Daily News Juice

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1. PM Internship Scheme: Eligibility, application process and how to apply at pminternship.mca.gov.in

Background

The Ministry of Corporate Affairs has launched the Prime Minister's Internship Scheme in a pilot phase for the country's youth. The scheme aims to provide students with internship opportunities to address youth unemployment. Through this scheme, PM envisions to provide internships to 1 crore young people over the next five years.

As of now, the portal is open for partner companies, not for youth, to register for the internship. Candidates who will meet the eligibility requirements of a company can apply online through the official portal — pminternship.mca.gov.in — to benefit from the Prime Minister Internship Scheme.

PM Internship Scheme: Eligibility

Applicants for the internship programme must have completed their higher secondary education or high school, as well as have a certificate from an ITI, a diploma from a Polytechnic Institute, or a degree such as a BA, BSc, BCom, BCA, BBA, or BPharma. Candidates should be between 21 and 24 years old as of the application deadline.



To be eligible, candidates should be Indian and should not work a full-time job or full-time school. Applicants may apply if they are enrolled in online or distance learning courses.

PM Internship Scheme: Offerings

As an assistant, candidates will receive Rs 5,000 per month for the full 12-month internship. From the company's CSR funding, each intern will get Rs 500 from the company, while the government will contribute Rs 4500.

Applicants will receive a one-time financial support of Rs 6,000 to cover incidental expenses in addition to the monthly stipend. Additionally, via initiatives like PM Jeevan Jyoti Bima Yojana and PM Suraksha Bima Yojana, the government will guarantee that interns are insured, with the government paying the premiums.

PM Internship Scheme: How to apply

Step 1: Visit the official website — pminternship.mca.gov.in.

Step 2: On the homepage, scroll down and you will see a register option. Select the link and a new page will open.

Step 3: Fill in the registration details and required documents, and select the submit button. Based on the details shared by the candidate, a resume will be generated automatically and a student can apply to at least five opportunities based on his or her preferences.

PM Internship Scheme: Which companies are part of the scheme?

Companies that have taken part in the programme have been chosen based on the CSR money they have spent in the last three years. More businesses, banks, and financial institutions may choose to participate in the programme, if the Ministry of Corporate Affairs (MCA) gives its approval.

However, participation is entirely voluntary. Companies that are unable to offer internships internally may work with vendors, clients, or other partners in their value chain to generate possibilities.

On the official portal, there are a few companies that are featured and some of them are Adani, HP, Tata Steel, Cognizant, Vedanta, Lanco, Kotak, Microsoft, and Pataka.

Relevance: GS Prelims & Mains Paper II; Governance Source: Indian Express

2. What is Marburg virus, which has rocked Rwanda

Introduction

The deadly Marburg virus could overwhelm Rwanda's fragile healthcare system. Since the east African country reported the first Marburg case late last month, at least 46 individuals have been infected and 12 Marburg deaths reported.

About 80% of infections are among medical workers. For a nation with only 1,500 doctors to cater to a population of over 13 million, the outbreak threatens to significantly strain the healthcare system.



What is Marburg virus?

Marburg is among the deadliest pathogens known to humans, with Marburg virus disease (MVD) case fatality rates ranging from 24% to 88% in past outbreaks, depending on virus strain and case management. The first outbreak occurred in Marburg, Germany, in 1967. Since then, subsequent outbreaks have been mostly reported across Africa.

Marburg belongs to the filovirus family, like Ebola. Both pathogens are clinically similar, and although rare, can cause outbreaks with high fatality rates.

How does MVD spread?

Initially, human MVD infections were caused by prolonged exposure to mines or caves inhabited by colonies of Rousettus bats, most notably the Egyptian fruit bat. However, according to the World Health Organization (WHO), Marburg also spreads through human-to-human transition both directly (through contact with blood and other bodily fluids of infected people) and indirectly (through surfaces and materials like bedding, clothing, etc. contaminated with these fluids).



Medical workers treating confirmed or suspected MVD cases have been frequently infected in outbreaks, especially when infection control and precautions are lax.

What are the symptoms of MVD?

The interval between infection and onset of symptoms varies from 2 to 21 days. Initial symptoms, according to the WHO, include high fever, severe headache, muscle ache, severe watery diarrhoea, abdominal pain and cramping, and vomiting.

Many patients develop haemorrhagic symptoms (bleeding), often in many places including the digestive system (faeces and vomit often come with fresh blood), the nose, gums, and vagina. Haemmorage leads to most MVD fatalities, with death in fatal cases occurring 8 to 9 days after the onset of symptoms, usually of severe blood loss and shock.

