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### New chemical approaches to complete solvent removal and their applications in preparation of non-porous and porous PLGA microspheres

Biodegradable poly(lactide-co-glycolide) (PLGA) microspheres have received intensive attention as long-acting drug depots, biocompatible scaffolds, chemoembolizing agents for tumor treatment, and cosmetic fillers for the correction of nasolabial folds. The mainstream trend of today's manufacturing processes of PLGA microspheres is to use the principles of solvent evaporation and/or solvent extraction. Despite the widespread popularity of solvent evaporation/extraction techniques in the field of microencapsulation, they have many limitations from the perspectives of regulatory authorities and the industry. Accordingly, there have been strong demands to develop microsphere manufacturing processes that are economic, safe, eco-friendly, and easily scalable. As opposed to the existing microencapsulation processes, we have proposed chemical strategies for efficient and complete solvent removal that can quickly prepare PLGA microspheres. Examples of our technology platforms include ammonolysis-, saponification-, acid/base catalyzed solvent hydrolysis-based microencapsulation processes. Our innovative microencapsulation techniques utilize non-halogenated ICH class 3 solvents and it does not require a vast amount of a quenching liquid such as water. Also, our microencapsulation methods do not necessitate the use of sophisticated equipment to expedite solvent evaporation and/or extraction. Furthermore, it is possible to precisely control the level of microsphere porosity. Because our new microencapsulation techniques are simple and practical, they would serve as promising alternatives for preparing various types of microspheres and/or nanoparticles.

#### Biography

Hongkee Sah has completed his PhD from Rutgers University, The State University of New Jersey, USA. After earning his PhD degree, he worked at Pharmaceutical R&D at The Merck & Co., Inc. and the University of Tennessee, College of Pharmacy. Now, he serves as tenured Full Professor at College of Pharmacy, Ewha Womans University located in Seoul. He is an inventor of more than 12 international patents including US Patent and European Patent. Also, he has published more than 71 papers in reputed journals.

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