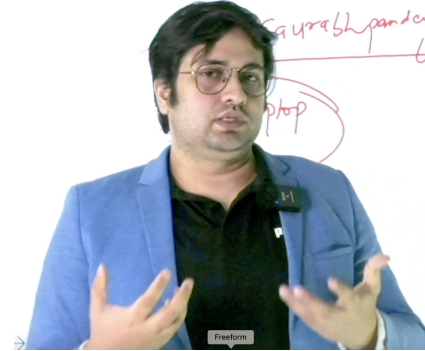


Topics - MINDS MAPS included (Daily current affairs)-- 8TH October 2024



- Noble prize in medicine 2024
- MiRNA
- India And Maldives
- BRCA Gene
- Connectome
- Indian Diplomacy
- Active and Passive Mutual Fund
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By saurabh Pandey



THE HINDU

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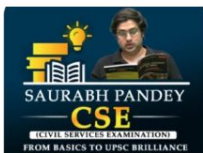
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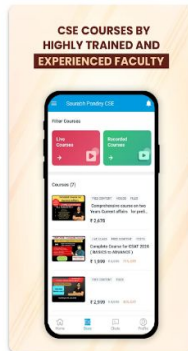
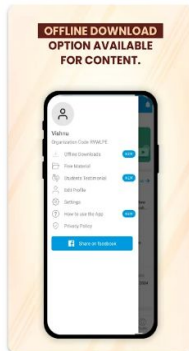
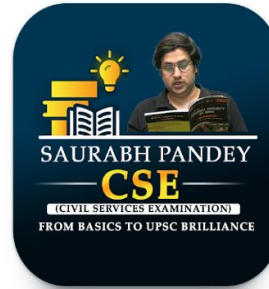
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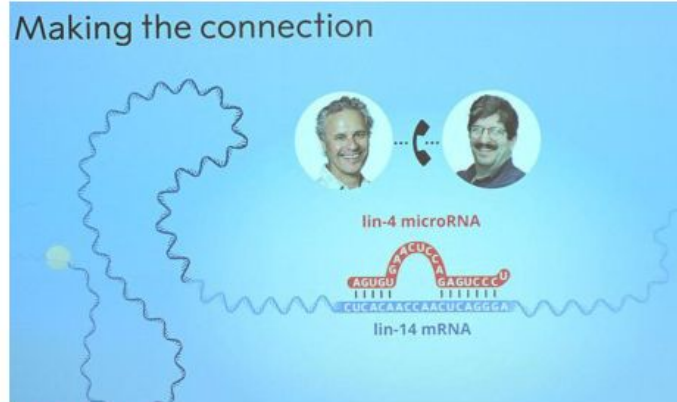


App support

‘miRNA ensures the correct set of genes is active in each cell type’

Vasudevan Mukunth

The label “post-transcriptional” reflects the upheaval due to the discovery of miRNA by Victor Ambros and Gary Ruvkun, who were jointly awarded the Nobel Prize for Physiology 2024. Until then, biologists believed cells could not or did not regulate the expression of genes once the transcription process began. As the Academy put it, miRNA allows “the precise regulation of gene activity so that only the correct set of genes is active in each specific cell type. This enables, for example, muscle cells, intestinal cells, and different types of nerve cells to perform their specialised functions.”



New window: Some miRNAs that don’t function normally can cause diseases including cancer and autoimmunity. AFP

function normally can cause diseases including cancer and autoimmunity. Scientists already know ‘defects’ in genes the body needs to make miRNA can cause disorders of sight, hearing, and skeletal growth. In addition to re-

regulation, the work of Mr. Ambros and Mr. Ruvkun thus opened a new window into hitherto incompletely understood conditions. Researchers around the world are currently studying whether they can be treated or even avoided by

ventions at miRNA.

Mr. Ambros and Mr. Ruvkun collaborated from the time they were post-doctoral fellows in the laboratory of the American biologist Robert Horvitz, who won part of the 2002 medicine Nobel Prize. The duo’s work also recalls that of the laureates of the 2006 medicine Nobel Prize, Andrew Fire and Craig Mello. They found plants use the same miRNA-making process to make another kind of RNA that damages mRNA in attacking viruses.

The Nobel Prize on Monday kicks off a week of announcements, to be followed on Tuesday by the physics prize and on Wednesday by the chemistry

Topic → Nobel Prize in Medicine 2024

Overview of the 2024 Nobel Prize in Medicine

Awarded to **Victor Ambros** and **Gary Ruvkun**

Recognized for their groundbreaking work on the **discovery of microRNA**

Significance in understanding gene regulation and its implications in various diseases.

- **Ambros is best known for his discovery of the role of microRNAs in gene regulation, which has significantly advanced our understanding of developmental biology and disease mechanisms, influencing therapeutic strategies.**

Ruvkun is renowned for his groundbreaking work on microRNAs and their role in gene expression, which has significantly advanced our understanding of genetic regulation and its implications for various diseases, including cancer and neurodegenerative disorders.

: What is MicroRNA?

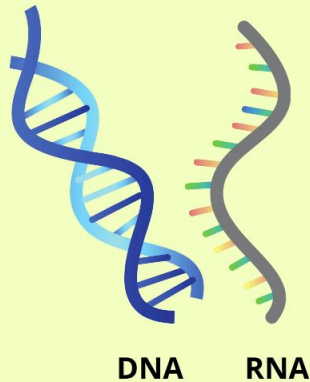
- **Definition and Function:** MicroRNAs (miRNAs) are small, non-coding RNA molecules, typically 20-24 nucleotides long, that play a crucial role in regulating gene expression by binding to complementary sequences on target messenger RNAs (mRNAs), leading to their degradation or inhibition of translation.
- **Biogenesis Process:** The biogenesis of miRNAs involves transcription from DNA into primary miRNA (pri-miRNA), which is then processed by the enzyme Drosha into precursor miRNA (pre-miRNA) and subsequently cleaved by Dicer into mature miRNA, ready for incorporation into the RNA-induced silencing complex (RISC).

