

**Enabling High Density Cell Culture and Continuous Processing with XCell™
ATF Systems**

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In use for over 25 years, perfusion is upstream processing which retains cells inside the bioreactor while continually supplying fresh media and removing metabolic byproducts. Because XCell™ ATF technology minimizes cell shear and keeps cells in constant equilibrium with bioreactor contents, faster cell growth and higher densities can be achieved. This results in high cell density perfusion using the same mode of operation as conventional technologies, but with higher productivity. This presentation will highlight different applications for simplifying and intensifying cell culture operations in both fed-batch and perfusion mode to dramatically increase facility output without direct change to the core production process.