

Postbiotic could lower glucose, inflammation in obesity

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(HealthDay)—The bacterial cell wall-derived muramyl dipeptide (MDP)

postbiotic lowers adipose inflammation and reduces glucose intolerance in obese mice, according to an experimental study published online April 20 in *Cell Metabolism*.

Joseph F. Cavallari, from McMaster University in Ontario, Canada, and colleagues examined the role of MDP, which is an insulin-sensitizing postbiotic that requires NOD2 in obese mice.

The researchers found that in obese mice, injection of MDP lowered adipose inflammation and reduced [glucose](#) intolerance without resulting in weight loss or changing the microbiome composition. During obesity and low-level endotoxemia, MDP correlated with a reduction in hepatic insulin resistance. Glucose tolerance was worsened with NOD1-activating muropeptides. For different types of peptidoglycan, IRF4 distinguished opposing glycemic responses; IRF4 was required for MDP/NOD2-induced insulin sensitization and lower metabolic tissue inflammation during obesity and endotoxemia. For exacerbated [glucose intolerance](#) via NOD1, IRF4 was dispensable. In [obese mice](#), the MDP-based orphan drug mifamurtide was an insulin sensitizer at clinically relevant doses.

"Our results highlight that discovery and repurposing of microbial-derived natural products should be considered in obesity-related metabolic disease and that postbiotics may represent an underutilized avenue of potential drug alternatives," the authors write.

More information: [Abstract/Full Text \(subscription or payment may be required\)](#)

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