



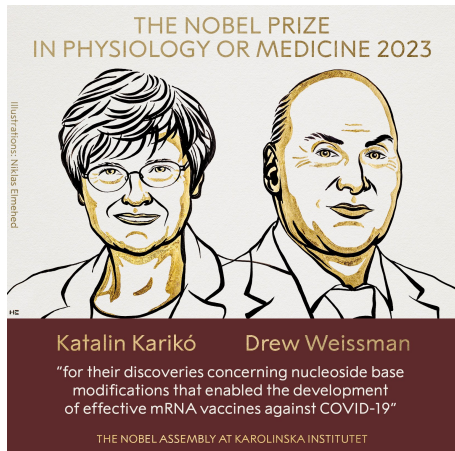
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03 October 2023

International & National News

Medicine Nobel 2023



Context

The 2023 Nobel Prize in Physiology or Medicine has been awarded to Hungarian biochemist Katalin Karikó and American physician-scientist Drew Weissman.

Key points

- They had been feted for “discoveries concerning nucleoside base modification that enabled the development of effective mRNA vaccines against COVID-19”.
• Medicine Nobel is awarded annually by the Swedish Karolinska Institute
• mRNA stands for messenger RNA
• Messenger is so called because it carries instructions from the DNA to a cell’s cytoplasm, where those messages are ‘read’ to produce various proteins.

mRNA Vaccines

About mRNA Vaccine

- The vaccine was first demonstrated in 1994
• They are also called as messenger RNA
• mRNA vaccines work by introducing a piece of mRNA directly into the cell
• By using this mRNA, cells can produce the viral protein.
• As part of a normal immune response, the immune system recognizes that the protein is foreign and produces specialized proteins called antibodies.
• Once produced, antibodies remain in the body, even after the body has rid itself of the pathogen, so that the immune system can quickly respond if exposed again.

Limitation - they need to be stored at extremely low temperatures as they get destroyed when exposed to the outside environment.



Astra BVR Missile

Context

The Indian Air Force (IAF) has placed two contracts with Bharat Dynamics Ltd. (BDL) for the indigenous Astra Beyond Visual Range (BVR) Missile.



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	<p><b>About ASTRA missile</b></p> <ul style="list-style-type: none"><li>• It is an <b>indigenous</b> Beyond Visual Range (BVR) <b>air-to-air missile</b>.</li><li>• It is to engage and destroy highly maneuvering <b>supersonic aerial targets</b>.</li><li>• It is designed and developed by <b>Defence Research and Development Laboratory (DRDL)</b>, Research Centre Imarat (RCI) and other laboratories of DRDO.</li><li>• The indigenous Astra BVR firing from home grown Tejas fighters is a major step towards '<b>Aatmanirbhar Bharat</b>'.</li></ul>
<p><b>LCA Tejas Fighter Aircraft</b></p>	<p><b>About Aircraft</b></p> <ul style="list-style-type: none"><li>• It is the lightest, smallest and tailless <b>multi-role supersonic fighter aircraft</b> in its class.</li><li>• This aircraft is designed to carry a range of <b>air-to-air, air-to-surface</b>.</li><li>• It is a precision-guided weapon.</li><li>• It has the <b>air-to-air refueling capability</b>.</li><li>• The maximum payload capacity of Tejas is <b>4000 kg</b>.</li><li>• Speed: <b>Mach 1.8</b>.</li></ul>
<p><b>Nobel Prizes</b></p> 	<p><b>About Prize</b></p> <ul style="list-style-type: none"><li>• The Nobel Prizes were created by <b>Alfred Nobel</b>, a 19th-century businessman and chemist from Sweden.</li><li>• It is awarded to those who have done the best work for fraternity between nations.</li><li>• The prizes are given in <b>physics, chemistry, literature, peace and medicine</b>.</li><li>• The first Nobel Prizes were presented in <b>1901</b>, five years after his death.</li><li>• In 1968, a sixth prize was created, for <b>economics</b>, by Sweden's central bank.</li><li>• To date, 60 women have won Nobel Prizes, including 25 in the scientific categories.</li></ul> <p><b>Did you know?</b></p> <ul style="list-style-type: none"><li>• Only four women have won the Nobel Prize in physics and just two have won the economics prize.</li></ul>
<p><b>MGNREGA Scheme</b></p>	<p><b>Context</b></p> <p>The <b>MGNREGA card holders from West Bengal</b> are protesting in New Delhi for withholding MGNREGA funds.</p>



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## Daily Current Affairs Encyclopedia

	<p><b>About MGNREGA</b></p> <ul style="list-style-type: none"> <li>• It is an act passed in 2005 that guarantees the "<b>right to work</b>" to rural citizens of India.</li> <li>• It was introduced through the act of <b>Mahatma Gandhi National Rural Employment Guarantee Act 2005</b>.</li> <li>• It works under the <b>ministry of Rural development</b></li> <li>• <b>Aim of the scheme is to provide employment for unskilled workers.</b></li> <li>• Under this, the government assures a <b>minimum of 100 days of unskilled manual work</b> to an adult member of an eligible rural household.</li> <li>• The main objective of the MGNREGA is to provide employment to rural citizens and improve their economic conditions.</li> <li>• It is a <b>Centrally-Sponsored Scheme</b> i.e. the scheme is jointly funded by the Central government and the State governments.</li> </ul>
<p><b>Indian cities in world's top 10 nations with slowest traffic</b></p>	<p><b>Context</b> Bhiwandi in Maharashtra, Kolkata, and Bihar's Arrah are among the <b>top 10 slowest cities</b> in the world, according to a study conducted by the National Bureau of Economic Research (NBER).</p> <p><b>About NBER</b></p> <ul style="list-style-type: none"> <li>• The <b>National Bureau of Economic Research (NBER)</b> is a <b>private, non-profit, non-partisan research organization</b>.</li> <li>• Its aim is to promote a greater understanding of how the economy works.</li> <li>• It disseminates <b>economic research</b> among public policymakers, business professionals, and the academic community.</li> </ul>
<p><b>WHO approves use of malaria vaccine with adjuvant tech</b></p> <p><b>Did you know?</b> Ghana became the first African country which approved the vaccine.</p>	<p><b>Context</b> Recently The <b>R21/Matrix-M malaria vaccine</b> was recommended for use by the <b>World Health Organization (WHO)</b></p> <p><b>About R21/Matrix-M</b></p> <ul style="list-style-type: none"> <li>• It was developed by the <b>University of Oxford</b> and the <b>Serum Institute of India</b>,</li> <li>• It is the first vaccine to achieve more than <b>75% effectiveness</b>. (The goal set by the World Health Organisation).</li> <li>• It has been approved for use in children aged 5-36 months, the age group at the highest risk of death from malaria.</li> </ul>



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	<ul style="list-style-type: none"><li>Matrix-M, a <b>saponin-based adjuvant</b> developed by Novavax, is used in the vaccine to stimulate a stronger and longer-lasting immune response.</li><li>Antigen presentation in regional lymph nodes is improved by the Matrix-M adjuvant, which also encourages the entrance of antigen-presenting cells at the injection site.</li></ul>
<b>WHO record on Cholera</b>	<p><b>Context</b> According to the World Health Organization (WHO)'s weekly epidemiological record, certain key findings were noted about Cholera</p> <p><b>Key findings</b></p> <ul style="list-style-type: none"><li>World reported twice as many cholera cases in 2022 as in 2021</li><li>Most cholera cases continue to be reported from Africa and Asia, with Europe accounting for a few "imported cases"</li><li>Between 2021 and 2022, Africa reported 29% fewer cases and 52% fewer deaths.</li></ul>

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