Provantage™ Services

Viral Clearance Validation Services

Introduction

As is typical of pharmaceutical manufacturing, the manufacturer is required to validate the effectiveness of virus clearance steps and document adequacy of the manufacturing process to achieve an appropriate level of virus safety. The validation approach is generally modeled after current international regulatory guidelines. The manufacturing process comprises several purification unit operations, some of which contribute to virus removal. Filtration is generally included as a dedicated virus reduction step in most manufacturing processes. This document focuses specifically on virus filter validation.

Virus Filter Validation

The objective of a virus filter validation study is to demonstrate the virus removal capability of the filter being evaluated. Consistent with regulatory guidelines, the validation study informs of two critical process attributes:

1) Level of virus reduction expressed in logs (LRV)
2) Maximum allowable volumetric throughput (L/m^2)

Typical virus validation studies involve challenging scaled-down virus filters with process intermediates into which a known amount of model virus has been added. Filtrate samples are collected and assayed for virus, and log reduction values (LRV) determined by comparing virus loaded with the virus detected in the filtrate.

Successful execution of a virus filter validation results in the maximum claimable LRV (assured process safety) and maximum volumetric throughput (optimized process economics).

Virus filter validations bring together three distinct components, each of which is provided by different parties:

1) The process intermediate – provided by the biologics manufacturer
2) The virus filter – provided by the filter supplier
3) The virus stocks, assays and testing expertise – provided by the testing laboratory

Understanding how each of these components behaves in the context of a virus filter validation is important and has implications to the design and execution of the validation study.

By combining...

1) TrueSpike™ virus preparation technology

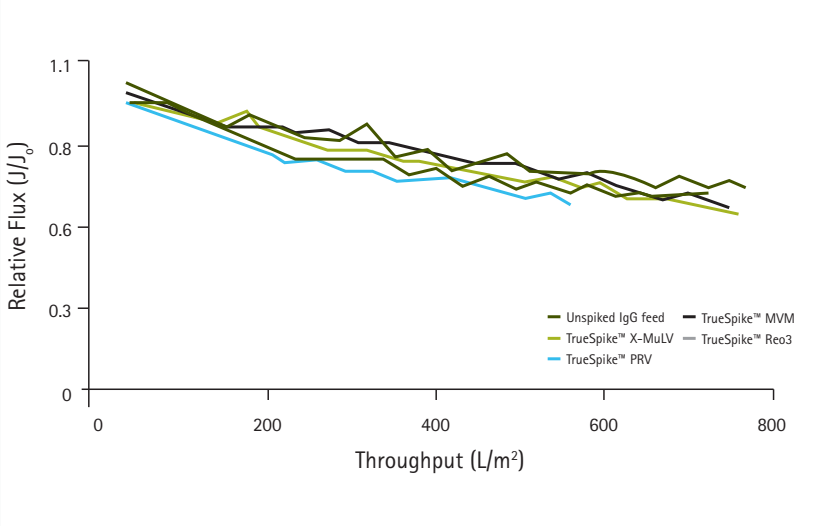
TrueSpike™ High Purity Virus Preparation

Virus spiking can present a challenge because the virus stocks often used contain impurities derived from the cell cultures used to produce them. These impurities can, in some cases, interact with the filter or feed material to dramatically diminish filter performance, reducing throughput and producing results that do not represent the production-scale process. Consequently, insufficiently purified and characterized virus preparations can cause validation failures.

We have developed novel methods that produce highly purified virus stocks that are consistent, high titer, have minimal levels of impurities, and are well characterized. TrueSpike™ High Purity Virus Preparations will ease validation of Viresolve® Pro Solution by minimizing the risk of spike-induced throughput reductions and maximizing consistency of results.

TrueSpike™ High Purity Virus Preparation are available for virus validations of monoclonal and recombinant protein products.

Hydraulic performances of SeraCare IgG (0,1g/L) with TrueSpike™ virus panel and Viresolve® Pro Solution



2) Process engineering to support model

Virus Validation Scale-Down Model - Consulting Services

You benefit from:

- Over 20 years of virus filtration experience
- 60 engineers and scientists on two continents dedicated to supporting process development, validation and scale-up and scale-down model
- Thousands of successful virus filtration process development and validation studies
- Global documentation process and analysis for sharing experience and best practices
- Our engineers will ensure your virus filtration study is correctly implemented using current industry best practices

Our engineers will work closely with you and Charles River experts to:

- Review your product and process-related information to ensure scale-down model validity
- Support the building of your virus filtration protocol
- Support execution of all steps in the virus filtration study as required
- Meet to review Validation Report and formally close the project

3) Virus Filter Expertise

Virus Filter Expertise with Viresolve® Pro Solution

You benefit from:

- Over 20 years virus filter manufacturing experience
- State-of-the-art membrane plant
- Comprehensive validation and performance guides.
- Raising the standard of performance and integrity tests
- Multi-tiered approach to assuring virus filter retention and integrity of virus filters

with:

TrueSpike™ technology produces high purity virus preparations of exceptional quality for filter validation studies

- Highly purified
- High titer
- Identity confirmed
- Monodispersed (minimal aggregates)
- Consistent lot-to-lot
- Well-characterized with accompanying Certificate of Analysis
- Performance tested on Viresolve® Pro Solution

4) Charles River

Charles River's Regulatory and Viral Clearance Expertise

Charles River scientists located in both Europe and the United States have more than 20 years of experience in supporting customers throughout the design and performance of viral clearance studies. Using a customized approach, Charles River experts can provide technical advice and regulatory support to ensure that a successful program is established and reported to meet your timelines. Studies are performed under strict regulatory compliance according to ICH Q5A, FDA Points to Consider and the EMEA Guidelines on Viral Safety Evaluation.

Charles River Viral Clearance Capabilities:

- Two harmonized laboratories, located in the EU and US
- Seven validation suites
- Walk-in cold rooms and cooling cabinets for chromatography systems
- Equipment for client use
- Experienced personnel
- Short turnaround times for final reports
- Immediate release of draft data
- Validated virus assays
- Expertise in removal/inactivation of contaminants

...we will provide our customers with:

- Full virus removal process validation capabilities
- Assured regulatory compliance
- Reduced manufacturing costs

To Place an Order or Receive Technical Assistance

In Europe, please call Customer Service:

France: 0825 045 645
Germany: 01805 045 645
Italy: 848 845 645
Spain: 901 516 645 Option 1
Switzerland: 0848 645 645
United Kingdom: 0870 900 4645

For other countries across Europe, please call: +44 (0) 115 943 0840

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