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## Mitochondria-targeted nano drug delivery systems

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The efficiency and efficacy of drug action depends largely on how well an unaided drug molecule is able to reach its intracellular target or even its target inside organelles such as mitochondria. Subsequently, the specific delivery of a drug to its site of action inside cells will dramatically improve its action. Mitochondria play a key role in apoptosis and several clinically used as well as experimental drugs are known to trigger apoptosis by directly interacting with target site at or inside mitochondria. A random observation at the laboratory bench has helped pave the way towards the development of organelle-targeted pharmaceutical nanocarriers. A fortuitous discovery in the mid-1990s involving the self-assembly of a molecule, known to accumulate inside mitochondria, has led to the development of subcellular nanocarriers suited for the selective delivery of biological active molecules to mitochondria inside living mammalian cells. In this presentation, applications for mitochondria-specific drug and DNA delivery will be described, the current state-of-the-art of mitochondrial drug targeting technology will be reviewed and its future perspective shall be discussed.

### Biography

Volkmar Weissig holds ScD and PhD degrees and is a Tenured Full Professor of Pharmacology and Chair of the Department of Pharmaceutical Sciences. He received his BS, MS and PhD degrees in Chemistry and his Post-doctoral ScD degree in Biochemistry and Pharmaceutical Biotechnology from the Martin-Luther University in Halle (Germany). He holds 16 patents and he has published 98 research papers, review articles and book chapters. He also edited and published 8 books. In July 2009, he was inducted into the World Technology Network as a Fellow. In October 2014, he was elected President of the World Mitochondria Society.

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