-

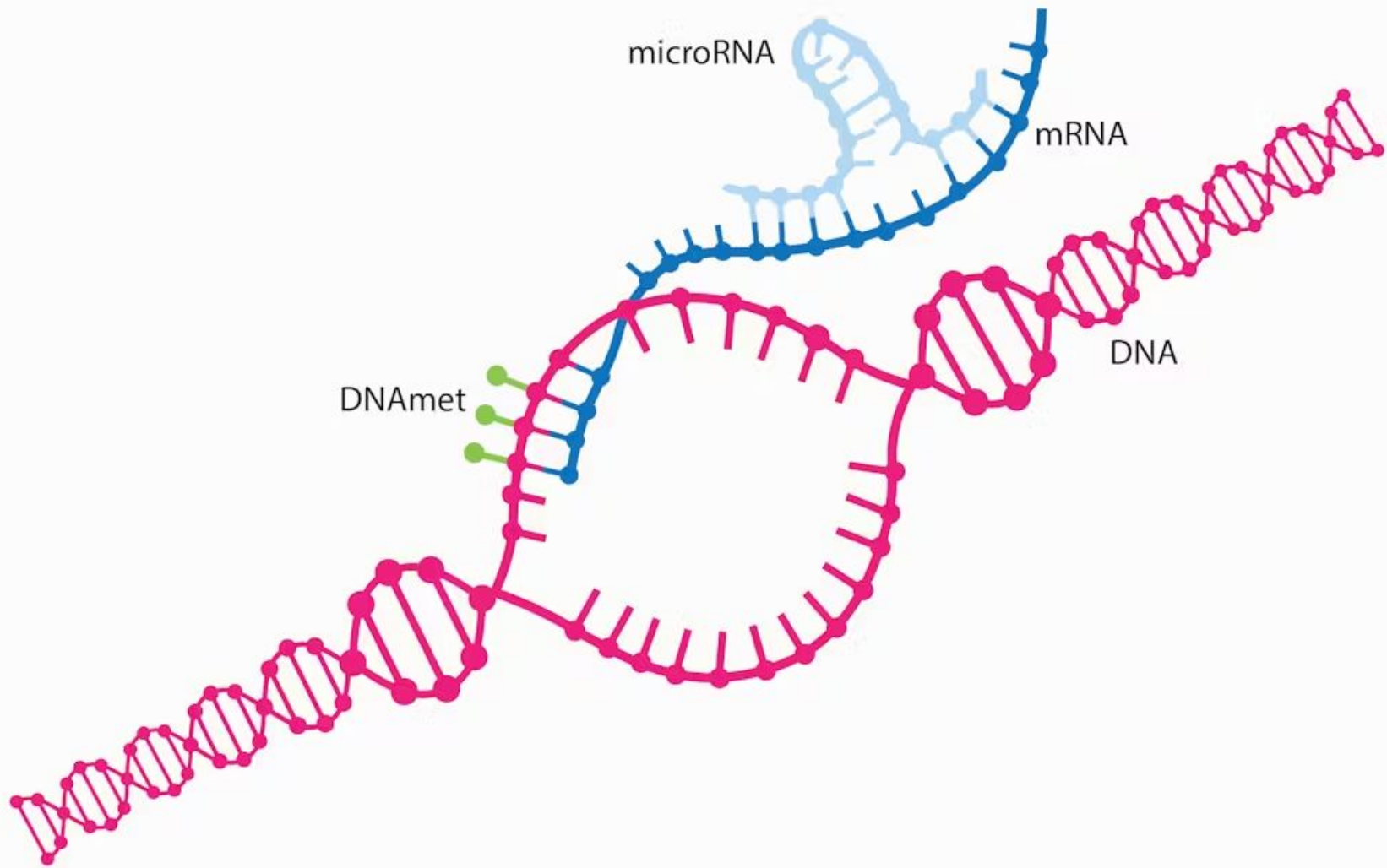
Ribonucleic acid (RNA) is a molecule found in most living organisms and viruses that plays a key role in turning DNA instructions into proteins.

What Is RNA?

RNA or ribonucleic acid is a biological polymer that codes and decodes genetic information. DNA codes for RNA and RNA codes for proteins.



- Most RNA is a single-stranded molecule.
- RNA forms a single helix, a loop, a straight molecule, or a twisted shape.
- Types of RNA include messenger RNA (mRNA), transfer RNA (tRNA), and ribosomal RNA (rRNA).
- The bases in RNA are adenine (A), uracil (U), guanine (G), and cytosine (C).
- Some organisms contain RNA, but no DNA.



-
- **Role in Cellular Processes:** miRNAs are integral to various cellular processes, including development, differentiation, proliferation, and apoptosis, and their dysregulation is associated with numerous diseases, including cancer, cardiovascular diseases, and neurological disorders, highlighting their potential as therapeutic targets.
-

Mechanism of Gene Regulation



- **MicroRNA Functionality:** MicroRNAs regulate gene expression by binding to specific mRNA targets, leading to either mRNA degradation or translational repression, thereby influencing various biological processes such as development, cell differentiation, and response to stress, and playing a critical role in maintaining cellular homeostasis and preventing disease.

Implications of the Discovery

Applications in Medicine

- **MicroRNA Therapeutics:** The discovery of microRNAs has led to innovative therapeutic strategies, including the development of microRNA mimics and inhibitors. These approaches aim to restore normal gene expression patterns in diseases such as cancer, offering potential for targeted treatments that could improve patient outcomes significantly.

-
-
- **Diagnostic Tools:** MicroRNAs serve as promising biomarkers for various diseases, enabling early detection and monitoring of conditions like cancer and cardiovascular diseases. Their presence in bodily fluids allows for non-invasive diagnostic tests, enhancing the ability to personalize treatment plans based on individual molecular profiles.
-

India signs \$750-mn currency swap deal with forex-starved Maldives

Suhasini Haidar

NEW DELHI

India signed a major currency swap agreement with the Maldives for \$750 million to help the island nation tide over its current foreign currency crunch, after Prime Minister Narendra Modi met with Maldivian President Mohamed Muizzu in New Delhi on Monday. The swap arrangement for \$400 million and an additional ₹3,000 crore (\$357 million), signed between the Reserve Bank of India and the Maldives Monetary Authority under the South Asian Association for Regional Cooperation (SAARC) Currency Swap Framework, will be available until 2027.

Among the agreements signed on Monday are for the launch of the RuPay card in the Maldives and

handover of 700 houses built with assistance by India. Memorandums of understanding were inked between the Central Bureau of Investigation and the Anti-Corruption Commission of the Maldives and between policing institutes and judicial training institutes; and also for cooperation in sports and youth affairs.

Welcomes tourists

Speaking of people-to-people ties, which were hit by a “boycott Maldives” social media campaign in India in response to criticism of Mr. Modi in the Maldives, Mr. Muizzu said he hoped Indian tourists, whose numbers have halved this year, would return.

