



2005 Fall Purchasing Report

Biocompare Surveys and Reports
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Report Introduction

The 2005 Fall Purchasing Report is composed of a life science purchasing market overview and an introduction to the 2005 Fall Purchasing Survey as well as the survey results which are comprised of researcher budgetary information, their purchasing plans for products, the general technology areas in which these purchases are likely to occur, as well as where product information is obtained for informed decision making. The report will also include a comprehensive discussion of the survey results, and conclusions and recommendations drawn from both market analysis and the survey data. The market overview delves into projected federal funding for life science research and past trends for expected budgets. While the National Institutes of Health has requested a \$28.74 billion budget for fiscal year 2006, this slight 0.5% increase over the 2005 budget represents a fraction of the expected inflation level of 3.2% for biomedical research and development (R&D). Pharmaceutical and biotechnology companies appear to have increased R&D spending at a rate of about 12-15% over the past 2 years, fueled in large part by a growth in the vast amount of data emerging from genomics and proteomics applications in the search for new drug targets. Other research areas that are seeing specific increases in funding attention are biodefense and stem cell research. These areas, while political hotbeds, are magnets for some of the most progressive and cutting-edge scientific minds today. In addition, resources have increased as well for bioinformatics, based again on the immense quantities of data generated. Most purchases in this area are predicted to include software and database and data mining applications.

Market Overview

Advanced research supplies and equipment are now providing investigational capabilities that are forcing open the doors to the cellular and molecular worlds. Automated devices, sophisticated reagents and convenient kits are just a few of the technologies that are generating an unprecedented level of momentum in life science research. For pharmaceutical and biotechnology companies these tools are often seen as a critical part of their research workflow. But in the academic research market, sales of these new tools, which often come with hefty price tags, depend upon the level of funding from public and private sources and the specific subject areas they choose to support.

As the most generous source of federal funding, the budget of the National Institutes of Health heavily influences the purchasing power of academic biomedical researchers. For the fiscal year 2006, the NIH has requested a budget of \$28.74 billion, according to the NIH Office of Communications. The request represents an increase of 0.5% over the 2005 budget, which is "significantly below projected levels of biomedical research and development inflation (estimated at 3.2% for FY 2006 alone)," wrote John Edward Porter in a commentary recently published in the *Journal of the American Medical Association*, which devoted its September 21, 2005 issue to highlighting the current state of biomedical research.¹ Porter served as chairman of the Subcommittee on Labor, Health, Human Services and Education of the Appropriations Committee during his 21 years as a congressman from Illinois' 10th district. The shortfall is expected to continue as the "investment in NIH R&D will decrease by 5.8% over FYs 2005 through 2009," he wrote.

The 2006 budget provides an additional \$56 million to support 247 more research grants as the NIH strives "to preserve to the greatest extent possible the ability of scientists to obtain individual support, a critical goal," according to the budget request statement of NIH director Elias A. Zerhouni, MD. The four other areas of priority include the multi-year initiative Roadmap for Medical Research, biodefense, the Neuroscience Blueprint and development of a vaccine to protect against HIV/AIDS. A study published in the same issue of *JAMA* indicated that the Department of Defense is the second largest source of funds for biomedical research, followed by the Department of Agriculture, the National Science Foundation and the Department of Energy.²

Efforts by the NIH to fulfill the high-tech needs of researchers are evident through special grants such as the High-End Instrumentation Grant Program.³ Since 2002, the National Center for Research Resources has earmarked \$18 million for the purchase of high-end instrumentation. The one-time grants are to be used for "new state-of-the-art equipment required to advance biomedical research," according to an NIH statement that announced the 11 grantees for 2005. The price of the devices must be at least \$750,000 and not more than \$2 million each.

