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Functional Nanomaterials based on Nanoporous Block Copolymer Templates[1]

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Nanoporous templates have been widely used for the development of new functional nanostructured materials suitable for electronics, optics, magnetism, and energy storage materials. We have prepared nanoporous templates by using thin films of mixtures of polystyrene-*block*-poly(methyl methacrylate) (PS-*b*-PMMA) and PMMA homopolymers. These nanoporous films were found to be very effective for the separation of human Rhinovirus type 14, major pathogen of a common cold in humans. We found that when the pore size was effectively controlled down to 6 nm, a long-term constant *in vitro* release of BSA and hGH was achieved without their denaturation up to 2 months. The long-term constant delivery based on this membrane for protein drugs within the therapeutic range can be highly appreciated for the patients with hormone-deficiency.

Work done in collaboration with Seung Yun Yang, Pohang University of Science and Technology.

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