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In vitro effects of arylimidamides against Besnoitia besnoiti infection in Vero cells.

Cortes HC, Muller N, Boykin D, Stephens CE, Hemphill A.

Source

Laboratório de Parasitologia Victor Caeiro, Núcleo da Mitra, ICAAM, Universidade de Évora, Apartado 94, 7000-554 Évora, Portugal.

Abstract

The in vitro effects of 4 arylimidamides (DB811, DB786, DB750 and DB766) against the proliferative tachyzoite stage of the apicomplexan parasite Besnoitia besnoiti were investigated. These four compounds had been shown earlier to exhibit in vitro activities in the nanomolar range against the related apicomplexans Neospora caninum and Toxoplasma gondii. Real-time-PCR was used to assess B. besnoiti intracellular proliferation in vitro. Preliminary assessment by light microscopy identified DB811 and DB750 as the most promising compounds, while DB786 and DB766 were much less effective. Three-day-growth assays and quantitative real-time PCR was used for IC50 determination of DB811 (0.079 μM) and DB750 (0.56 μM). Complete growth inhibition was observed at 1.6 μM for DB 811 and 1.7 μM for DB750. However, when infected cultures were treated for 14 days, proliferation of parasites occurred again in cultures treated with DB750 from day 4 onwards, while the proliferation of DB811-treated tachyzoites remained inhibited. Electron microscopy of B. besnoiti-infected fibroblast cultures fixed and processed at different time-points following the initiation of drug treatments revealed that DB811 exerted a much higher degree of ultrastructural alterations compared to DB750. These results show that arylimidamides such as DB811 could potentially become an important addition to the anti-parasitic arsenal for food animal production, especially in cattle.