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Too Early For Tools?

by

Advances in high-throughput screening and metagenomic data analysis have already helped uncover the microbiome's potential as a source of new therapeutic approaches. But more new tools will be needed to further decipher it.

[AvidBiotics Corp.](#)'s *Avidocin* proteins are engineered to target a single bacterium strain without collateral damage. The proteins – tweaked versions of R-type bacteriocins, or naturally occurring defensive bacterial proteins – zero in on unique surface molecules of the bacterial targets, without hitting or harming off-target bacteria. This “sniper rifle” approach

is potentially a very useful microbiome research tool. But the company has struggled to monetize it. That's in part because the obvious immediate application, in narrow spectrum antibiotics, isn't commercially attractive to most Big Pharma. It's also because of the relative immaturity of the microbiome field. “It's still early in the [microbiome] game,” explains chairman and CEO David Martin. In most companies ([Johnson & Johnson](#) and perhaps [Novartis](#) [AG](#) excepted) “there's no microbiome silo,” only therapy area groups. Those in immunology, inflammatory, and/or metabolic diseases tend to be the most excited, yet many of those are focused on adding bacteria (along the lines of FT or probiotics), while “we're talking about selective subtraction.”

AvidBiotics' project to find an effective prophylactic for *C. difficile*, to prevent colonization to begin with, and/or avoid relapse, is also a hard sell. “People think of us as an anti-bacterial company, rather than a microbiota-manipulating company,” reflects Martin.

Advances in high-throughput screening and metagenomic data analysis have already helped uncover the microbiome's potential as a source of new therapeutic approaches. But more new tools will be needed to further decipher the microbiome, including for instance, mathematical and computational models underpinning systems biology efforts. AvidBiotics, like other groups that have for many years been working on the microbiome, or with tools relevant to it, may have to re-position itself to benefit from the surge of interest. The company has no traditional venture

capital backing, but has been supported by federal government funding, angels, and industrial conglomerate *El DuPont de Nemours & Co. Inc.*, which invested in 2012 to support work in food safety.