How can MVD be prevented, treated?

Currently, there are no approved vaccines or specific treatments for MVD. However, according to WHO, supportive care — rehydration with oral or intravenous fluids — and treatment of specific symptoms, improves survival.

Some treatments are currently in the works. Rwanda Health Minister Sabin Nsanzimana has said the country is seeking experimental vaccines and treatments, and hopes to address the outbreak with candidate drugs and shots — those in preclinical or clinical trial phases. The US-based Sabin Vaccine Institute has provided Rwanda with 700 doses of its experimental Marburg vaccine, which will be administered to healthcare professionals at the frontlines.

Relevance: GS Prelims & Mains Paper III; Science & Technology Source: Indian Express

3. MicroRNA, gene regulation: What 2024 Nobel Prize for Medicine was awarded for

Introduction

The Nobel Prize for Medicine this year has been awarded to scientists Victor Ambros and Gary Ruvkun for their discovery of microRNA — tiny molecules which play a crucial role in how genes function.

"Gene regulation by microRNA, first revealed by Ambros and Ruvkun, has been at work for hundreds of millions of years. This mechanism has enabled the evolution of increasingly complex organisms," the Nobel press release for the announcement stated.

Why did Ambros and Ruvkun study microRNA?

According to the press release, the scientists were honoured for their "discovery of a fundamental principle governing how gene activity is regulated". Here is an illustration to explain just what this means.

Think of chromosomes, which carry genetic information in the form of DNA, as a large toolbox. Every cell in the body has the same toolbox, containing identical tools (or genes). But different cells need to use different tools depending on their job — while a nerve cell might grab a tool that helps send signals, a muscle cell might choose a different tool to enable movement.



The key to these differences is gene regulation, a process that helps each cell pick the right tools for its specific tasks. In other words, only the appropriate set of genes is activated in each type of cell. Ambros and Ruvkun were curious about how gene regulation works. Their research led them to the discovery of microRNA, which provided a whole new way of understanding how bodies of complex organisms such as humans function.

Why is understanding gene regulation significant?

Genetic information is stored in DNA inside the nucleus of each cell. This information is copied to the mRNA, a molecule that contains the instructions that direct cells to synthesise appropriate proteins. Proteins handle all kinds of important jobs in the body, such as making muscles contract or helping nerves communicate.

Different tissues in the body create different proteins, depending on their specific functions. This differentiation among cells is governed by gene regulation, which effectively turns on or off specific genes in a cell in order to allow it to carry its specific task.

Faults in gene regulation can result in serious diseases like cancer, diabetes, or autoimmune conditions. Understanding gene regulation, thus, holds the key to understanding — and potentially treating — many of these conditions.

In the 1960s, scientists found that specialised proteins, called transcription factors, could bind to specific regions of DNA, and control which genetic messages were produced. These transcription factors essentially acted like switches, turning genes on or off depending on the needs of the cell. This was a huge leap in understanding how genes are regulated, and for many years, it seemed like the mystery of gene regulation had been mostly solved. Thousands of transcription factors were identified, and it appeared that the scientific community had figured out the key to how cells control the flow of genetic information.

Then, in 1993, this year's Nobel winners published findings that revealed an entirely new process by which genes are regulated, one which no one had anticipated.

How was microRNA discovered?

In the late 1980s, Ambros and Ruvkun were working under Nobel Prize-winning researcher Robert Horvitz, studying a tiny roundworm called C. elegans. Despite being just 1 millimetre long, this worm had many of the same cell types found in larger animals, making it an ideal candidate for understanding how tissues develop.

Ambros and Ruvkun were particularly interested in two genes in these worms: lin-4 and lin-14. These genes played important roles in determining when different cells matured. The scientists' curiosity was piqued when they noticed that certain mutant worms had problems with this timing. Ambros discovered that lin-4 seemed to inhibit lin-14, but the scientific process behind this was unclear.

After setting up his lab at Harvard, Ambros began further investigating the lin-4 gene. To his surprise, he found that lin-4 produced a tiny RNA molecule that did not code for proteins like most genes do. Instead, this "micro" RNA simply blocked the activity of lin-14.

Meanwhile, Ruvkun, in his own lab, was closely examining the lin-14 gene when he discovered that lin-4 was not stopping the production of lin-14's mRNA which carried genetic instructions for making its protein. Rather, it was preventing lin-14 from making the protein itself. As Ambros and Ruvkun compared their findings, a breakthrough emerged — the short RNA from lin-4 matched a specific part of lin-14's mRNA, allowing it to latch on and effectively turn off lin-14's protein production.

