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# Electrochemical aptasensor for multi-antibiotics detection based on endonuclease and exonuclease assisted dual recycling amplification strategy

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**Abstract**

An ultrasensitive electrochemical aptasensor for multiplex antibiotics detection based on endonuclease and exonuclease assisted dual recycling amplification strategy was proposed. Kanamycin and chloramphenicol were selected as candidates. Firstly, aptamers of the antibiotics were immobilized on bar A and then binding with their endonuclease labeled complementary DNA strands to construct enzyme-cleavage probes. Secondly, The nano zirconium-metal organic framework (NMOF) particles with 1,4-benzene-dicarboxylate (BDC) as linker was defined as UiO-66. And its updated version, hierarchically porous UiO-66 (HP-UIO-66) decorated with different electroactive materials as signal tags were synthesized. Then they were immobilized on bar B linked by two duplex DNA strands which can be specifically cleaved by corresponding enzyme-cleavage probes in bar A. Once targets were introduced into system, aptamers can capture them and then release enzyme-cleavage probes. In the presence of exonuclease-I, exonuclease assisted target recycling amplification was triggered and more enzyme-cleavage probes were released into solution. The probes can trigger endonuclease assisted recycles and repeatedly cleave their corresponding