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Synthetic mRNAs as optimised tools for stem cell generation and for manipulating cellular phenotypes

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Availability of high quality synthetic mRNAs (syn-mRNAs) has enabled progress in their applications. Important structural features, alternative technical options for high-amount, high-quality mRNA synthesis and GMP-compliant manufacturing and quality requirements are presented. Requirements in the application of mRNA-mediated manipulation of cells are presented (i) mRNA-directed expression of antigens in dendritic cells for vaccination projects in oncogenesis, infectious disease and allergy prevention; (ii) reprogramming of human fibroblasts to induced pluripotent stem cells with their subsequent differentiation to the desired cell type; (iii) applications in gene therapy.

Biography

Guido Krupp (Ph.D.) is CEO and president of AmpTec GmbH. In 1981 he received his Ph.D. degree (Würzburg University & Max-Planck-Institute Martinsried). From 1983 to 1987 he was post-doc at Yale University. From 1987 to 2002: research group leader at Kiel University. Founder of artus GmbH (year 1998) & AmpTec GmbH (year 2005). Research interests: Nucleic acid technology with focus on RNA, plant pathogens (viroids), ribozymes and telomerase. More than 60 publications, editor of Ribozyme Biochemistry & Biotechnology, and of Telomeres, Telomerases & Cancer, in the editorial board of Biotechnology Annual Review; SAB member of Orthogenics AS, Tromso, Norway.

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