## Contents

<table>
<thead>
<tr>
<th>1</th>
<th>Affinity LIGANDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analytical Techniques</td>
</tr>
<tr>
<td>1</td>
<td>Antisense Technology</td>
</tr>
<tr>
<td>1</td>
<td>Aseptic Processing</td>
</tr>
<tr>
<td>1</td>
<td>Automation</td>
</tr>
<tr>
<td>1</td>
<td>Biopreservation</td>
</tr>
<tr>
<td>1</td>
<td>Biosensors</td>
</tr>
<tr>
<td>1</td>
<td>Biotechnology Basics</td>
</tr>
<tr>
<td>2</td>
<td>Business Issues</td>
</tr>
<tr>
<td>2</td>
<td>Cell Growth and Viability</td>
</tr>
<tr>
<td>2</td>
<td>Cell Harvesting</td>
</tr>
<tr>
<td>2</td>
<td>Chromatography</td>
</tr>
<tr>
<td>3</td>
<td>Clean-In-Place Systems, Clean rooms</td>
</tr>
<tr>
<td>3</td>
<td>Computers: Hardware and Software</td>
</tr>
<tr>
<td>3</td>
<td>Contamination Control</td>
</tr>
<tr>
<td>4</td>
<td>Contract Services</td>
</tr>
<tr>
<td>5</td>
<td>Controlled Environments</td>
</tr>
<tr>
<td>5</td>
<td>DNA Assay Methods</td>
</tr>
<tr>
<td>5</td>
<td>Documentation</td>
</tr>
<tr>
<td>5</td>
<td>Downstream Processing</td>
</tr>
<tr>
<td>5</td>
<td>Drug Discovery</td>
</tr>
<tr>
<td>5</td>
<td>Drug Formulation and Delivery</td>
</tr>
<tr>
<td>6</td>
<td>Education and Training</td>
</tr>
<tr>
<td>6</td>
<td>Emerging Technologies</td>
</tr>
<tr>
<td>6</td>
<td>Environmental Issues</td>
</tr>
<tr>
<td>6</td>
<td>Enzymes</td>
</tr>
<tr>
<td>6</td>
<td>European Economic Community</td>
</tr>
<tr>
<td>6</td>
<td>Expression Systems</td>
</tr>
<tr>
<td>6</td>
<td>Facility Design and Construction</td>
</tr>
<tr>
<td>7</td>
<td>Filtration</td>
</tr>
<tr>
<td>7</td>
<td>Financial Strategies</td>
</tr>
<tr>
<td>7</td>
<td>Gene Therapy</td>
</tr>
<tr>
<td>7</td>
<td>Good Laboratory Practices</td>
</tr>
<tr>
<td>7</td>
<td>Good Manufacturing Practices</td>
</tr>
<tr>
<td>8</td>
<td>Government Policies</td>
</tr>
<tr>
<td>8</td>
<td>Intellectual Property Rights</td>
</tr>
<tr>
<td>8</td>
<td>International Business</td>
</tr>
<tr>
<td>8</td>
<td>Investigational New Drug Applications</td>
</tr>
<tr>
<td>8</td>
<td>Legal Issues</td>
</tr>
<tr>
<td>8</td>
<td>Legislation</td>
</tr>
<tr>
<td>9</td>
<td>Mammalian Cell Culture</td>
</tr>
<tr>
<td>9</td>
<td>Media</td>
</tr>
<tr>
<td>9</td>
<td>Microbial Fermentation</td>
</tr>
<tr>
<td>9</td>
<td>Monoclonal Antibodies</td>
</tr>
<tr>
<td>9</td>
<td>Monoclonal Antibodies Recovery</td>
</tr>
<tr>
<td>9</td>
<td>New Drug Applications</td>
</tr>
<tr>
<td>9</td>
<td>Oligonucleotides</td>
</tr>
<tr>
<td>9</td>
<td>Patents</td>
</tr>
<tr>
<td>10</td>
<td>Personnel Issues</td>
</tr>
<tr>
<td>10</td>
<td>Plant Biotechnology</td>
</tr>
<tr>
<td>10</td>
<td>Posttranslational Processing</td>
</tr>
<tr>
<td>10</td>
<td>Process Automation</td>
</tr>
<tr>
<td>10</td>
<td>Process Control/Monitoring</td>
</tr>
<tr>
<td>10</td>
<td>Protein Denaturation</td>
</tr>
<tr>
<td>11</td>
<td>Protein Folding</td>
</tr>
<tr>
<td>11</td>
<td>Protein Precipitation</td>
</tr>
<tr>
<td>11</td>
<td>Protein/Polypeptide Recovery</td>
</tr>
<tr>
<td>11</td>
<td>QA/QC</td>
</tr>
<tr>
<td>12</td>
<td>Regulatory Issues</td>
</tr>
<tr>
<td>13</td>
<td>Scale-Up Strategies</td>
</tr>
<tr>
<td>13</td>
<td>Separation and Purification</td>
</tr>
<tr>
<td>14</td>
<td>Sera and Serum Substitute</td>
</tr>
<tr>
<td>14</td>
<td>Standard Operating Procedures</td>
</tr>
<tr>
<td>14</td>
<td>Statistics</td>
</tr>
<tr>
<td>14</td>
<td>Transgenics</td>
</tr>
<tr>
<td>14</td>
<td>Validation</td>
</tr>
<tr>
<td>15</td>
<td>Viral Inactivation</td>
</tr>
<tr>
<td>16</td>
<td>Business Matters</td>
</tr>
<tr>
<td>16</td>
<td>GMP Issues</td>
</tr>
<tr>
<td>16</td>
<td>Inside Washington</td>
</tr>
<tr>
<td>16</td>
<td>Managing Your Career</td>
</tr>
<tr>
<td>17</td>
<td>Outsourcing Outlook</td>
</tr>
<tr>
<td>17</td>
<td>Patent Law You Can Use</td>
</tr>
<tr>
<td>17</td>
<td>Regulatory Affairs</td>
</tr>
<tr>
<td>18</td>
<td>Your Vested Interests</td>
</tr>
<tr>
<td>18</td>
<td>Analytical Advances</td>
</tr>
<tr>
<td>18</td>
<td>Guest Editorial</td>
</tr>
<tr>
<td>18</td>
<td>Travel Notes</td>
</tr>
<tr>
<td>18</td>
<td>Viewpoints</td>
</tr>
</tbody>
</table>
## BioPharm International*  
### Article Index (1998–2002)

