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## **Liaison services for a remotely located biotechnology research center**

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In April 1989, the Houston Academy of Medicine-Texas Medical Center (HAM-TMC) Library initiated a prototype liaison program with the Baylor College of Medicine (BCM), Center for Biotechnology (CBT). The library was interested in examining the benefits and costs of the outreach concept and in supporting Houston's efforts to develop into a center for biotechnology research. Located thirty-five miles from the HAM-TMC Library, CBT was receptive to an outreach project that would improve its access to the library's collection and services. This article describes the objectives and development of the pilot project, the services provided, feedback from the biotechnologists, and program costs. Although limited in scope, the project has provided the HAM-TMC Library with useful data about the information needs of a particular group of biotechnologists and strengthened relationships with these scientists. In addition, the knowledge and experience gained from this effort are being used to plan outreach efforts for other client groups.

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During April 1989, the Houston Academy of Medicine-Texas Medical Center (HAM-TMC) Library initiated an outreach project using a health sciences librarian as liaison to the Baylor College of Medicine (BCM), Center for Biotechnology (CBT) [1]. The HAM-TMC Library is a private, consortium library located within the approximately 600 acres of the TMC campus; the library serves a diverse primary client population of 17,000 that at times is located a number of miles away [2]. On-campus groups served include two medical schools, three nursing schools, and more than twenty additional nonprofit institutions involved in medical research, health education, and patient care. Off-campus groups with HAM-TMC Library affiliations include the 7,000 members of the Harris County Medical Society, the Johnson Space Center, twelve Houston hospitals contracting for library services, additional fee-based clients, and remotely located components of TMC institutions.

CBT, a 36,000-square-foot facility opened in 1987, falls into this last category. CBT is located in the Research Forest area of The Woodlands, Texas, thirty-five miles north of the HAM-TMC Library. Of the sixty-five CBT personnel, approximately twenty-five hold Ph.D. or M.D. degrees. Diseases studied include AIDS, Alzheimer's disease, and retinoblastomas.

Techniques such as recombinant DNA and high-performance liquid chromatography are used by CBT's biotechnologists.

Several factors contributed to the library's decision in January 1989 to target biotechnology for special support and to initiate an outreach project with CBT. The potential of biotechnology was becoming widely recognized and emphasized in research. The National Center for Biotechnology Information, created in November 1988, officially became a division of the National Library of Medicine (NLM) in January 1989. This established NLM as the primary repository for biotechnology information in the United States. Locally, in an effort to diversify the Houston economy and make it less dependent on the oil industry, civic leaders promoted the area as a developing center for the biotechnology industry. At that time, the directory of biotechnology-related businesses for the Houston and Gulf Coast area contained forty-five entries. CBT, an important department of a primary funding institution of the library, lacked easy access to library resources and services. Also, due to its limited size, CBT's information needs would probably be manageable by one liaison.

This paper presents steps in program development, a description of the services provided, evolution of

liaison subject knowledge, client feedback, and costs. Comparisons were made with the findings of the study on biotechnology awareness conducted by the Southeastern/Atlantic Regional Medical Library [3-4]. Also discussed are liaison effort effects on the HAM-TMC Library and potential future directions for the project.

## PROGRAM DEVELOPMENT

The program proposed to offer liaison services at no cost to CBT for twelve months, thoroughly document the prototype effort, and evaluate the program for possible continuation after one year. Library administration endorsed a program with an information-gathering mission that could evolve according to client needs. Four primary goals for the project were defined and strategies devised to help meet each of these. The goals and strategies were:

