FROM START TO FINISH: BIOPROCESS WORKFLOW SOLUTIONS
OUR EXPERTISE

Look to us to provide top-quality instrumentation, reagents, and services for your biologics production. We offer an outstanding product selection and the flexibility to meet your specifications.

Take advantage of our:

• Decades of experience in process development for cell culture and protein purification.
• World class reagent and assay development.
• Industry preferred technologies that simplify, automate, and advance protein analysis.
• Proven record of customer satisfaction for bulk supply, custom solutions, and documentation.
• Absolute confidentiality.

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery</td>
<td>3</td>
</tr>
<tr>
<td>Clone Selection</td>
<td>3</td>
</tr>
<tr>
<td>Cell Culture</td>
<td>4</td>
</tr>
<tr>
<td>Process &amp; Product Characterization</td>
<td>4</td>
</tr>
<tr>
<td>Formulation</td>
<td>5</td>
</tr>
<tr>
<td>QC Product Release</td>
<td>5</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>6</td>
</tr>
<tr>
<td>Custom Reagents &amp; Services</td>
<td>7</td>
</tr>
</tbody>
</table>
Speed up your discovery workflow and set yourself up for success with reliable, automated solutions that help you to quickly screen candidates and profile the immune response.

- Rapidly profile the immune response of your candidate therapeutics with ready-to-run and customizable Luminex cytokine panels.
- Get super-fast, high-throughput antibody screening with quantitative results you can rely on by using our Simple Western platforms.
- Thought quantitative identity, purity, and heterogeneity profiles were too time consuming for the discovery stage? Think again – it’s easy with iCE and Maurice.
- Perform longitudinal and dynamic analysis of RNA, DNA and proteins with Exolution Plus.

Whether you’re screening preliminary clones or identifying a production clone, our automated platforms, assays, and reagents let you quickly analyze cell culture samples for the highest yield selection of the optimal bioactive product.

- Confirm molecular weight, protein yield and product quality with no purification steps and low sample volumes – even with complex mixtures! Say hello to Simple Western – one machine can do it all!
- Want to analyze safety, purity, and potency profiles with lightning speed? Check out our automated solutions from Simple Western.
- Get more data with less effort! Meet Milo from Simple Western – he’ll confirm monoclonality of 1,000 cells at single cell resolution.
- Be confident you’ve got the right clone with sequence-guided identification from Exosome Diagnostics – offering cutting edge exosome isolation and analysis services.
- Recombinant Proteins- Unlabeled and Avi-Tag proteins for antibody screening

Normal and SLE patient serum samples were diluted 1:10 in Antibody Diluent 2 and introduced in the primary incubation step to capillaries already immobilized with known lupus antigens. Neither patient had autoantibodies for PCNA (top left) while both had equivalent amounts of U1-snRNP A (bottom right). Only the SLE patient had Ro/SS-A autoantibodies (top right), and the SLE patient also had 40X more U1-snRNP 68/70 compared to the normal patient (bottom left).
Rapidly optimize your cell culture conditions and give your production clone the right supplements to perform at its best. Treat it to our growth and production-enhancing, GMP-grade cytokines, growth factors, and small molecules - and rapidly screen for the best conditions.

- Simplify and speed-up your cell culture optimization using Simple Western’s automated platforms that give you quantitative results in just a few hours.
- Get identity, purity and charge heterogeneity profiles in just 15 minutes per sample with Biologic’s fully automated iCE - Maurice range.
- Quickly and easily purify membrane bound proteins, DNA and RNA to assess the growth and function of your cell culture media with Exosome Diagnostics.

Keep a sharp eye on yield and quality with our rigorous, reliable and fully-integrated activity assay solutions and expert support. You’ll get in-depth activity, identity, and purity results without the hassle of long and complicated workflows.

