

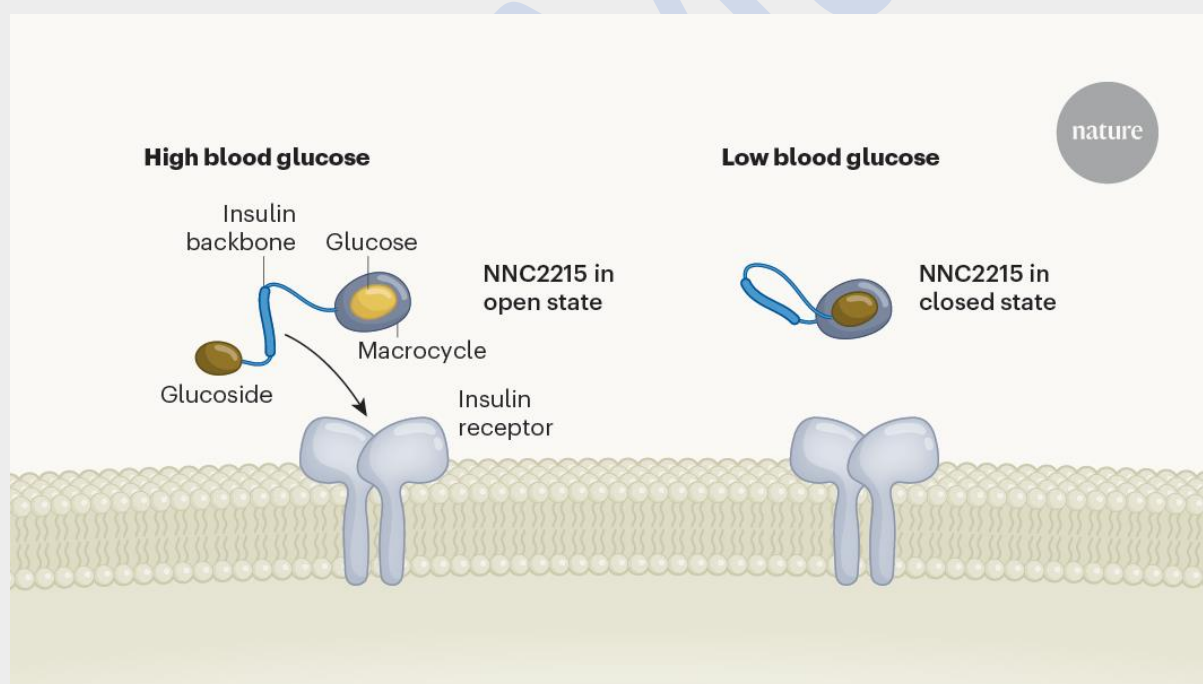
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1. How 'smart insulin' promises to revolutionise diabetes treatment**Introduction**

Diabetes afflicts more than half a billion people worldwide, and causes nearly seven million deaths a year. In recent decades, the prevalence of this disease characterised by elevated levels of blood sugar has skyrocketed around the world.

Now, scientists have made a major breakthrough in developing what has been long called the "holy grail" diabetes treatments — a "smart" insulin that responds in real time to fluctuations in one's blood sugar level. The research was published in the journal Nature recently.

**Diabetes & treatment**

There are two kinds of diabetes. Both are related to the body's ability to synthesise and react to insulin, the hormone that breaks down sugar in the blood to produce energy.

Type 1 diabetes, which often starts in childhood, occurs when the pancreas do not produce insulin (or enough insulin). Type 2 diabetes sees the cells of the body develop resistance to insulin, meaning greater amounts are required than what is produced by the pancreas.

Both conditions are managed by the administration of synthetic insulin. But this poses a fundamental challenge as the blood glucose levels in the body are not constant. Blood glucose levels falling too much due to the overdosage insulin in the body can be life-threatening. Most patients have to constantly monitor their insulin levels, and adjust doses accordingly.

For decades, scientists have thus tried to develop glucose-sensitive insulin therapies. Thus far, the most advanced glucose-sensitive systems rely on the molecule being stored somewhere in the body (like in a packet under the skin), and being released based on one's blood sugar level, which is detected by a sensor attached to the body.