- Assess the information needs of the selected client group and develop a program to meet those needs
  - Discuss at a group meeting with CBT ways to improve use of the HAM-TMC Library
  - Meet individually with interested CBT personnel to address specific needs and current difficulties
  - After analyzing the identified needs and library capabilities, produce a focused program for this client group.
- Document the implementation and progress of the prototype program
  - Record details of each on-site visit (who was seen, what was accomplished, and other pertinent items or impressions)
  - Maintain a log of off-site liaison activities
  - Compare program progress to stated goals and objectives, noting any particular successes or difficulties.
- Determine the cost in manpower and materials of providing a targeted information service
  - Record time spent on-site and off-site performing liaison duties
  - Detail all other costs to the library, e.g., staff time, travel costs
  - Document the use of existing and specially developed materials and the quantities provided to CBT
  - Estimate the dollar cost of the program based on these data.
- Assess the benefits of a liaison program to CBT and the HAM-TMC Library
  - Survey clients after twelve months for perceived benefits and level of support for program continuation
  - Maintain a file of unsolicited comments from CBT about the program
  - Annually assess cost versus benefit of the project for the library
  - Submit a report on program accomplishments and value.

As part of the planning process, three meetings involving CBT personnel were held over a six-week period early in 1989. The first meeting was between the HAM-TMC liaison and CBT's word-processing specialist in charge of their departmental library. Topics discussed included CBT's research and education efforts, the resources of CBT's on-site library, and possible service needs. A second meeting was held at CBT that included the same two individuals plus CBT's administrator. The administrator was briefed on the library's project objectives and potential liaison services, including regular liaison visits to CBT, instruction in using the library's online catalog and TexSearch system (which includes TMC's locally mounted subset of the MEDLINE®\* database), mediated online searching, reference services, and document delivery. BCM provides a daily shuttle van between TMC and component institutions located at The Woodlands. Participants at the meeting agreed to explore the feasibility of using this van to transport library materials in both directions. Steps to implement liaison services were discussed, and a group meeting with CBT researchers was scheduled.

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*The objectives of the meeting were to discuss service needs, gain a sense of priority for these needs, and identify existing difficulties in using the HAM-TMC Library. Discussion quickly focused on access to current research literature.*

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The group meeting held at CBT included the co-director, administrator, word-processing specialist, and approximately ten scientists. The objectives of the meeting were to discuss service needs, gain a sense of priority for these needs, and identify existing difficulties in using the HAM-TMC Library. Discussion quickly focused on access to current research literature. The biotechnologists did not know which journals were available at the library. Orders for photocopying articles were often placed based on title information only, and too often, limited grant funds were spent to photocopy minimally relevant articles. Document delivery through the U.S. mail took at least one week from the time an order was placed. Any visit to the library used most of one workday, with no guarantee that needed items would be available.

## DESCRIPTION OF SERVICES

To encourage use during the program's early months, the liaison elected to coordinate or provide any type

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\* MEDLINE is a registered trademark of the National Library of Medicine.

**Table 1**  
Library services coordinated by the liaison

	June–November* 1989	December–May 1989–1990	June–November 1990	Totals 1989–1990
Articles photocopied	52	284	402	738
ILLs requested	7	15	59	81
Books delivered to CBT	8	4	22	34
Books placed on hold	0	2	6	8
Total transactions	67	305	489	861

\* The data for this period were based on a client population of sixty-five. For the remaining two time periods the client population was seventy-four.

of library service (professional or nonprofessional) CBT requested. Four types of service requests from CBT were forwarded by the liaison to the proper library department for completion (Table 1). These included photocopying articles, placing interlibrary loan (ILL) requests, checking out books, and placing items on hold. On occasion, the liaison photocopied and forwarded articles needed on a rush basis. If data for the first and second six-month periods are averaged and compared to those of the third six-month period, service levels increased twofold or more. The steadiest and most significant increases were in the number of articles photocopied and ILL requests. According to the earlier biotechnology awareness study results, photocopy services were frequently used by two thirds of the twenty respondents, more than any of the other library services surveyed [5].

Services provided by the liaison increased over time in several categories (Table 2). Acquisition requests averaged one per month and were primarily journals related to chemistry or biochemistry. During the eighteen-month period, biotechnologists used liaison assistance during visits to the HAM-TMC Library on ten occasions. Assistance generally consisted of instruction in using the online catalog and TexSearch. As indicated in the earlier biotechnology awareness study, biotechnologists are not frequent users of health sciences libraries, especially when distance makes visiting inconvenient [6].

