stretching beyond the horizon, every region tells its own story. Türkiye is more than a destination — it's a journey to history and art like sceneries... As you explore some of the Türkiye's most remarkable and timeless landscapes.

Cappadocia: Between Ancient Times and Present

First light of day coats the fairy chimneys in pastel hues and hot air balloons drift silently across the sky, During the reign of Roman Emperor Augustus, the ancient geographer Strabo described Cappadocia in his 17-volume work Geographika (Anatolia XII, XIII, XIV) as a vast region bounded by the Taurus Mountains in the south, Aksaray in the west, Malatya in the east, and the Eastern Black Sea coast in the north.

Today, the broader Cappadocia region encompasses the provinces of Nevşehir, Aksaray, Niğde, Kayseri, and Kırşehir. The narrower, rocky Cappadocia—famous for its unique landscapes—includes areas such as Uçhisar, Ürgüp, Avanos, Göreme, Derinkuyu, Kaymaklı, Ihlara, and their surroundings.

You might want to spend your morning learning pottery in Avanos, and in the evening, but don't forget to watch the sunset from Uçhisar Castle otherwise you will regret it.

Antalya: The Golden Smile of the Mediterranean

Nestled between the Taurus Mountains and crystal-clear waters, Antalya is a destination where history and nature embrace. As you walk through the calm streets of Kaş, you trace the footsteps of the Lycian civilization, and in the stone houses that meet the sea, you find pure tranquility.

As the sun sets through the columns of the Temple of Apollo in Side, one can't help but whisper, "Time should stop here." Türkiye's tourism capital captivates not only with its beaches but also with its rich heritage.

Bozcaada: Where the Wind Whispers and the Vines Breathe

If you wish to lose yourself in the coolness of the Aegean Sea, turn your compass to Bozcaada. With its bougainvillea-draped alleys, and windmill-covered hills, it teaches you the slowing down.

Swim in the clear waters of Ayazma Beach, then catch the sunset at Polente Lighthouse, you'll realize just how far you've left city life, and of course crowded places, behind. Your mind will be at peace and that will definitely show you life isn't just about work.

Mardin: The Story of Stone and Light

Mardin is one of the most poetic cities in Southeastern Turkey, offering the impression that time has stood still with its architectural, ethnographic, archaeological, historical, and visual richness. Reflecting a diversity of religious beliefs, the city is home to mosques, tombs, churches, monasteries, and other religious monuments that also possess significant artistic and historical value. Located along the historic Silk Road, Mardin also hosts five caravanserais and inns that once served as key stops for ancient traders. You lose all sense of time in Mardin, because here, time isn't measured by clocks—but by the memory embedded in stone.

Fethiye: A Poetic Interpretation of Nature

Looking out over the calm waters of Ölüdeniz, it feels as if the sky touches the sea. Soaring from Babadağ on a paraglider fills you with both adrenaline and awe. A walk through the icy waters of Saklıkent Canyon cools your body and reconnects your soul with nature.

Fethiye gathers all of nature's generous beauty in one place—it offers both thrill and serenity.

The Hidden Villages of the Aegean

An Aegean fairy tale in the shadow of olive trees and cobblestone streets.

In this series, we go beyond popular destinations to discover the hidden villages at the heart of the Aegean.

The timeless charm of Şirince, the silence of Bademli, the turquoise coves of Mazı... Each village whispers a different side of the Aegean.

Highlights: Şirince, Adatepe, Mazı, Birgi, Bademli, Sığacık

The Green Routes of the Black Sea

A world beneath the clouds: plateaus, waterfalls, and endless green.

The Black Sea is more than tea fields and folk dances. Behind its mystical mists lies a hidden paradise. In this series, we search for peace at the edge of Uzungöl, timelessness in Pokut Plateau, and coolness at Mençuna Waterfall.

Highlights: Ayder Plateau, Pokut, Uzungöl, Gito Plateau, Kümbet, Karagöl

Soaked in Culture: The Southeast

A land of warmth and sincerity, shaped by stone and story.

Echoes of ancient chants in Mardin's streets, the submerged past of Hasankeyf, the centuries-old culinary heritage of Gaziantep... This series explores the cultural richness of Southeastern Türkiye with the care of an archaeologist.