“India is one of our largest tourism source markets and we hope to welcome more Indian tourists

to the Maldives, allowing for shared growth and understanding between our peoples,” Mr. Muizzu said in a joint press event after the talks.

India also agreed to step up cooperation on trade in national currencies, and to work on a Free Trade Agreement, as Foreign Secretary Vikram Misri said that other requests made by the Maldives, understood to include debt repayment waivers, further credit lines, and economic assistance, would be “studied” and decided on in the “coming weeks and months”.

The two countries released a “vision statement” for a “comprehensive economic and maritime security partnership” to be negotiated in the future; inaugurated a jointly constructed runway for an in-



Boosting ties: Mohamed Muizzu with Narendra Modi in his first bilateral trip to India, in Delhi on Monday. SUSHIL KUMAR VERMA

ternational airport at Hanimadhoo island; and signed an agreement for India to support the Maldives on the refit of a Coast Guard ship.

There was no mention of the return of Indian military personnel to the archipelago, however, a subject that had led to considerable tension be-

tween New Delhi and Male, until India agreed to withdraw them and replace them with technical personnel in May 2023. When asked, Mr. Misri said the issue had been “resolved satisfactorily” and did not require revisiting.

He clarified that the refit of the Maldivian Coast Guard ship *Huravee* would

be carried out at an Indian facility. This will not require Indian personnel to travel to the Maldives.

‘Neighbourly duties’

“India has always been a First Responder for the Maldives,” Mr. Modi said in a press statement after the talks. “India has always fulfilled its duties as a neighbour,” he added, referring to the supply of essential commodities, drinking water during a crisis, and vaccines during the COVID-19 pandemic.

Addressing the media later, Mr. Misri said that India had played a “historic” role in the Maldives, including thwarting a coup there in 1988, and sending emergency assistance after the tsunami in 2004. He referred to India’s latest currency swap arrangement as a way of sending out a

“signal of comfort and confidence in the existing foreign exchange position” for the Maldives, which had reached record lows of \$440 million, far below its pending outflows.

Mr. Muizzu’s visit, his first bilateral trip to India, comes eight months after a visit to Beijing, which resulted in a number of other agreements; an economic pact to boost Chinese investments and provide currency swap arrangements; a defence pact; and debt repayment waiver for five years. Sidestepping specific questions about the Maldives-China relationship, Mr. Misri said while the two sides had discussed some “regional” issues, the “focus really was on discussing bilateral relations today”.


(With inputs from Meera Srinivasan in Colombo)

Topic → India and Maldives





Key Agreements and Initiatives


 **Currency Swap Agreement:** India signed a \$750 million currency swap agreement with the Maldives to help address its foreign currency issues.


 **SAARC Currency Swap Framework:** The agreement includes \$400 million and ₹3,000 crore (\$357 million), valid until 2027.

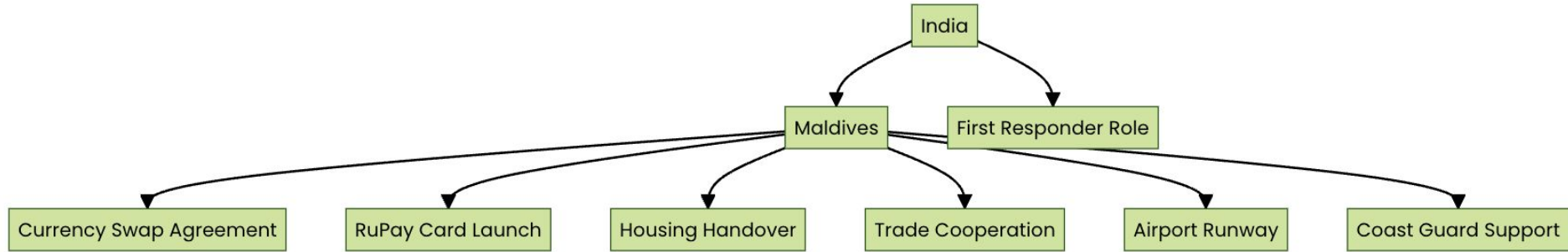
 **RuPay Card Launch and Housing:** Agreements include the launch of the RuPay card in the Maldives and the handover of 700 houses built with Indian assistance.

—  **Trade and Security Cooperation:** Both nations aim to enhance cooperation in trade, including a Free Trade Agreement, and have released a vision statement for a comprehensive economic and maritime security partnership.

 **Airport Runway Inauguration:** A jointly constructed runway for an international airport at Hanimadhoo island was inaugurated.

 **Coast Guard Ship Refit:** India will support the Maldives in refitting a Coast Guard ship at an Indian facility without deploying personnel to the Maldives.

 **India as "First Responder":** Prime Minister Modi emphasized India's role as a "First Responder" for the Maldives, highlighting historical support during crises.



Summary: India and the Maldives have strengthened their economic ties through a significant currency swap agreement and various cooperative initiatives, while addressing tourism and security concerns.

Genome editing is bringing clarity to the study of hereditary cancers

CRISPR screens have transformed the study of BRCA genes by enabling high-throughput functional genetic analysis. That is, using CRISPR-Cas9, researchers can target the BRCA genes and create specific mutations in them to study their effects on DNA repair and cancer development

Sridhar Sivasubbu
Vinod Scaria

The International Agency for Research on Cancer's estimates of the burden of 36 cancers in 185 countries suggest one in five individuals has a lifetime risk of developing cancer. The agency also estimated that one in nine males and one in 12 females will die of cancer. In all, the agency counted 20 million new cancer cases and 9.74 million cancer-related deaths in 2022, which it said could rise to a whopping 32 million new cases and 16 million deaths by 2045. By then, Asia alone may account for almost half of all cases worldwide.

All cancers occur due to genetic mutations in the body's genome, and a subset of these cancers are the result of inherited mutations. Researchers have estimated that around 10% of all individuals with any cancer could have inherited a genetic mutation implicated in the cancer; they have also found the prevalence of inherited mutations to be higher among individuals with ovarian cancer (20%). It is 10% among those with breast, colorectal, lung, or prostate cancers, and a lower 6% among those with cervical cancer.

The BRCA genes

Scientists have exhaustively documented hereditary cancers. We know there are more than 50 genetic syndromes (collections of symptoms) that predispose individuals to cancer and are caused by genetic variants that humans are capable of inheriting.

In fact, the discovery of the BRCA1 and the BRCA2 DNA-repair genes in 1994 and 1995, by Mary-Claire King et al. and Mark Skolnick et al., respectively, bolstered our understanding of hereditary cancer syndromes.

