

RCB – Colloquium

Wednesday, November 22, 2023
9 am, H53



Dr. Antje Richter

Institute for Genetics
JLU Gießen

“Epigenetic therapy of novel tumour suppressor ZAR1 and its cancer biomarker function”

Cancer remains one of the leading causes of death and is predicted to continue to increase. Previously, we identified the potential tumor suppressor zygote arrest 1 (ZAR1) to play a role in lung carcinogenesis through its epigenetic inactivation. We are the first to report that ZAR1 is epigenetically inactivated not only in lung cancer, but also across cancer types, and that ZAR1 methylation occurs throughout its entire CpG island. ZAR1 hypermethylation correlates significantly with its reduced expression in cancers. We found that ZAR1 methylation and downregulation are clinically relevant as prognostic markers in lung and kidney cancer. We further demonstrated that the carboxy (C)-terminal zinc finger of ZAR1 is relevant for its tumor suppressor function and its binding to protein partners associated with the mRNA/ribosomal network. Global gene expression profiling supported the role of ZAR1 in cell cycle arrest and the p53 signaling pathway, and we showed that ZAR1 growth suppression is partially p53 dependent.

Using our modified CRISPR-dCas9 tools, we demonstrated that epigenetic editing and reactivation of ZAR1 is possible in cancer cell lines. We propose that epigenetic therapy may be feasible for cancer treatment. Don't miss this opportunity to gain insights into the future of cancer diagnosis and treatment and join for the talk and discussion.

Host: Prof. Dr. Aline Koch, Plant RNA Transport



Universität Regensburg
Institute of Plant Sciences