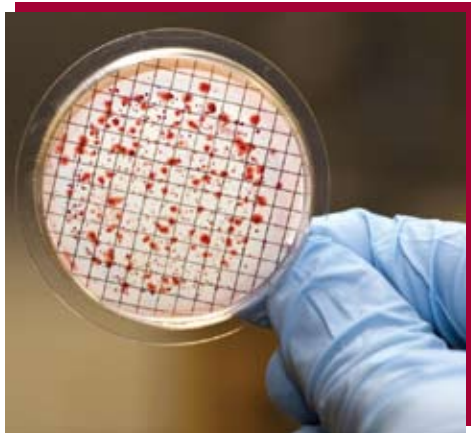


# Biofilm Quantification

*As part of our antimicrobial efficacy program, WuXi AppTec offers in-vitro assays that quantify microbial biofilm in accordance with established and accepted standards.*



## The Importance of Biofilm Quantification

Under certain conditions and on a variety of surfaces, many microorganisms can create a biofilm, which will exhibit unique characteristics that can be distinctly different from those typical of individual bacteria. For example, biofilm often exhibits resistance to typical cleaning, disinfection and antibiotic regimens, presenting new challenges for preventive measures in both hospital and manufacturing environments. As such, the study of biofilm formation is an important and distinct area of investigation by medical device and combination product manufacturers in the struggle to minimize infections.

## Testing Provides Comparative Evaluations

Developing appropriate measures to combat the development and/or persistence of biofilms requires methods by which representative biofilms can be consistently produced for testing purposes and subsequently accurately measured. Unfortunately, standard *in-vitro* antimicrobial methods do not reproduce the unique biofilm environment to adequately evaluate coatings and materials for their anti-biofilm properties. WuXi AppTec overcame these unique challenges with its expertise in microbiology, in-depth understanding of the challenges of working with antimicrobials, and specialized equipment.

WuXi AppTec utilizes established ASTM *in-vitro* methods. These methods have been proven to reproducibly create biofilms so that the effects of treatments can be compared across groups through quantification of the biofilm population. Each study design starts with the establishment of a bacterial population through an initial incubation phase in specialized flow chambers. Once test materials are introduced to the system, varying flow conditions can be applied to simulate clinical use. After exposure, the biofilms are removed and quantified. Each of the following methods can be modified to include different/additional organisms as well as different/additional test materials.

**WuXi AppTec offers the following standard methods for the development and quantification of microbial biofilm. Any of the standard test methods listed here can be modified to include different/additional organisms as well as different/additional test materials.**

### ASTM E 2647 – 08

#### **Quantification of Biofilm Grown Using a Drip Flow Biofilm Reactor with Low Shear and Continuous Flow**

Methodology for the growth of biofilm at an air/liquid interface under nutritive conditions with little shearing effect. May be representative of catheter or wound-dressing environments, among others.

### ASTM E 2562 – 07

#### **Quantification of Biofilm Grown with High Shear and Continuous Flow using CDC Biofilm Reactor**

Methodology for the growth of biofilm under nutritive conditions with a high shearing effect. May be representative of catheter or water system environments, among others.

### ASTM E 2196 – 07

#### **Quantification of Biofilm Grown with Shear and Continuous Flow Using a Rotating Disk Reactor**

Methodology for the growth of biofilm under nutritive conditions with shearing conditions. May be representative of catheter or water system environments, among others.

WuXi AppTec is a global leader in providing discovery, testing and manufacturing services for the pharmaceutical, biotechnology and medical device industries. Research-driven and customer-focused, with operations in China and the U.S., WuXi AppTec offers a broad and integrated portfolio of services designed to assist our customers with cost-effective and efficient outsourcing solutions.

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