



Duo win Nobel Chemistry Prize for work on catalysts

They created an eco-friendly tool to build molecules

AGENCE FRANCE PRESSE

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Germany's Benjamin List and U.S.-based David MacMillan on Wednesday won the Nobel Chemistry Prize for developing a tool to build molecules which has helped

make chemistry more environment friendly.

Their tool, which they developed independently of each other in 2000, can be used to control and accelerate

chemical reactions, exerting a big impact on drug research.

Prior to their work, scientists believed there were only two types of catalysts – metal and enzymes.

“It’s hard to describe what we feel in that moment, but it was a very special moment that I will never forget,” asked about what the prize would mean for his future as researcher, Dr. List told reporters.

Dr. MacMillan, born in Scotland, is a professor at Princeton University in the U.S., while Dr. List is a director at the Max Planck Institute in Germany.

This work requires a lot of time and effort, which is substances that control and accelerate chemical reactions without becoming part of the final product,” he added.

Since their discovery, developments in the field can

“almost be likened to a gold rush,” he said.

He joined the Royal Swedish Academy of Sciences earlier this year, which is the first time a scientist from the U.S. has been elected to the body.

“I’m honoured to receive this award,” he said.

Its uses include research into new pharmaceuticals and it has also helped make chemistry greener

The 2021 Nobel Prize in Chemistry was awarded to German scientist Benjamin List and Scottish-born scientist David W.C. MacMillan “for the development of asymmetric organocatalysis.”

The prestigious award comes with a gold medal and 10 million Swedish kronor (over \$1.14 million). The prize money comes from a bequest left by the prize's creator, Swedish inventor Alfred Nobel, who died in 1895.

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Researchers long believed that there were just two types of catalysts available: metals and enzymes.

Independently of each other, laureates Benjamin List and David MacMillan developed a third type – asymmetric organocatalysis – which builds upon small organic molecules.

Benjamin List wondered whether an entire enzyme was really required to obtain a catalyst. He tested whether an amino acid called proline could catalyse a chemical reaction. It worked brilliantly.

David MacMillan worked with metal catalysis that were easily destroyed by moisture. He wondered whether he could develop a more durable type of catalyst using simple organic molecules. One of these proved to be excellent at asymmetric catalysis.

Organocatalysis has developed at an astounding speed. Using these reactions, researchers can now more efficiently construct anything from new pharmaceuticals to molecules that can capture light in solar cells.

Context:

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NOBEL PRIZE IN CHEMISTRY

Impact

Background