

# Stable Metal Coordination Assisted Fe-Ni Double Hydroxides Surface Imprinted Nanorods with High Adsorption Capacity

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## Abstract

Inspired by the stable interactions between metal ions and proteins, high external surface iron-nickel double hydroxides (Fe-Ni LDH) derived from metal-organic framework (MOFs) was selected as carriers to develop high performance surface bovine serum albumin (BSA) imprinted iron-nickel double hydroxides nanorods (Fe-Ni LDH@MIP). A hexagonal hollow structure Fe-Ni LDH was synthesized with nanosheets stacked on the surface by etching MIL-88A with Ni<sup>2+</sup>. The etching of Ni<sup>2+</sup> increased the surface roughness of MIL-88A and the rough surface of the carrier was conducive to improving the anchorage amount of BSA, thus providing more effective imprinting sites. Controlled coating of the imprinted polymer layer on the surface of Fe-Ni LDH was obtained by aqueous phase precipitation polymerization. The protein adsorption amount reached to  $329.8 \pm 7.8$  mg/g in 60 min with an imprinting factor of 2.86. The experimental showed that Fe-Ni LDH@MIP had good selectivity and stability, which enriched the protein imprinting materials.

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