

Nanocarriers for drug delivery – Rational formulation design



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Over the past decade a variety of nanocarrier-based delivery strategies have been applied to improve drug therapy. However, manufacturing next-generation nanomedicines under the high quality standards of the pharmaceutical formulation pipeline requires the definition of critical quality attributes and also a control strategy for nanocarrier production. Our current research is focused on the interplay between the optimization of analytical procedures and process parameters in order to manufacture nanocarriers for drug delivery within narrow specification ranges. For this purpose, we apply biorelevant drug release testing, specific in vitro assays and PBPK modeling approaches as powerful tools supporting pharmaceutical formulation development.

Dr. Matthias G. Wacker received his PhD in Pharmaceutical Technology in 2010 and started a scientific career at Goethe University in Frankfurt. His research is focusing industrial nanotechnology with emphasis on the optimization of manufacturing processes for nanocarrier devices as well as methodology for assessing the release of drugs and drug candidates from nanoscaled dosage forms. He is a member of the Center for Drug Research Development and Safety ([ZAFES](#)) and joined the project group Translational Medicine and Pharmacology (TMP) of the Fraunhofer-Institute for Molecular Biology and Applied Ecology ([IME](#)) in 2013. There he is heading the Division of Pharmaceutical Technology and Nanosciences. Since 2015 his department is part of the LOEWE research center Translational Medicine and Pharmacology (TMP). Additionally, he holds a position at Goethe University and is involved in several research and teaching activities.