Highlights: Mardin, Hasankeyf, Gaziantep, Midyat, Şanlıurfa, Halfeti

Wonders of Central Anatolia

Hidden gems of the steppe: stories etched in stone and legend.

Tucked in the shadows of Cappadocia are forgotten towns and villages that pulse with the heart of Anatolia. This series follows ancient migration routes, silent madrasas, and tales carved into stone.

Highlights: Güzelyurt (Aksaray), Sille (Konya), Beypazarı (Ankara), Divriği (Sivas), Phrygian Valley

The Hidden Coves of the Mediterranean

The ancient city of Olympos and its surroundings make up a 7.5-kilometer section of

the famous Lycian Way hiking trail. To the east of Olympos, just 300 meters inland from the coast, lies the charming settlement of Çıralı—renowned for its stunning beach where Caretta Carettas lay their eggs and its coastal sand dunes that host a variety of plant species. While you're there, don't miss the chance to witness the flames of the "Chimaera" in Çıralı after dark—it's a truly unforgettable experience.

Highlights: Adrasan, Kekova, Kaleköy, Çıralı, Kaputaş, Tisan

The Forgotten Routes of Marmara

Quiet beauties in the shadow of big cities.

Just beyond Istanbul lie silent islands, quaint towns, and peaceful shorelines. Stretching from Thrace to Marmara Island, this series takes you on routes where time slows down.

Highlights: Trilye, Gökçeada, Marmara Island, Cumalıkızık, Şarköy

Monuments of Eastern Anatolia

In this land, history is not only told—it's lived.

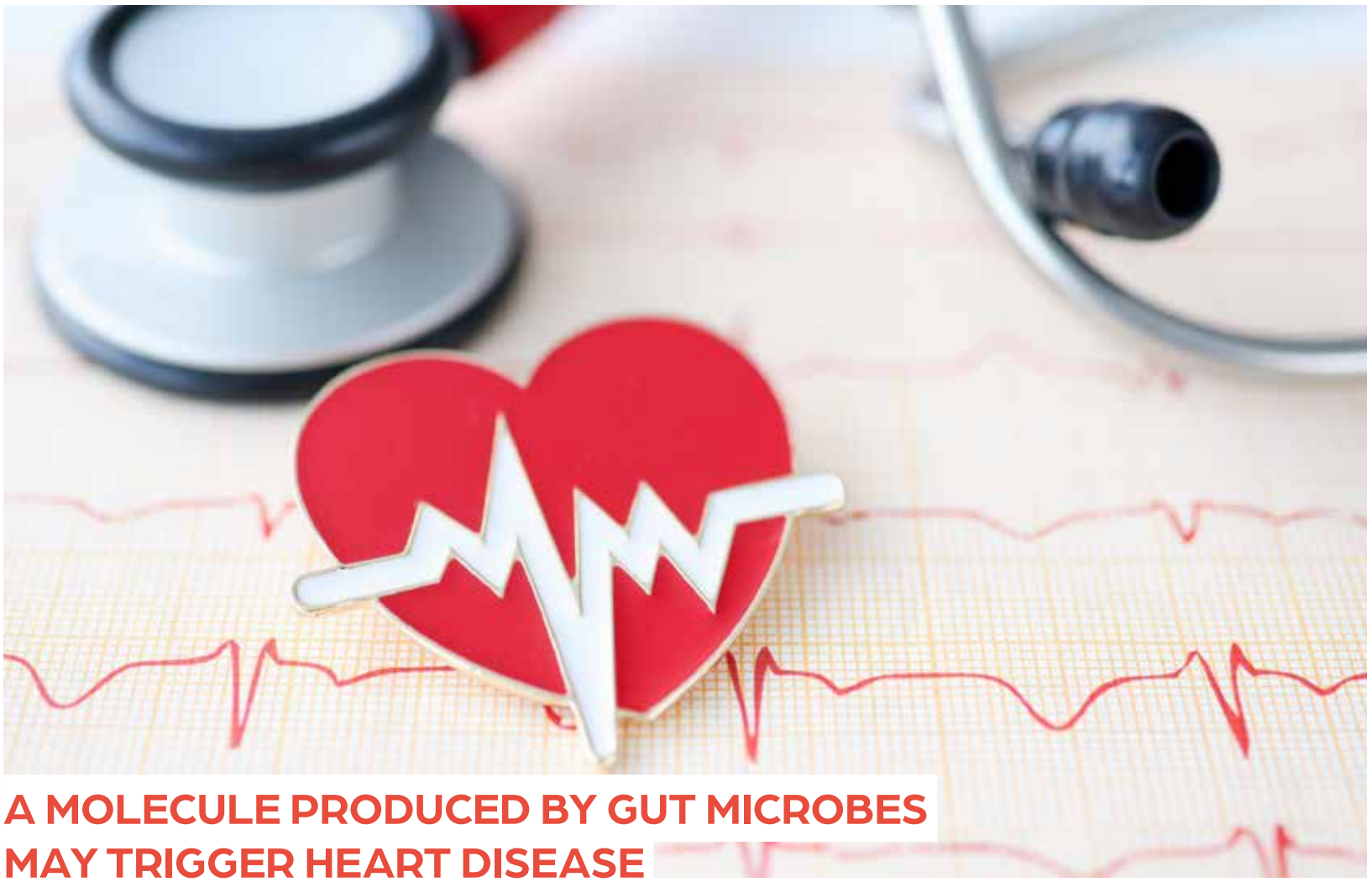
The wind-swept stones of Ani Ruins, the sacred gaze of Mount Nemrut, the frescoed walls of Akdamar Island in Lake Van...

