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## **Biotechnology (Joint Policy with NAL and NLM)**

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### **I. Scope**

Biotechnology is an interdisciplinary subject that spans medicine, agriculture, industrial technology and commerce, and virtually all scientific disciplines, creating a broad spectrum of information needs among biotechnologists in health care, agriculture, and the basic sciences. These information seekers include individuals and institutions engaged in basic research, clinical research, education (faculty members and students), and in commercial and private entities, as well as the general public. Each of the three national libraries, the National Library of Medicine, the National Agricultural Library, and the Library of Congress, assumes a distinct role in meeting the information needs of these various constituencies through their library collections by actively acquiring materials, in all formats and all languages, on topics most suitable to the particular library's specialities. Otherwise, the overlapping responsibility increases the potential for user confusion in identifying the most appropriate source for particular researches, causing substantial duplication of materials and efforts, and thus raising costs. Therefore, NLM, NAL, and LC review their collection policies on a regular basis, with the ultimate goal of providing access to biotechnology information to their users more effectively and efficiently. In 2002, as a first step, the Libraries have reviewed their collection development policies in biotechnology and have prepared this joint statement clarifying responsibilities in this subject.

### **II. Purpose**

The purpose of this joint statement is to define the field of biotechnology, to record and share the collection policy for each Library, and to provide guidelines to selectors and users of biotechnology materials. A further purpose is to reduce redundancy in collections at the national level in this discipline.

### **III. Definition**

Biotechnology is that body of knowledge which relates to the use of organisms, cells, or cell-derived constituents for the purpose of developing products which are technically, scientifically and/or clinically useful.

The literature of biotechnology is derived from diverse fields and includes basic research publications in molecular cell biology, as well as materials describing basic biological processes from several disciplines including biochemistry, genetics, immunology, virology, microbiology and protein crystallography. An equally important segment of biotechnology literature describes applications in industrial processes, agricultural production, pollution control, waste treatment and biomass conversion.

### **IV. General Principles Governing the Collecting of Biotechnology Materials**

#### **1. Library of Congress**

Shaped by the research needs of Congress, other government agencies, scientists, social scientists, lawyers, and the general public, the Library's collections in biotechnology must be diverse in strength, depth and scope. The multi disciplinary nature of biotechnology necessitates collecting extensively in basic fields such as biochemistry, genetics immunology, molecular biology and microbiology and the more specialized fields genetic engineering, cloning, crystallography, stem cell research, genomics, and proteomics.

Library of Congress collection guidelines assure the aggressive acquisition of library materials relating to the general, applied, ethical, legislative, and legal aspects of biotechnology at the comprehensive or the research level, for the most part. It collects heavily in the practical, historical, business, bioethical, and legal aspects of biotechnology. These include both the industrial and commercial processes associated with pollution control, waste treatment, biomass conversion, drug production, biorecovery of minerals, bioreactors and regenerative support systems, gene therapy, food science and technology, and other commercial applications, known or to be known.

While the Library of Congress does not have a detailed acquisition policy statement for biotechnology *per se*, its existing collections policy statements in the life and physical sciences, medicine, agriculture, and law, as well as its policy statements on web capture and archiving, electronic resources, and the Copyright Best Edition statements are sufficient to maintain its collecting strength in virtually every aspect of biotechnology needed to support the research needs of its many constituencies. The real challenge is keeping up with the volume of publication in biotechnology, internationally as well as nationally, keeping current, capturing those publications that are born digital before they disappear, keeping track of print titles that suddenly turn digital, and acquiring e-journals that are not purchased through an aggregated database. As more publications are issued digitally, the Library must ensure that all important and appropriate information is added to the collections and that the data formats represented in the various collections related to biotechnology are maintained to assure continued access to this digital information. Electronic obsolescence is not an option for biotechnological materials. According to the RLG Conspectus Guidelines the areas relating to biotechnology are collected by the Library at the Research or Comprehensive level. [For a definition of this collection level, see p. 4 below]. The Library of Congress has deferred to the National Library of Medicine and the National Agricultural Library in the acquisition of library materials relating to clinical medicine and

technical agriculture. Since NAL and NLM contribute to the Cataloging in Publication (CIP) program, they are eligible to receive surplus and out-of-scope LC materials.

## **2. National Library of Medicine**

Biotechnology is designated as a core subject for collecting and NLM's particular interest in the field includes materials dealing with the alteration of biologic function by changing genetic information, i.e., genetic engineering. Also of special interest are biotechnology laboratory tools and methods, which include restriction endonuclease, transfection, cloning technologies, molecular sequence and structure analysis algorithms, computer databases and gene and protein structure, function analysis and prediction.