<table>
<thead>
<tr>
<th><strong>Affinity Ligands</strong></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Analytical Techniques</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Molecular Beacons to Quantify Low Levels of Type I Endonuclease Activity. R.J. Strouse et al. April 2000, pp. 40-47.</td>
<td><strong>Aseptic Processing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Biosensors</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*The Index covers the period from January 1998 through December 2002. The publication was known as BioPharm until the November 2002 issue when it became known as BioPharm International.*


In Their Own Words: Five Executives on Success in the Industry. C.J. Steffy, June 2001, pp. 52–58.


Chromatography

Affinity Chromatography is Vital to Protein Research and Development. J.M. Curling, October 2001, pp. 51–52.


Ion-Exchange Displacement Chromatography: Scale-Up and Displacer Clearance for Recombinant Human Brain-Derived Neurotrophic Factor (HR3BDNF). K.A. Barnthouse, W. Trompeter, September 1999, pp. 35–44.


Regulatory Aspects of Column Chromatography in Biopharmaceutical Manufacturing:

Computers: Hardware and Software

Qualification of Network Components and Validation of Networked Systems. L. Huber, R. Budihandjo, October 2001, pp. 18–26, 46.
Simplifying Pharmacologic Analysis with Programmable Scientific Software.


Contamination Control


Clean-In-Place Systems, Cleanrooms


**Contract Services**


Biotech Financial Markets are Hot, but . . . a Maturing Pipeline is the Key Driver of Contract Services for Biotech Companies. J. Miller, L. Perry, February 2001, pp. 22–24.


Controlled Environments


DNA Assay Methods


Strategies for Host Cell Protein Analysis. K. Hoffman, May 2000, pp. 38–45

Using Molecular Beacons to Quantify Low Levels of Type I Endonuclease Activity. R.J. Strouse et al., April 2000, pp. 40–47


Documentation


Downstream Processing


Using Molecular Beacons to Quantify Low Levels of Type I Endonuclease Activity. R.J. Strouse et al., April 2000, pp. 40–47.

Drug Discovery


Designs for Bioassays with Plate Location Effects. B. Schlain et al., November 2001, pp. 40–44.


Drug Formulation and Delivery


Education and Training


Emerging Technologies


Enzymes

European Economic Community

European Union (EU)

Expression Systems

Facility Design and Construction

Filtration

Financial Strategies
Biotech Financial Markets are Hot, but . . . a Maturing Pipeline is the Key Driver of Contract Services for Biotech Companies. J. Miller, L. Perry, February 2001, pp. 22–24.
In Their Own Words: Five Executives on Success in the Industry. C.J. Steffy, June 2001, pp. 52–58.


