Dahl TB\textsuperscript{1}, Yndestad A\textsuperscript{1}, Aukrust P\textsuperscript{1}, Halvorsen B\textsuperscript{1}

\textsuperscript{1} Institute for Internal Medicine, Rikshospitalet, University of Oslo, Norway

**Background:** Visfatin is a newly discovered adipocytokine that binds and activates the insulin receptor via a distinct binding site. Visfatin is reported to be enhanced in several inflammatory diseases such as obesity and type 2 diabetes. In addition, several in vitro studies have reported visfatin-induced secretion of inflammatory markers such as TNFa, IL6 and IL1 from various cell types.

The aim of this study was to investigate the inflammatory potential of visfatin on monocytes, an important cell type in both inflammation and atherosclerosis, using the THP-1 monocytes as a model system, and to elucidate the plausible role of the insulin receptor in the inflammatory process.

**Methods:** The THP1 cells were stimulated with different concentrations of recombinant (rh) visfatin and Insulin in addition to a known inhibitor of the insulin receptor HNMPA. After various time points the cells were harvested and the signalling cascade was investigated using western blot analysis and gene expression was measured using quantitative real time PCR.

**Results:** The gene expression of the inflammatory marker TNFa and IL-1b was markedly increased in a dose dependent manner. Inhibition of the insulin receptor did not abolish this inflammatory effect of rhVisfatin, in spite of the activation of insulin receptor by visfatin.

**Conclusions:** rhvisfatin increases the inflammatory marker TNFa and and IL-1b and may play an important role in the inflammatory response. In contrast to reports suggesting that visfatin activates the insulin receptor, the inflammatory effect of rhVisfatin observed in the present study did not involve the classic insulin receptor signalling pathway.