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## Silica-based matrixes for drug delivery: Ready for a prime time?

Alex Nivorozhkin

Neo-Advent Technologies LLC., USA

Sol-gel-derived and silica-containing materials have made significant strides into the material sciences' applications and established presence in multiple commercial products and industrial technologies. In biomedical field, extensive research indicated their potential utility in areas such as enzyme and live-cell encapsulation. These materials hold promise in a drug delivery area as well.

General biocompatibility and biodegradable properties make silicas and sol-gels attractive matrixes. Nanotechnology brings in a possibility for a subtle tune-up of the particles fine structure and variety of functionalization opportunities for covalent and non-covalent binding of the cargo.

This presentation will review key developments in using silica materials in drug delivery applications and focus on the properties and processes that could be controlling issues in moving early discovery findings into the realm of commercial applications and platform technologies that are compatible with FDA requirements for drug products to enter clinical trials.

### Biography

Nivorozhkin is an entrepreneur and a team builder in life sciences' arena with vast experience and track record in an early technology transfer and development. He was a co-founding member of Boston BioCom, LLC, a biopharma company funded by the seed investment from Pfizer. Alex gained substantial experience in the commercial aspects of drug discovery and development at Epix Medical and Inotek Pharmaceuticals where he served as the company's Head of Medicinal Chemistry. He served as a Senior Program Manager at the Center of Integration of Medicine and Innovative Technologies (CIMIT) at Massachusetts General Hospital, a consortium of the Harvard Medical School-affiliated hospitals, Boston University, Draper Laboratory and MIT aimed at developing new medical devices; and a Scientific Programs Officer at Sheldon and Miriam Adelson Medical Research Foundation. He is a co-inventor of several drug candidates that have advanced to clinical trials and late pre-clinical studies in the United States, has co-authored over 60 scientific publications in different areas of chemistry, chemical biology, and material sciences and holds more than 20 patents. Alex received a PhD in Physical Organic Chemistry from Rostov University and conducted the postdoctoral research at the University Paris-Sud, France, and the Department of Chemistry and Chemical Biology, Harvard University, Cambridge.

[aln@neo-adventtec.com](mailto:aln@neo-adventtec.com)