Antiviral Activity of Engystol® against ADENOVIRUS, Respiratory Syncytial Virus AND INFLUENZA A VIRUS: an in VITRO Analysis

Authors’ names: Menachem Oberbaum¹, Bernadette Glatthaar-Saalmüller², Michael Weiser³, David Branski⁴.

Authors’ affiliations: ¹ Center for Integrated Complementary Medicine, Shaare Zedek Medical Center, Jerusalem, Israel ² Labor Dr. Glatthaar, Reutlingen, Germany ³ Institut for Antihomotoxische Medizin und Grundregulation, Baden-Baden, Germany ⁴ Department of Pediatrics, Hadassah University Hospital, Jerusalem, Israel

Corresponding author: Dr. Michael Weiser
Institüt for Antihomotoxische Medizin und Grundregulation, Bahnackerstr. 16, D 76532 Baden-Baden, Germany
Telephone: +49 (0) 72 21 / 5 01-2 91
Fax: +49 (0) 72 21 / 5 01-6 60
E-mail: weiser.michael@gmx.de
Address for reprint requests: As above.

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Abstract

Objectives:
The aim of this study was to investigate the antiviral activity of a commercial preparation of Engystol® against three different human viruses: adenovirus type 5 (Ad-5), respiratory syncytial virus (RSV) and influenza A virus (Inf-A).

Methods:
Antiviral activity was assessed using viral protein-specific ELISAs (Ad-5 and RSV) and by plaque reduction assays (Inf-A). HEp-2 cells (Ad-5 and RSV) or MDCK cells (Inf-A) were infected with virus and incubated with non-cytotoxic concentrations of Engystol®. Mean optical density (450 nm) for the ELISAs or mean plaque counts were calculated 7 days after infection. Inhibition of viral activity was evaluated relative to control samples. In vitro cytotoxicity was investigated using microscopic examination (day 6) and MTT testing (day 5) of cells exposed to serial dilutions of Engystol®.

Results:
Engystol® (1:2 dilution) was associated with a relative inhibition of Ad-5 activity of 56.95%. Activity against Ad-5 was observed down to a dilution of 1:64. Engystol® (1:2 dilution) also demonstrated antiviral activity against RSV (relative inhibition 37.40%). No antiviral activity was observed against Inf-A virus. Cytotoxicity testing demonstrated no detectable toxic effects of Engystol® at a dilution of 1:2 on HEp-2 cells and 1:4 on MDCK cells.

Conclusions:
This in vitro analysis provides clear evidence of effective inhibition of Ad-5 protein synthesis by the homeopathic preparation Engystol®. Minor antiviral activity was observed against RSV and no significant antiviral effects were noted against Inf-A virus. Engystol® represents a good candidate for clinical development as a treatment for the common respiratory ailments caused by adenovirus infection.