The antiplatelet activity of tetramethylpyrazine is mediated through activation of NO synthase.

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Abstract

Tetramethylpyrazine (TMPZ) is an active ingredient of a Chinese herbal medicine (Ligusticum wallichii Franchat). In this study, TMPZ (50Ð200 m M) signiÞcantly increased production of nitrate and cyclic GMP in human platelets within a 15-min incubation period. TMPZ concentration-dependently inhibited intracellular Ca 2 1mobilization in human platelets stimulated by collagen (5 mg/ml). Furthermore, TMPZ concentration (50 and 200m M)- and time (15 and 30 min)-dependently triggered endothelial- type constitutive nitric oxide synthase (ecNOS) protein expression in human platelets. These results indicated that TMPZ at micromolar concentrations stimulated nitric oxide production in human platelets via a novel mechanism that activated ecNOS protein expression.