Helicobacter pylori pode ser tratado com inibidores da anidrase carbônica como a acetazolamida ou metazolamida

The alpha and beta classes carbonic anhydrases from Helicobacter pylori as novel drug targets.


Source

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Abstract

Helicobacter pylori (H. pylori) successfully resides in the human stomach in highly acidic conditions, causing a variety of gastroduodenal lesions, including gastric ulcer, gastric cancer and MALT lymphoma. For acid acclimation of H. pylori, two types of enzymes, urease and carbonic anhydrase (CA), play a central role. They cooperatively function to maintain neutral pH in the bacterial cytoplasm and periplasm. The genome project of H. pylori identified two different classes of CA with different subcellular localization: a periplasmic alpha-class CA (hp alphaCA) and a cytoplasmic beta-class CA (hp betaCA). These two CAs are catalytically efficient with almost identical activity to that of the human isoform CA I for the CO(2) hydration reaction, and highly inhibited by many sulfonamides/sulfamates, including acetazolamide, ethoxzolamide, topiramate and sulpiride, all clinically used drugs. Furthermore, certain CA inhibitors, such as acetazolamide and methazolamide, were shown to inhibit the bacterial growth in vitro. Since the efficacy of eradication therapies currently employed has been decreasing due to drug resistance and side effects of the commonly used drugs, the dual inhibition of alpha- and/or beta-CAs of H. pylori could be applied as an alternative therapy in patients with H. pylori infection or for the prevention of gastroduodenal diseases provoked by this widespread pathogen.

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