For collection development purposes, materials in three areas are regarded as of central importance: [1] genes, [2] proteins, and [3] cells and tissues, when related to humans, primates, or laboratory animals and with a potential for application to human health care and disease prevention. NLM also collects, but not as broadly, other animal studies of these topics, the use of organisms in sanitary engineering and the environmental effects of biotechnology on humans or animals.

Generally excluded from the NLM collection are biotechnology materials concerned with alternative energy sources, biomass conversion for industrial production, fermentation technology, and commercial production of materials or organisms developed through biotechnology.

## **3. National Agricultural Library**

Although the science of biotechnology is multi disciplinary, most aspects are studied at disciplinary or sub disciplinary levels. Findings of these investigations usually bear potential or direct applicational values to agriculture or related sciences. NAL collects material in biotechnology to meet the needs of the researchers and practitioners pursuing these basic sciences. NAL collects materials concerning genetic engineering, cloning technology, tissue culture, enzyme technology, the use of microorganisms for production and biomass conversion and the effect of biotechnology on the environment. Laboratory and industrial techniques, computer databases, development of algorithms related to genetic structures and the like are also of special interest.

The National Agricultural Library collects at the comprehensive and research level materials concerning genes, proteins, cells and tissues as they relate to laboratory and domestic animals, plants, food processing and the use of organisms in fermentation and sanitation. Studies of these topics as they relate to primates or clinical medicine are collected only when there is present a potential application to agriculturally related areas. Biotechnology materials which concern only medical or other applications which have no obvious potential value for areas of interest to agriculture are not collected.

## **V. Collecting levels at NLM and NAL and LC**

Together, NLM and NAL attempt to collect, retain and preserve all significant information on biotechnology as it relates to medicine and agriculture. Many aspects of the subject are collected and treated differently at each institution in accordance with the needs of its users. For the purpose of describing their collecting policies in biotechnology, NLM and NAL have outlined the field at the category and subcategory level. A list of these with the collecting levels for both libraries appears below.

In describing the collecting levels, terminology developed by the Research Libraries Group (RLG) and later adopted by the Association for Research Libraries has been used. The RLG definitions for collecting levels used by NLM and NAL for biotechnology materials are as follows:

#### **Basic information level**

The basic level consists of a collection of up-to-date general materials that serves to introduce and define a subject and to indicate the varieties of information elsewhere. It may include dictionaries, encyclopedias, selected textbooks, surveys, histories, directories, bibliographies, handbooks and a few major periodicals, in the minimum number that will serve the purpose. A basic information collection is not sufficiently intensive to support any courses or independent study in the area involved.

#### **Instructional support level**

This level consists of a collection that is adequate to support undergraduate and MOST graduate instruction, or sustained independent study; that is, adequate to maintain knowledge of a subject required for limited or generalized purposes, of less than research intensity. It includes a wide range of basic monographs, complete collections of the works of more important writers, selections from the works of secondary writers, a selection of representative journals and the reference tools and fundamental bibliographical apparatus pertaining to the subject.

#### **Research level**

A research level collection includes the major published source materials required for dissertations and independent research, including materials containing research reporting, new findings, scientific experimental results and other information useful to researchers. It is intended to include all important reference works and a wide selection of specialized monographs, as well as a very extensive collection of journals and major indexing and abstracting services in the field. Older material is retained for historical research.

#### **Comprehensive level**

A comprehensive collection is one in which a library endeavors, so far as is reasonably possible, to include all significant works of recorded knowledge (publications, manuscripts, other forms), in all applicable languages, for a necessarily defined and limited field. This level of collecting intensity is one that maintains a "special collection"; the aim, if not the achievement, is exhaustiveness. Older material is retained for historical research.

#### **National collection responsibility**

RLG also developed the concept of national collection responsibility. A library that agrees to accept this responsibility for a given subject agrees to collect in the subject at the comprehensive level, process material in the subject on a priority basis, provide services nationwide for other research libraries and preserve indefinitely the material dealing with the subject. Areas of national collecting responsibility assumed by either NLM and NAL or both for facets of biotechnology are indicated below through the use of the term "National" instead of "Comprehensive." These designations must be interpreted in light of the "General Principles" section above, i.e., assumption of "National" or "Comprehensive" responsibility for a biotechnology subtopic is limited to those aspects of the subtopic which are of particular interest to the individual library.

