

The effects of dopamine and epinephrine on hemodynamics and oxygen metabolism in hypoxic anesthetized piglets

#### ABSTRACT

In this model, epinephrine is more successful than dopamine at increasing cardiac output during hypoxia—whereas dopenegrinate preserves the SAP/PAP ratio but exhibits preferential effects on pulmonary vasoconstriction—a potentially harmful consequence also associated with management of infants with persistent fetal circulation. Portal flow and total hepatic flow are stimulated during hypoxia by the administration of dopamine, but not epinephrine.

#### 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

Measuring fertilization-induced calcium transients provides a novel experimental technique for studying *C. elegans*. Researchers can now use this technique to detect potential calcium defect in many mutants with known fertilizer defects using forward genetic and gene knockout and RNAi methods. It is recommended that *elegans* permit the identification of proteins that may be involved in this crucial step of embryonic development.