Despite financial challenges on the federal level, total financial support for biomedical research in the United States has "nearly doubled from \$47.8 billion in 1994 to \$94.3 billion in 2003," according to the study in *JAMA*.⁴ While the NIH now provides 28% of all funds, making it the second largest financial supporter, "industry support from pharmaceutical, biotechnology and medical devices firms account for the majority (57%)," the authors wrote. Porter wrote, "US R&D investment from all sources was larger than the total R&D expenditures of Japan and larger than the entire European Union combined. The United States spent 38% of the world R&D..."⁵

The latest trends indicate that such strong support from the private sector is growing as vast stores of information emerging from efforts in genomics and proteomics fuel the search for new drug targets. Total funding from industry "increased 102% from \$26.8 billion in 1994 to an inflation-adjusted \$54.1 billion in 2003," the *JAMA* study reported.⁶ The study found that pharmaceutical companies funded \$30.6 billion worth of biomedical research in 2004.⁷ During the same year, biotechnology firms provided financial resources of \$19.8 billion, while medical device firms were the source of \$10.8 billion.⁸

In 2004, pharmaceutical and biotechnology companies together spent \$49.3 billion on research and development efforts, according to a publication by the Pharmaceutical Research and Manufacturers of America (PhRMA), "Pharmaceutical Industry Profile 2005". By themselves, members of PhRMA, which consist of the pharmaceutical companies and the larger and more mature biotechnology companies, invested \$38.8 billion, representing a 12.6% increase over the previous year.⁹ In 2003, PhRMA members companies spent 38% of their research budget on basic and applied research, which includes efforts in uncovering the fundamental causes of disease and the evaluation of drug candidates in the laboratory.¹⁰

Market Overview (cont'd.)

Biotechnology companies spent 15.7% more on R&D in 2004 than in 2003, according to the "2005 Global Biotechnology Report," published by consulting company Ernst and Young.¹¹ Raising \$17 billion in capital in 2004, biotechnology in the US reported a banner year, second only to the amount raised in 2000, according to Ernst & Young's report.¹² Venture capitalists also favored biotechnology by infusing the industry with an all-time high of \$3.6 billion. The amount translates into 21% of all venture capital in 2004.

"Biotech's infamous boom-and-bust financing cycles may well be a thing of the past," said Ernst & Young's biotechnology director Mike Hildreth in a statement.

Among research areas receiving particular focus is biodefense. The NIH budget for 2006 calls for a 7.5% increase to a total of \$1.74 billion, according to the NIH director's statement. "Biodefense research will likely have growing importance," indicated the study published in JAMA's special September issue.¹³ The Ernst & Young report indicated that "the Department of Health and Human Services' spending on biodefense increased almost fourteen-fold between 2001 and 2005, from \$271 million to just over \$4 billion."¹⁴ The Bioshield Act of 2004 earmarked \$5.6 billion for building a national stockpile of countermeasures against five high-priority pathogens: anthrax, smallpox, plague, botulism and Ebola.¹⁵

Stem cell research is experiencing a renaissance in the US after several states approved funding initiatives. California leads the pack with voters approving \$3 billion for 10 years, according to Ernst & Young's report.¹⁶ Voters in Illinois approved \$1 billion for 10 years while Maryland is using tobacco settlement funds to spend \$23 million annually on stem cell research starting in 2007.

In general, biomedical researchers are also putting resources into information technology. According to a report by market research firm Life Science Insights, "life science organizations expect an average 4.6% increase in their IT spending over the next 12 months."¹⁷ Released during the first quarter of 2005, the report forecasts that spending for IT in basic research alone will increase by 7.5%. Most purchases will involve security solutions and software for research applications, database, data mining and data integration.

1. J.E. Porter, "Federal Funding and Supportive Policies for Research," *Journal of the American Medical Association*, 294(11):1385-1389, Sept. 21, 2005.

2. M. Hamilton III et al., "Financial Anatomy of Biomedical Research," *Journal of the American Medical Association*, 294(11):1333-1341, Sept. 21, 2005.

3. National Center for Research Resources, <http://www.ncrr.nih.gov/biotech/btheinstr.asp>

4. M. Hamilton III et al.

5. J.E. Porter.

6. M. Hamilton III et al.

7. *Ibid.*

8. *Ibid.*

9. Pharmaceutical Research and Manufacturers of America, *Pharmaceutical Industry Profile 2005* (Washington, D.C.: PhRMA), March 2005.