Lake Van, the largest lake in Türkiye, occupies a tectonic depression nestled among high mountains. These surrounding mountain ranges also form the natural boundaries of Van Province.

Highlights: Ani, Van, Nemrut, Harput, Bitlis, Erzurum

Final Word:

A little side note, before coming Türkiye make sure to check which season you are coming this will definetely effect your experience. Türkiye has 4 seasons winter, spring, summer, and autumn. Before you come to Türkiye, do not forget to research about these seasons and the place you want to go. If you are coming to Cappadocia in winter, be careful it will be really cold, if you want to visit Anatolia in summer it will be definitely hot. Antalya is too hot and humidity becomes intolerable in summer but it is much better in autumn... Van is freezing cold in winter I recommend you to go there in summer...



A MOLECULE PRODUCED BY GUT MICROBES MAY TRIGGER HEART DISEASE

A byproduct left behind after microbes digest a meal has been linked to early-stage cardiovascular disease.

A small molecule left behind by the microbes in our gut after a meal may open a new door in the treatment of cardiovascular disease.

Some gut microbes break down the amino acid histidine — one of the building blocks of proteins — and produce a small molecule called imidazole propionate (ImP). In a new study published in Nature on July 16, researchers found that high levels of ImP in the blood are associated with early-stage cardiovascular disease. The international research team also demonstrated in mouse models how ImP contributes to the development of the disease, suggesting that it could become a potential therapeutic target in the future.

The primary cause of cardiovascular disease is atherosclerosis, the accumulation of fatty plaques on the walls of arteries. Dr. Ina Nemet from the Cleveland Clinic Lerner Research Institute, who studies the gut microbiome and its impact on health, says, "When we think of atherosclerosis, the first thing that comes to mind is usually cholesterol — and indeed, cholesterol plays a very important role." Cholesterol is one of the key components of these plaques, which, as they grow, narrow the arteries, reduce blood flow, and cause symptoms such as chest pain and shortness of breath. For this reason, statin drugs — which lower cholesterol — are a mainstay in both the prevention and treatment of cardiovascular disease.

However, high cholesterol and other well-known risk factors don't explain every case. That's why scientists have been searching for additional causes. According to Dr. Nemet, "ImP could be one of them." Previous research has linked ImP to diabetes and advanced cardiovascular disease. But the new Nature study not only connects this molecule to early-stage disease in humans, it also reveals how ImP promotes plaque formation in mice — and how its effects can be blocked.

