

## Biotechnology & Health:

### Biotechnology & Medical Breakthroughs:

#### AI-Driven Drug Discovery Advancements:

**VedTechBio's RxAgentAI™ Platform:** Bengaluru-based VedTechBio Research Pvt. Ltd. unveiled significant enhancements to its AI-driven RxAgentAI™ platform, claiming to cut drug discovery timelines in half. They also announced a strategic collaboration with AlphaMeld Corporation to co-develop multiple therapies. The platform's capabilities include a 30% reduction in target and drug identification timelines and a 50% compression of full target-disease-drug analysis workflows.

**Isomorphic Labs (DeepMind Spinoff):** Isomorphic Labs, a DeepMind spinoff, announced that its AI-designed drugs are poised to enter human trials soon, marking a major milestone in AI-assisted pharmaceutical innovation. Their AI models protein interactions to design novel drugs faster.

#### Novel Cancer Treatments:

**Deep-Sea Sugar Compound:** Scientists discovered a sugar compound from deep-sea bacteria that can destroy cancer cells by causing them to go "up in flames." This natural substance, from ocean microbes, holds promise for new cancer therapies.

**Radiation and Immune System:** Research revealed that radiation therapy, traditionally a local treatment, can powerfully awaken the immune system to kill cancer in surprising ways.

**CRISPR and Vitamin D:** A gene called SDR42E1 has been identified as crucial for vitamin D absorption and processing. Disabling this gene in colorectal cancer cells not only crippled their growth but also stopped tumors in their tracks.

**Weight-Loss Drugs and Cancer:** Studies continue to explore the connection between obesity and cancer. Reports mentioned that weight-loss drugs like Mounjaro/Zepbound and Tirzepatide can shrink breast cancer tumors.

**AstraZeneca's Imfinzi:** Imfinzi was granted Priority Review and Breakthrough Therapy Designation by the FDA in the US for patients with resectable early-stage gastric and gastroesophageal junction cancers, based on data from the MATTERHORN Phase III trial.

**CAR T-cell therapy for Glioblastoma:** The FDA granted Orphan Drug designation to MB-101, a novel CAR T-cell therapy for glioblastoma (an aggressive brain cancer), an innovative approach for a tumor type with limited options.

**mRNA Vaccine for Pancreatic Cancer:** Early trial data showed promise for an mRNA vaccine designed to provoke immune attacks on pancreatic tumors.

#### Advanced Diagnostics:

**AI-Powered Cancer Detection (TOBY Test):** The FDA granted Breakthrough Device designation to the TOBY Test, a non-invasive, AI-driven urine test for bladder cancer detection. It uses AI to analyze urine for tumor biomarkers, potentially replacing invasive cystoscopies.

**Rapid Immune Response "Microchip":** Researchers at Scripps unveiled a microfluidic microchip that can profile how a person's



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antibodies attack viruses in just 90 minutes using a single drop of blood.

**AI in Medical Diagnostics:** Portuguese startup MedTiles is using an advanced AI platform to analyze medical scans for faster and more accurate diagnosis in dermatology, radiology, and pathology. Mediwhale has developed an AI-powered platform that analyzes retinal images to detect heart, kidney, and eye diseases. Microsoft introduced MAI-DxO, an LLM-powered diagnostic tool with over 85% accuracy.

**Alzheimer's Blood Test:** Quest Diagnostics announced a simple blood test to aid Alzheimer's diagnosis, measuring amyloid and tau biomarkers, potentially reducing the need for invasive scans.

### Other Noteworthy Biotech & Health Innovations:

**Rare Metal Recovery Biotechnology:** Researchers in Australia pioneered a cleaner, more efficient biotechnology using recyclable peptides for precise, single-step extraction of critical and rare earth minerals and metals. This mimics how cancer-targeting drugs work and has shown high purity and recovery for silver, with promising results for rare earths.

**Collagen Aesthetics:** Sunmax Biotechnology officially debuted Deusaderm LIDO in Malaysia, an injectable collagen solution developed with patented purification technology, mimicking human collagen for facial and periorbital rejuvenation.

**Biodegradable Hydrogel for Parkinson's:** Bioengineers in Australia developed a biodegradable hydrogel for long-acting drug

delivery in Parkinson's disease, potentially allowing weekly injections instead of daily pills.

**mRNA Vaccine Safety & Strength:** Scientists at the University of Pennsylvania found a way to make mRNA vaccines safer, stronger, and smarter by tweaking a key molecule.

**Pregnancy Shot for RSV:** A new UK study showed that vaccinating pregnant women against RSV led to a 72% drop in hospitalizations of newborns with severe lung infections by passing antibodies to the baby.