10. *Ibid.*

11. Ernst & Young, *2005 Global Biotechnology Report*, (San Francisco, Calif.: Ernst & Young), June 2005.

12. *Ibid.*

13. M. Hamilton III et al.

14. Ernst & Young.

15. *Ibid.*

16. *Ibid.*

17. Life Science Insights, *1Q05 Leading Indicators in Life Science IT*, (Framingham, Mass.: Life Science Insights), July 2005.

Survey Introduction

The 2005 Fall Purchasing Survey is designed to provide life science vendors with information about the purchasing plans of researchers, their budgets, and an overview of the process of how product purchases are made. Data were gathered from questions regarding researcher budgets, future purchasing plans, currently used technology and techniques, plans for new technology integration into the laboratory, where product information is obtained before purchasing decisions are made, and factors that influence those decisions. With this information, suppliers will be better able to focus their marketing and advertising campaigns in specific technological areas, as well as direct customer attention to their specific product material. A more thorough understanding of researcher budgets and discretionary spending will permit companies to plan realistic goals for their own sales forecasts and growth in product market share.

The 2005 Fall Purchasing Survey consisted of 24 questions. Of these, 1 was open-ended and 9 of the closed-ended questions included "other" as an answer choice, providing an opportunity for survey participants to specify and elaborate their answers. Demographic information was gathered from 5 additional questions and from addresses submitted by survey responders. The survey was administered on-line from October 17th-21st, 2005, and the data tabulated and presented here.

Conclusions and Recommendations

The data gathered from the 2005 Fall Purchasing Survey indicate that life science researchers are making changes to their purchasing decisions based on budgetary concerns. Fewer are attending conferences and almost all are thoroughly researching products prior to purchase. Purchasing trends are similar to survey results from 2004 but vendors will need to contend with fierce competition for the perceived shortfall in research dollars. Fewer researchers are willing to try new techniques in their laboratories. Of those who plan to do so, RNA/siRNA has surpassed real-time PCR over last year's results, consistent with the upsurge of interest in this research area. Since nearly all laboratory purchases are investigated on-line, suppliers may wish to refocus marketing and advertising strategies on web-based campaigns and email product alerts.

As technology becomes more sophisticated, momentum for scientific research increases, depending critically on both public and private funding to subsidize these exciting new tools for future scientific investigation. Even with predicted increases in federal funding, these projections fall short of covering the effects of inflation, making every research dollar of vital importance. Such shortfalls are predicted to factor into purchasing decisions over the next 4-5 years.

While more money has been allocated for high-end instrumentation, most academic researchers are planning more modest purchases in order to stretch research funds. Industry R&D groups have deeper pockets and can maintain double-digit increases in basic and applied research spending, including purchases in areas of drug discovery and development. Even smaller-scale biotechnology companies are receiving venture capital funding at record-high levels, infusing life into the competitive bioscience market.

Well-researched purchasing decisions will allow scientists to stay out of the red in terms of their budgetary spending. Vendors should heed the call to make product information increasingly accessible where their customers are searching for it. Such business savvy will boost supplier market share and enhance customer satisfaction.

Appendix I: Questionnaire

In what type of institution do you work?

- Private Research
- Government
- Biotech
- Pharmaceutical
- Clinical Diagnostic Testing
- Academic
- Other

Which title best applies?

- Professor/Instructor
- Process Engineer
- Business Development Director/Manager
- Research Director/VP of Research
- Department Head
- Technician/Research Assistant
- Account Manager
- Graduate Student
- Staff Scientist
- Principal Investigator
- President/CEO/Owner/VP
- Lab Director/Chief Scientist
- Postdoctoral Fellow
- Procurement Manager
- Consultant
- Other

Which best describes your purchasing authority?

- Authorize
- Recommend
- Evaluate
- No Purchase Role

What is your principle area of research or work? (check all that apply)

- Bioinformatics
- Microbiology/Virology
- Immunology
- Genomics/Genetics
- Bioengineering
- Neuroscience
- Cell Biology
- Diagnostics/Pathology
- Drug Discovery
- Administration
- Proteomics
- Purchasing
- Biochemistry
- Marketing/Sales
- Pharmacology/Toxicology
- Molecular Biology
- None of the Above
- Other (please specify)

Will your laboratory budget increase or decrease for 2006?

