

## APPLICATION OF BETA-CYCLODEXTRINS: FROM FORMULATION TO ORPHAN DRUG

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**B**eta-cyclodextrins are widely used excipients in pharmaceuticals and foods. Nowadays extensive research is focused on the cyclodextrin-based therapy of cholesterol-related disorders such as neurodegenerative and cardiovascular diseases. The conventional application of cyclodextrins is the solubility and absorption enhancement of poorly soluble drugs by the formation of host-guest complexes. On the other hand cyclodextrins can interact with natural cell membrane components like cholesterol or phospholipids. At high concentration it causes membrane damage and cell death, which is responsible for their cytotoxicity. A new renaissance started in the research and application of cyclodextrins a few years ago. The number of novel derivatives are increasing and new applications has been appeared especially in the field of cell biology and drug delivery. Recently it was discovered, that cyclodextrins are internalized into different cell types by endocytosis at non-toxic concentrations and this phenomenon opens new perspectives in the application of cyclodextrins. Hydroxypropyl beta cyclodextrin (HPBCD) and sulfobutyl ether sodium formulation excipient (SBEB CD) derivatives are safe and considered to be non-toxic. Therefore, they appeared in parenteral applications and recently HPBCD was approved as an orphan drug in the treatment of a cholesterol storage disorder, Niemann-Pick Disease Type C.

### Biography

Miklos Vecsernyes has completed his degree of Pharmacy in 1982 and his PhD at 1997 from Albert Szent-Gyorgyi Medical School, Szeged, Hungary. He is the Director of Department of Pharmaceutical Technology, and the Dean of Faculty of Pharmacy, University of Debrecen. He has published more than 100 papers in reputed journals and has been serving as Reviewer of several journals. His scientific interest is focused on Biopharmacy, Neuroendocrinology, Absorption and Bioavailability of Drugs and Pharmaceutical Excipients, especially Cyclodextrins.

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