### Public Health & Initiatives (India-focused):

**India Health 2025 Exhibition:** The second edition of the India Health Exhibition was held from July 11-13, 2025, at Bharat Mandapam, New Delhi. This event aimed to connect regional and global healthcare leaders, showcase innovations in MedTech, diagnostics, and IT systems, and facilitate discussions on topics like US tariff pressures on Indian MedTech, AI in diagnostics, and digital healthcare transformation.

**Government Healthcare Schemes:** India continues to push for accessible and affordable healthcare through various initiatives:

**Ayushman Vay Vandana Scheme:** Over 58 lakh senior citizens enrolled, with more than 2.67 lakh treatments availed, ensuring easy healthcare for the 70+ age group.

**Ayushman Bharat Digital Mission (ABDM):** Over 78 crore Ayushman Bharat Health Accounts (ABHAs) created and 55 crore health records linked as of June 3, 2025, building a robust digital health ecosystem.





**Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM):** A large-scale initiative (₹64,180 crore outlay) to strengthen health service delivery across all levels and build a robust health system.

**National Health Mission (NHM):** Continues to be the flagship program for universal access to affordable, equitable, and quality healthcare, with services available free of cost at public health facilities.

**Ayushman Arogya Mandirs (AAMs):** Formerly Health & Wellness Centres, crucial for universal health coverage.

**TB Elimination Program:** Under the National TB Elimination Programme (NTEP), India has shown strong progress with a 17.7% fall in TB incidence and a significant drop in missing TB cases. The Nikshay Poshan Yojana provides financial support to TB patients, and the 100-Day TB Mukta Bharat Abhiyan covered a vast population for screening. India aims to eradicate TB by 2025.

**Sickle Cell Disease Screening:** Over 5.72 crore people screened for Sickle Cell Disease, achieving over 75% of the three-year target.

**Telemedicine Service (eSanjeevani):** India's National Telemedicine Service, eSanjeevani, has served over 36 crore patients, bridging healthcare access gaps, and is recognized as the world's largest telemedicine platform for primary care.

**Malaria and Trachoma Elimination:** India has made major strides in malaria elimination (69% drop in cases, 68% reduction in deaths 2017-2023) and eliminated Trachoma as a public health problem in 2024.

**Ethiraj College Women in Biotech Awards:** Ethiraj College for Women honored four women scientists and innovators in biotechnology at its Fifth Annual Women in Biotech Conclave and Awards, recognizing their contributions to the field.

### Pharmaceutical Industry Developments in India:

**India-UK FTA:** Expected to strengthen supply chains for pharma and medical devices, improve access to affordable medicines, and foster collaboration in bulk drugs and joint research.

**Major Indian Pharma Companies:** Aurobindo Pharma, Biocon, Cipla, Dr. Reddy's Laboratories, Glenmark, Lupin, Mankind Pharma, Sun Pharmaceutical Industries, Torrent Pharmaceuticals, and Zydus Lifesciences all reported significant activities in July 2025, including capital investments, international expansions, acquisitions, and partnerships to bring innovative therapies to market.

**Moderna's Covid-19 Vaccine:** EMA's CHMP recommended authorization of Moderna's updated Covid-19 mRNA vaccine (Spikevax) for SARS-CoV-2 Variant LP.8.1 for the 2025-2026 vaccination season.



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## MCQS

1. Which Bengaluru-based company unveiled enhancements to its AI-driven RxAgentAI™ platform, claiming to cut drug discovery timelines in half?

- a) AlphaMeld Corporation
- b) Isomorphic Labs
- c) VedTechBio Research Pvt. Ltd.
- d) MedTiles

**Answer:** c) VedTechBio Research Pvt. Ltd.

The news states, "Bengaluru-based VedTechBio Research Pvt. Ltd. unveiled significant enhancements to its AI-driven RxAgentAI™ platform, claiming to cut drug discovery timelines in half."

2. What type of compound, discovered from deep-sea bacteria, can destroy cancer cells by causing them to go "up in flames"?

- a) A protein enzyme
- b) A lipid molecule
- c) A sugar compound
- d) A nucleic acid

**Answer:** c) A sugar compound

The news states, "Scientists discovered a sugar compound from deep-sea bacteria that can destroy cancer cells by causing them to go 'up in flames.'"

3. Which gene has been identified as crucial for vitamin D absorption and processing, and its disabling crippled colorectal cancer cell growth?

- a) TP53
- b) BRCA1
- c) SDR42E1
- d) EGFR

**Answer:** c) SDR42E1







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The news states, "A gene called SDR42E1 has been identified as crucial for vitamin D absorption and processing. Disabling this gene in colorectal cancer cells not only crippled their growth but also stopped tumors in their tracks."

