August 22, 2023

Regulatory press release

New study:

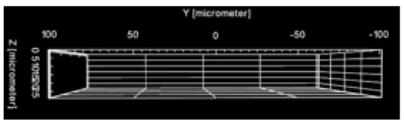
ColdZyme breaks viral infection cycle – significantly reducing influenza viral load

ColdZyme® reduces viral load by more than 99 percent when applied onto human cells that have been infected with influenza A (H3N2), compared to infected cells that were treated with salt solution. According to researchers at the Medical University of Innsbruck, ColdZyme breaks the infection cycle, limiting the spread of viruses to more cells. The researchers believe that ColdZyme would have the same effect on other respiratory viruses. ColdZyme mouth spray is sold in more than 30 markets on four continents, also under brand names such as ViruProtect®, Bisolviral® and ADerogyl®.

Previous studies have shown how application of ColdZyme before infection blocks viruses from sticking to human cells. The new study shows that ColdZyme also reduces viral load and the virus's ability to spread in cell cultures that were already infected with virus (influenza A, H3N2). The research from the Medical University of Innsbruck shows a more than 99 percent lower viral load after only three treatments with ColdZyme, compared to infected cells that were treated with salt solution.

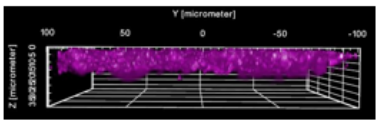
"These are remarkable results because ColdZyme breaks the infection cycle and significantly reduces the viral load. After treatment with ColdZyme, previously infected cells look almost like the uninfected cells, with intact cell nuclei, undamaged cilia and with few virus particles present compared to infected cells that were treated with salt solution. We have reason to believe that ColdZyme would have the same effect on other respiratory viruses, since not only influenza previously has been illustrated to be drastically reduced by ColdZyme treatment", said Professor Doris Wilflingseder, head of the research group.

Un-infected epithelial cells



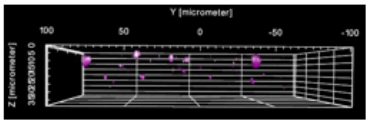
Un-infected human epithelial cells. Cells were stained for Influenza A virus (pink). No virus is detected thus the grid appears empty.

Influenza A infected epithelial cells



Human epithelial cells infected with Influenza A, analyzed for virus on day 3 after infection. Cells were treated with salt solution for 20 minutes on day 1, 2 and 3. An abundance of influenza virus particles (pink) is observed.

ColdZyme treated cells



Human epithelial cells infected with Influenza A, analyzed for virus on day 3 after infection. Cells were treated with ColdZyme (ViruProtect) for 20 minutes on day 1, 2 and 3. Very few Influenza virus particles (pink) can be seen.

"We know from previous studies that ColdZyme blocks viruses from sticking. These new results, showing how ColdZyme breaks the infection cycle, could open new commercial opportunities for Enzymatica. We are expecting results from an in vivo study from the University of Kent within the coming month and anticipate that it will add further clinical insights", said Claus Egstrand, CEO of Enzymatica.

The research group is working on a manuscript for publication, expected in 2023. It was decided to announce the outcome of the study in advance, since Enzymatica as a listed company is obliged to urgent disclosure of insider information. Further studies involving ColdZyme will be conducted in Innsbruck during the year.

More about the study

Highly differentiated, mucus-producing, and ciliated primary human bronchial airway epithelial cells were infected with influenza A virus (H3N2) and incubated for 16 hours. The cells were then treated with ColdZyme, that was left on the cells for 20 minutes and then removed to resemble duration of ColdZyme in the oral cavity. The viral load was determined in the liquid that was removed and in a sample taken from the basolateral side. Treatment and viral load analysis was repeated on day 2 and day 3 after infection. On day 3, the cells were analyzed to examine viability. As a positive control, influenza A infected cells were treated with salt solution instead of ColdZyme.

The research was conducted by the Wilflingseder research group of the Institute of Hygiene and Medical Microbiology at the Medical University of Innsbruck, Austria. Previous research on ColdZyme from the same research group includes: ColdZyme® protects airway epithelia from infection with BA.4/5 | Respiratory Research | Full Text (biomedcentral.com)

The information in this press release is information that Enzymatica is obliged to make public pursuant to the EU Market Abuse Regulation. The information was submitted for publication, through the agency of the contact person set out below, at 10:45 CET on August 22, 2023.

FOR MORE INFORMATION, PLEASE CONTACT:

Claus Egstrand, CEO, Enzymatica AB
Phone: +44 7780 22 8385 | Email: claus.egstrand@enzymatica.com

Stefan Olsson, Communication Manager, Enzymatica AB
Phone: +46 708 55 11 85 | Email: stefan.olsson@enzymatica.com