

# C3d-binding Biomarkers for Detection of Complement-mediated Inflammation

Published date: March 23, 2017

## Technology description

### Background:

The complement immune system is implicated in many acute and chronic inflammatory conditions and autoimmune diseases, including neurological (Alzheimer's and multiple sclerosis), renal (lupus nephritis and glomerulonephritis), ocular (age-related macular degeneration), and systemic (lupus and rheumatoid arthritis). The complement protein C3d resides covalently attached in inflamed tissues, and it is an excellent biomarker target for complement-mediated inflammation, even at early disease stages prior to clinical manifestations.

### Brief Description:

UCR researchers have discovered several small chemical compounds with intrinsic fluorescence properties that bind to complement C3d. These compounds can serve as molecular biomarkers for the detection of complement activation using fluorescence imaging. The compounds can be developed to become noninvasive in vivo diagnostics of complement-mediated inflammatory and autoimmune diseases, for spatiotemporal monitoring of disease progression, and for delivering therapeutics to sites of inflammation.

### Related Materials

[Gorham RD Jr, Nuñez V, Lin J-H, Rooijakkers SHM, Vullev VI, Morikis D \(2015\) Discovery of small molecules for fluorescent detection of complement system activation product C3d, Journal of Medicinal Chemistry 58:9535-9545](#)

## Application area

Molecular biomarkers for complement activation

Clinical diagnostics for inflammatory and autoimmune diseases

Drug discovery and delivery

Theranostic discovery

## Advantages

Small chemical compound diagnostics have several advantages compared to competing antibody-based diagnostic technologies:

Higher bioavailability

Less prone to degradation

More cost-effective for large scale industrial production, and reduced market prices

## Institution

[University of California, Riverside](#)

## Inventors

[Dimitrios Morikis](#)

[Ronald Gorham](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com