

467f Polymer Nanofibers Coated with Enzymes

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Polymer nanofibers can be used as a support for biocatalysis. They provide many attractive features such as a large specific area, excellent mass transport due to porous structures, and a number of functional groups to which enzymes can be covalently attached. This paper presents electrospinning of polymeric nanofibers and coating of these fibers with enzymes. The enzymes are first covalently attached to the nanofibers and further crosslinked glutaraldehyde. The enzyme-coated nanofibers in this approach show an extraordinarily good stability as well as an enhanced activity over enzymes immobilized on low-surface area materials. These stable and catalytically active nanofiber-based mats were highly durable and could be easily recovered from a solution, making them ideal candidates for large scale applications.