Engineering insulin

For the latest study, however, an international team of scientists from companies in Denmark, the UK, and Czechia, as well as the University of Britol, have modified the insulin molecule itself to give it an "on-and-off switch" that automatically responds to changing blood glucose levels. The newly developed insulin named NNC2215 comprises two parts: a ring-shaped structure, and a molecule with a similar shape to glucose called a glucoside. When blood sugar levels are low, the glucoside binds to the ring, keeping the insulin in an inactive state to prevent further lowering of blood sugar. But, as blood glucose rises, the glucoside is replaced by glucose itself, triggering the insulin to shift its shape and become active, helping bring blood sugar levels down to safer ranges.

Researchers who developed NNC2215 found it to be as effective as human insulin at lowering blood glucose in rats and pigs. Human trials will be conducted in the near future.

At the moment, the major problem with NNC2215 is that its activation and impact are not gradual. The engineered insulin requires a significant glucose spike to be activated, and once it is activated, there is a sudden rush of insulin in the system. Scientists are currently working to refine the molecule so that it is activated gradually, and insulin levels rise more slowly.

Relevance: GS Prelims; Science & Technology

Source: Indian Express

2. Story of Lady Justice, from Greek origins to today

Introduction

The Supreme Court has unveiled a new statue of "Lady Justice", reimagining the image — typically a blindfolded woman holding a set of scales in one hand and a sword in the other — that is synonymous with legal practice around the world.

The new, six-foot-tall statue in the judges' library is of a saree-clad woman with no blindfold, holding scales and, instead of the sword, a copy of the Constitution of India.

The blindfold in the classic rendition has been popularly understood to represent the impartiality of justice, whereas the new statue with unimpeded vision is meant to signify that "Law is not blind; it sees everyone equally," Chief Justice of India D Y Chandrachud, who commissioned the statue, said.

The new take on the statue, which has been designed by Vinod Goswami, a muralist who teaches at the College of Art in Delhi, comes in the wake of legal reforms such as the new criminal codes, and the stated aim of “decolonising” the legal framework in India.



Changing meaning

The imagery of Lady Justice can be traced back to Greek and Roman mythology. Themis, one of the 12 Titans born to Gaea and Uranus according to works of the Greek poet Hesiod who lived circa 700 BCE, is known as the goddess of justice, wisdom, and good counsel — and is often depicted as a woman holding scales in one hand and a sword in the other.

Along with the common law legal system that continues to serve as the basis for how India’s judiciary functions, the British Raj also introduced the iconography of Lady Justice. This image still survives in courthouses around the country.

At the Calcutta High Court — first constructed in 1872 — images of Lady Justice were carved into the pillars supporting the building. The depictions show Lady Justice blindfolded in some cases, and with her eyes open in others. The Bombay High Court too, features a statue of Lady Justice at the top of one of its buildings, once again without a blindfold.

The new statue at the Supreme Court is very similar to another piece of art featured on the premises. A mural close to the judges’ entrance shows Mahatma Gandhi and Lady Justice on either side of a chakra; Lady Justice in this depiction is wearing a sari, and holding scales and a book instead of a sword.

Protests in Bangladesh

In December 2016, a large statue of the goddess Themis was erected in the front plaza of Bangladesh’s Supreme Court. The statue wore a sari and a blindfold, and held scales and a sword.

The statue led to protests from the Muslim orthodoxy who objected to what they claimed was idol worship. In May 2017, the statue was removed to a location on the Supreme Court premises that was away from the public eye. In August 2024, after the fall of the Sheikh Hasina government, the statue was demolished.

Relevance: GS Prelims; Governance

Source: Indian Express

3. How do SGPC elections work? Why have they not been held in 13 years?

Introduction

Of the 170 Shiromani Gurdwara Parbandhak Committee (SGPC) members elected in 2011, at least 30 have died in the last 13 years. Although elections for the committee are supposed to be held every five years, none have taken place for well over a decade.