Checking for the presence of items within area collections was a heavily used service. This was probably related to two factors. First, as relationships between the biotechnologists and the liaison matured, the scientists became more comfortable in placing requests and did so more frequently. Second, some of the biotechnologists wished to know if an item not in the HAM-TMC Library's collection was held by another TMC library or one of the members of the Houston Area Research Library Consortium (HARLiC)†. Items

† HARLiC members include the five libraries of TMC, Houston Public Library, Prairie View A&M University, Rice University,

**Table 2**  
Liaison services provided

	June–November* 1989	December–May 1989–1990	June–November 1990	Totals 1989–1990
Acquisitions recommended	6	2	10	18
Assisted CBT clients on-site at HAM-TMC	1	3	6	10
Item availability elsewhere checked	7	15	59	81
Citations verified	23	26	42	91
Reference questions asked	5	7	17	29
End users instructed	12	2	5	19
Online databases searched	7	15	13	35
Chemical structures searched	0	0	9	9
Total transactions	61	70	161	292
Items taken to CBT (average/visit)				
Current journals	28	34	39	
Requested	10	14	18	
Total average transactions per visit	38	48	57	

\* The data for this period were based on a client population of sixty-five. For the remaining two time periods the client population was seventy-four.

available from one of these sources could be obtained at low cost and within a reasonable amount of time.

Initially, only known items were requested, but by the third six-month period, some scientists made requests by topic and depended on the liaison to make selections. The need for citation information also increased substantially, much in support of CBT's growing number of ILL requests and the library's desire to verify data before forwarding a request. Reference requests were infrequent; time required ranged from fewer than thirty minutes to several hours. Libraries in the earlier biotechnology awareness study also received reference questions infrequently, with a monthly average of five per library [7].

The number of CBT end users instructed in online searching generally decreased over time. Although the biotechnologists had access to BRS Colleague®‡, *Current Contents*®§ on computer disk, and GENBANK®\*\* on compact disk, help in using the Tex-

Texas A&M University, University of Houston, and University of Texas Medical Branch at Galveston.

‡ BRS is the servicemark of BRS Information Technologies, Inc. Colleague is a registered trademark of BRS.

§ *Current Contents* is a registered trademark of the Institute for Scientific Information.

\*\* GENBANK is a registered trademark of the U.S. Department of Health and Human Services.

Search system and MEDLINE were the most common end-user requests. Both the scientists and the librarians in the earlier biotechnology awareness study also experienced difficulty searching biotechnology topics in MEDLINE [8].

Requests for mediated database searches came from scientists unfamiliar with online searching or from those who had difficulty searching a topic themselves. Some MEDLINE searches were completed as part of tutoring sessions and were counted as end-user instruction data rather than as databases searched. Several CBT biotechnologists were knowledgeable end users and enjoyed completing their own searches. MEDLINE was the most frequently requested database for mediated searching, followed by BIOSIS®††, the WORLD PATENTS INDEX®‡‡, and EMBASE®§§. Because of TMC's locally mounted subset, MEDLINE was also the most economical database.

In response to the biotechnologists' request for improved access to current journal literature, a list of the journal titles most important to CBT's research was compiled (Appendix 1). During biweekly visits to CBT the liaison took current issues of these titles and displayed them in the conference room. Visits were usually four hours, including the lunch hour. Starting with 38 titles, the list grew to 67 titles, with an institutional subscription cost exceeding \$44,000. When combining CBT's 33 journal subscriptions with their request list of 67 titles and comparing it to the basic list of 100 biotechnology journals compiled for the biotechnology awareness study, only 17 titles were in common [9]. This could indicate that CBT researchers had personal subscriptions to journals most important to them or that their journal needs were fairly specialized. Similarly, in the earlier biotechnology awareness study, the 20 scientists listed 37 titles as most useful to their research, of which 24 were mentioned only once [10].

