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Neocarzilin A impairs breast adenocarcinoma cell motility by targeting VAT-1 protein

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The long chain polyenone neocarzilin A (NCA) was isolated from the bacterial strain *Streptomyces carzinostaticus* in the 1990s but despite its ease of synthesis and potent bioactivity against K562 chronic myelogenous leukemia cells no mode of action studies were performed up to date. We here present the promising inhibitory effect of NCA on migration and invasion *in vitro* and *in vivo* in breast adenocarcinoma cell lines. An activity based protein profiling approach identified the vesicle amine transport protein 1 (VAT-1) as covalent target of NCA. VAT-1 has been assigned a role in tumor cell migration in glioblastoma yet, its molecular function is unknown. Using pull-down studies we were able to show, that the protein interacts with an intricate network of key migration mediators. Since VAT-1 might be a promising target for the development of migration inhibitors, its physiological function will be further elucidated using knockout strategies and NCA as tool compound.
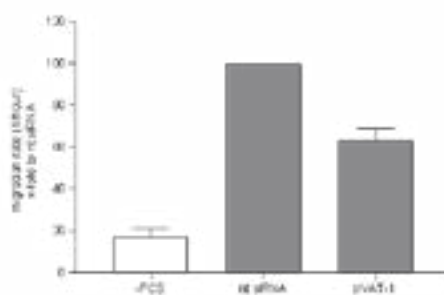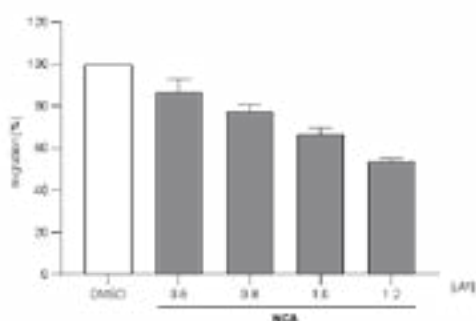
Biography

Carolin Laura Pyka has completed her MSc in Chemistry at the Karlsruhe Institute of Technology, Karlsruhe, Germany. During her studies she also worked in the lab of Prof David Craik in the Institute for Molecular Bioscience at the University of Queensland, Brisbane, Australia. Where she focused on a family of cyclic peptides originated from plants and animals named cyclotides which can serve as promising drug leads due to their great stability. Inspired by the work of Prof Craik she decided to extend her research on pharmaceutical applications of natural compounds by joining the lab of Prof Angelika Vollmar in the Center of Drug Research at Ludwig-Maximilian University, Munich, Germany during her PhD in 2016.

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Notes:

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