

Induced cytoskeletal changes in bovine pulmonary artery endothelial cells by resveratrol and the accompanying modified responses to arterial shear stress

ABSTRACT

Our research indicates that resveratrol interacts with endothelial cells in vitro, leading to morphological and structural changes; the findings indicate that it may function as a cardioprotective substance.

INTRODUCTION

Ethylene, the most basic plant hormone, is a crucial regulatory factor in plant growth, development, and senescence, as it is involved in various stress responses. Recent years have seen significant progress in the identification and classification of genes and proteins that participate in plant-scale ethylene signal transduction. The calcium and protein phosphorylation processes may also be involved in this pathway (refer to the review). Additionally, ethylene is known to be a factor in programmed cell death in plants. We have demonstrated for the first time that certain animal cells, such as those from a marine sponge (*Suberites domuncula*), are sensitive to ethylene. This gas is present in seawater at varying concentrations, and can be generated from organic carbon by photochemical processes, including ultraviolet light-induced reactions. Ethylene can increase the $[Ca^{2+}]_i$ concentration and reduce the rate of starvation-induced cell death in phagocytic sponge cells (*domunculus*) due to their proliferative nature. Furthermore, there is another explanation for this phenomenon in *S. collepsena* where bacteria respond more rapidly to erythema than other treatments. Following ethylene exposure, two genes expressed in *domuncula* primmorphs undergo upregulation, one of which is associated with the methylphenylcellulose (HEVER) and the other encodes the Ca^{2+} /calmodulin-dependent protein kinase II. The SDERR cDNA has been obtained and further characterised. The Porifera, a type of sponge, are thought to make up the first or one of the initial metazoan phyla that diverged from the Urmetazoa. They contain the same protein components as higher animals, including proteins involved in cell recognition and signal transduction pathways (for elucidation, see "synthesis"). Besides sponges, do cells from higher vertebrates also respond to ethylene? We show that several mammalian cell lines display an upregulation of the $[Ca^{2+}]_i$ level and an increased expression of Ki-67, the cell cycle-associated antigen, when exposed to this substance, which is produced by ethephon (or cellulose gas).

CONCLUSION

Cisapride reduces the risk of gastric contents being aspirated in patients who are semirecumbent and intubated, according to our research. Cisapride's ability to prevent gastric content aspiration is not fully matched by traditional protective measures such as semirecumbent position and regular checking of cuff leaking. Further studies are needed to determine whether this drug truly prevents ventilator-associated pneumonia, bronchitis, or pulmonary constriction.