**DEVELOPMENT SERVICES**

› Strain improvement via classical and recombinant methods  
  – Bacterial (actinomycetes, recombinant)  
  – Fungal (molds and yeasts)  
› Preparation of master and working cell banks  
› Inoculum process development  
› Process development and characterization at pilot scale (10 L – 750 L), including process validation  
› Method development  
  – Analytical, Cleaning, Microbial

**CAPABILITIES**

› GMO and non-GMO organisms  
  – Actinomycetes, *E. coli*, Fungi, *Bacillus*, Yeast, GLSP or BSL-1 organisms  
› On-site anaerobic and aerobic waste treatment  
› Solvent storage and recovery  
› Able to meet pharma and food GMO, Halal and Kosher requirements

**COMMERCIAL SERVICES**

› Over 3000 m³ fermentation capability  
  – Scale 10,000 L – 100,000 L working volume  
› Batch and continuous sterilization  
› Dedicated cell bank preparation facility and maintenance with redundant equipment and controls  
› Broad range of downstream unit operations  
  – Broth separation via scroll decanters, microfold disk stack centrifuges, belt filter  
  – Liquid extraction  
  – Concentration via reverse osmosis, thin film evaporation, flash evaporation, mechanic vapor recompression  
  – Purification via chromatography, ion exchange, ultrafiltration, carbon decolorization, crystallization  
  – Reactions for semi-synthetic products  
  – Product isolation via cartridge and depth filtration, filter press, basket centrifuge and filter pot  
  – Drying and bulk packaging via blender dryers, fluid bed dryers, tray dryers, filter dryers, milling and dry blending

*AbbVie Contract Manufacturing offers world-class fermentation capabilities based on more than 60 years’ leadership in fermentation. Your project will benefit from AbbVie's scientific expertise as a leading developer and manufacturer of fermentation processes at our 180-acre facility in North Chicago, Illinois. We bring the same degree of expertise and passion to your project as we do with our own – supporting you from strain improvement through to large-scale manufacturing.*
MANUFACTURING EXCELLENCE

› Class-A certified operation, focused on efficient processing
› Key Performance Index (KPI) monitoring
› Environmental Health and Safety (EH&S) programs to ensure pollution prevention and resource conservation
› Process Analytical Technology (PAT) and process control systems
› Distributed Control Systems (DCS)
› Continuous improvement

CLIENT COMMITMENT

› Reliable supply through established supply and operations planning (S&OP) processes
› Dedicated project management
› New product introduction business process
› Global Chemical Manufacturing Control (CMC) filing support
› Information confidentiality and security via cyber and physical controls

ANALYTICAL SERVICES

Chemistry

› High Performance Liquid Chromatography (HPLC) – reverse phase, normal phase, etc.
› ICP-OES and ICP-MS
› Gas Chromatography (GC) analysis
› GC-MS and LC-MS
› Reference standard & purity characterization
› Spectrophotometry (FT-IR, UV-Vis, GC Mass Spec)
› Wet chemistry (titrations, LOD, pH, heavy metals, etc.)
› Biopotency
› Turn-key stability testing service
› Cleaning method development via LC and TOC
› X-ray diffraction, TGA and DSC
› Optical and electron microscopy
› Surface area and particle size analysis on site
› Specific organism detection
› Microbial identification and limits testing
› Bioburden (AMC / Endotoxin – LAL)
› Environmental testing