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SCIENTIFIC PAPER | VOLUME 186, ISSUE 5, P552-555, NOVEMBER 01, 2003

# Keyhole limpet hemocyanin, a novel immune stimulant with promising anticancer activity in Barrett's esophageal adenocarcinoma

**PlumX Metrics** 

### **Abstract**

# Background

Keyhole limpet hemocyanin (KLH) is a recently described immune stimulant and hapten carrier derived from a circulating glycoprotein of the marine mollusk *Megathura crenulata*. We previously reported that KLH has significant antiproliferative effects *in vitro* against breast, pancreas, and prostate cancers. We hypothesized that KLH would be effective against Barrett's esophageal adenocarcinoma in an *in vitro* model.

#### Methods

Barrett's esophageal adenocarcinoma cell lines (SEG-1 and BIC-1) were cultured using standard techniques. Cells were plated at 1  $\times$  10  $^5$  and KLH was added at concentrations ranging from 400ng to 100 $\mu$ g/well. After 24 and 72h incubation, cells were assayed for viability using the MTT technique. Statistical analysis was performed using ANOVA. Apoptosis was evaluated using a cell death detection kit after 16 hours of incubation with KLH.





KLH treatment significantly (p < 0.001) reduced viability in a dose and time-dependent manner. Apoptosis was increased in treated SEG-1 cells, but no changes in apoptosis were seen in treated BIC-1 cells.

#### **Conclusions**

KLH directly inhibits the growth of human Barrett's esophageal cancer *in vitro* by apoptotic and nonapoptotic mechanisms.

# **Keywords**

Keyhole limpet hemocyanin • Esophageal cancer • Barrett's esophagus • Apoptosis

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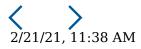
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# **Article Info**

## **Publication History**

Received in revised form: July 16, 2003

Received: June 2, 2003

#### Identification

DOI: https://doi.org/10.1016/j.amjsurg.2003.08.002

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