Hereditary breast-ovarian cancer syndrome is a relatively common cancer predisposition syndrome caused by mutations in the BRCA1 and the BRCA2 genes (or BRCA). In women, genetic mutations in BRCA primarily increase the risk of cancers of the breasts, ovaries, and fallopian tube. In men, they make prostate cancer and male breast cancer more likely. Many studies have also shown variations in the make-up of BRCA genes could increase the risk of pancreatic, colorectal, uterine, and some other cancers.

By some estimates, BRCA1 and BRCA2 mutations are present in around one in every 400 individuals, and therefore have an elevated risk of developing cancer. Researchers have also documented a higher than average prevalence in certain populations by virtue of these groups carrying specific variants of these genes. For example, among the Ashkenazi Jews that emerged in Central Europe and their descendants, around one in 40 individuals carry mutations in the BRCA genes—about 10 times more common than in the general population.

This higher prevalence has been attributed to some genetic bottlenecks and founder effects within the community. A genetic bottleneck is when genetic diversity in a population drops (due to various factors), leaving their gene pool ill-equipped to fend off diseases and other threats that require adaptation. When a small group of individuals with a



All cancers occur due to genetic mutations in the body's genome, and a subset of these cancers are the result of inherited mutations. istock

genetic bottleneck found a new population, the bottleneck's effects became pronounced in this group—a phenomenon called the founder effect.

Testing for mutations in the BRCA gene is crucial because it helps individuals and clinicians identify higher risk sooner and develop personalised prevention strategies, including increased surveillance, preventive surgery, and/or targeted therapies. In a May 17 paper in the *Journal of Clinical Oncology*, the American Society of Clinical Oncology recommended 15 genes in all to ascertain an individual's risk of developing breast and ovarian cancers.

There are targeted therapies available today for individuals who develop cancers due to mutations in the BRCA genes or in genes implicated in other DNA-repair pathways. One such involves poly (ADP-ribose) polymerase (PARP) inhibitors, a new class of chemotherapy drugs. Investigators have reported promising results from recent clinical trials of PARP inhibitors, particularly in combination with platinum-based chemotherapy, offering hope for millions of people facing or experiencing hereditary cancers associated with specific mutations.

Our understanding of cancer genes and the mutations that cause cancer has improved significantly of late. One reason is tools like CRISPR screens, which have transformed the way researchers study the BRCA genes by enabling high-throughput functional genetic analysis. That is, using CRISPR-Cas9 technology, researchers can target the BRCA genes and create specific mutations in them in order to study their effects on DNA repair and cancer development.

Researchers have also used such CRISPR-based methods to explore an

Scientists have documented hereditary cancers. There are more than 50 syndromes that predispose individuals to cancer, caused by genetic variants that humans are capable of inheriting

individual's propensity to resist targeted therapies. For example, cancers involving mutated BRCA genes are sensitive to PARP inhibitors. But studies have shown many mutations in other genes involved in DNA repair could also influence the response to PARP inhibitors, and there doesn't yet exist a consistent method to predict it in clinical settings. So last year, a study published in the journal *Nature Communications* used genome-wide CRISPR-Cas9 screens to identify specific mutations that increase the sensitivity to PARP inhibitors.

Risk is a spectrum

In another, more recent paper, researchers at the Wellcome Sanger Institute in the U.K. reported identifying more than 3,000 genetic changes in the RAD51C gene, which is also crucial for DNA repair, that may significantly increase the risk of breast and ovarian cancer. After they mapped the structure of the protein encoded by this gene, the researchers were able to pinpoint the portions they determined to be critical for repairing DNA. So drugs targeting this portion could pave the way for new therapeutic strategies.

The researchers used a technique called saturation genome editing to examine 9,188 variants, revealing that 3,094 could disrupt the gene's function and increase ovarian cancer risk sixfold and aggressive breast cancer risk fourfold. They also discovered variants that partially impaired RAD51C function,

suggesting a broader spectrum of risk for breast and ovarian cancers than previously understood.

The findings, published in *Cell* on September 18, offer novel insights that clinicians can use to clarify the effects of RAD51C mutations.

Importantly, the study confirmed genetic risk lies on a spectrum influenced by the extent to which genetic changes affect protein function while emphasising the value of large-scale variant analysis for better personalised medicine and cancer prevention strategies. The researchers are preparing to apply similar techniques to other genes, with plans to eventually cover the entire human genome.

Cancer discovered early

Population prevalence studies play an important role in identifying the spread of certain hereditary cancers in different groups. These studies help uncover genetic risk factors that may be more common in certain populations due to founder effects. In tandem, at risk individuals need to undergo genetic screening at regular intervals.

The result will potentially be a cancer discovered early, which will help the individual make more informed healthcare decisions, alert their family members to risks for them as well, and adopt therapies likely to be more effective, including preventive treatment and lifestyle changes.

The ultimate outcome is for cancer morbidity and mortality to drop and, beyond, for everyone to have healthier lives.

The authors work at Karkinos Healthcare and are adjunct professors at IIT Kanpur and the Dr. D.Y. Patil Medical College and Research Centre. sridhar.sivasubbu@gmail.com, vinod.scaria@karkinos.in




·Topic → BRCA Genes and Cancer Risk




BRCA Genes Cancer Risk Population Variance Genetic Testing
Targeted Therapies CRISPR Technology Spectrum of Risk


Overview of BRCA Genes

 BRCA Genes: The discovery of BRCA1 and BRCA2 in the 1990s marked a significant advancement in understanding hereditary cancer syndromes, particularly those affecting breast and ovarian tissues.


Cancer Risk Associated with BRCA Mutations


 Cancer Risk: Mutations in these genes greatly increase the risk of developing cancers such as breast and ovarian in women, and prostate and male breast cancer in men. There are also elevated risks for other types of___ cancer.

— Population Variance in BRCA Mutations


 Population Variance: Approximately 1 in 400 people carry BRCA mutations. This prevalence is higher among Ashkenazi Jews, with a rate of 1 in 40, due to historical genetic bottlenecks and founder effects.

Importance of Genetic Testing


 Importance of Testing: Genetic testing for BRCA mutations is crucial for early detection of cancer risk, enabling personalized prevention strategies through surveillance and targeted therapies.