The researchers examined vascular imaging from study participants to identify those with signs of early cardiovascular disease. Such plaques often develop silently and are typically detected only after symptoms emerge or a heart attack occurs. When the roughly 1,600 participants with early disease were compared to about 600 healthy individuals — controlling for factors like age and family history — those with early disease were found to have higher blood levels of ImP.

In mice, the team found that ImP triggered inflammation by attracting immune cells to the affected areas, which then became part of the plaques. Remarkably, ImP did not affect cholesterol levels in the mice.

"The molecule's entire effect is independent of cholesterol," says Dr. Nemet. The researchers also identified a cellular receptor that ImP binds to — and showed that blocking this interaction halted plaque progression in mice.

"If you know the receptor and the mechanism," Nemet explains, "you open up new treatment pathways."

Previous studies have also shown that another gut microbe byproduct, trimethylamine N-oxide (TMAO) — which is produced after consuming meat or energy drinks — increases the risk of heart disease. ImP may be the newest link in that chain.

JOURNEY TO THE HEART OF THE NORTH: TURKISH SCIENTISTS BLAZE A TRAIL IN THE ARCTIC

A journey into the unknown—beyond the ice and into the heart of scientific discovery—has begun. The 5th National Arctic Scientific Research Expedition (TASE-V) is now officially underway under the auspices of the Presidency of the Republic of Türkiye, led by the Ministry of Industry and Technology and coordinated by the TÜBİTAK MAM Polar Research Institute. With a mission team equipped with scientific expertise and determination, the expedition has reached Longyearbyen/Svalbard at 78°N latitude, where they now confront the Arctic's unforgiving cold. This is more than just a research mission—it's a statement of Türkiye's growing presence in the polar regions.

Equipped with Science, Driven by Courage

Departing from Istanbul, a team of 12 Turkish scientists first arrived in Oslo and then continued their journey to Svalbard, where they launched their research in the Arctic Ocean. Their work spans a broad range of topics—from sampling seawater and sediments to analyzing microplastics and atmospheric dynamics—as part of 19 diverse scientific projects. These efforts aim to provide critical data on the impacts of climate change in polar ecosystems.

Minister of Industry and Technology Mehmet Fatih Kacır emphasized via social media that this expedition is not only a scientific endeavor, but also a powerful demonstration of science diplomacy. By collaborating with researchers from Argentina, Bulgaria, and Ecuador, Türkiye underscores its commitment to international scientific cooperation in polar research.

A One-of-a-Kind Opportunity for Young Scientists

One of the most inspiring aspects of this year's expedition is the inclusion of three high school students, winners of competitions organized by TÜBİTAK and celebrated at TEKNOFEST. These students now have the extraordinary chance to test their projects in the demanding conditions of the Arctic and contribute directly to field research.

•Aslı Kilci (Afyonkarahisar Dumlupınar BİLSEM) dreams of capturing the Arctic through her artistic and historical lens, using symbolic visual analysis and educational comic books.

•Kaan Yusuf Odacı (Kastamonu) will test a mobile air-quality measurement device powered by AI.

•Elif Berra Demir (TÜBİTAK Science High School – Kocaeli) brings a sustainability-focused project she will put into practice on-site.

These students are not only working on their own projects—they represent the future of science in the field. For these young minds, this expedition is the first step on a journey that could one day reach the stars.

Science Meets Strategy in the Arctic

According to Expedition Coordinator Prof. Dr. Burcu Özsoy, the Arctic mission will provide unique insights into ecosystem and atmospheric dynamics in the polar region. With Svalbard as the operational base, the collected data will directly support Türkiye's National Polar Science Strategy and illuminate priority research areas.

Unlike previous Antarctic missions, the Arctic expedition will focus more heavily on marine research, climate observations, and meteorological data collection. Supported by satellite imaging, these on-site studies will lay the groundwork for long-term scientific monitoring and analysis.

Toward a Future Shaped by Science

The 5th National Arctic Scientific Expedition once again proves that Türkiye is not just an observer in polar science—but a producer of critical knowledge. This bold step forward shines a light not only on the icy reaches of the Arctic, but also on the dreams of the next generation and Türkiye's scientific vision for the future.

Beyond the Arctic glaciers, Türkiye's torch of science burns bright—guiding those who seek to chart the compass of tomorrow in the world's most remote frontiers.

