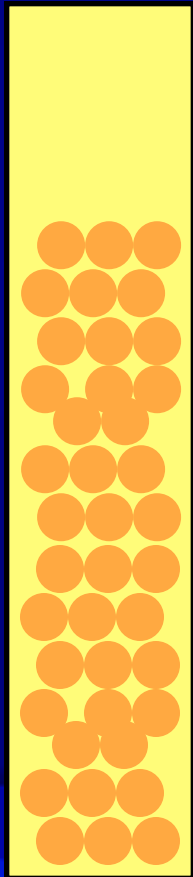


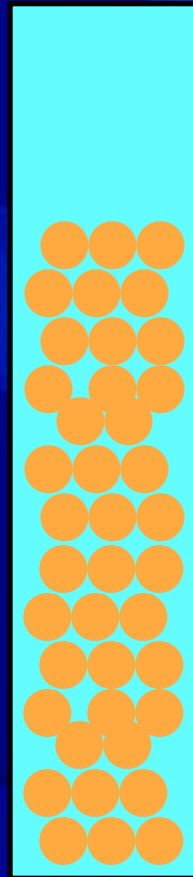
# Expanded Bed Biofilm Reactor Technology

- for biocatalysis of single or multiple reactions with whole cells

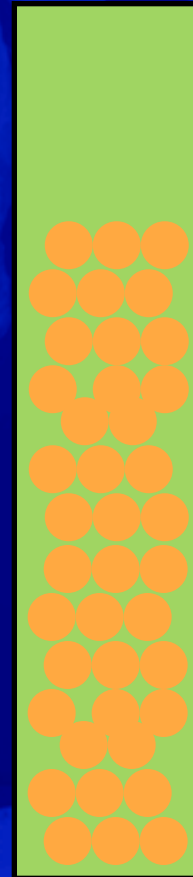
Grow process organisms as biofilm of porous carbon support particles



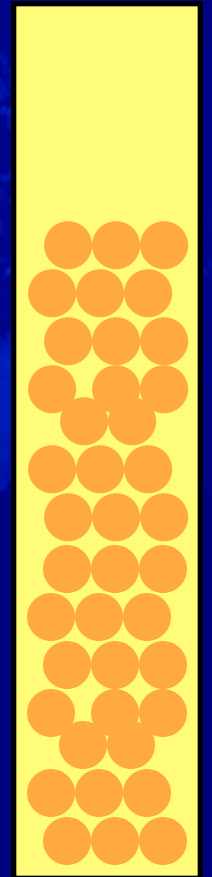
Replace spent growth medium with substrate for conversion



Substrate converted to product



Replace converted substrate with fresh growth medium



# Expanded Bed Biofilm Reactor Technology

- ❖ 10-fold increase in biomass concentration
- ❖ Biomass retained by immobilization on porous carbon support medium (1 mm particles)
- ❖ Biofilm specific surface area of 2,800 m<sup>2</sup>/m<sup>3</sup>
- ❖ Biomass concentration of up to 42 g/L
- ❖ Liquid phase can be replaced whilst leaving biomass *in-situ*
- ❖ MMU has spin-out company to exploit
  - ❖ Advanced Bioprocess Development Ltd
  - ❖ Contact Mike Dempsey ([m.dempsey@mmu.ac.uk](mailto:m.dempsey@mmu.ac.uk)).