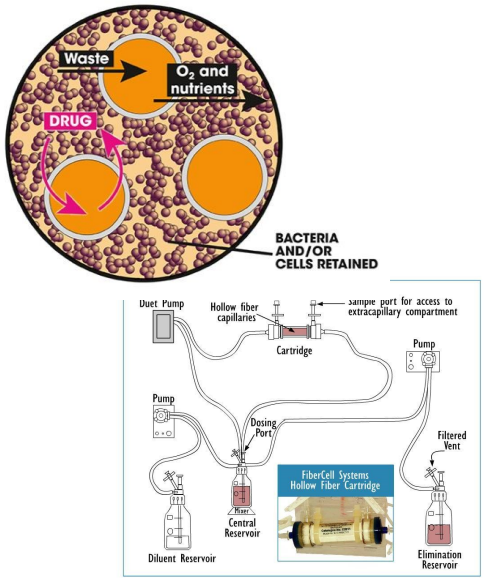
Hollow Fibre Infection Model for Antimicrobial PK/PD

Precisely model human PK and readily assess antimicrobial effects *in vitro*



The 2-compartment hollow fibre system is used in antimicrobial drug R&D for derisking clinical trials and can also be considered as a means to rank candidate drugs. Users can:

- Take multiple samples over long periods (weeks)
- Compare the effects of different dosing regimens
- Retain all microorganisms in test system
- Evaluate total kill
- Study the emergence of resistance
- Co-culture microorganisms and mammalian cells
- Test combinations of drugs

The hollow fibre PK/PD system consists of two compartments:

1. PK compartment: [interior of the hollow fibres] + [central reservoir] + [recirculation loop]
2. Peripheral, PD compartment: [extracapillary space (ECS) of the hollow fibre cartridge] Bacteria are retained by the fibres in a small volume and cannot cross the fibres. Nutrients, waste products and drugs can easily cross the fibres.

The cartridge is connected to a central reservoir in a recirculation loop. Nutrient broth is recirculated by the FiberCell Duet pump. Diluent broth is added to and removed from the circuit by a peristaltic pump at a rate that reproduces the desired half-life. Fast and thorough mixing is very important so the Duet pump is set to recirculate broth at between 50 to 120ml per minute. Drug is delivered upstream of the central reservoir either as a bolus injection or by using an automated syringe. Diagram.

Publications

Many scientific publications describe work based on the use of this system.

System Components

FiberCell Systems Inc. provides the key components of the system : fast-flow Duet Pump (P3202), hollow fibre cartridges (C2011, C3008), autoclavable 5-way reservoir cap and caps for diluent and waste.

KDBIO European distributor for FiberCell Systesms Inc.

FiberCell Systems A BETTER WAY TO GROW CELLS

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