**Gene Therapy**


**Good Manufacturing Practices**


**BioPharm International**


Replacing the Animal Component in Serum:
Evaluating Raw Materials for Inclusion in Optimized Hybridoma Media.

Media


Replacing the Animal Component in Serum:
Evaluating Raw Materials for Inclusion in Optimized Hybridoma Media.

Microbial Fermentation


Monoclonal Antibodies (MAbs)


Replacing the Animal Component in Serum:
Evaluating Raw Materials for Inclusion in Optimized Hybridoma Media.

Monoclonal Antibody Recovery

Large-Scale Production of a Monoclonal IgM in a Hybridoma Suspension Culture. M.A. Cacciuttolo et al., April 1998, pp. 20–27.

New Drug Applications


Oligonucleotides


Patents


ARTICLE INDEX


**Personnel Issues**


**Plant Biotechnology**


**Posttranslational Processing**

**Pichia pastoris**: A Eukaryotic System for the Large-Scale Production of Biopharmaceuticals. C. Dale, A. Allen, S. Fogerty, November 1999, pp. 36–42.

**Process Automation**


**Process Control/Monitoring**

Designs for Bioassays with Plate Location Effects. B. Schlain et al., November 2001, pp. 40–44.  
Effect of Heat Treatment on Four Viruses Inoculated into BSA and Bovine Transferrin Solution. Z.M. Plavsic, June 2000, pp. 54–56.  

**Protein Denaturation**

Large-Scale Cryopreservation of Cells, Cell Components, and Biological Solutions.

**Protein Folding**

**Protein Precipitation**

**Protein/Polypeptide Recovery**

**QA/QC**
Designs for Bioassays with Plate Location Effects. B. Schlain et al., November 2001, pp. 40–44.
Tutorial: In Search of Standardized Definitions for Validation, Qualification, Verification, and Calibration. L. Huber, April 1999, pp. 56–58.


**Regulatory Issues**


FDA and the Promise of FDAMA. L.A. Suydam, August 1999, pp. 43–45.


Validation of Large-Scale Chromatographic Processes: Part 2, Results from the Case Study of Neulure Capture on Macroprep High-S. T.N. Breece, E. Gilkerson, C. Schmelzer, July 2002, pp. 35–42.

Sera and Serum Substitutes


Effect of Heat Treatment on Four Viruses Inoculated into BSA and Bovine Transferrin Solution. Z.M. Plavsic, June 2000, pp. 54–56.


Standard Operating Procedures


Statistics


Transgenics


Validation


Designs for Bioassays with Plate Location Effects. B. Schlain et al., November 2001, pp. 40–44.


Effect of Heat Treatment on Four Viruses Inoculated into BSA and Bovine Transferrin Solution. Z.M. Plavsic, June 2000, pp. 54–56.


Multiuse Chromatography System: A Clean-in-
Qualification of Network Components and Validation of Networked Systems. L. Huber, R. Budihandjo, October 2001, pp. 18–26, 46.
Tutorial: In Search of Standardized Definitions for Validation, Qualification, Verification, and Calibration. L. Huber, April 1999, pp. 56–58.
Validation of Large-Scale Chromatographic Processes: Part 2, Results from the Case Study of Neuleze Capture on Macroprep High-S. T.N. Breece, E. Gilkerson, July 2002, pp. 35–42.

**Viral Inactivation**

Effect of Heat Treatment on Four Viruses Inoculated into BSA and Bovine Transferrin Solution. Z.M. Plavsic, June 2000, pp. 54–56.
**Column: Business Matters**


**Column: GMP Issues**


The Forgotten GLPs. B. Immel, April 1999, pp. 40–43.

**Column: Inside Washington**


Biologics, CTDs, and BSE. J. Wechsler, May 2001, pp. 60–64.


Biotechnology Benefits from Antibioterrorism Funding. J. Wechsler, April 2002, pp. 52–58.


FDAMA Reshapes FDA. J. Wechsler, April 1999, pp. 12–16.


**Column: Managing Your Career**


**Column: Patent Law**


**Column: Regulatory Affairs**


**Column: Your Vested Interests**


Sector Spotlight: Molecular Evolution Companies. B.H. Rudolph, June 2001, pp. 73, 75.


**Department: Analytical Advances**


Affinity Chromatography is Vital to Protein Research and Development. J.M. Curling, October 2001, pp. 51–52.


**Department: Guest Editorial**

Back to the Beginning. S. Schuber, November 2002, pp. 82.

Quality Agreements with Contract Laboratories (Creating Documents that Meet GMPs and Make Good Business Sense). R. Blasini, August 2002, pp. 66.


**Department: Travel Notes**


**Department: Viewpoint**


