

In the news

ANTIBACTERIAL VITAMIN

Nicotinamide (NAM; also known as vitamin B3) enhances the neutrophil-mediated killing of *Staphylococcus aureus*, according to a new study published in *The Journal of Clinical Investigation*.

The emergence and spread of antibiotic-resistant strains of bacteria, such as methicillin-resistant *S. aureus* (MRSA), make identifying novel antimicrobial approaches an urgent priority. The current study stemmed from the discovery of germ-line loss-of-function mutations in the gene encoding the transcription factor CCAAT/enhancer-binding protein- ϵ (C/EBP ϵ) in individuals with neutrophil-specific granule deficiency, a rare haematological disorder in which affected individuals suffer from recurrent bacterial infections. The authors found that C/EBP ϵ -deficient mice were impaired in their ability to clear *S. aureus* infections, indicating that C/EBP ϵ has a key role in this process. Further work revealed that C/EBP ϵ can be activated by NAM, and NAM administration enhanced killing of *S. aureus* by up to 1,000-fold in a mouse model of infection or in human peripheral blood.

“This could give us a new way to treat *Staph* infections that can be deadly, and might be used in combination with current antibiotics,” said Professor Adrian Gompert, one of the authors of the study (*The Telegraph*, 28 Aug 2012). Moreover, as commented by Mark Enright, University of Bath, UK, “[NAM] seems safe at this dose to use in patients as it is already licensed for use.” (*BBC News*, 27 Aug 2012.)

However, it should be noted that the researchers used much higher doses of NAM than can be obtained from the diet. Moreover, there is currently no evidence that dietary sources of NAM or conventional NAM supplements affect bacterial infections.

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