

New 'self-exploding' microcapsules could take sting out of drug delivery

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Belgian chemists have developed "self-exploding" microcapsules that could one day precisely release drugs and vaccines inside the human body weeks or even months after injection. The study, by researchers at Ghent University and the University Catholique de Louvain, is scheduled to appear in the Jan. 9, 2006, print issue of the American Chemical Society's journal *Biomacromolecules*.

Unlike some other microcapsules, which release their drug cargo only when exposed to ultrasonic waves or another external trigger, the new system relies on internal mechanisms to do the same job. Each of the new microparticles features a biodegradable gel core that is surrounded by a lipid membrane. As the gel biodegrades, pressure builds up in the membrane. Eventually the microcapsule ruptures, releasing the medication.

The system, the researchers note, could change how some vaccines are administered. Instead of an initial injection followed by a series of boosters, for instance, certain vaccines could be given in a single shot with the "booster" microcapsules timed to rupture at appropriate intervals.

Source: American Chemical Society

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