**PRESS RELEASE**

**Big Boost With Third Vaccination:**

**Antibody Response Against SARS-CoV-2 in Cancer Patients With B-cell Abnormalities**

**Krems (Austria), 02. March, 2023: For those affected by B-cell cancer, a third SARS-CoV-2 vaccination is of particular importance. The 3rd vaccination often results in detectable antibody production even in those patients in whom the second vaccination has no effect and is therefore necessary for basic immunization. This recent study of the Karl Landsteiner University of Health Science has been published in the scientific journal "Cancers" and highlights that antibody levels increase quite generally significantly in almost all affected individuals after the 3rd vaccination. Overall, the work provides important insights for future vaccination strategies in a particularly vulnerable population – individuals suffering from cancer of cells that are important for the immune system.**

B cells are essential for the production of antibodies. If they become diseased, this affects their ability to react as part of the immune system. Therefore, active vaccination protection is of particular importance for people with B-cell diseases. For patients suffering from various forms of B-cell cancers, a team from Karl Landsteiner University of Health Sciences (KL Krems) has now assessed the immune response to repeated SARS-CoV-2 vaccinations. Clear findings were obtained that could be groundbreaking for future vaccination strategies in this patient group.

**Therapy & Vaccination**

“Our results clearly show the importance of a third vaccination as a completion of basic immunization for affected cancer patients”, explains study leader Dr Josef Singer (Clinical Department of Internal Medicine 2 of the University Hospital Krems, education and research site of KL Krems). "Because in fact, even after the second vaccination, we were unable to detect the production of antibodies against SARS-CoV-2 in half of our patients – whereas the third vaccination then did lead to an immune response in over a third of these individuals." Across the board, it was found that overall, antibody production increased significantly after the 3rd vaccination in almost all patients studied.

Patients who were actively treated had only low antibody responses . This is explainable because B cells are essential for antibody production, while also being a target for modern therapies to treat B cell-based cancers (e.g., therapies against the B cell surface proteins CD19 or CD20).

**80 Patients & 8 Cancer Types**

Researchers examined samples from 80 patients of the cancer centers UK Krems and the Medical University of Vienna. In their samples they found a total of eight different B-cell-Based Cancers and different treatments applied: In addition to the above-mentioned therapies, so-called BTK inhibitors were also used in some affected individuals, while others were under „watchful-waiting” due to low symptom burden or were not actively treated for other reasons (off-therapy). "Affected individuals who were under observation or otherwise not receiving therapy”, Dr Singer further explained, "also showed the greatest increase in antibody production after the third vaccination."

Overall, the study, which has now been published internationally, contributes to the development of better vaccination strategies for populations that may be particularly vulnerable due to pre-existing immune system conditions. The study is another example of the application-oriented focus of oncological research at KL Krems, which is on the direct benefit for patients.

**Original publication**: Evaluation of Antibody Responses in Patients with B-Cell Malignancies after Two and Three Doses of Anti-SARS-CoV-2 S Vaccination—A Retrospective Cohort Study. S. R. M. Wirth, K. Podar, M. Pecherstorfer, P. Wohlfarth, U. Jaeger & J. Singer. Cancers 2023, 15, 524. https://doi.org/10.3390/ cancers15020524

**About Karl Landsteiner University of Health Sciences (2023)**

At Karl Landsteiner University of Health Sciences (KL) in Krems, the comprehensive approach to health and disease is a fundamental objective for research and teaching. With its Europe-wide recognized bachelor-master system, KL is a flexible educational institution that is tailored to the needs of students, the requirements of the labor market as well as the scientific challenges. Currently KL hosts about 600 students in the fields of medicine and psychology. The three university hospitals in Krems, St. Poelten and Tulln ensure clinical teaching and research at the highest quality level. In research, KL focuses on interdisciplinary fields with high relevance to health policy - including medical technology, molecular oncology, mental health and neuroscience, as well as water quality and related health aspects. KL was founded in 2013 and accredited by the Austrian Agency for Quality Assurance and Accreditation (AQ Austria). [www.kl.ac.at/en](http://www.kl.ac.at/en)

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