MAJORITY SAUDIS USE AI TOOLS TO MAKE TRAVEL DECISIONS: SURVEY

Saudi travelers are increasingly relying on smart technologies, with 87 percent using generative artificial intelligence tools like ChatGPT and Gemini to plan and manage their vacations, according to a survey.

In its latest report, global consumer insights provider Toluna revealed that 46 percent of Saudi travelers are using AI assistants to discover activities, while 43 percent use them for translation purposes.

These findings align with the broader trend observed in the Kingdom, where the number of people using AI tools is increasingly rising.

In June, a report prepared by Google with UK-based research agency Public First showed that 80 percent of Saudi adults use AI tools, with one in three utilizing them regularly.

This is nearly double the share of adults in the US who report using large language model-based chatbots, which stood at 52 percent according to a study by Elon University in North Carolina.

"AI is becoming a trusted travel companion, and not just among younger generations. From finding hidden gems and translating on the go, to getting activity suggestions, young Saudi travelers are making the most of AI to enhance every part of their journey," said Georges Akkaoui, enterprise account director Middle East, Turkiye, and Africa at Toluna.

The survey said 43 percent of Saudi travelers use AI to find the best deals, while 31 percent rely on these technologies to optimize their itineraries, and 38 percent use them for restaurant suggestions.

"What is interesting is that this (use of AI) is not limited to the tech-savvy; we are seeing notable adoption even among older travelers, with over 40 percent of 45–60-year-olds also using AI for deals, activities, and translation," said Akkaoui.

He added: "In fact, less than 15 percent of respondents are not using AI for their travels. This shows that generative AI is no longer niche, it is becoming mainstream, cross-generational, and it is already reshaping how people prepare for and experience their trips."

These findings also underscore the progress of AI adoption in Saudi Arabia, with the technology emerging as a key component of the Kingdom's post-oil economic development strategy.

According to the Global AI Competitiveness Index released in January, the Kingdom ranked 15th globally in research output in the sector, having produced 29,639 AI-related publications.

This ranking places it among the top contributors to global research and highlights its emerging role as a regional technology leader.

Saudi Arabia's Public Investment Fund, in partnership with Google, launched Project Transcendence in 2024, a $100 billion undertaking, as part of its efforts to advance the growth of AI.

The initiative is set to bolster the growth of local tech startups, generate employment opportunities, and foster collaborations with global technology firms, positioning the Kingdom at the forefront of regional innovation.

Türkiye, the most preferred destination

The survey found that 19 percent of Saudi travelers prefer Turkiye as their favorite destination to visit, followed by Egypt at 15 percent, the UAE at 14 percent, and the US at 10 percent.

Additionally, 8 percent of respondents are heading to Switzerland, 7 percent to the UK, France, and Thailand, while 6 percent have chosen Italy as their summer destination.

"While Türkiye remains the top destination across all age groups, younger travelers show a stronger interest in long-haul and East Asian locations. For example, Japan appeals to 14 percent of 18–28-year-olds, compared to just 3 percent of those aged 29–44, and 0 percent among travelers aged 45–60," said the report.

In contrast, 14 percent of older travelers aged between 45 and 60 are planning a trip to the UK, a destination that sees less interest from younger respondents as a summer getaway.

In terms of spending, most international travelers are willing to invest significantly in their summer experiences.

A BABY BORN AT 30: A NEW LIFE FROM A FROZEN PAST

Lindsey and Tim Pierce, a couple living in Ohio, didn't just grow their family when their baby, Thaddeus Daniel Pierce, was born on July 26 — they made history. Thaddeus is the first known baby to be born from an embryo that had been frozen for 30 years and 6 months, making him a living miracle of science, faith, and perseverance.

Three Tiny Hopes, One Enduring Dream

This extraordinary story begins in 1994, when Linda Archerd turned to IVF after years of struggling to conceive. That year, four embryos were created. One became a healthy baby girl. The remaining three were frozen — Linda called them her "three little hopes."

Though she had long hoped to use them herself, age, menopause, and life circumstances eventually led her to a decision: it was time to give those embryos a chance — with another family.

