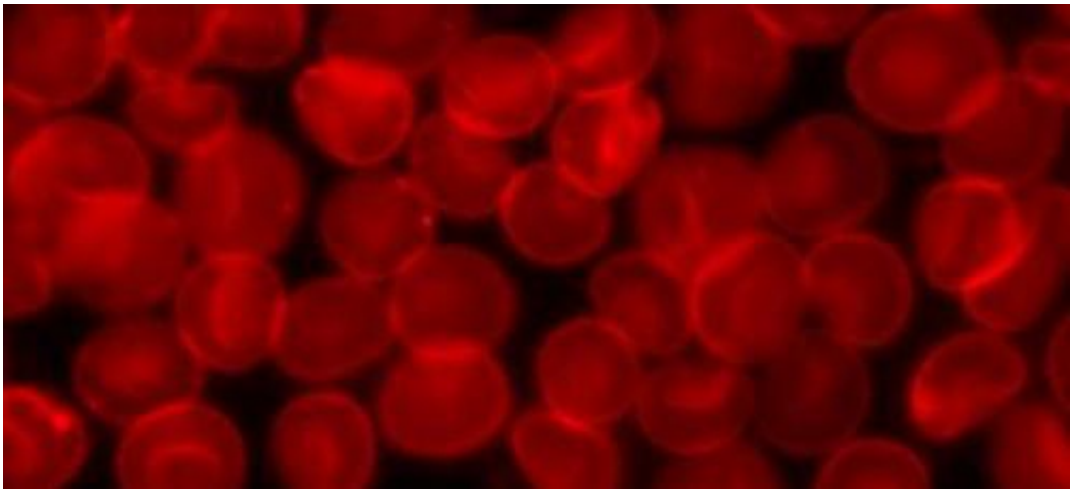
Enzyme may be key to stopping fatal sepsis outcomes

October 16 2014, by Brian Murphy



UBC researchers have discovered that controlling levels of the human enzyme PCSK9 could help improve survival for patients with sepsis. Photo: Wikimedia Commons.

University of British Columbia led research has discovered that controlling levels of the human enzyme PCSK9 could be the difference between life and death for patients with severe sepsis.

Severe sepsis is an infection from any source that threatens to shut the patient's vital organs down. Four of the top ten causes of death worldwide involve infection and meet the definition of sepsis.

UBC researcher Keith Walley says inhibiting or reducing PCSK9 could

allow the patient's body to clear toxic remnants of bacteria and fungi destroyed by antibiotics. Getting rid of the infection's waste may improve the patient's outcomes and survival rates.

Treatment of mice with severe sepsis using a PCSK9 inhibitor increased survival. Mice with a genetic variation that reduced the levels of PCSK9 also showed improved sepsis outcomes and survival rates.

Many pharmaceutical companies are currently developing PCSK9 inhibitors to increase clearance of cholesterol thereby lowering cardiovascular risk. This raises the possibility that PCSK9 inhibitor treatment is possible and treatment of septic humans with a PCSK9 inhibitor might increase survival.

The research was conducted by Walley's UBC team, the Centre for Heart Lung Innovation at St. Paul's Hospital and collaborators at the University of Pennsylvania and Chiba University in Japan.

Their research was published Wednesday in the journal *Science Translation Medicine*.

More information: "PCSK9 is a critical regulator of the innate immune response and septic shock outcome." *Sci Transl Med* 15 October 2014: Vol. 6, Issue 258, p. 258ra143. DOI: 10.1126/scitranslmed.3008782

Provided by University of British Columbia