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Inhibition of hydrogen sulfide production through gene silencing attenuates inflammation in a mouse model ofcaerulein-induced acute pancreatitis

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Hydrogen sulfide (H2S) plays an important role in inflammation. It is produced by the activity of the enzyme cystathionine γ-lyase (CSE). Research on the role of CSE is confounded by the lack of specificity of pharmacological agents that inhibit CSE. The use of small interfering RNA (siRNA) to inhibit the production of the CSE is more a specific approach. Using a mouse model of caerulein-induced acute pancreatitis,we have observed that higher levels of pro-inflammatory cytokines including TNF-α, IL-6, MCP-1 and MIP-2, as well as increased activity of pancreatic and lung MPO and also plasma amylase levels. We used siRNA to silence gene for expression CSE in monocytes in an *in vivo* model of mouse acute pancreatitis. Our results show that siRNA treatment attenuates inflammation in the pancreas and lungs of mice following acute pancreatitis, and reduces levels of pro-inflammatory mediators including IL-6, TNF-α, MCP-1, andMIP-2. Pancreatic and lung MPO activities as well as plasma amylase levels were reduced following in vivo silencing of CSE with siRNA. These findings show a crucial pro-inflammatory role for H2S synthesized byCSE in acute pancreatitis.

Biography

Alireza Badieiis a trained veterinarian and he worked as a veterinarian before he start his postgraduate studies. He graduated with a Master's in immunobiology from the School of Medicine, Putra University of Malaysia in 2008.He was appointed as a lecturer at the University of Malaysia Kelantan, Faculty of Veterinary Medicine.Currently, he is finalizing his PhD in the Department of Pathology, University of Otago, Christchurch (age 39 years). He has published more than 10 papers from his master's and PhD projects.

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