Taking current journal issues to CBT increased use of the liaison and led to an evolution of duties. As scientists browsed the journals in the liaison's presence, informal conversations led to useful exchanges of information, as noted in the earlier biotechnology study [11]. For example, a conversation about research databases resulted in a demonstration of GENBANK to the liaison; the liaison eventually became familiar with other databanks such as ONLINE MENDELIAN INHERITANCE IN MAN (OMIM)®\*\*\* and the GENOME DATA BASE (GDB)®†††.

†† BIOSIS is a registered trademark of Biological Abstracts, Inc.  
‡‡ WORLD PATENTS INDEX is a registered trademark of Derwent, Inc.

§§ EMBASE is a registered trademark of Excerpta Medica, Inc.

\*\*\*,††† OMIM and GDB are registered trademarks of Johns Hopkins University.

Regular liaison visits to CBT also encouraged delivery of specially requested library items, an alternative to making the thirty-five-mile trip to the library and to ordering photocopied articles without first reviewing the original article. Additionally, telephone contact with the liaison between visits increased as the biotechnologists became comfortable with accessing library services via telephone (Table 2).

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During visits, the liaison took information requests and, when possible, answered them by using one of CBT's computer terminals with a modem to connect to the library. Additionally, the liaison addressed questions about online searching techniques, provided tutoring, and clarified library policies. Meetings with CBT administration were held as needed. Also, the liaison taught CBT's word-processing specialist how to access the library's online catalog and Tex-Search system from CBT so others could be helped between visits.

## LIAISON SUBJECT KNOWLEDGE EVOLUTION

Early in the project it became evident that the liaison's level of subject knowledge would be critical in determining effectiveness as an intermediary. The liaison needed to combine a health sciences background with knowledge specific to current genetic research techniques and biotechnology information resources. Expertise increased by auditing relevant Ph.D.-level courses, completing database and vendor system training, attending local biotechnology presentations, and completing the Medical Library Association's (MLA) course on biotechnology.

CBT's administration arranged for the liaison to audit courses through BCM's departments of cell biology, biochemistry, and human genetics, totaling seven to date. The liaison spent a total of 150 hours in relevant database or vendor system training. Topical areas included biological, chemical, medical, pharmaceutical, and patent databases available

**Table 3**  
Responses to survey conducted after twelve months (n = 14)

Query	Positive responses Number (%)
Time or effort was saved by liaison use	14 (100%)
Biweekly liaison visits were adequate	12 (86%)
Current journals brought were viewed regularly	12 (100%)*
Suggested additional journal titles to bring	4 (33%)*
Telephone check-out of books important for CBT	13 (93%)
Interested in SDI service	11 (92%)*
Would like more library classes offered at CBT	7 (50%)
Would like liaison assistance during library visits	5 (36%)
HAM-TMC Library collection adequate for research needs	11 (92%)*
Desired photocopies in forty-eight hours or less	11 (79%)
Have accessed TexSearch from CBT	9 (64%)
Electronic library services that would be useful	
Request photocopies	13 (93%)
Check-out books	10 (71%)
Request literature searches	6 (43%)
Ask reference questions	6 (43%)
Access library bulletin board	2 (14%)

\* For these queries n = 12.

through BRS, DIALOG<sup>†††</sup>, STN<sup>§§§</sup>, and MEDLARS<sup>\*\*\*\*</sup>.

Increased subject expertise affected the role of the liaison in the library. Biotechnology-related reference questions were referred by other information services librarians to the liaison. The liaison provided a biotechnology inservice to information services librarians and consultation on biotechnology-related library acquisitions as needed.

#### CLIENT FEEDBACK

At the end of 12 months, written surveys were distributed to 22 upper-level CBT scientists, 2 administrative staff, and 2 research staff, all of whom had used the liaison at least once. The survey requested feedback on the liaison project, the HAM-TMC Library, and possible service directions for the future. Fourteen of the twenty-six surveys were returned for a response rate of 54% (Table 3). Four of the questions included in the survey were judged not relevant to the two administrative personnel.

All respondents felt the program saved them time or effort. Biweekly visits were adequate for all but two respondents. All responding researchers had viewed the current journals taken to CBT and one

††† DIALOG is the servicemark of Dialog Information Services, Inc.

