



# IDEAS: An idea with a noble goal. Researchers from the Institute of Physics at the University of Silesia in the prestigious Horizon Europe project

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 4-minute read

As many as 70–90% of new therapeutic compounds have insufficient water solubility, which hinders their effectiveness. Scientists from the Institute of Physics at the University of Silesia are tackling this problem as part of a prestigious Horizon Europe grant. The IDEAS project is not just about advanced physics and chemistry; above all, it is a mission to create more effective medicine.

## Challenge: When the medication won't dissolve

Modern pharmaceuticals are hitting a glass ceiling. Research shows that the vast majority of newly discovered therapeutic molecules have insufficient water solubility, which prevents them from working effectively in the body. The solution lies in amorphous materials, which significantly improve drug bioavailability; however, their instability has so far been an insurmountable barrier.

This problem will be addressed by the international consortium behind the IDEAS project (Improving Drug Efficacy with next-generation AmorphouS materials and trained experts).

The University of Silesia, represented by a team of distinguished scientists in the field of physical sciences, is one of the key partners in this prestigious initiative.

## About the IDEAS Project

The consortium consists of 10 beneficiaries (including 7 universities and leaders in the pharmaceutical industry) and 6 associated partners from 10 European Union countries.

The University of Silesia is represented by:

**Prof. Marian Paluch, Prof. Kamil Kamiński, Prof. Żaneta Wojnarowska, Dr. Justyna Knapik-Kowalczyk, and Dr. Magdalena Tarnacka.**

Together, they aim to develop a new generation of amorphous materials that could form the basis for future medicines.



## The Voice of Science: From Idea to Real Change

Scientists are working to address the issue of low solubility in many new drugs, which limits their effectiveness. As part of the IDEAS project, they are developing materials that improve the bioavailability of these substances and are focusing on intentional design based on an understanding of their properties, rather than trial and error.

The key challenge is to increase the stability of amorphous materials, which will enable the development of more effective and safer drugs and speed up patients' recovery. This research is also significant for the future of the entire pharmaceutical industry, setting new standards for drug development. As a result, innovative therapies will be brought to market more quickly.

### The University of Silesia Among Europe's Leading Institutions

The IDEAS project is funded by the Marie Skłodowska-Curie Actions (MSCA Doctoral Networks) program under Horizon Europe. It is one of the most prestigious research programs in the world, focusing on international collaboration and the training of future scientific leaders.





Participation in such an elite consortium confirms the University of Silesia's strong position in the European biotechnology and pharmaceutical sectors. The project involves collaboration among 10 countries and provides training for 15 doctoral students in unique interdisciplinary fields at the intersection of materials engineering, pharmacy, chemistry, and physics. Another key element of the project is the development of environmentally friendly technologies, which aligns with the concept of responsible and sustainable science.

## An opportunity for young scientists

Participation in the MSCA Doctoral Networks is a tremendous success. For the University of Silesia, it means the opportunity to collaborate with the best teams in Europe and to have a real impact on the development of modern pharmacy. For young scientists, in turn, it is a unique opportunity to gain experience, work at the intersection of various fields, and participate in international research projects. They have the opportunity to travel to foreign research centers and collaborate with industry partners, which offers value that cannot be achieved solely through academic coursework.



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University of Silesia in Katowice

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