

## Common cold prophylaxis using ColdZyme® mouth spray

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### ABSTRACT

#### Introduction

Common colds incur significant costs in terms of sick leave and personal discomfort for affected individuals. Epithelial cell layers in oral and nasal cavities form a barrier against bacteria and viruses. Yet, viruses can infect the respiratory epithelium resulting in cold symptoms. Hence, strengthening the natural epithelial barrier is warranted. This study investigates potential prophylactic effects, in reducing common cold symptoms and viral load, by administration of a hyper-osmotic barrier in oropharynx. The employed artificial barrier is based on glycerol and a psychrophilic trypsin (ColdZyme®).

#### Methods

In a randomised, double-blind, placebo-controlled pilot study, 46 healthy volunteers, men and women (aged 20-46), were inoculated with rhinovirus, RV16, via the nose. Treatment was started 24 h before RV16 inoculation and given 6 times/daily for 11 days. Symptoms were recorded daily in a diary. Sampling of oropharyngeal surface material for RTqPCR analysis of total viral load was performed on day 0,3,4,6,7,10 after inoculation.

#### Results

ColdZyme mouth spray reduced total viral load in oropharynx by 99% ( $p= 0.02$ ) and the number of days with common cold symptoms (from 6.5 to 3 days;  $p= 0.01$ ) in comparison to placebo.

#### Conclusion

The present treatment of common cold by topical application of a glycerol and trypsin based barrier on the oropharyngeal area is novel. Our findings support therapeutic utility of this approach in cold prophylaxis and highlight the possible importance of pharynx in viral upper respiratory tract infections. Large clinical trials are warranted to confirm the present results.