

# Research reveals role of fat storage cells in anti-obesity intervention

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New research from a team at the Marshall University Joan C. Edwards School of Medicine establishes a role of adipocyte Na/K-ATPase signaling in worsening obesity and its companion diseases, including

neurodegeneration and non-alcoholic steatohepatitis (NASH), that was enhanced by specific targeting of NaKtide, an antagonist of Na/K-ATPase signaling, to the adipocyte.

The findings are published in the May 28, 2019, edition of *Scientific Reports*, an [online journal](#) from the publishers of Nature.

"I am very excited about the work in the current *Scientific Reports* article and the clinical relevance it presents for the role of adipocytes in obesity and other disease states," said Komal Sodhi, M.D., senior author, and associate professor of surgery and [biomedical sciences](#) at the Joan C. Edwards School of Medicine.

The results from this study at Marshall University demonstrate that the Na/K-ATPase oxidant amplification loop in adipocytes, or cells specialized for fat storage, when impaired, could cause adipocyte dysfunction, worsening obesity and potentially increasing the severity of related diseases. The basis of the research examined more closely the role of the adipocyte in obesity, including how it impacts [oxidative stress](#), inflammation, neurodegeneration and NASH. The researchers were able to successfully demonstrate through decreased adiposity and an improved metabolic profile the therapeutic potential of targeting NaKtide to the adipocytes.

"Our data clearly suggests that obesity and the Na/K-ATPase oxidant amplification loop plays a role in neurodegeneration," said first author Rebecca Pratt, a Ph.D. candidate in the department of biomedical research at Marshall University. "Even targeting NaKtide to adipocytes alone still showed a whole-body effect, which highlights the much larger role that adipocytes play in obesity and whole body homeostasis."

This work builds on the body of work initiated by Marshall Institute for Interdisciplinary Research (MIIR) Director Zijian Xie, Ph.D., on the

previously unappreciated signaling function of the NaK-ATPase. To read the article its entirety, please visit

<https://www.nature.com/articles/s41598-019-44350-9>.

**More information:** Rebecca D. Pratt et al, The Adipocyte Na/K-ATPase Oxidant Amplification Loop is the Central Regulator of Western Diet-Induced Obesity and Associated Comorbidities, *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-44350-9](https://doi.org/10.1038/s41598-019-44350-9)

Provided by Marshall University Joan C. Edwards School of Medicine

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