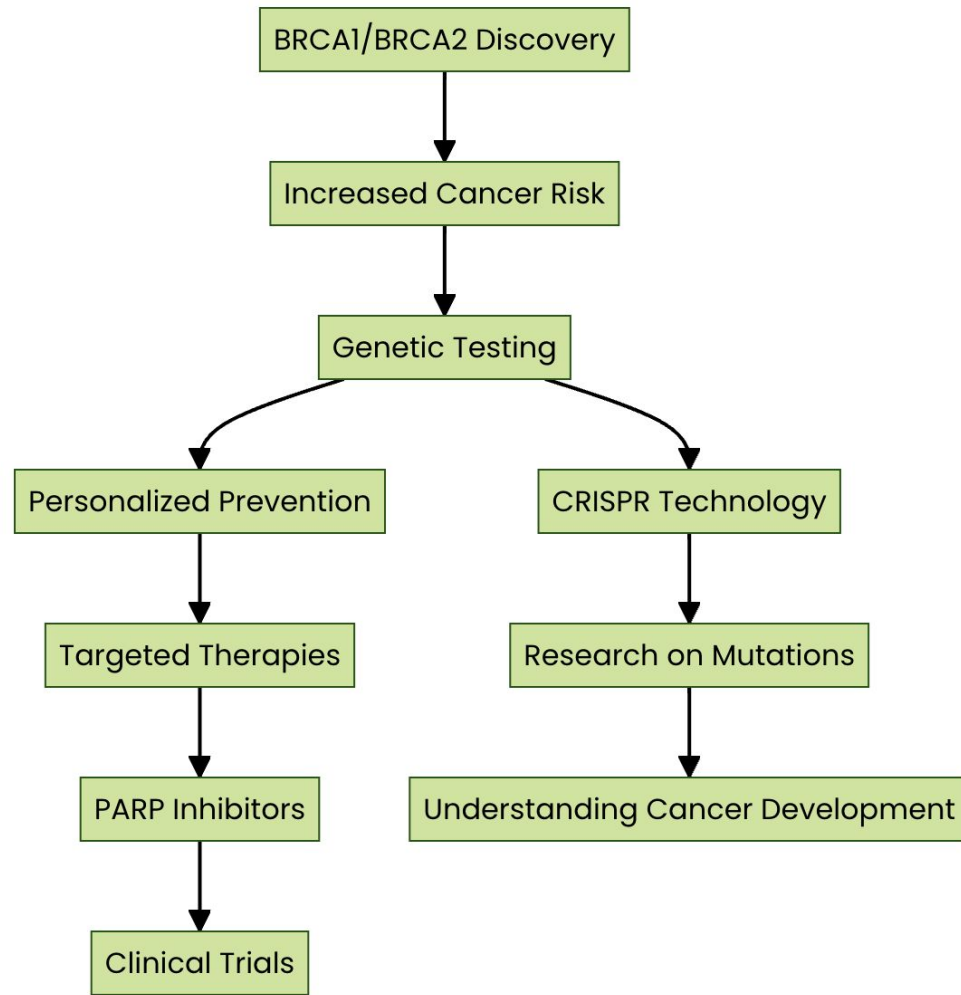
 Targeted Therapies: PARP inhibitors are emerging as effective treatments for BRCA-related cancers, showing promising results in clinical trials, especially when used with platinum-based chemotherapy.

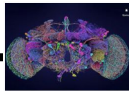
Role of CRISPR Technology

 CRISPR Technology: The use of CRISPR technology has advanced the study of BRCA genes, allowing for the creation of specific mutations to better understand their role in cancer development and treatment responses.

Expanding Spectrum of Genetic Risk

 Spectrum of Risk: Recent studies have identified over 3,000 genetic variations in the RAD51C gene, which can significantly increase the risk of breast and ovarian cancer, underscoring the complexity of genetic risk factors.





This image mirrored (not used) by Princeton University shows the largest neurons of the fruit fly brain connections. [AP](#)

Scientists map fruit fly brain in neurobio milestone

Reuters

Scientists have announced a milestone in neurobiological research with the mapping of the entire brain of an adult fruit fly, a feat that may provide insight into brains across the animal kingdom, including people.

The research detailed more than 50 million connections between more than 120,000 neurons in the insect, a species whose scientific name is *Drosophila melanogaster* and is often used in neurobiological studies. The research sought to decipher how brains are wired and the signals underlying healthy brain functions.

"You might be asking why we should care about the brain of a fruit fly. My simple answer is that if we can truly understand how any brain functions, it's bound to tell us something about all brains," said Princeton University professor of neuroscience and computer science Sebastian Seung, one of the co-leaders of the work published in a series of studies in the journal *Nature*.

The fruit fly brain is less than 1 mm wide. "It's beautiful," said University of Cambridge neuroscientist and research co-leader Gregory Jefferis.

The map devised by the researchers provided a wiring diagram, known as a connectome. For the brains of an adult fruit fly. Similar research previously was conducted with simpler organisms, such as the worm *Caenorhabditis elegans* and the fruit fly's larval stage. The adult fruit fly presented more complexity.

More than 50 million connections between more than 120,000 neurons in the insect were detailed. The research aims to decipher how brains are wired and how to establish if the brain is healthy

behaviours to study through its brain wiring.

"One of the major questions we're addressing is how the wiring in the brain, its neurons and connections, can give rise to animal behaviour," said Princeton neuroscientist Mala Murthy, another of the co-leaders of the research.

"And flies are an important model system for neuroscientists. Their brains solve many of the same problems we do. They're capable of sophisticated behaviours like the execution of walking and flying, learning and memory behaviours, navigation, feeding, and even social interactions, which is a behaviour that we studied in my lab at Princeton," Murthy added.

One of the studies analysed brain circuits underlying walking and discovered how flies halt, another analysed the fly's taste network and growing circuits behind behaviour such as when it uses a leg to remove dirt from its antennae. Another looked at the visual system, including how the fly's eyes process motion and colour information. Still another one analysed connectivity through the brain, discovering large assemblages of "hub neurons" that may speed up information flow.

The researchers fashioned a map tracking the organisation of the hemispheres and behavioural circuits inside the fly's brain. They also identified the full set of cell classes in its brain, pinpointing different varieties of neurons and chemical connections — synapses — between those nerve cells, and looked at the types of chemicals secreted by the neurons.

The work was conducted by a large international collaboration of scientists known as the FlyWire Consortium.

