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New approaches for microbial synthesis of chitin and hyaluronan.

A novel method for synthesizing chitin was presented. Some chloroviruses have a gene for functional chitin synthase and produce chitin fibers surrounding the external surface of infected *Chlorella* cells. The photos of the cover show the chitin accumulation on the CVK2-infected *Chlorella* cells revealed by electron micrograph (left, indicated by an arrow) and fluoromicroscopy treated with biotin-chitin-binding protein and avidin-Cy3 conjugates (right).

Chitin fibers are loosely associated with the host cell wall matrix and can be easily released by vortexing or ultrasonication. Similar method was also applied to the production of hyaluronan using the *Chlorella*-virus system, which has some advantages: recovery is easy, pathogen factor is avoided, clean light energy and CO₂ are utilized, and high molecular weight polysaccharide is obtained.

Related article: Yamada, T. and Kawasaki, T., "Microbial synthesis of hyaluronan and chitin: new approaches", *J. Biosci. Bioeng.*, vol. 99, 521-528 (2005).

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