

## **BIODEGRADABLE CAPSULES FOR MEDICAL APPLICATIONS**

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Polyelectrolyte capsules are made by layer-by-layer assembly of oppositely charged polyelectrolytes onto a template, which is at the end of the synthesis dissolved to obtain hollow capsules. These capsules can be filled with different bioactive molecules like drugs, antigens or genetic material for different purposes such as disease treatment, vaccination or gene delivery. Using biological charged materials such as dextran and L-arginine, biocompatible and biodegradable hollow capsules are synthesized. By encapsulation of DQ<sup>TM</sup>-Ovalbumine, a fluorogenic substrate for proteases the degradation of the capsules can be spectroscopically controlled. These data show that upon cellular internalization of the capsules, cargo molecules are released not only from the capsule but also from intracellular compartments where the capsules are located due to active degradation of the capsule wall by the cell.