Overview of Connectome

Definition: Mapping of neural connections in the brain 

Significance: Understanding brain functions and behaviors

Applications: Neuroscience, AI, cognitive science

Recent Advances

Fruit Fly Connectome

Entire fruit fly brain mapped in detail 

Insights into neural wiring

Potential implications for human brain mapping

Key Concepts

Connectomics: The study of connectomes and their functions

Neural Networks: How neurons connect and communicate

Effectome: Understanding behavioral outcomes from neural wiring

Future Directions

Human Connectome Project: Mapping the human brain's connectome

AI and Connectomes: Using connectome data to enhance AI models

Medical Applications: Insights into brain disorders and treatments

A re-balancing of India's great power relations



SAURABH PANDEY
CSE
RESEARCHER IN INTERNATIONAL
RELATIONS FROM BANGS TO EPIC BALANCE

Prime Minister's Narendra Modi's participation in the sixth Quad Leaders' Summit in Wilmington, Delaware, U.S. on September 21, 2024 has raised further hopes of consolidating security cooperation among the "four leading maritime democracies in the Indo-Pacific". Nevertheless, it was India's National Security Adviser (NSA) Ajit Doval's trip to Russia in early September for the BRICS (Brazil, Russia, India, China, South Africa) NSA meeting, which included a high-profile personal meeting with Russian President Vladimir Putin, that needs greater analysis. Mr. Doval also held one-on-one parleys with the Chinese Foreign Minister Wang Yi, which was equally significant since India is leaving no stone unturned to resolve the four-year-old military standoff with China at the Line of Actual Control (LAC).

India is currently busy bargaining with China, and protecting its interests while trying to keep the U.S. engaged in maintaining a rules-based order in the Indo-Pacific. The fundamental idea behind the Quad (Australia, Japan, India and the U.S.) is the creation of a strategic consortium of principles, interests and purposes that would not only strengthen each country individually but would also be capable of jointly countering the revisionist challenge to the existing global order. This is where India's relations with Russia become significant since Moscow is a bitter opponent of the Quad.

Role of peace maker

It is not easy for India's security managers and diplomats to make this complex game work in New Delhi's interest. However, Mr. Doval has a reputation for being imaginative, nimble and persuasive. The Doval-Putin meet, where Mr. Doval conveyed Mr Modi's Ukraine peace plan, may be interpreted as India's attempt to cross the psychological Rubicon in great power diplomacy.

There is little doubt about India's willingness, as an aspiring global power, to shoulder the responsibility in peace making which may include the meaningful role of a dialogue facilitator or an interlocutor, if not mediator. The Doval-Putin meet was after Mr. Modi's first-ever visit to Ukraine in August, and to Moscow in July. In particular, the Russia visit had drawn scathing criticism from Ukraine. But despite its criticism of Indian policies, Ukraine, on many occasions, has asked New India to help resolve the conflict.

Mr. Doval subsequently met French President Emmanuel Macron in Paris, on the sidelines of annual India-France Strategic Dialogue, to apprise him of India's mediatory efforts. Many factors have prompted India to insert itself into global peace-making initiatives, and India's Russia dilemma is the most important of them. While India's strategic relationship with the U.S. is relatively new, India-Russia relations have endured for over six decades, and New Delhi has



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By attempting to play a meaningful role in resolving the Ukraine conflict, India can hope to reset the terms of its engagement with both the West and Russia

no appetite to relinquish the military advantages that come with this relationship. But since the war in Ukraine has triggered Russia's total break with the West, Moscow's pivot toward China has become even more pronounced. Functioning more or less as the junior partner of China, Russia has been struggling to preserve its partnership with India since its leverage with China has steadily shrunk due to fierce military resistance by Ukraine.

From an Indian perspective, this needs correction because the Russia-China economic-military ties are getting too close to be ignored by New Delhi.

The West may have reconciled itself to India's purchase of Russian oil at discounted rates as well as New Delhi's silence on Russian aggression in Ukraine. Nevertheless, India's demonstration of independent foreign policy comes with a normative cost. The West has come to view India as being blatantly indifferent on issues which are so consequential for the remaking of the global order after the Ukraine conflict shattered the remnants of the post-Cold War landscape. By attempting to play a meaningful role in resolving an intractable conflict of epic global proportions, India can hope to reset the terms of its engagement with the West and Russia. Even though some voices would treat it as an attempt to please Washington, others would sound equally compelling in arguing that India is merely emphasising its strategic autonomy while buttressing its position as '*Vishwa Bandhu*', or a friend to the world.

Russia's China embrace

What has been the hallmark of India's foreign policy under Mr. Modi's leadership during the last one decade is a friendly, cooperative and sometimes transactional relationship with the U.S., and a non-adversarial, non-ideological and dispassionate relationship with Russia. However, Russia's foreign policy under Mr. Putin has been primarily driven by two key objectives: a deepening Moscow-Beijing nexus and the promotion of a multi-polar world order which would counter the hegemonic dominance of the western bloc led by the U.S. Mr. Putin's anti-western strategy includes both China and India as close allies. But India is unwilling to oblige as its strategic priorities do not fully align with those of Russia or China.

Russia's apparent unwillingness to diminish its partnership with India should have been predicated on the preservation of a reasonable balance of power between India and China and the avoidance of any major conflict between them. But the Russians have failed to give the same degree of concentrated attention to India which they have given to China. The reason is not far to seek. If Moscow's pursuit of closer ties with Beijing has been driven by a shared geopolitical contest with Washington, Russia's ties with India

have lacked a similar motivation.

Consequently, New Delhi is increasingly finding Moscow's usefulness largely exhausted due to Russia's deepening China connection. China has not only been engineering many of India's security difficulties on their Himalayan borders but is also trying to profit from them. The most damaging has been the active support to Pakistan in elevating terrorism as a legitimate tool of statecraft. In the Indian world view, Russia's prioritisation of China in its foreign policy has lent Russian diplomacy an exasperating character.

Russia's break in its relations with the U.S. has pushed Moscow into a tighter embrace with Beijing, at a moment when relations between India and China are yet to be normalised. Moreover, Russia's ambitions of posing a serious challenge to American primacy by asserting a leadership role in the Shanghai Cooperation Organisation and BRICS also remain unfulfilled. With the Ukraine war, Russia's task of managing its relationship with India has become considerably more complicated. And that is what makes India concerned about it, leading to rebalancing of India's great power relations.