This summary of collection development policies for biotechnology serves as a statement of national collection level responsibilities and as a guide for those who wish to utilize the resources of the Libraries for this material. The complete collection development policies of the Libraries should be consulted for additional information. The national libraries cooperate to ensure that significant literature in biotechnology is collected, retained and preserved at the national level and to make this literature accessible to the wide variety of researchers and practitioners throughout the United States.

## VI. Biotechnology Collection Levels Table

The following outline for biotechnology was based on the topical breakdown used in Biotechnology Research Abstracts and was augmented from the list of subtopics used in the NLM and NAL collection development policies previously. The LC's collection level has been newly added in the original table for this update.

TOPIC		NLM	NAL	LC
Genetics				
	Biochemical Genetics	National	Research	Research
	-- Gene Expression & Regulation	National	Research	Research
	-- DNA Damage & Repair	National	Research	Research
	Cytogenetics	National	Research	Research
	Ecological Genetics	National	Research	Research
	Extrachromosomal Inheritance	National	Research	Research
	Gene Mapping	National	Research	Research
	Gene Sequencing	National	Research	Research
	Genes	National	Research	Research
	Immunogenetics	National	Research	Research
	Medical Genetics	National	Basic	Research
	Plant Genetics	Basic <sup>1</sup>	National	Research
Genetic Engineering				
	Cell Culture	National	Research	Instructional
	Conjugation, Transformation, & Transportation	National	Research	Instructional

	Gene Manipulation	National	Research	Instructional
	Gene Transfer	National	Research	Instructional
	Microinjection	National	Research	Instructional
	Site-Directed Mutagenesis	National	Research	Instructional
	Transduction & Transfection	National	Research	Instructional
Molecular Cloning		National	Research	Research
Proteins				
	Protein Crystallography	National	Research	Research
	Protein Sequencing	National	Research	Research
	Protein Structure	National	Research	Research
Products of Biotechnology				
	Amino Acids	National	National	Instructional
	Antibiotics & Antitumor Agents	National	Research	Research
	Antibodies	National	Research	Research
	Carbohydrates	National	National	Instructional
	Enzymes & Cofactors	National	Research	Research
	Food Additives	Research	National	Instructional
	Interferons	National	Research	Research
	Lipids & Steroids	National	National	Instructional
	Organic Acids	Research	Research	Instructional
	Peptide Hormones	National	National	Instructional
	Transgenic Animals	National	Research	Research

	Vaccines	National	Research	Research
Applications				
	Medical	National	Instructional	Instructional
	Therapeutic	National	Instructional	Instructional
	-- Drug Design	National	Instructional	Research
	-- Drug Therapy	National	Instructional	Instructional
	-- Gene Therapy	National	Instructional	Research
	Diagnostic	National	Instructional	Out of scope
Agricultural				
	Plant Breeding & Aquaculture	Basic	National	Instructional
	Animal Breeding & Aquaculture	Basic	National	Instructional
	Pest Control	Out of Scope	National	Research
	Soil Organisms	Out of Scope	National	Research
	Waste Treatment	Out of Scope	Research	National
	Environment & Pollution	Research	Research	National
	Energy, Minerals & Chemical & Feedstocks	Out of Scope	National	Research
	Fermentation & Process Engineering	Out of Scope	National	Research
Biotechnology Industry				
	Marketing	Basic	Research	Research

	Patenting (excluding patents themselves)	Basic	Research	Research
	Regulatory Issues	Research	Research	National
Biotechnology, General				
	Bioethics			National
	History			National

Biotechnology Collection Levels for the Library of Congress, arranged by LC Class, is below.

#### Biotechnology Collection Levels by the LC Class

Class	Subject	Level
T	Technology, general	
TP248.13-TP248.65	Biotechnology	4
TP	Chemical engineering	5
TS	Manufactures	4
TD	Environmental technology, Sanitary technology	4
Q	Science, general	4
QK	Botany	5
QH	Natural history	5
QL	Zoology	5
QP	Physiology	5
QR	Microbiology	5
RC	Internal Medicine	3
RS	Pharmacy and material medica	3
S	Agriculture, general	3
SB	Plant culture	4
SD	Forestry	3
SF	Animal culture	3



SH	Aquaculture, fisheries, angling	3
K	Law, general	5
KF	US Law	5
KJC	Regional comparative and uniform law (Europe)	4
Z5074.B54	Biotechnology, Agriculture	4
Z7914.B33	Biotechnology, Bibliography	5

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