**4. What non-invasive, AI-driven urine test for bladder cancer detection was granted Breakthrough Device designation by the FDA?**

- a) The AI-Bladder Scan
- b) The Uro-Detect AI
- c) The TOBY Test
- d) The Renal-AI Diagnostic

**Answer: c) The TOBY Test**

The news states, "The FDA granted Breakthrough Device designation to the TOBY Test, a non-invasive, AI-driven urine test for bladder cancer detection."

**5. Researchers at Scripps unveiled a microfluidic microchip that can profile how a person's antibodies attack viruses using what?**

- a) A saliva sample
- b) A hair follicle
- c) A single drop of blood
- d) A breath sample

**Answer: c) A single drop of blood**

The news states, "Researchers at Scripps unveiled a microfluidic microchip that can profile how a person's antibodies attack viruses in just 90 minutes using a single drop of blood."

**6. What is the name of the injectable collagen solution officially debuted by Sunmax Biotechnology in Malaysia for facial and periorbital rejuvenation?**

- a) Hydro-Collagen Plus
- b) DermaYouth Inject
- c) Deusaderm LIDO
- d) RejuveCollagen

**Answer: c) Deusaderm LIDO**

The news states, "Sunmax Biotechnology officially debuted Deusaderm LIDO in Malaysia, an injectable collagen solution developed with patented purification technology..."

**7. What type of long-acting drug delivery system did bioengineers in Australia develop for Parkinson's disease, potentially reducing daily pills to weekly injections?**

- a) A biodegradable hydrogel
- b) A microscopic implant
- c) A transdermal patch
- d) An oral nano-tablet

**Answer: a) A biodegradable hydrogel**

The news states, "Bioengineers in Australia developed a biodegradable hydrogel for long-acting drug delivery in Parkinson's disease, potentially allowing weekly injections instead of daily pills."

**8. A new UK study showed that vaccinating pregnant women against RSV led to a 72% drop in what outcome for newborns?**

- a) RSV infections
- b) Hospitalizations with severe lung infections
- c) Development of chronic asthma
- d) Need for oxygen support

**Answer: b) Hospitalizations with severe lung infections**

The news states, "A new UK study showed that vaccinating pregnant women against RSV led to a 72% drop in hospitalizations of newborns with severe lung infections by passing antibodies to the baby."

Public Health & Initiatives (India-focused)

**9. Where was the second edition of the India Health 2025 Exhibition held from July 11-13, 2025?**

- a) Bengaluru





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- b) Mumbai  
c) Chennai  
d) New Delhi

**Answer:** d) New Delhi

The news states, "The second edition of the India Health Exhibition was held from July 11-13, 2025, at Bharat Mandapam, New Delhi."

**10. As of June 3, 2025, how many Ayushman Bharat Health Accounts (ABHAs) were created under the Ayushman Bharat Digital Mission (ABDM)?**

- a) Over 58 crore  
b) Over 78 crore  
c) Over 36 crore  
d) Over 2.67 lakh

**Answer:** b) Over 78 crore

The news states, "Over 78 crore Ayushman Bharat Health Accounts (ABHAs) created... as of June 3, 2025..."

**11. What is the outlay for the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM), aimed at strengthening health service delivery?**

- a) ₹50,000 crore  
b) ₹64,180 crore  
c) ₹75,000 crore  
d) ₹1,00,000 crore

**Answer:** b) ₹64,180 crore

The news states, "A large-scale initiative (₹64,180 crore outlay) to strengthen health service delivery..."

**12. By what percentage has India shown a fall in TB incidence under the National TB Elimination Programme (NTEP)?**

- a) 10%  
b) 12.5%  
c) 17.7%

- d) 20%

**Answer:** c) 17.7%

The news states, "India has shown strong progress with a 17.7% fall in TB incidence..."

**13. How many people have been screened for Sickle Cell Disease, achieving over 75% of the three-year target?**

- a) Over 1 crore  
b) Over 3 crore  
c) Over 5.72 crore  
d) Over 10 crore

**Answer:** c) Over 5.72 crore

The news states, "Over 5.72 crore people screened for Sickle Cell Disease, achieving over 75% of the three-year target."

**14. What is eSanjeevani recognized as in the context of telemedicine?**

- a) India's first private telemedicine platform.  
b) The world's largest telemedicine platform for primary care.  
c) A new platform for specialty consultations only.  
d) A regional telemedicine service.

**Answer:** b) The world's largest telemedicine platform for primary care.

The news states, "India's National Telemedicine Service, eSanjeevani... is recognized as the world's largest telemedicine platform for primary care."

**15. In what year did India eliminate Trachoma as a public health problem?**

- a) 2022  
b) 2023  
c) 2024  
d) 2025

**Answer:** c) 2024







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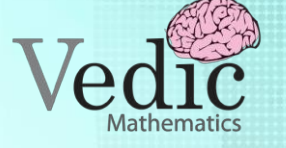
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The news states, "India has... eliminated Trachoma as a public health problem in 2024."

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