From past to present

This bold rebalancing does not necessarily require anything as far reaching as a full-fledged India-U.S. alliance. It requires our collective ability to turn increasingly away from the nostalgic images of Russia protecting India from the machinations of the Pakistan-U.S.-China nexus in the Bangladesh war. There is much scepticism about the merits of India's peace efforts when the war between Russia and Ukraine is showing no signs of de-escalation. The argument is that New Delhi does not really have the leverage to push either side to the negotiating table. Nor has the Indian leadership been accustomed to incur the displeasure of both parties in mediation efforts. But that should not be the justification for not trying to play the game of mediation. Symbolically as well as practically, Mr. Doval's publicly advertised and deft diplomatic interactions with Mr. Putin and Mr. Macron herald a new foreign policy dynamic in which conflict resolution efforts are viewed as a vital component of India's strategic autonomy.

In the end, the U.S.'s desire of seeing a ruined Russia is something India is not able to accept. It is also imperative for New Delhi to preserve the gains of the last two decades by fortifying its strategic partnership with the U.S. While the U.S. is undoubtedly the key player in the Quad, India too understands its underlying agenda, and accepts its fundamental features. New Delhi is aware of the structural impediments that stand in the path of any far-reaching development of India-China relations, and has no emotional commitment to their early improvement at strategically prohibitive cost.

–Topic→ India's Participation in the Quad Leaders' Summit and Its Diplomatic Implications



Overview of the Quad Leaders' Summit

Date & Location: September 21, 2024, Wilmington, Delaware, U.S.

Key Participants:

Prime Minister Narendra Modi (India)

President Joe Biden (U.S.)

Prime Ministers of Japan and Australia

Objective:

Strengthen security cooperation among *four leading maritime democracies* in the *Indo-Pacific*.

Ajit Doval's Diplomacy

Significant Meeting:

Doval's trip to Russia for BRICS NSA meeting.

Personal meeting with President Vladimir Putin.

Talks with Chinese Foreign Minister Wang Yi.

Purpose:

Address military standoff with China at the Line of Actual Control (LAC).

Maintain India's strategic interests amid U.S. engagement.

Quad's Strategic Goals



Creation of a Consortium:

Counter revisionist challenges to global order.

Enhance collective security and diplomatic ties.

Significance of Russia:

Russia's opposition to the Quad.

Need to balance relations with Russia while engaging with U.S.

India's Role as a Peace Maker

Doval's Reputation:

Known for imaginative and persuasive diplomacy.

Peace Initiatives:

Conveying India's Ukraine peace plan to Putin.

Engaging in dialogue with global leaders (e.g., Emmanuel Macron).

Strategic Autonomy:

India positioning itself as a mediator in global conflicts.

Challenges and Considerations



Russia-China Ties:

Deepening economic and military cooperation.

Implications for India's security and foreign policy.

Western Perception:

India viewed as indifferent to global issues post-Ukraine conflict.

Need to reset engagement terms with both the U.S. and Russia.

Historical Context

India-Russia Relations:

Long-standing military and strategic partnership.

Rebalancing:

Shift away from nostalgia of past alliances.

Need for pragmatic diplomacy in current geopolitical landscape.

Conclusion

Implications for the Future:

The Quad summit could redefine India's diplomatic stance.
Potential to enhance India's role as a global peace facilitator
while navigating complex relationships with Russia and China.



On the need for a different framework for passive MFs

Why has SEBI relaxed requirements for asset management companies with respect to passive mutual funds?

Saptaparno Ghosh

The story so far:

The Securities and Exchange Board of India (SEBI) on September 30, introduced the liberalised Mutual Funds Lite (MF Lite) framework for passively managed schemes. The framework intends to promote the entry of new players into the MF ecosystem, present diversified investment opportunities for retail investors through less risky schemes and enhance market liquidity.

Why a separate framework?

Passively managed mutual fund schemes are generally considered less risky compared to their actively managed peers. They usually track a benchmark index, say BSE Sensex or Nifty50, and try to mimic their performance. In other words, these funds try and deliver returns in tandem with the benchmark they are following. Since the underlying constituents of the benchmark indices are

publicly available, passively managed schemes can be easily tracked and therefore, the associated risks are lower in comparison to their active peers.

SEBI observed that passive funds' investment strategy imbibes on mimicking instruments already bearing established rules. Asset management companies (AMCs) of the fund, thus have "negligible discretion" about asset allocation and the investment objective. Thus, the regulator held that the current framework, intended primarily for active mutual fund operators, may not be relevant for passively managed schemes. Thus, opting to introduce the "relaxed framework". The light touch regulations would include relaxed requirements relating to eligibility criteria for sponsors (the ones who set up and register the mutual fund) including net worth, track record and profitability etc.

How does it help new players' entry?

This would be encouraged by two measures – governance structures (and

responsibilities) and requirements for net worth holdings. Net worth is the difference between the assets and liabilities of the fund. The framework deems a minimum net worth of ₹35 crore to be appropriate for AMCs operating a passive fund. Emphasising on the need for liquid money, the regulator observed that the fund may require to deploy the entire amount of the net worth in liquid assets on a perpetual basis. Thus, a lower minimum requirement could provide the "desired head start for a cost effective and competitive passive MF industry". According to stockbroking firm AngelOne, the framework would likely attract both existing and new market players.

Further, with respect to governance, SEBI explored that in management of passive funds, the oversight role of trustees (tasked with protecting the investors' interest) also gets considerably reduced. Thus, a case for relaxation. However, it stipulated that the role of trustees in averting conflict of interest and overseeing related party transactions,

undue influence of sponsors, misconduct including market abuse and misuse of information including front running would still be relevant along with AMCs. Important to note here however, that certain oversight measures relating to daily operations would now be entirely with the board of the AMC, the paper held. For example, ensuring fairness in fees and expenses charged and more importantly, maintaining the tracking error and difference within the regulatory limit.

What about risks and disclosures?

The success of a passively managed scheme is subject to two factors, namely, TER (refers to the costs associated with running and managing a scheme) and tracking error. Thus, the latest framework moves away from metrics such as strategy and investment avenues, among other things. These would not form part of the scheme information document (SID) that contains all the relevant information for a prospective retail investor. SEBI however sought that the prospective investor be informed about the name of the underlying benchmark, among other things, in the SID. SEBI's consultation paper had also concentrated focus on costs for compliance considering the lowered risks.

It provided that the responsibilities of the risk management committee(s), being limited in the paradigm, could be instead additionally carried out by the audit committee of the AMC.

THE GIST

▼
Passively managed mutual fund schemes are generally considered less risky compared to their actively managed peers. They usually track a benchmark index, say BSE Sensex or Nifty50, and try to mimic their performance.

