

Genetic variant involved in determining C5a complement levels

Published date: Aug. 10, 2012

Technology description

Problem or Unmet Need:

The complement system is an important part of the immune system and is responsible for the clearance of infectious agents, such as bacteria or fungi. The complement pathway is comprised of many small proteins that become activated in order to clear pathogens from an organism. C5a is a powerful chemokine involved in chemotaxis. Studies have shown that high C5a levels may lead to higher susceptibility for septic shock, as well as various systemic and renal diseases. The ability for doctors to predict C5a levels and therefore tailor their treatment would allow for personalized medicine that would take into account not only patient susceptibility to infection, but also tolerance to drugs targeting this pathway.

Details of the Invention:

This technology identifies a major genetic regulator of C5a complement levels. In a genome-wide association study, it was found that this particular genetic variant accounts for 36% increase in baseline C5a levels in healthy individuals. The variation was found to be common in Europeans and Asians, particularly South Central Asians, but absent in Africans. This novel variant could predict the magnitude of the immune response and therefore have implications for susceptibility to infection, septic shock syndrome, and renal diseases.

Application area

- Early detection of "at risk" populations for elevated C5a levels.
- Development of better treatment for diseases associated with high C5a levels, such as septic shock syndrome and renal diseases.
- Genetic typing of this variant could be incorporated into commercially available tests.
- Development of new standards for C5a ELISA assays.
- Measuring the effectiveness of drugs that target C5a

Advantages

- No clinically available tests for risk stratification of complications due to high C5a complement levels are currently available.
- Noninvasive method for determining an individual's risk for septic shock after exposure to an infectious agent.
- Improvement on already commercially available tests that measure C5a.
- Genetic variant can be used to monitor sensitivity to drugs that target C5a.

Institution

[Columbia University](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com