# Nobel Prize in Chemistry 2023 awarded for groundbreaking protein structure predictions



In a notable achievement for the field of science, the Nobel Prize in Chemistry for 2023 has been awarded to three scientists for their pioneering work on predicting and designing protein structures, the fundamental building blocks of life. The Royal Swedish Academy of Sciences has announced that Sir Demis Hassabis, John Jumper, and David Baker have been recognised for their contributions to solving the intricate puzzle of protein folding, a challenge that has perplexed biochemists for decades.

Sir Demis Hassabis and John Jumper, both affiliated with Google DeepMind, a British-American artificial intelligence research lab in London, alongside David Baker from the University of Washington, have tackled the longstanding issue of predicting protein structures from amino acid sequences. Hassabis and Jumper's development of AlphaFold2, an AI-driven model, has notably deciphered the structure of virtually all known proteins, a feat that had been referred to as a grand challenge in the realm of biochemistry. This advancement offers a profound understanding of proteins, which are responsible for forming essential parts of living organisms, such as skin, bones, and tissues, and are pivotal to numerous biological functions.

David Baker, a biochemist based in Seattle, has been dedicated to the creation of novel proteins since 2003. His team has developed a range of innovative proteins using computational tools, some of which have applications as pharmaceuticals, vaccines, and in the field of nanotechnology. His work has enabled the design of proteins with unprecedented shapes and functions, potentially leading to breakthroughs in drug development and the creation of sophisticated sensors for detecting hazardous materials.

The Nobel Committee for Chemistry, chaired by Heiner Linke, highlighted the transformative nature of these scientific breakthroughs. Linke noted that the ability to predict protein structures not only illuminates the understanding of life's processes but also holds transformative potential for medical and pharmaceutical industries. The application of artificial intelligence in this domain greatly amplifies the possibilities for designing proteins for bespoke uses, including the development of novel medications and therapies.

Sir Demis Hassabis, one of the leading figures in the tech industry and a knighted individual for his contributions to artificial intelligence, expressed his gratitude for the recognition his work has received. His company, DeepMind, known for its advancements in AI, notably achieved success with an AI system mastering the Chinese game of Go. John Jumper emphasised the crucial role AI plays in advancing scientific understanding, while David Baker reflected on the practical implications of this work, which includes potential therapeutics and protective measures against pandemics.

The Nobel Prize, accompanied by 11 million Swedish Kronor, is shared between the laureates, with Baker receiving half of the monetary award. The ceremony to honour these achievements is scheduled for December 10, aligning with the anniversary of the death of Alfred Nobel, the prize's founder.

This recognition not only celebrates the scientific accomplishments of the recipients but also underscores the potential of interdisciplinary approaches, such as the integration of artificial intelligence in biological research, to drive innovation and solve complex scientific dilemmas.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

* <https://www.nobelprize.org/prizes/chemistry/2024/press-release/> - Corroborates the awarding of the Nobel Prize in Chemistry 2024 to David Baker, Demis Hassabis, and John Jumper for their work on protein design and structure prediction.
* <https://phys.org/news/2024-10-nobel-prize-chemistry-awarded-proteins.html> - Supports the information about Hassabis and Jumper's development of AlphaFold2 and Baker's work on computational protein design.
* <https://news.uchicago.edu/story/uchicago-alum-john-jumper-shares-nobel-prize-model-predicting-protein-structures> - Provides details on John Jumper's role and the significance of the AlphaFold system in predicting protein structures.
* <https://www.sciencenews.org/article/nobel-prize-chemistry-2024-proteins> - Confirms the Nobel Prize award to Baker, Hassabis, and Jumper and highlights the applications of their work in various fields.
* <https://www.chemistryworld.com/news/explainer-why-have-protein-design-and-structure-prediction-won-the-2024-nobel-prize-in-chemistry/4020309.article> - Explains why protein design and structure prediction were recognized with the Nobel Prize, including the historical context and applications.
* <https://www.nobelprize.org/prizes/chemistry/2024/press-release/> - Details David Baker's work on creating novel proteins since 2003 and their potential applications.
* <https://phys.org/news/2024-10-nobel-prize-chemistry-awarded-proteins.html> - Highlights the transformative nature of these scientific breakthroughs as noted by the Nobel Committee for Chemistry.
* <https://news.uchicago.edu/story/uchicago-alum-john-jumper-shares-nobel-prize-model-predicting-protein-structures> - Quotes John Jumper on the crucial role AI plays in advancing scientific understanding.
* <https://www.nobelprize.org/prizes/chemistry/2024/press-release/> - Mentions the practical implications of this work, including potential therapeutics and protective measures against pandemics as reflected by David Baker.
* <https://www.sciencenews.org/article/nobel-prize-chemistry-2024-proteins> - Confirms the prize amount and the ceremony date, aligning with the anniversary of Alfred Nobel's death.
* <https://www.chemistryworld.com/news/explainer-why-have-protein-design-and-structure-prediction-won-the-2024-nobel-prize-in-chemistry/4020309.article> - Underscores the potential of interdisciplinary approaches, such as integrating AI in biological research, to drive innovation.
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* <https://www.dallasnews.com/news/2024/10/09/nobel-prize-in-chemistry-awarded-to-3-scientists-for-work-on-proteins/> - Please view link - unable to able to access data
* <https://www.latimes.com/world-nation/story/2024-10-09/nobel-prize-in-chemistry-awarded-to-3-scientists-for-work-on-proteins-building-blocks-of-life> - Please view link - unable to able to access data