- Confirming antibody specificity with precision, recovery, linearity and sensitivity is made easy with tailored and optimised Quantikine ELISA kits – the most referenced ELISA kits on the market!
- Save your time, money and sample when profiling the immune response by using Luminex solutions – the data quality of ELISA and qPCR but with greater efficiency and throughput.
- Detect and quantify protein A impurity with a simple 1-step sample pre-treatment assay.
- If measuring protein impurities is taking up your time and delivering inconsistent results, discover Ella from Protein Simple – your fully automated platform with sub-picogram sensitivity and 4+ logs of dynamic range.
- Does your antibody show the right binding? Find out with our extensive range of Fc receptor proteins, Fc receptor antibodies and antibody-protein pairs.
- Monitor the critical epitopes of your therapeutic monoclonals with our custom anti-IDs.
- Need to measure the bioactivity of your biologic? From enzyme activity to proliferation, cytokine induction and much, much more – our cell and enzyme-based assays have got you covered.
- No matter your need – we’ve got the enzyme. Check out our extensive range of fully-scalable, high-quality enzymes with lot-to-lot consistency.
- Monitor your cell processes by non-invasive methods – Exosome Diagnostics can get you DNA, RNA, and proteins directly from your cell media or biofluid.
- Quick, reproducible and sensitive contaminant profiles are possible with Simple Western platforms – did we mention you can use as little as 3μL of sample?
- If you need identity, purity and heterogeneity profiles fast – look no further. Maurice and iCE3 can deliver reproducible and quantitative data in less than 15 minutes per sample.

Simple Western measurement of protein expression in cell culture. (A) Gel image of standard curve (lanes 1-5) and samples (lanes 6-11); Electropherograms of standard curve (B) and samples (C), Linearity of standard curve (D) and protein correlation with traditional RP-HPLC (E).
Make formulation a breeze, sail through stress testing and be confident about compliance with our high-throughput and automated solutions.

- Find the best buffer to keep your protein stable in a flash with Maurice – he’s automated, fluent in cIEF and CE-SDS and can run up to 100 samples at once!
- Detection of translucent aggregates in the sub-visible range can affect your stability. Catch them quickly with the MFI 5000 Series.
- Keep the effect of buffer composition on your proteins and charge variants under surveillance with automated western blots by Simple Western – there’s no need for sample clean-up even for high salt or low concentration samples.
- Check your cells are behaving in your optimized formulation. Exosome Diagnostics gives you proteins, DNA and RNA directly from your media.

Screening of monoclonal antibody protein charge variants during formulation development using Simple Western charge assays. Comparison of sample stability formulated in buffers pH 4.0–9.0; low salt (A) and high salt (B) buffers at pH 7.0. One full 96-well plate was analyzed in one run.

Rely on our robust and 21 CFR Part 11-compliant instrument platforms. They’ll demonstrate the integrity of your product, confirm that residual contaminants are within regulatory limits and get you across the finish line!

- Charge variant analysis for your final QCs is fast, consistent and 21 CFR Part 11 compliant when run on Maurice or iCE3.
- Get a CE-SDS profile with the ability to follow proteins and contaminants with Maurice – he’ll deliver a 10-minute set-up and process up to 100 samples, automatically.
- Automate your contaminant screening, detect co-migrating proteins and get molecular weight information
- Automate your host cell protein quantification with Ella.
- Never miss an aggregate again with the MFI 5000 series. It will provide you with the size, count and shape of sub-visible particles (1 μm to 300 μm) and discriminate between proteinaceous and non-protein particles, all while remaining 21 CFR Part 11 compliant.
- Functionality and media analysis straight from your cell media from Exosome Diagnostics.

MFI differentiates between translucent protein aggregates and darker silicon oil and air bubbles based on image intensity.
INSTRUMENTATION
For more information about instrumentation:

Simple Western™ Systems
bio-techne.com/instruments/simple-western

Single-Cell Western
bio-techne.com/instruments/single-cell-western

iCE™ Systems
bio-techne.com/instruments/ice

Micro-Flow Imaging™
bio-techne.com/instruments/micro-flow-imaging

Simple Plex™
bio-techne.com/instruments/simple-plex
CUSTOM REAGENTS & SERVICES

For more information about custom reagents and services:

Custom Reagents & Contract Services
bio-techne.com/services

Custom Cell Culture Media Manufacturing and Services
rndsystems.com/custom-media

Custom Chemistry Services
tocris.com/custom-synthesis

Bioactivity Testing Services
rndsystems.com/custom-bioassays

GMP-grade Proteins
bio-techne.com/gmp-products/gmp-proteins

Antibody Custom Services
bio-techne.com/services/custom-antibody-services

Exosome Diagnostics Services
exosomedx.com

In situ Hybridisation Assays
bio-techne.com/reagents/rnascope-ish-technology
Bio-Techne and its family of world-class brands offer an unbeatable array of analytical instrumentation, premium reagents and assays, and custom services. We are committed to supporting the entire Bioprocessing workflow from clone selection through final product characterization.