Methods for dynamic investigations of surface-attached in vitro bacterial and fungal biofilms.

Three dynamic models for the investigation of in vitro biofilm formation are described in this chapter. In the 6-well plate assay presented here, the placing of the plate on a rotating platform provides shear, thereby making the system dynamic with respect to the static microtiter assay. The second reported model, especially suitable for harvesting high amounts of cells for transcriptomic or proteomic investigations, is based on numerous glass beads placed in a flask incubated with shaking on a rotating platform, thus increasing the surface area for biofilm formation. Finally, the flow-cell system, that is the driving model for elucidating the biofilm-forming process in vitro as well as the biofilm tolerance towards antibiotics and host defense components, is illustrated here.

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