§§§ STN (Scientific and Technical Information Network) is a registered trademark of the American Chemical Society.

\*\*\*\* MEDLARS is a registered trademark of the National Library of Medicine.

third suggested additional titles. Most were interested in a selective dissemination of information (SDI) service, although one researcher commented that cost would be a major consideration. The ability to check out books by telephone and have them delivered to CBT was important to almost all respondents. Over one third desired assistance in using the HAM-TMC Library during visits. Half were interested in having more classes taught at CBT, including database searching, communications software, and managing reprint files. Additional comments ranged from "helpful" to "wonderful and vital addendum to research efforts at the Center for Biotechnology."

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Almost all scientists surveyed felt the HAM-TMC Library's collection was generally adequate for their research needs. Suggestions for collection improvement included an increase in the number of subscriptions to chemistry journals and the acquisition of more molecular biology and oncology books. The HAM-TMC Library had about 4,000 biotechnology-related monographs, as defined by the call number ranges listed in the earlier biotechnology awareness study [12]. The median and greatest number of monographs for the libraries participating in the earlier study were 2,650 and 5,018, respectively. The HAM-TMC Library subscribed to 70 of the 100 biotechnology journal titles included in the earlier study's basic list.

As expected, timely document delivery was identified as a high priority. Most respondents thought the turnaround time for photocopy requests should be forty-eight hours or less to be termed efficient. ILL items were desired within one week by a majority of the scientists. The TexSearch system had been accessed from CBT by 64% of the respondents, and comments were favorable. In the earlier biotechnology awareness study, 35% of the biotechnologists reported performing online searches. CBT's substantially higher percentage could be the result of free dial access to a five-year MEDLINE subset [13]. BIOSIS, *Chemical Abstracts*, and *Current Contents* were identi-

fied as databases that would be useful online additions to TexSearch.

Respondents were asked to comment on the relative usefulness of requesting certain library services electronically. Almost all wanted electronic photocopy requests, and many wanted to be able to check out a book in this manner. Fewer than half desired the ability to request literature searches or ask reference questions electronically. Scientists and administrators were least interested (14%) in accessing an electronic bulletin board of library information.

## COSTS

For the most part, costs of the liaison project were borne by the HAM-TMC Library. Usual library fees were charged to CBT for literature searches, photocopying, and ILL services. The library normally does not charge a fee for telefacsimile transmissions but adds a fee of \$20.00 per document for rush photocopying services. Because of the experimental nature of the project and CBT's remote location, rush fees were generally not charged. Instead, scientists were asked to request immediate service only when it was essential. The liaison arranged to transport library materials using the existing shuttle van that linked BCM at TMC and its components at The Woodlands; there was no charge to CBT or to the library for this enhanced service.

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As would be expected in providing an outreach service to clients, the major cost item was personnel time (Table 4). Visits to CBT averaged five to six hours each, including driving time. Preparation for each visit averaged approximately forty-five minutes of other staff time (assistance began in December 1989) and one hour of liaison time. The staff time was used to retrieve needed issues of current journals and provide a log of these items. Liaison time was primarily spent receiving and completing requests for information or library items. If rates of \$7.50 per hour were used for staff and \$12.00 per hour for liaison time, the total cost in personnel time for each visit during the first year was \$90.00. The twelve-month cost for making biweekly (twenty-five) visits to CBT totalled \$2,250.00.

Over twelve months, the liaison spent 213 hours at the HAM-TMC Library implementing the program

**Table 4**  
Costs for twelve months

	Hours	Cost
Liaison time (\$12/hour)		
At HAM-TMC Library	213	\$2,556.00
At CBT	101	\$1,212.00
Travel	52	\$ 624.00
Total liaison time	366	\$4,392.00
Staff time (\$7.50/hour)		
Circulation	8	\$ 60.00
Information services	7	\$ 52.50
Total staff time	15	\$ 112.50
Materials		\$ 50.00
Transportation—1,900 miles @ \$0.20/mile		\$ 380.00
Total cost		\$4,935.50

and providing the services previously described. At \$12.00 per hour, this liaison time cost \$2,556.00. Other staff time spent on the program was minimal, totaling fifteen hours. Besides helping the liaison prepare for visits, staff spent time ensuring all CBT personnel were registered for library cards and TexSearch.

