



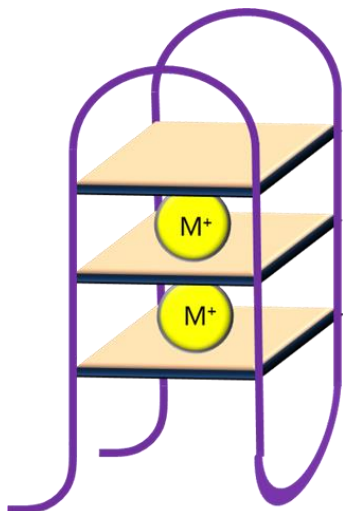
Vás zve na seminář:

Guaninové kvadruplexy pro detekci stříbrných iontů sledované spektrofotometricky

Ing. Branislav Ruttkay-Nedecký, Ph.D., Ing. Sylvie Skaličková, Mgr. Marie Konečná, Ph.D.

Abstrakt

The aim of the study was to investigate the effect of silver ions on the both peroxidase activity of G-quadruplex using spectrophotometric method and height of the cytosine/adenine (CA) peak using electrochemical method (SWV). As the basis of silver-sensitive G-quadruplex the DNA sequence from the paper Zhou et al. was used. To this sequence on the 5' end another sequence (5'-ACA CAC TGC A- 3') was added in order to prepare Ag sensor attached to a gold magnetic nanoparticle. Prepared G-quadruplex was sensitive to the addition of silver ions in the concentration range of 63-2000 nM. With an increasing concentration of silver ions, the absorbance at 420 nm also increased. The increase in absorbance was proportional to an increase in peroxidase activity of DNAzyme. Size of the CA peak also slightly increased with an increasing concentration of silver ions in the concentration range of 0-120 nM. The basis of heavy metal detections using G-quadruplexes is DNA conformational change induced by the presence of analyte, resulting in a decrease or increase in peroxidase activity or electrochemical signal of the used G-quadruplex sample. In comparison with other detection methods, the detection using G-quadruplexes is simpler, faster, more sensitive, and less expensive, without expensive instruments.



pátek 13. 06. 2014, od 14:00

Ústav chemie a biochemie, Laboratoř metalomiky a nanotechnologií, Zemědělská 1, 613 00 Brno, Kontakt: kizek@sci.muni.cz

