



TECHNOLOGY

A General Route for the Self-Assembly of Reverse Vesicles in Organic Liquids

OVERVIEW

Vesicles have grown in interest to scientists due to their applications ranging from drug delivery and controlled release to bioseparations and sensing. While vesicles in aqueous solution are well-known, reverse vesicles are much less known. Reverse vesicles are spherical containers in organic liquids (oils) consisting of an oily core surrounded by a reverse bilayer. These reverse vesicles may encapsulate a variety of oil-soluble solutes such as drugs, cosmetic ingredients or agrochemicals in their oily core. However, there have been few instances of robust reverse vesicles reported. In addition, general procedures for their formation do not exist.

Researchers at the University of Maryland have developed new “recipes” that lead to stable unilamellar reverse vesicles in nonpolar organic liquids such as cyclohexane and n-hexane. Some examples of testing methods are small-angle neutron scattering (SANS) and transmission electron microscopy (TEM), which confirm the presence of the unilamellar reverse vesicles in corresponding solutions. The unilamellar reverse vesicles of the invention could be used to encapsulate hydrophobic solutes, and the corresponding solutes could be released slowly in a controlled manner through the reverse bilayer.

For additional information, please contact the Office of Technology Commercialization, University of Maryland College Park, via phone at (301) 405-3947 or e-mail at otc@umd.edu.

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Additional Information

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PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Chemical

EXTERNAL RESOURCES

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