Understanding inflammation

October 14 2013

German scientists at Charité – Universitätsmedizin Berlin for he first time have solved the 3-dimensional structure of the protein LBP and it´s genetic variant. This finding may help certain patients to better survive severe infectious diseases. The results have been published in the recent issue of the journal *Immunity*.

This host protein mediates the induction of fever as central inflammatory reaction to infection and enables the organism to fight it off successfully. This natural reaction in some patients leads to severe courses potentially including the dramatic syndrome of sepsis. For the outcome of these diseases apparently a genetic variation of LBP frequently found among individuals in Europe plays a role. In cases of sepsis and pneumonia carriers have a significantly decreased survival rate.

"These findings primarily may help in identifying high risk patients early in order to intensify prophylactic measures and by that protect them. Furthermore, in the future the therapeutic application of intact LBP could represent a novel intervention strategy," explains Prof. Ralf Schumann, M.D. of the Institute for Microbiology and Hygiene of the Charité and head of this international collaboration.

The importance of these results are confirmed by Prof. Ernst Rietschel, Ph.D., chairman of the board of the Berlin Institute of Health (BIH), the newly founded joint institute of the Charité and the Max Delbrück Center for Molecular Medicine: "On one hand inflammation research as an aspect of systems medicine is one of the agreed focus areas of BIH

and the findings reported here can be explored in more detail within the new Institute in the future." He adds: "On the other hand the results published are exemplary for the concept of translational research aimed at making use of basic research knowledge for immediate use in clinical medicine."

More information: J.K. Eckert et al. The Crystal Structure of Lipopolysaccharide Binding Protein Reveals the Location of a Frequent Mutation that Impairs Innate Immunity, *Immunity*, 39, 1, 2013. dx.doi.org/10.1016/j.immuni.2013.09.005