This discovery revealed a fascinating new way in which genes could be controlled through tiny RNA molecules now called microRNAs. Initially published in 1993, the discovery got little notice as most scientists believed that this peculiar process was limited to C. elegans.

However, everything changed in 2000 when Ruvkun's team discovered another microRNA, called let-7, which was found across many species, including humans. This finding sparked widespread interest, leading to the identification of hundreds of microRNAs. Today, we know that microRNAs play a crucial role in gene regulation for nearly all multicellular organisms, including humans.

Relevance: GS Prelims & Mains Paper III; Science & Technology Source: Indian Express

4. Muizzu in New Delhi: Significance of Maldives President visit, after a loud 'India Out' campaign

Introduction

While India's ties with Maldives seemed under unprecedented strain just months ago, the country's President, Dr Mohamed Muizzu, is now here on a state visit.

Muizzu assumed office in November last year. His election campaign had centered on the 'India Out' movement, and soon after coming to power, he had insisted India's troops leave the island.

Why Muizzu's visit to India is important

India and Maldives have traditionally enjoyed strong bilateral ties, and India is a major aid provider to the island nation.

Muizzu, however, was perceived as being closer to China and less warm towards India. Weeks after he assumed office, Muizzu traveled on official visits to Turkey and China. His visit to China was considered an intentional diplomatic snub to New Delhi, because traditionally, Muizzu's predecessors had made their first official visits to India, in a nod to New Delhi's importance in bilateral relations.

It did not help that days before Muizzu's visit to China, a few deputy ministers used social media to call Prime Minister Narendra Modi derogatory names, and mocked his social media posts promoting tourism in Lakshadweep islands. That set off a larger battle on social media between Maldivians and Indians, to the extent that it required intervention on a diplomatic level.

The row between the two countries only increased when Muizzu indirectly took a jibe at India, saying no one had "the licence to bully" the small country. He also set a March 15 deadline for India to withdraw its military personnel from the country.

Thus, despite President Muizzu's initial preference for China, his visit to India at such a crucial juncture indicates a clear acknowledgement of the need for India's continued backing in rebuilding the nation and the President's strong belief in India's human-centric approach to foreign policy.



Context to Muizzu's changed approach

Indian soldiers had been sent to the Maldives at various points for training Maldivian troops, in combat, reconnaissance, and rescueaid operations. But there was a strong fear among sections in the Maldives about Indian soldiers spreading across the island, which also played out as part of the 'India Out' campaign.

Earlier this year, India removed its 80-odd soldiers from the country. Since then, Muizzu has softened his approach on the subject, and has said he disapproved of the presence of foreign military in the Maldives regardless of the country.

Good relations with Maldives are strategically important for India, and Muizzu's apparent preference for China could have been a worry for New Delhi.

Muizzu's changed approach to bilateral relations should not come as a surprise. Experts say during the Maldives presidential elections that rhetoric politicians employ during electoral campaigns don't always translate to official policy decisions.

Domestic priorities and pressing socio-economic concerns mean that Muizzu would not want to alienate India. He had earlier said that "Maldives would never do anything that undermines the security of India. India is a valued partner and friend of the Maldives, and our relationship is built on mutual respect and shared interests. While we enhance our cooperation with other countries in various sectors, we remain committed to ensuring that our actions don't compromise the security and stability of our region". For now, Muizzu is staring at a looming economic crisis and an imminent debt repayment on his hands. Just before his visit to India, Muizzu flagged the need for financial aid to his country, saying Delhi is "fully cognisant" of the island nation's fiscal situation and will always be ready to "ease the burden" as one of Male's biggest development partners. Analysts believe that Muizzu is expected to request a currency swap arrangement and debt support during bilateral talks at India's Hyderabad House in New Delhi.

Last month, global agency Moody's downgraded Maldives' credit rating, saying that "default risks have risen materially". Maldives is looking at a debt default as its foreign exchange reserves have dropped to \$440 million, an amount that is just enough for one-and-a-half months of imports. India has already offered financial support worth \$1.4 billion to the Maldives for various infrastructure and development projects.

In January, following the spat between Indians and Maldivians on social media, there was a call for a boycott of tourism to the Maldives. During this State visit, Muizzu said he hoped to welcome more Indian tourists to the island. According to Maldivian news publication Ashadha, the numbers of Indian tourists visiting the Maldives has dropped by 50,000, resulting in a loss of some \$150 million. Indians have consistently been among the top-five nationalities to contribute to the Maldives' tourism industry.

Relevance: GS Prelims & Mains Paper II; International Relations Source: Indian Express