But Linda didn't want to donate her embryos anonymously. She wanted to know who would carry them, how the children would be raised, and to keep a connection. That's how she found the Snowflakes Embryo Adoption Program, a unique system allowing for mutual selection and open communication between donors and recipients.

A Sci-Fi Story Come to Life

After trying to conceive for seven years, Lindsey and Tim were open to every possibility — including adopting older embryos that most clinics wouldn't accept. That's how they were matched with Linda's decades-old embryos. At first, they were stunned: "We didn't know embryos could be frozen that long," they said.

The medical process was far from simple. In the 1990s, embryos were slow-frozen — a technique now considered outdated. At Rejoice Fertility, skilled embryologists carefully thawed the embryos using protective gear and delicate tools. During the process, a glass vial shattered and cut a lab technician's face — a small injury for a scientific triumph.

A Life That Began in 1994

Of the three thawed embryos, one failed to grow. The other two were transferred to Lindsey's uterus, and one developed into a healthy pregnancy: Thaddeus. Remarkably, he now has a biological sister — a 30-year-old woman from the same batch of embryos.

Linda Archerd wept when she saw Thaddeus's first photos. "He looks just like my daughter when she was a baby," she said. Though she hasn't met him in person yet, doing so would be a dream come true.

More Than a Baby — A Scientific Record

The Pierces never intended to make history — they just wanted a child. But Thaddeus's birth has become a powerful reminder of the boundaries science can push, the strength of belief, and the many forms that family can take.

This baby is more than a bundle of joy. He is a miracle of frozen time, modern medicine.

THE GREAT MEETING OF LIFE SCIENCES: BIOEXPO

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BIOEXPO Life Sciences Exhibitions — a unique platform where science, technology, and innovation converge — will open its doors from October 15–17 at ICEC – Lütfi Kırdar International Convention and Exhibition Center, Istanbul.

BIOEXPO brings together the core pillars of life sciences — including biotechnology, laboratory/analytical technologies, pharmaceuticals, and cleanroom systems — all under one roof. With a rich program of exhibitions, symposiums, workshops, conferences, and panels, BIOEXPO is not just an event, but a dynamic and sustainable networking hub for the entire sector.

CLEANROOM

CLEANROOM – Cleanroom Technologies Exhibition is Türkiye's only specialized platform in this field, bringing together facility managers and cleanroom professionals on a shared stage. From engineering to production, quality control to facility management, this fair showcases the latest technologies and solutions while fostering high-level business collaborations within the cleanroom industry.

ANALYTECH

ANALYTECH captures the pulse of analysis and laboratory technologies, uniting top-level experts with high-tech products and industrial solutions. Covering a wide range of fields — from health to energy, R&D to quality control — ANALYTECH stands as Türkiye's most powerful gathering point in the field of analytical technologies. It's where science meets technology in every step of innovation.

BIOTECNICA

BIOTECNICA – Biotechnology and Industries Exhibition brings together professionals who drive the future of life sciences. From education to health technologies, laboratories to energy, biotechnology experts will share their knowledge and industrial applications with visitors. This is Türkiye's only expert-level meeting point for biotechnology, and it's where innovation takes center stage.

PHARMANEXT

PHARMANEXT – Pharmaceutical Industry and Technologies Exhibition covers every aspect of the pharmaceutical production chain — from clinical research to finished product marketing. With industrial equipment, formulations, process development, and biotechnology-based innovations on display, this event invites all who wish to contribute to the evolving vision of the pharmaceutical sector to join the conversation.

A Strong Organizing Structure Behind the Event

BIOEXPO is organized by Akdeniz Tanıtım A.Ş., a company well-known for its building and design exhibitions in Antalya, and for its expertise in the life sciences sector in Istanbul through events such as Cleanroom Exhibition, PharmaNEXT, Biotecnica, and Analytech.

Biotecnica and Analytech are co-organized in collaboration with Prosigma Tanıtım.

Furthermore, CleanroomNEWS, published by Akdeniz Tanıtım A.Ş. and Prosigma Tanıtım, continues to deliver academic content and the latest developments in cleanroom technologies and life sciences to professionals across the sector.

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