Staff costs decreased over time; this decrease was attributable to less time spent attending meetings and implementing services.

## IMPACT ON THE LIBRARY

The biotechnology liaison program has affected the HAM-TMC Library primarily in two ways. First, it has served as a framework on which to base additional outreach efforts. Second, biomedical companies located in The Woodlands have expressed interest in becoming fee-based clients and two have done so. These private companies and components of academic institutions have begun a coordinated effort to expand library services to The Woodlands location.

The Johnson Space Center (JSC), a fee-based client located twenty-five miles from the HAM-TMC Library, was offered liaison services in March 1990. Because JSC had its own technical and medical libraries, the liaison concept was changed to operate at primarily a librarian-to-librarian level. Although this effort has remained small in scale, it has saved JSC librarians time and effort on several occasions.

Scheduled for completion in late 1991, Texas A&M University's Institute for Biosciences and Technology is under construction on the TMC campus. In October 1989, Texas A&M University joined the HAM-TMC Library and will be represented on the library's board of directors. In anticipation of an increased demand for biotechnology information, the liaison plan for CBT was modified to serve the biotechnologists as they occupy the new 221,000-square-foot research facility.

A prototype project to promote and enhance library services to local physicians is under development. Another information services librarian is working with the biotechnology liaison to develop similar services for physicians affiliated with a selected area hospital. The same principles of flexibility and information gathering are included in this plan, which should be implemented in 1991. Assessment of this effort will help determine if additional hospitals will be similarly targeted.

In November 1989, Houston Biotechnology (HBI) became a fee-based client of the library, citing the liaison program as a major incentive. HBI is a privately held company adjacent to CBT. The same biotechnologist is director of both, and several CBT scientists have had additional appointments to HBI. Specializing in biopharmaceuticals to prevent and treat certain disorders of the eye and brain, HBI has developed a drug to prevent or delay secondary cataract formation, which is approaching the clinical trial stage of Federal Drug Administration approval [14]. This project added nine new cardholders to the group served by the biotechnology liaison.

Triplex Pharmaceuticals (TPI), a company formed in 1989 by BCM to commercialize CBT research, became a fee-based client of the HAM-TMC Library in March 1990. Also located in The Woodlands, the focus of TPI research is the creation of triplexes, nucleotide sequences bound to double-stranded DNA and capable of regulating gene activity [15].

In the fall of 1990, the Alliance Serving Science, Engineering, and Technology (ASSET) was established in The Woodlands. Consisting of scientists from the various academic research institutions and private companies, the alliance's major goal is to establish an electronic information center that provides access to needed information. During January 1991, the biotechnology liaison met with the ASSET steering committee and discussed library facilities, equipment, and services useful to the Research Forest.

## DIRECTIONS FOR THE FUTURE

Based on experiences in providing liaison services to CBT and information from the biotechnology awareness study, future directions for the project are indicated. Providing additional classes for CBT researchers during liaison visits would be beneficial. Useful topics include searching for biotechnology information in MEDLINE, using communications software, dialing into the online catalogs of area libraries, searching *Current Contents* on disk, and accessing national computer networks, such as Internet.

An SDI service was provided on a limited scale at no charge to four CBT biotechnologists. According to survey results, offering this service on a wider scale would benefit CBT researchers. Both of these service

directions are supported by the findings of the earlier biotechnology awareness study, where scientists felt they needed "someone to train them in how to identify, use, and organize information more effectively" [16]. However, providing additional services requires additional liaison time, perhaps on a cost-recovery basis.

