Module 5. Case Study 2, Genzyme

**(Shawn Barrett, Associate Director of cell culture technology)**

Continuous biomanufacturing provides many important strategic advantages for the production of protein therapeutics through process integration, simplification and intensification. To achieve upstream process intensification, Sanofi is currently developing robust cell culture processes that can achieve ultra-high cell densities and productivities (“push to high”) while minimizing cell-specific perfusion rates (“push to low”). We have applied ATF perfusion technology and improved the cell culture environment to achieve high cell densities and volumetric productivities with minimal ATF filter fouling. Meanwhile, we have employed high-throughput screening strategies to increase medium depth and reduce medium requirements. We will describe results as well as ongoing efforts to further intensify this continuous cell culture platform and realize even more of its significant upward potential.



Shawn Barrett is an Associate Director in the Commercial Cell Culture Development department at Sanofi Genzyme in Framingham, MA.  He has more than 20 years of experience in the bioprocess industry with expertise in fed-batch and perfusion cell culture process development and scale-up, medium development, bioreactor and facility design, and process control.  Shawn is currently responsible for the optimization and intensification of perfusion processes for the enablement of integrated continuous manufacturing of protein therapeutics.  He received his Bachelors of Applied Science in Chemical Engineering from the University of Waterloo in 1994.