- Increase
- Decrease
- Stay the same

Please estimate how much your laboratory budget will increase (or decrease) in 2006?

- 1 – 10%
- 11 – 20%
- 21 – 30%
- More than 30%

Do you research products when planning your laboratory budget?

- Yes
- No

What techniques or technologies do you currently use in your lab? (check all that apply)

- | | | |
|---------------------------------------|------------------------------------|--|
| - Capillary Electrophoresis | - Gene Targeting | - Protein-DNA Interaction Analysis |
| - Gene Transfer | - Electrophoresis | - Protein-Protein Interaction Analysis |
| - Real-time PCR | - Vector Design/Construction | - Cell/Tissue Culture |
| - Nucleic Acid Labeling and Detection | - Laser Capture Microdissection | - SNP Analysis |
| - Protein Sequence Analysis | - Mutagenesis | - DNA Microarrays |
| - RNA Isolation & Purification | - Nucleic Acid Hybridization | - Image Analysis |
| - Mass Spectrometry | - Gene Expression Analysis | - RNAi/siRNA |
| - Recombinant Protein Expression | - Nucleic Acid Sequence Analysis | - Microscopy |
| - Chromatography | - High-Throughput Screening | - Spectroscopy |
| - Nucleic Acid Synthesis | - PCR/RT-PCR | - Antibody-based Technologies |
| - Microarray Analysis | - Protein Isolation & Purification | - 2D Electrophoresis |
| - Robotics/Automation | - Protein Microarrays | - Other (please specify) |
| - DNA Isolation & Purification | - Crystallization | |

How much do you have budgeted for new lab equipment in 2006?

- \$0 – 50,000
- \$50,001 – 100,000
- \$100,001 – 500,000
- \$500,001 – 1,000,000
- >\$1,000,000

Which of the following equipment/systems do you plan to purchase and when? (check all that apply)

- Within 0-3 months
 - Within 3-6 months
 - Within 6 – 12 months
 - in >12 months
-
- | | | |
|-------------------------------------|-------------------------------------|------------------------------|
| - Fume hoods | - HPLC/FPLC Systems | - Heating Blocks |
| - Microfluidics equipment | - Gel Electrophoresis Systems | - Centrifuges |
| - Nucleic Acid Synthesizers | - Water Purification Systems | - Real Time Thermal Cyclers |
| - Mass Spectrophotometers | - Imaging/Gel Documentation Systems | - Balances |
| - Automated Nucleic Acid Extraction | - Spectrophotometers | - Thermal Cyclers |
| - Hybridization Ovens | - Flow Cytometers | - Tissue Culture Hoods |
| - Incubators | - HTS Workstations | - Water Baths |
| - Autoclave/Sterilizers | - Microscopes | - 2D Electrophoresis Systems |
| - Nucleic Acid Sequencers | - Peptide Synthesizers | - Cell Analyzers |
| - Microarray Equipment | - Clean Room Equipment | - Protein Array Equipment |

Which of the following promotions do you prefer?

- | | |
|----------------------------|----------------------------------|
| - Free trial products | - Giveaways with Purchases |
| - Discounted products | - Free Technical Manuals/Posters |
| - Customer reward programs | - Other (please specify) |

Are you planning on purchasing any of the following software and, if so, what would be your time frame for purchase?

- Within 0-3 months
 - Within 3-6 months
 - Within 6 – 12 months
 - in >12 months
 - N/A
-
- | | |
|------------------------------|-------------------------------------|
| - LIMS | - 2D Image Analysis Software |
| - Mass Spectrometry Software | - Microarray Analysis Software |
| - Bioinformatics Software | - Pathway Analysis/Mapping Software |
| - Image Analysis Software | - Other Laboratory Software |

Do you plan to start any new techniques in 2006?