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*For the liaison, growth in subject knowledge has been key in the evolution from providing access to literature toward identifying information. Steps planned include continuing to audit relevant courses, developing increased familiarity with research databanks important to the library's biotechnology clients, and attending area meetings or conferences. A need for greater awareness among librarians of nontraditional biotechnology information sources and local biotechnology research efforts was a recommendation of the earlier biotechnology awareness study.*

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For the liaison, growth in subject knowledge has been key in the evolution from providing access to literature toward identifying information. To continue this evolution, further growth as a biotechnology subject specialist is needed. Steps planned include continuing to audit relevant courses, developing increased familiarity with research databanks important to the library's biotechnology clients, and attending area meetings or conferences. A need for greater awareness among librarians of nontraditional biotechnology information sources and local biotechnology research efforts was a recommendation of the earlier biotechnology awareness study [17].

For the HAM-TMC Library, the demand for biotechnology-related information will continue to grow. CBT plans to initiate a Ph.D. program and double its facility size over the next five years. The Woodlands is emerging as a preferred site for locating spin-off businesses based on TMC research. Also, the completion of Texas A&M's Institute of Biosciences and Technology will significantly increase the amount of biotechnology research performed at TMC. According to one survey, Houston's biotechnology industry will double in size by 1995, with revenues totalling \$1 billion [18].

## CONCLUSIONS

This pilot project indicates that an outreach effort to biotechnologists could help health sciences libraries become part of the scientist's information loop. How-

ever, the expense in liaison time to provide services to a small client group and to reach the needed level of subject knowledge in biotechnology must be weighed against the benefits. For the HAM-TMC Library, gaining a greater awareness of biotechnologists' information needs and experience in providing liaison services to a selected client group have made this effort worthwhile.

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## APPENDIX

### Journals requested by CBT researchers

*American Journal of Physiology*  
*Analytical Biochemistry*  
*Angewandte Chemie*  
*Anticancer Research*  
*Archives of Ophthalmology*  
*Biochemical Pharmacology*  
*Bioorganic Chemistry*

*Brain Research*  
*British Journal of Cancer*  
*Cancer Genetics and Cytogenetics*  
*Carcinogenesis*  
*Cellular Immunology*  
*Chemical and Pharmaceutical Bulletin*  
*Circulation Research*  
*Diabetologia*  
*EMBO Journal*  
*Endocrinology*  
*European Journal of Immunology*  
*European Journal of Medicinal Chemistry*  
*Experimental Eye Research*  
*Free Radicals in Biology and Medicine*  
*Gene*  
*Genes & Development*  
*Histochemistry*  
*Immunological Reviews*  
*Immunology*  
*Immunopharmacology and Immunotoxicology*  
*International Journal of Cancer*  
*Journal of Acquired Immune Deficiency Syndromes*  
*Journal of the American Chemical Society*  
*Journal of Autonomic Pharmacology*  
*Journal of Cardiovascular Pharmacology*  
*Journal of Cell Biology*  
*Journal of Cellular Physiology*  
*Journal of the Chemical Society—Chemical Communications*  
*Journal of the Chemical Society—Perkins 1 Transactions*  
*Journal of Comparative Neurology*  
*Journal of Electron Microscopic Techniques*  
*Journal of Ethanopharmacology*  
*Journal of Experimental Medicine*  
*Journal of Heterocyclic Chemistry*  
*Journal of Histochemistry and Cytochemistry*  
*Journal of Immunological Methods*  
*Journal of the National Cancer Institute*  
*Journal of Neurocytology*  
*Journal of Neuroimmunology*  
*Journal of Neuropathology and Experimental Neurology*  
*Journal of Pharmacology and Experimental Therapeutics*  
*Journal of Tissue Culture Methods*  
*Journal of Ultrastructure and Molecular Structure Research*  
*Medicinal Research Reviews*  
*Metabolism*  
*Molecular Carcinogenesis*  
*Molecular Pharmacology*  
*Neurobiology of Aging*  
*Neuropeptides*  
*Neuropharmacology*  
*Neuroscience Letters*  
*Nucleic Acids Research*  
*Planta Medica*  
*Scandinavian Journal of Immunology*  
*Somatic Cell and Molecular Genetics*  
*Tetrahedron Letters*  
*Trends in Genetics*  
*Trends in Neurosciences*  
*Virology*  
*Visual Neuroscience*