Uniwersytet Wrocławski

Repozytorium

Plik pochodzi z repozytorium Wydziału Chemii Uniwersytetu Wrocławskiego

High affinity of copper(II) towards amoxicillin, apramycin and ristomycin. Effect of these complexes on the catalytic activity of HDV ribozyme.

Autorzy

Kamila Stokowa-Sołtys

Nicola Gaggelli

Justyna Nagaj

Wojciech Szczepanik

Jerzy Ciesiołka

Jan Wrzesiński

Agnieszka Górska

Elena Gaggelli

Gianni Valensin

Małgorzata Jeżowska-Bojczuk

Rok wydania

2013

Czasopismo

Journal of Inorganic Biochemistry

Numer woluminu

124

Strony

26-34

DOI

10.1016/j.jinorgbio.2013.03.002

Kolekcja

Naukowa

Streszczenie

Three representatives of the distinct antibiotics groups: amoxicillin, apramycin and ristomycin A were studied regarding their impact on hepatitis D virus (HDV) ribozyme both in the metal-free form and complexed with copper(II) ions. Hence the Cu(II)-ristomycin A complex has been characterized by means of NMR, EPR, CD and UV–visible spectroscopic techniques and its binding pattern has been compared with the coordination modes estimated previously for Cu(II)-amoxicillin and Cu(II)-apramycin complexes. It has thus been found that all three antibiotics bind the Cu(II) ion in a very similar manner, engaging two nitrogen and two oxygen donors into coordination with the square planar symmetry in physiological conditions. All three tested antibiotics were able to inhibit the HDV ribozyme catalysis. However, in the presence of the complexes, the catalytic reactions were almost completely inhibited. It was important therefore to check whether the complexes used in lower concentrations could inhibit the HDV ribozyme catalytic activity, thus creating opportunities for their practical application. It turned out that the complexes used in the concentrations of 50 μM influenced the catalysis much less effectively comparing to the 200 micromolar concentration. The k_{obs} values were lower than those observed in the control reaction, in the absence of potential inhibitors: 2-fold for amoxicillin, ristomycin A and 3.3-fold for apramycin, respectively.

Słowa kluczowe

Ristomycin A, Apramycin, Amoxicillin, Copper(II) complexes, HDV ribozyme, Self-cleavage inhibition

Adres publiczny

http://dx.doi.org/10.1016/j.jinorgbio.2013.03.002

Język

Angielski

Strona internetowa wydawcy

http://www.elsevier.com

Typ publikacji

Artykuł

Plik został wygenerowany dnia 2026-04-24 07:14:02

Adres w repozytorium https://old.chem.uni.wroc.pl/pl/repozytorium/4zQm9tD.