

# Nuclear factor $\kappa$ B<sup>1</sup>/RelA mediates the inflammation and/or survival of human airway exposed to sulfur mustard.

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## Source

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## Abstract

### CONTEXT:

Sulfur mustard (SM) is known as an effective chemical agent and was used in the 19<sup>th</sup> century during the Iran-Iraq war against Iranians. At the present time, there are more than 50,000 people suffering from pulmonary lesions due to mustard gas in Iran. Though much is known about the gross pathology of SM damage, the molecular and cellular basis for this pathology is not well understood.

### OBJECTIVE:

One of the most important protein groups involved in inflammatory responses is nuclear factor  $\kappa$ B protein (NF- $\kappa$ B<sup>1</sup>) family. They belong to the category of DNA-binding protein factors necessary for transcription of many proinflammatory molecules. In our research, we examined the role of NF- $\kappa$ B<sup>1</sup>/RelA in the pathophysiology of the lung.

### MATERIALS AND METHODS:

We investigated 10 normal individuals and 10 SM induced patients. Expression of NF- $\kappa$ B<sup>1</sup>/RelA in controls and the SM exposed samples was measured by real-time polymerase chain reaction and localization of NF- $\kappa$ B<sup>1</sup> protein was detected by immunohistochemistry staining.

### RESULTS:

Our results revealed that expression levels of NF- $\kappa$ B<sup>1</sup> and RelA were upregulated 1.64-1.90 fold and 1.83-8.34 fold, respectively, in the SM exposed patients in comparison with control samples.

### DISCUSSION AND CONCLUSION:

As far as we know, this is the first finding of induction of NF- $\kappa$ B in patients exposed to SM. NF- $\kappa$ B<sup>1</sup>/RelA may play a major role in inflammation induced by mustard gas or even in cell survival in the bronchial wall of affected patients.