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Preparation and specific recognition of protein macromolecularly
imprinted polyampholyte hydrogel

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Abstract

Bovine serum albumin (BSA) imprinted polyampholyte hydrogels (PAHs) were prepared by free radical polymerization using acrylamide (Am) as structural monomer, *N*-isopropylacrylamide (NIPAm), [2-(methacryloyloxy)ethyl]trimethylammonium chloride (DMC) and 2-acrylamido-2-methyl-1-propanesulfonic acid (AMPS) as functional monomers and *N,N'*-methylenebisacrylamide (MBA) as crosslinker in aqueous solution. The morphology of imprinted hydrogels and non-imprinted hydrogels were characterized by scanning electron microscope (SEM). The adsorption and recognition properties were evaluated as functions of Am monomer concentration, NIPAm/Am molar ratio, crosslinking structure and charge density ratio *etc.*. The adsorption capacity and association constant of specific interaction between hydrogel and template protein were analyzed by Langmuir isotherm model and Freundlich model. The fitting experimental data suggested that this adsorption was better described as a monolayer adsorption. The specific adsorption on hydrogel with

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