

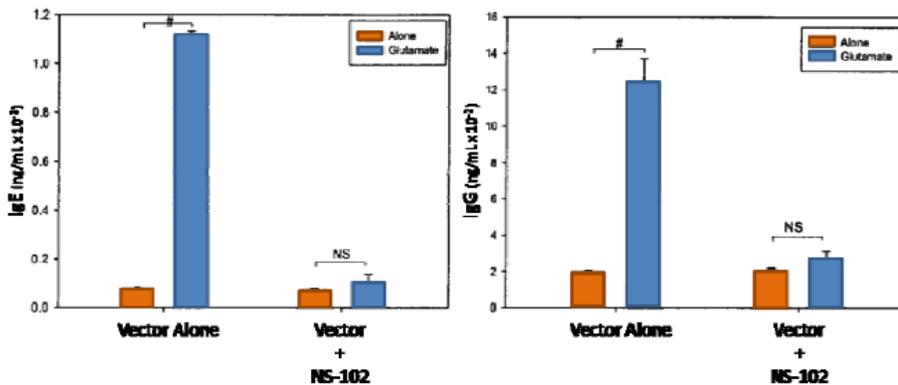


# Novel Treatment for Asthma and Autoimmune Diseases

Asthma and autoimmune diseases affect over 30 million people in the United States. Asthma is the country’s most common and costly disease. Various treatments are available to control these diseases, but for most there is no cure. In addition, many of the drugs used to treat autoimmune diseases, especially immunosuppressants, have serious side effects.

## The technology

Researchers at Virginia Commonwealth University have discovered the kainate receptor (KAR) plays a key role in the series of events that lead to an allergic reaction. This represents a novel target for developing drugs for treating B cell-mediated diseases, including allergies, asthma and autoimmune disorders. In addition, the KAR inhibitor NS-102 was shown to block isotype switching in human B cells, thereby reducing the inflammatory response. KAR inhibition could be used for treatment of asthma, allergies and autoimmune diseases that have a strong autoantibody (IgG) component, such as lupus.



**Figure 1.** Activated kainate receptor (KAR) with Glutamate, which subsequently activated components of the immune system (IgE and IgG). KAR inhibitor NS-102 blocks effects on the immune system.

## Benefits

- » Specific for B cell-related diseases
- » Potential to have less side-effects
- » Phase I of KAR inhibitor for CNS indications completed

## Applications

- » Treatment for asthma
- » Treatment for allergies
- » Treatment for autoimmune disease

### Patent status:

Patent issued: U.S. rights are available.  
8,952,048

### License status:

This technology is available for licensing to industry for further development and commercialization.

### Category:

Biomedical

### VCU Tech #:

09-075

### Investigators:

Daniel Conrad, Ph.D.  
Jamie Sturgill, Ph.D.

### External Resources:

[Sturgill et. al. \(2011\)](#)

### Contact us about this technology

Magdalena K. Morgan, Ph.D.  
Assistant Director  
[mkmorgan@vcu.edu](mailto:mkmorgan@vcu.edu)  
(804) 827-6095