The Stovall FlowCell
For On-line Study of Biofilms
STOVALL LIFE SCIENCE offers a variety of hardware elements for biofilm experiments. These include:

- **4-liter effluent container**: Made of clear polycarbonate, autoclavable, with fittings & tubing. It is designed to capture air bubbles released from the flowing culture medium. A fountain spout directs the flow of liquid upward for better release of air. Its design mitigates the undesirable peristaltic pulsation in liquid delivery to the flow cell. The container is illustrated.

- **3 Channel flow cell with tubing and glass cover slip**: Each channel measures 1 mm D x 4 mm W x 40 mm L. Attached & glass cover slip. Covered with a #1 glass cover slip, attached to the cell with acrylic adhesive. The coverslip can be scored & removed for access to the biofilm for further analysis. Each flow cell has three separate growth channels and each channel requires a single pump cassette to supply culture medium. A three outlet manifold disperses medium from the pump to any of the three chambers in the flow cell. The triple chambers of the flow cell are covered with a #1 glass cover slip, attached to the coated glass. A mechanism for virulence activation in the cystic fibrosis lung is also illustrated.

- **Triple cylinder bubble trap with air release cocks**: Located immediately after the pump. It captures air bubbles released from the flowing culture medium. A fountain spout directs the flow of liquid upward for better release of air. The triple cylinder bubble trap is illustrated.

- **Pinch clamps**: To control inoculant movement or to control back flow when sampling effluent.

- **Traditional vs. confocal microscopy**: For study of biofilms. Traditional transmission light microscopy may be used to follow biofilm development. However, as the biofilm thickness increases, methods that can image several planes interspersed by short distances, such as confocal microscopy, are necessary. This can allow reconstruction of virtual three-dimensional images of the biofilm. Confocal microscopy is illustrated.

- **Influent & effluent tubing**: Attached by barbed fittings. Write-on multicolored flags index the tubing at two junctures. A two shelf rolling cart (24" W x 40"L x 33" H) is illustrated. It is designed to accommodate a maximum of 4 flow cells (i.e., 12 growth channels) for a single experiment. A three outlet manifold disperses medium from the pump to any of the three chambers in the flow cell. The triple chambers of the flow cell are covered with a #1 glass cover slip, attached to the coated glass. A mechanism for virulence activation in the cystic fibrosis lung is also illustrated.

- **Effluent Capture**: The coiled excess of tubing in the system is necessary to allow placement of the flow cell on a microscope platform without disturbing the flow of medium to the growth chambers. Our e-mail address is slscience@earthlink.net.

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