

# Grasping bacterial 'friending' paves the way to disrupt biofilm creation

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Finding a biological mechanism much like an online social network, scientists have identified the bacterial protein VpsT as the master regulator in *Vibrio*, the cause of cholera and other enteric diseases. This discovery, now published in the journal *Science*, provides a major tool to combat enteric disease.

For decades, it has been observed that [bacteria](#) engage in biofilm formation in nature and the lab. Like the online social network Facebook, free-swimming bacteria ditch the solitary lifestyle to form a biofilm community, but only after they've signaled their intention to do so to others. The protein VpsT receives the invitation and accepts it by starting a cellular program facilitating the process.

"We have the parts list now," said Holger Sondermann, professor at Cornell University's College of Veterinary Medicine. "The next step will be to develop a clear understanding of the triggers and processes that regulate biofilm formation. With this data, we can find opportunities to disrupt the process and find entry points for therapeutic interventions."

Thus, bacteria hunker down with millions of other bacteria to form a biofilm community powerful enough to fog your contacts, rot your teeth, corrode metal and cause a host of human and animal diseases. Biofilms have been implicated in numerous [chronic infections](#) including [cystic fibrosis](#), otitis media and prostatitis. Through interactions within a biofilm, the resident population of bacteria is likely to benefit from increased metabolic efficiency, substrate accessibility, enhanced

resistance to environmental stress and antibiotics and an increased ability to cause infection and disease, says Sondermann.

**More information:** This new research, "Vibrio cholerae VpsT Regulates Matrix Production and Motility by Directly Sensing Cyclic di-GMP," was published in the latest journal *Science*, Feb. 12, 2010.

Provided by Cornell University

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