康龙化成 PHARMARON

Biologics & CGT

Fast Track to AAV GMP Manufacture

Pharmaron leverages its industry-leading expertise in process R&D, world-class analytics and cGMP manufacture to rapidly advance an AAV product from development to clinical manufacture in as little as 6 months. Pharmaron's multi-serotype platform process allows a fast assessment of a product's fit to the platform, followed by product specific optimisation through use of their adaptive toolbox and high throughput (HTP) robotics leading to a robust scale-up into the GMP facility.

Optimisation using HTP Robotics

Key Features

- Upstream small-scale Ambr®15 cell culture bioreactors
- Downstream Biomek i7 liquid handling robot
- Tiered testing and HTP, low-volume analytics
- DoE and/or mechanistic modelling platforms
- Key starting materials (HEK293 cell line, Rep/Cap and Helper plasmids)

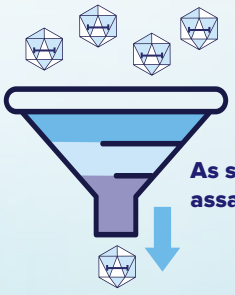
Key Outputs

- Large number of samples assessed using a tiered testing approach and HTP analytics to allow sample prioritisation with reduced time and cost
- Optimal process parameters identified to give a low-impurity, high-yielding process
- Comprehensive data summary and presentation

Key Benefits

- Process optimised for Client's **CQAs**
- **Cost** and **time** effective analysis
- **Fast track** development and scaling to **clinical supply**
- **Robust data** set from DoE and modelling applications provides **assurance for at scale manufacture**

Tiered Testing Approach



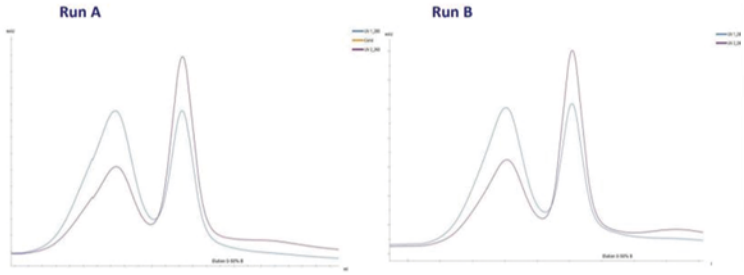
As sample numbers decrease assay complexity increases

pharmaron.com bd@pharmaron.com

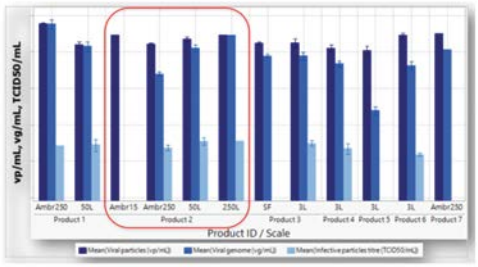
Fast Track to AAV GMP Manufacture

Rapid and Robust Scale-Up

Scale-up is performed at 10L and/or 50L scale to ensure the final Drug Substance (DS), meets the client's critical quality attributes (CQAs). Exemplification at 50L scale in the development laboratories produce DS or Drug Product (DP) for *in vivo* studies (e.g. dose range finding, toxicology), stability studies or analytical reference standard generation.



Comparable chromatography product performance across 2 different scales, demonstrating high repeatability.



Viral production performance across scales, AAV serotypes and products.

GMP Manufacturing

Transfer of the scaled-up process into the cGMP Production facility for completion of engineering batches and/or full commercial GMP batch processing to produce material for Phase I to III clinical trials.

Key Features

- GMP grade starting materials (cell line and plasmids)
- Equipment and software mirrored between development and manufacturing to facilitate scale-up
- Development and Production personnel work collaboratively to produce, Engineering and GMP batches
- Flexibility of scale to meet client's needs
- Phase-appropriate validated GMP release assays to suit stage in product life-cycle
- Full adoption of single-use technologies across scales
- Multi-product facility designed to segregate parallel clinical manufacturing operations

Key Outputs

- **Continuity** of process and analytical **data** across scales
- **Continuity** of personnel between development, tech transfer and GMP to drive consistency of approach
- Quality Assurance and Qualified Person **batch release**
- **Quick** to clinic to beat competitors

Additional Opportunities

- Getting ready for Phase III? These capabilities support Process Characterisation, Scale-down Model Qualification and Process Validation.

康龙化成 PHARMARON

Laboratory Services

Chemistry, Manufacturing & Control

Clinical Development

Biologics & CGT

CGTAAVMul0225v1