

Biotechnology & Health:

Advancements in Preventive and Personalized Medicine

A new oral chewable tablet system called OROJIN™ made its global debut at BIOHK 2025. Developed in collaboration with the Miskawaan Health Group and Jiuzhang Biotech, this product uses chlorogenic acid, a powerful antioxidant, to support immunity, cellular vitality, and metabolism. Its creators aim to redefine preventive medicine by making daily health maintenance simple and accessible.

Researchers at the University of Queensland received four awards at the Life Sciences Queensland (LSQ) GENE Awards for their contributions to human and animal health, agriculture, and biotechnology, highlighting significant innovation in the sector.

Emerging Trends and Technologies

Major trends in biotechnology for 2025 include:

AI and Machine Learning: These technologies are playing a key role in accelerating drug discovery, improving the accuracy of disease diagnosis, and personalizing treatment plans. AI is being used to analyze vast datasets, identify promising drug compounds, and predict patient outcomes.

Gene Therapy and CRISPR: Advancements in gene editing technologies, particularly CRISPR-based therapies, are moving beyond monogenic diseases to address conditions like cancer and viral infections. This is a significant step toward developing curative treatments rather than just managing symptoms.

Precision and Personalized Medicine: The industry is shifting toward therapies tailored to an individual's unique genetic makeup. This approach is gaining momentum in areas like oncology, where treatments can be customized to the genetic profile of a patient's tumor.

Allogeneic Cell Therapies: The focus is on developing "off-the-shelf" therapies derived from healthy donors, which are more scalable and cost-effective than therapies that use a patient's own cells (autologous therapies). This advancement is expected to make advanced treatments more widely available.

Global Health and Research

A new study published in *The Lancet* revealed that while progress against premature deaths from non-communicable diseases (NCDs) has been made, the momentum is faltering. The study notes that while deaths from conditions like ischemic heart disease and stroke have decreased in many regions, progress has slowed down in recent years due to factors like widening health inequalities and fiscal constraints.

In a related development, India's engineering community is leveraging biotechnology breakthroughs, such as CRISPR-based therapies, to address health challenges and attract global investments, according to a report on National Engineers' Day.



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1: What is the key ingredient in the new oral chewable tablet system OROJIN™?

- a) Chlorogenic acid
- b) Ascorbic acid
- c) Folic acid
- d) Citric acid

Answer: a) Chlorogenic acid

The news report states that the OROJIN™ product "uses chlorogenic acid, a powerful antioxidant, to support immunity, cellular vitality, and metabolism."

2: According to the provided news, which of the following is an emerging trend in biotechnology for 2025?

- a) A decrease in the use of AI for drug discovery.
- b) A shift away from personalized medicine.
- c) The development of "off-the-shelf" allogeneic cell therapies from healthy donors.
- d) The exclusive focus of gene therapy on monogenic diseases.

Answer: c) The development of "off-the-shelf" allogeneic cell therapies from healthy donors. The news lists "Allogeneic Cell Therapies" as a major trend, with a focus on developing "off-the-shelf" therapies that are more scalable and cost-effective.

3: A study published in The Lancet reported that progress against premature deaths from non-communicable diseases (NCDs) is faltering due to what factors?

- a) A lack of available medical treatments.
- b) Increasing rates of obesity and inactivity.
- c) Widening health inequalities and fiscal constraints.
- d) The high cost of clinical trials.





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Answer: c) Widening health inequalities and fiscal constraints.

The report states that the study found progress against NCDs has slowed "due to factors like widening health inequalities and fiscal constraints."

4: What specific technology is India's engineering community leveraging to address health challenges and attract global investments?

- a) 3D printing of medical devices
- b) CRISPR-based therapies
- c) Development of nanorobots
- d) Quantum computing for diagnosis

Answer: b) CRISPR-based therapies

The news states that "India's engineering community is leveraging biotechnology breakthroughs, such as CRISPR-based therapies, to address health challenges."



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