▼
The framework deems a minimum net worth of ₹35 crore to be appropriate for AMCs operating a passive fund.

▼
The success of a passively managed scheme is subject to two factors, namely, TER (refers to the costs associated with running and managing a scheme) and tracking error.

Topic → Introduction of MF Lite



SEBI MF Lite passive funds AMC's market liquidity

Overview of MF Lite Framework



Launch Date: SEBI introduced the Mutual Funds Lite (MF Lite) framework on September 30 to boost passively managed schemes.

Key Features




Lower Risk: These funds are considered less risky as they track benchmark indices like BSE Sensex or Nifty50, mimicking their performance.





Relaxed Eligibility: The framework reduces eligibility criteria for Asset Management Companies (AMCs), requiring a minimum net worth of ₹35 crore for operating passive funds.



Governance Changes: The oversight role of trustees is minimized, with AMCs assuming more responsibility for daily operations, while still managing conflicts of interest.

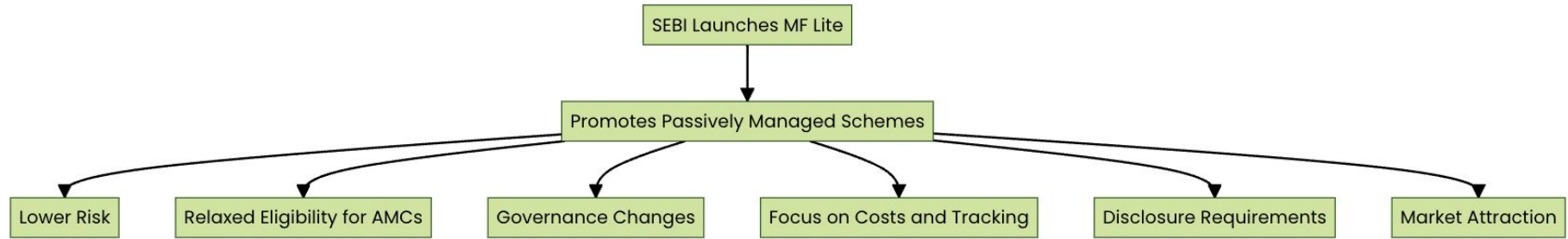
 **Focus on Costs and Tracking:** Emphasizes Total Expense Ratio (TER) and tracking error as key success factors for passive schemes, moving away from traditional metrics.

 **Disclosure Requirements:** SEBI mandates that the scheme information document (SID) must include the name of the underlying benchmark and other relevant details for investors.

 **Market Attraction:** The relaxed framework is expected to attract both existing and new players into the passive mutual fund industry, enhancing market liquidity.

Summary

SEBI's new MF Lite framework aims to facilitate the entry of new players into the passive mutual fund sector by introducing relaxed regulations and focusing on lower risks and costs.



About Active vs Passive Mutual Fund



Overview

Active Funds: Managed by professionals, aim to outperform market indices.

Passive Funds: Track a market index, designed for long-term investment.


Key Comparisons

Performance:

Active funds might outperform in volatile markets .

Passive funds offer consistent returns over time .

Fees:

Active funds typically have higher fees .

Passive funds generally have lower expense ratios .

Management Style:

Active: Hands-on approach with research and analysis .

Passive: Automated tracking of indices .


Market Trends



Growth of Passive Investing:

Increasing popularity due to lower costs and ease of use .

Performance of Active Funds:

Recent challenges in outperforming passive funds in various market conditions .

Investor Considerations

Risk Tolerance:

Active funds may suit risk-tolerant investors seeking higher returns .

Passive funds may suit conservative investors seeking stability .

Investment Goals:

Active for short-term objectives; Passive for long-term growth .

World's water cycle getting unpredictable, says UN study

Agence France-Presse
GENEVA

Increasingly intense floods and droughts are a "distress signal" of what is to come as climate change makes the planet's water cycle ever more unpredictable, the United Nations said on Monday.

Last year, the world's rivers were their driest for more than 30 years, glaciers suffered their largest loss of mass in half a century, and there were also a "significant" number of floods, the UN's World Meteorological Organisation (WMO) said in a report.

"Water is the canary in the coalmine of climate change," WMO Secretary-General Celeste Saulo said in a statement accompanying the State of Global Water Resources Report.

"We receive distress signals in the form of increasingly extreme rainfall, floods and droughts which wreak a heavy toll on lives, ecosystems and economies," she said.

Ms. Saulo said the heating up of earth's atmosphere had made the water cycle "more erratic and unpredictable, and we are facing growing problems of either too much or too little water". High temperatures and widespread dry conditions produced prolonged droughts. "A warmer atmosphere holds more moisture, which is conducive to heavy rainfall. More rapid evaporation worsen drought conditions," Ms. Saulo said.

Currently, 3.6 billion people have insufficient access to fresh water at least once a month per year, according to the UN. This is forecast to rise to five billion by 2050.



Topic → Climate Change: Distress Signals of Water Cycle



Overview of Water Cycle Distress Signals

Increasingly intense floods and droughts  

Climate change making water cycle unpredictable 

Heavy toll on lives, ecosystems, and economies 

"Water is the canary in the coalmine of climate change." - Celeste Saulo

Key Findings

Driest rivers in over 30 years 

Largest glacier mass loss in half a century 

Currently, 3.6 billion people lack sufficient access to fresh water, projected to rise to 5 billion by 2050.

Impacts of Climate Change



Floods

Extreme rainfall events increased

Damage to infrastructure and ecosystems

Droughts

Prolonged dry conditions


Increased evaporation rates

Water Cycle Changes

Erratic and unpredictable patterns

More moisture held in warmer atmosphere

Future Projections

Growing problems of too much or too little water 

Increased risk of water-related disasters

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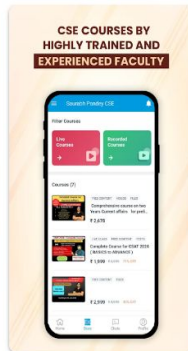
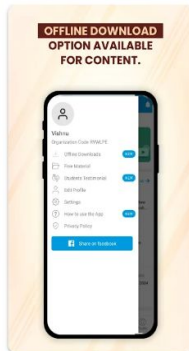
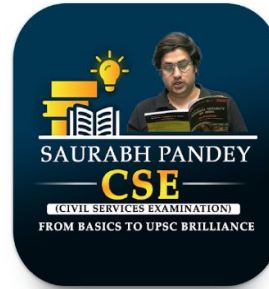
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