Uncovering hidden protein structures

Combining research-oriented teaching and interdisciplinary collaboration pays off: Researchers at the University of Konstanz develop a novel spectroscopic approach to investigate hitherto difficult-to-observe protein structures. On “campus.kn”, the online magazine of the University of Konstanz, we report on the new approach and its origin at the interface between chemistry and biology.

Using infrared (IR) spectroscopy, researchers at the University of Konstanz were able to uncover the interaction between the p53 protein, a tumour suppressor that controls the cell cycle, and poly(ADP-ribose) (PAR) and deoxyribonucleic acid (DNA) at the molecular level. The nucleic acid-like biopolymer PAR serves as a cellular signal transmitter and helps to regulate protein activity. By studying the interaction between p53 and PAR, the researchers were able to learn more about molecular reactions to cellular stress in response to, for example, DNA damage, which represents a potential tumour risk. Their basic research on the processes behind DNA damage is, on the one hand, paramount to understanding how cancer develops and how cells age. On the other hand, the innovative scientific approach is advancing the research carried out in their field. Their research results were published in issue 9 (21 May 2019) of the scientific journal Nucleic Acids Research by the Oxford University Press.

In a new article published on “campus.kn”, the online magazine of the University of Konstanz, we tell the story of the project’s development, which builds on interdisciplinary linkages especially between early career researchers: [https://www.campus.uni-konstanz.de/en/science/uncovering-hidden-protein-structures](https://www.campus.uni-konstanz.de/en/science/uncovering-hidden-protein-structures)

Key facts:
- Article on "campus.kn", the online magazine of the University of Konstanz, about a novel spectroscopic approach to uncover protein structures that originates from interdisciplinary collaboration at the University of Konstanz
- Investigation of interaction between the p53 protein and poly(ADP-ribose) (PAR) and deoxyribonucleic acid (DNA)
- The basic research on the processes behind DNA damage is paramount to understanding how cancer develops and how cells age

Note to editors:
You can download a photo here:
Caption: From left to right: Professor Karin Hauser, Annika Krüger und PD Dr Aswin Mangerich
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