Researchers at the University of South Florida have discovered Alda-1 (benzodioxyl dichlororobezamide), an activator of Aldehyde dehydrogenase 2 (ALDH2), as a potential treatment of allergic or pulmonary diseases characterized by endothelial dysfunction.

About 60 million people suffer from allergic diseases in the United States alone ranging from food allergies to chronic obstructive pulmonary disease (COPD). Sneezing and shortness of breath are often associated with allergies. Many allergic diseases cause endothelial dysfunction and changes in vascular permeability, such as edema, asthma, and COPD. Most allergy medications treat the symptoms as opposed to the underlying problems.

USF inventors have identified a new target and therapeutic approach for allergic and pulmonary diseases. ALDH2 combats mitochondrial dysfunction, which can be an effective treatment for endothelial dysfunction and changes in vascular permeability. Our research team has demonstrated that Alda-1 is a novel specific activator of ALDH2. Alda-1 amplifies ALDH2 activity, shields against cellular damage in diseases such as heart failure, and attenuates endothelial dysfunction in pulmonary diseases. Administration of Alda-1 represents a novel therapy to mitigate hyperoxic injury in lungs.

**ADVANTAGES:**
- Applicable to a wide range of diseases
- Targets the cause not just the symptoms of allergies
- Protects against cellular damage
- Reverses harmful effects of hyperoxic injury

**Novel Target and Therapeutic Approach for Allergic Diseases via Preservation of Mitochondria**

**Cells Treated with Alda-1 Display Elevated ALDH2 Activity During Both Normoxia and Hyperoxia**

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