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# Obesity & Diabetes Week

**Insulin Delivery**

## Glucose-sensitive microcapsules with porous membrane developed

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Scientists have prepared glucose-sensitive microcapsules with a porous membrane and functional gates.

According to a study from China, "A glucose-sensitive microcapsule with a porous membrane and with linear-grafted polyacrylic acid (PAAC) chains and covalently bound glucose oxidase (GOD) enzymes in the membrane pores acting as functional gates was successfully prepared. Polyamide microcapsules with a porous membrane were prepared by interfacial polymerization, PAAC chains were grafted into the pores of the microcapsule membrane by plasma-graft pore-filling polymerization, and GOD enzymes were immobilized onto the PAAC-grafted microcapsules by a carbodiimide method. The release rates of model drug solutes from the fabricated microcapsules were significantly sensitive to the existence of glucose in the environmental solution."

"In solution, the release rate of either sodium chloride or VB12 molecules from the microcapsules was low but increased dramatically in the presence of 0.2 mol/L glucose," reported **Liang-Yin Chu** and colleagues at Sichuan University. "The prepared PAAC-grafted and GOD-immobilized microcapsules showed a reversible glucose-sensitive release characteristic. The proposed microcapsules provide a new mode for injection-type self-regulated drug delivery systems having the capability of adapting the release rate of drugs such as insulin in response to changes in glucose concentration, which is highly attractive for diabetes therapy."

Chu and colleagues published their study in *Colloids and Surfaces B - Biointerfaces* (Preparation of glucose-sensitive microcapsules with a porous membrane and functional gates. Colloid Surface B, 2004;37(1-2):9-14).

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