The Shiromani Akali Dal (Badal), which won the SGPC elections in 2011, has lost two Assembly elections in Punjab in the same period. Critics say that the only reason why the party still holds a majority in the SGPC house is due to the lack of fresh elections being held.

Here is how the SGPC elections work, and why they have not been held since 2011.

First, what is the SGPC?

The SGPC is the apex governing body of all Sikh gurdwaras in the states of Punjab and Himachal Pradesh, and the Union Territory of Chandigarh. It was established on November 15, 1920 in Amritsar, originally to administer the Darbar Sahib gurdwara and other historically important gurdwaras.

In the 19th century, Punjab, now under British control, saw a rise of Christian missionary activity and the formation of Arya Samaj, a Hindu reform movement. It is in this context that the Singh Sabha movement began among Sikhs to arrest what was termed as the "degradation of Sikh thought and principles" in daily life.

But the control of Darbar Sahib and other gurdwaras remained in the hands of powerful mahants (priests) who enjoyed tacit support from the British. These mahants treated gurdwaras as their personal fiefdoms. They encouraged practices in violation of the tenets of Sikhism, such as idol worship and discrimination against Dalit Sikhs.

The SGPC was created to replace the unpopular mahants, and govern Sikh gurdwaras as per the tenets of Sikhism. In the years after its creation, the SGPC managed to seize control of many gurdwaras, although things would often turn violent. Finally, the British passed the Gurdwaras Act, 1925 which gave the SGPC legal recognition and turned it into a democratic body to govern gurdwaras.

How do SGPC elections work?

There are a total of 170 elected members of the SGPC. In addition, there are 15 nominated members, 5 heads of the Takhts (Sikh temporal seats), and the head granthi (chief priest) of the Golden Temple.

The Gurdwara Election Commission is a statutory body under the 1925 Act that is responsible for holding the SGPC elections. The Gurdwara Election Commission Chairman is appointed by the Union Home Ministry to oversee the elections. This person has the authority to hold elections in coordination with the Punjab government, which provides security and other resources.

The Centre appointed Justice S S Saron (retired), formerly of the Punjab and Haryana High Court, as the chairman of the Gurdwara Election Commission in October 2020. However, Saron began the process of preparing electoral rolls only in May this year. SGPC voters are registered in the same manner as voters in general elections, and the elections also take place on similar lines. Any eligible person can approach appointed election officials to register themselves as voters.

Who can become a voter in SGPC elections?

There are four main conditions to become a voter in SGPC elections. At the time of enrolment, a person must sign a declaration saying that:

- They maintain unshorn hair;
- They do not drink alcohol;
- They do not consume halal meat; and
- They do not consume tobacco.

Moreover, voters must be Sikhs of the age of 21 and above. This time, Sikhs from Punjab, Himachal Pradesh, and Chandigarh will be allowed to cast their vote. Voters from Haryana will not participate, as the state now has its own Haryana Sikh Gurdwara Management Committee. So far, more than 5 million voters have been registered for the SGPC elections since last October. The 2011 elections had 5.6 million registered voters, most of whom were from Punjab

(5.27 million), followed by Haryana (337,000), Himachal Pradesh (23,011), and Chandigarh (11,932).

Why were elections delayed?

Many Sikh groups have demanded fresh elections be held since 2016. Still, the house elected in 2011 is still functioning.

A legal issue was behind the initial delay of SGPC elections. In December 2011, the Punjab and Haryana High Court nullified the SGPC polls held in September that year, and restored the voting rights of Sehajdhari Sikhs (Sikhs with shorn hair) by quashing the 2003 notification by the Centre. This notification had barred Sehajdhari Sikhs from casting their vote in 2011. During the hearings of the so-called Sehajdhari voting rights case, the court made it clear that the poll results in 2011 would be subject to the verdict in the matter.

In February 2012, the SGPC moved the Supreme Court challenging the order of the Punjab and Haryana High Court. The Supreme Court, however, too as long as 2016 — the year fresh elections were to be held — to reinstate the SGPC house from 2011.

That said, even this reinstated house completed its five-year term in 2021. After coming to power in Punjab in 2022, the Aam Aadmi Party government recommended to the Centre that the SGPC elections be conducted as soon as possible.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express