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### **Science News**

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# New Light Shed on Liposomes Used in Drug Encapsulation and Ger Therapies

ScienceDaily (Feb. 8, 2011) — University of Granada scientists and the Spanish Higher Institute for Scientific Research (CSIC) have made significant progress in understanding lipid membranes, which are extensively employed in the development of cosmetic and drug products, and which have potential application in the field of nanotechnology.

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Phospholipid vesicles (liposomes) are colloidal systems that have generated considerable interest from the pharmaceutical, cosmetic and food industry, since they are biocompatible in protein, nucleic acid, and drug encapsulation. Further, from a scientific perspective, liposomes are considered a model system of cell membranes that have been implemented in the study of biological transport processes through cell membranes, as well as in the study of aggregation processes induced by biological substances.

To develop products of biotechnological interest, understanding thoroughly the electrostatic properties of these

membranes is necessary. This was the purpose of Alberto Martín Molina and César Rodríguez Beas, from the Department of Applied Physics of the University of Granada, and Jordi Faraudo from the Instituto de Ciencias de Materiales in Barcelona (CSIC), authors of a study recently published in the journal *Physical Review Letters*.

#### Inverting its Electrostatic Charge

The study reveals why certain lipid membranes can invert their surface electrostatic charge -- that is, why these membranes have negative charge, but can function as positive charge material in specific circumstances. This type of membranes are extensively employed in gene therapies.

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