

# Albuterol Part 1

The catalog chemical Albuterol, also known as Salbutamol, is classified as a short-acting Beta 2 adrenergic agonist. It has a molecular formula of  $C_{13}H_{21}NO_3$ , and it has a molecular mass of 239.311.

## The Functionality Behind Albuterol

According to scientific study that has been conducted on animal test subjects, the primary means of Albuterol's function is to work with the cell membrane's beta-adrenergic receptors. The result of this interaction in essence causes the smooth muscles that are responsible for shepherding fine control and gradual responses to relax. By means of this process, this enables the presence of the catalog chemical to play a role in executing various bodily reactions within animal test subjects that are linked to smooth muscle relaxation. This would include reactions such as the widening of blood vessels within the liver and muscle, the release of insulin, the dilation of bronchial passages, and the relaxation of the uterine muscle in female animal test subjects.

In a nutshell, scientific study based on animal test subjects have determined that Albuterol works in this manner because it influences the lowering of intracellular calcium and myosin light chain kinase activity. At the same time, it influences a boost in membrane potassium conductance. These processes collectively work to trigger the relaxation of smooth muscles, particularly muscles that are linked to the process of breathing. Ultimately, this allows for the process of bronchodilation, or an increased capacity for bronchial tubes, to occur. This in turn allows the animal test subject to experience a more efficient means of achieving breathing-related homeostasis.

## Albuterol and Breathing

Because of the way in which [Albuterol](#) works to regulate the breathing function, scientific study based on animal test subjects have determined several theoretical links between the presence of the catalog chemical and treatment of various breathing related issues. Some of these conditions include:

- *Bronchospasm* – This condition is demonstrated by a sudden constriction of the muscles within bronchial walls. This immediate constriction is brought about by the release of certain substances from cells due to the presence of anaphylatoxins. It is thought that the presence of the catalog chemical could enable neutralize the effects of this condition because it causes a more efficient means of airflow to occur.
- *Chronic Obstructive Pulmonary Disease (COPD)* – This condition, which is progressive in nature, is brought about by routinely poor airflow to the lung due to certain inflammatory responses. The result of this inflammation could range from shortness of breath to coughing. It is theorized that the presence of Albuterol could lower the instances of inflammatory reactions.
- *Cystic Fibrosis* – This progressive and, eventually, fatal condition is a genetic disorder whose presence causes various



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lung-related issues, including difficulty breathing. It is hypothesized that Albuterol's functionality could slow down the onslaught of some of the breathing difficulties.

## **Albuterol and Obstetrics**

Because of the way in which Albuterol works in conjunction with relaxing smooth muscle, scientific study based on animal test subjects has also determined that the presence of the catalog chemical could be instrumental in the treatment of certain obstetric-related issues. The primary theory behind this correlation has to do with the concept of premature labor. It is thought that because Albuterol 's functionality causes a relaxation of uterine smooth muscle in female animal test subjects, it could potentially be used to delay the onset of premature labor. Ultimately, the presence of the catalog chemical could theoretically result in an offspring experiencing an increased presence in the animal test subject's womb, which could in turn lead to an increased chance of entering the world in a healthy state.

## **Other Theoretic Uses for Albuterol**

Scientific study based on animal test subjects have helped determine that Albuterol's functionality could potentially be instrumental in treating other conditions. For instance, it has been determined that the catalog chemical could be used to treat the condition of hyperklaemia through its ability to lower the potassium in the blood. It could also be theoretically used to treat spinal muscular atrophy; a condition that is marked by muscle weakness and muscle wasting.

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