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A new test kit makes it much easier to detect trace amounts of sulfa drugs from wastewater in the field. *Photo courtesy of Abraxis, LLC.*

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with the [Veterinary Research Institute](#) in Brno, Czech Republic; and Fernando Rubio, with Abraxis, LLC in Warminster, Pa.

Using antibodies developed by Franek, Rubio prepared the kits so that farmers, wastewater plant operators, researchers and others could readily perform onsite monitoring of sulfa drugs. Sewage plant operators, for example, could use the kits to determine whether modifications to their treatment regimens effectively prevent the drugs' discharge into waterways. Scientists can use the kits to monitor the sulfonamides' fate and transport in soils.

Instrumentation now exists to detect and measure sulfa drug levels in samples. However, dedicated space, high operating costs and specialized training make such methods impractical for field use. The kits, in contrast, are easy to use, require minimal training, and produce results quickly, according to Shelver.

In tests using samples from two wastewater treatment plants, as well as samples obtained by Shappell from swine-rearing facilities, Shelver used liquid chromatography-mass spectrometry (LC-MS) instrumentation to verify the kits' accuracy in detecting two widely used sulfa drugs—sulfamethoxazole and sulfamethazine. Shelver believes the kits are a more flexible complement to LC-MS-based detection methods and particularly useful for situations requiring routine environmental monitoring.

ARS is the [U.S. Department of Agriculture's](#) chief scientific research agency.

New Tests Make Antibiotic Monitoring Easier

 By [Jan Suszkiw](#)

April 25, 2008

Detecting antibiotics in the environment could become easier to do, thanks to portable field kits developed and validated by a team of scientists from the [Agricultural Research Service](#) (ARS), [Abraxis, LLC](#) and the Czech Republic.

The team conducted studies showing that the kits, called enzyme-linked immunosorbent assays (ELISA), accurately detected trace amounts of sulfonamides, also known as "sulfa drugs," in wastewater samples. When these drugs are excreted in urine, for example, they can persist in the environment unchanged or as metabolites.

ARS chemist [Weilin Shelver](#) and ARS physiologist [Nancy Shappell](#)—both with the agency's [Biosciences Research Laboratory](#) in Fargo, N.D.—conducted the validation studies in collaboration with kit developers Milan Franek,

with the [Veterinary Research Institute](#) in Brno, Czech Republic; and Fernando Rubio, with

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