- Yes
- No

Which of the following techniques will be NEW to you in 2006? (check all that apply)

- | | | |
|---------------------------------------|------------------------------------|--|
| - Capillary Electrophoresis | - Gene Targeting | - Protein-DNA Interaction Analysis |
| - Gene Transfer | - Electrophoresis | - Protein-Protein Interaction Analysis |
| - Real-time PCR | - Vector Design/Construction | - Cell/Tissue Culture |
| - Nucleic Acid Labeling and Detection | - Laser Capture Microdissection | - SNP Analysis |
| - Protein Sequence Analysis | - Mutagenesis | - DNA Microarrays |
| - RNA Isolation & Purification | - Nucleic Acid Hybridization | - Image Analysis |
| - Mass Spectrometry | - Gene Expression Analysis | - RNAi/siRNA |
| - Recombinant Protein Expression | - Nucleic Acid Sequence Analysis | - Microscopy |
| - Chromatography | - High-Throughput Screening | - Spectroscopy |
| - Nucleic Acid Synthesis | - PCR/RT-PCR | - Antibody-based Technologies |
| - Microarray Analysis | - Protein Isolation & Purification | - 2D Electrophoresis |
| - Robotics/Automation | - Protein Microarrays | - Other (please specify) |
| - DNA Isolation & Purification | - Crystallization | |

Please rate from 1 to 5 how much you are influenced by each of the following to purchase lab products.**(1 = Very influenced, 5 = Not at all influenced)**

- | | |
|-----------------------------|---|
| - Email advertisements | - Online buyer's guides (Biocompare, Labvelocity, BioSupplyNet) |
| - Journal advertisements | - Journal articles |
| - Colleague recommendations | - Storeroom availability |
| - Print catalogs | - Brand reputation |
| - Web advertisements | - Samples |

What conferences do you plan on attending in 2006? (check all that apply)

- AAAS: American Association for the Advancement of Science
- AACC: American Association for Clinical Chemistry
- AACR: American Association of Cancer Research
- ABRF: Association of Biomolecular Resource Facilities
- ACS: American Cancer Society
- ASCB: American Society of Cell Biology
- ASHG: American Society for Human Genetics
- ASM: American Society for Microbiology
- ASMS: American Society of Mass Spectrometry
- Biotechnica
- Drug Discovery Technology
- ENDO: Endocrine Society
- FASEB: Federation of American Societies for Experimental Biology
- Society for Neuroscience
- None
- Other (please specify)

Those who answered 'None' will be asked the following:**Please tell us why you will not be attending any meetings in 2006.**

- It's not in my budget
- There isn't a meeting that pertains to my research interests
- Other (please specify)

Which advertising medium below is the most influential in encouraging you to visit a vendor's website?

- | | |
|----------------------------------|-------------------------------|
| - Referral from friend/colleague | - E-mail message |
| - Online advertising | - Booth at a tradeshow |
| - Print advertising | - Third party comparison site |
| - Search engine results | - Other (please specify) |

Which of the following resources do you use to look for life science products?

- | | | |
|---------------------------|---------------------|----------------------------------|
| - Supplier print catalogs | - Email newsletters | - SelectScience |
| - Journal advertisements | - Google | - Sciquest |
| - Conferences | - Journal websites | - Supplier websites/web catalogs |
| - Colleague referral | - LabVelocity | - Other (please specify) |
| - Biocompare | - BioResearchOnline | |

Do you plan to commercially outsource any of the following in 2006 (not including use of a core facility)?

- | | | |
|------------------------------|-----------------------------|--------------------------|
| - Laboratory Animal Services | - Oligonucleotide Synthesis | - Cell Culture Services |
| - Mass Spectrometry Services | - siRNA Synthesis | - Histology Services |
| - Peptide Synthesis | - Microarray Services | - None of the Above |
| - Antibody Production | - Protein Production | - Other (please specify) |
| - Library Construction | - Microbiology Services | |

Do you look for life science products online?

- Yes
- No

Please indicate how often you use each of the following to look for life science products online.

- Daily
- Monthly
- Weekly
- Yearly
- Never

- Biocompare
- LabVelocity.com
- Google
- BiosupplyNet.com

- SelectScience
- Nature.com
- BioResearchOnline

- Supplier Websites
- Sciquest
- Sciencemag.org

Please tell us of any other websites you use to find life science products. (open-ended)