

INTERNATIONAL COOPERATIVE BIODIVERSITY GROUPS (ICBG)

RELEASE DATE: October 17, 2002

RFA: TW-03-004

Fogarty International Center (FIC)

<http://www.nih.gov/fic>

National Cancer Institute (NCI)

<http://www.nci.nih.gov/>

National Institute of Allergy and Infectious Diseases (NIAID)

<http://www.niaid.nih.gov/default.htm>

National Heart, Lung and Blood Institute (NHLBI)

<http://www.nhlbi.nih.gov/index.htm>

National Institute on Drug Abuse (NIDA)

<http://www.nida.nih.gov/>

National Institute on Mental Health (NIMH)

<http://www.nimh.nih.gov/>

National Institute on Child Health and Human Development (NICHD)

<http://www.nichd.nih.gov/>

National Center for Complementary and Alternative Medicine (NCCAM)

<http://nccam.nih.gov/>

Office of Dietary Supplements (ODS)

<http://dietary-supplements.info.nih.gov/>

National Science Foundation (NSF)

<http://www.nsf.gov>

USDA Foreign Agricultural Service (FAS)

<http://www.fas.usda.gov/>

USDA Forest Service (FS)

<http://www.fs.fed.us/>

LETTER OF INTENT RECEIPT DATE: January 20, 2003

APPLICATION RECEIPT DATE: February 19, 2003

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PURPOSE OF THIS RFA

The National Institutes of Health, the National Science Foundation and the U.S. Department of Agriculture (hereafter "the Government" or "the

Participating Agencies") invite applications for the establishment or continuation of "International Cooperative Biodiversity Groups" to address the interdependent issues of biodiversity conservation, economic capacity, and human health through discovery and development of therapeutic agents for diseases of importance in developing countries as well as those important to developed countries. Innovative and integrated approaches to access to genetic resources and benefit-sharing with host country stakeholders and participants is an important component of the overall program. Particularly relevant disease areas and health needs include cancer, HIV-AIDS and its opportunistic infections, tuberculosis, malaria, and other emerging diseases, mental disorders of adults and children, drug abuse and cardiovascular and pulmonary diseases. Applications that propose to work on marine coral reef organisms, endophytic fungi, extremophilic bacteria and other poorly understood groups are particularly encouraged. Applications that propose to work primarily with plants for pharmaceutical drug discovery, are encouraged to propose research and training related to phytomedicine analysis. Research and capacity building toward the development of agricultural agents is permissible as a secondary activity where it complements work on human health agents.

For the purposes of this program, the National Institutes of Health (NIH) will be allocated funds from the National Science Foundation (NSF), the USDA Foreign Agricultural Service (FAS) and the USDA Forest Service (FS). The Fogarty International Center (FIC) of the NIH will administer this program under the authority and regulations of the Public Health Service (PHS).

The unifying theme underlying the International Cooperative Biodiversity Groups (ICBG) program is the concept that the discovery and development of pharmaceutical and other useful agents from natural products can, under appropriate circumstances, promote economic opportunities and enhanced research capacity in developing countries while conserving the biological resources from which these products are derived. This RFA calls for the development of interdisciplinary programs through the establishment or continuation of International Cooperative Biodiversity Groups (ICBGs), with active and substantial participation by U.S. and developing country scientists and institutions. It is the intent of this RFA to promote the conservation of biological diversity through the discovery of bioactive agents from natural products, and to ensure that benefits accruing from both the research process and any discoveries are shared with the country of origin. The RFA is seeking applications that will build institutional relationships with developing countries that will continue to grow beyond the life of the RFA and will serve as effective models for others to develop similar relationships.

This third RFA of the International Cooperative Biodiversity Groups program represents a maturation of the ten-year-old program and includes several changes from the previous RFAs, to now include increased emphasis on drug development and increased integration of conservation and development activities. Some information about previous ICBG activities and a list of answers to frequently asked questions about this competition may be found at the following URL: <http://www.nih.gov/fic/programs/icbg.html>.

RESEARCH OBJECTIVES

1. Pertinent background that establishes the need for this research

Natural products that hold promise for the development of pharmaceutical agents, as well as those that form the basis for many traditional botanical remedies, are often found in ecosystems that are seriously threatened. These include terrestrial as well as marine ecosystems that are rich in biological diversity. For example, tropical forests cover only seven percent of the earth's surface, but they are thought to contain at least one-half of all

plant and animal species. Tropical deforestation is currently proceeding at a rate of 16 million hectares per year. Marine coral reefs support at least 25,000 described species from 32 of the 33 recognized animal phyla. At least ten percent of the world's coral reefs are already degraded and another 20 percent are likely to decay during the next 20 years. Despite these rates of loss, our knowledge of the world's biological diversity is so incomplete that for many groups we do not even know, within an order of magnitude, the number of species disappearing at risk of extinction. Cultural diversity is also seriously threatened by habitat conversion and the loss of biological resources on which many traditional societies depend.

Diverse plant, microbial and animal resources contain a wealth of potentially useful compounds. The clinical importance of the Vinca alkaloids, camptothecin analogues, and taxol in treatment of cancers, the artemisinin derivatives for malaria, the statins for heart disease, Acetyl Choline Esterase inhibitors for hypertension, and the recently approved galantamine for Alzheimer's Disease underline the continuing need to explore natural products sources. New natural products in pharmaceutical or dietary supplement form are possible sources of effective therapies for these diseases and others including diarrheal disorders, HIV/AIDS and its associated opportunistic infections, respiratory diseases, mental disorders, narcotic dependency, and other serious illnesses prevalent in developing and/or developed countries.

Perhaps even more urgent than the losses of genetic and chemical diversity as sources of potential pharmaceutical agents, are the immediate repercussions of biodiversity loss in many developing countries where botanical and other remedies based on crude materials from diverse biota are a primary source of health care. While much of the world's populations still rely on such traditional medicines, few of these have been scientifically evaluated for safety or efficacy. Standards for the composition of these materials are generally non-existent. Lastly, the scale and methods of harvest of these materials from the wild are often unsustainable in the context of today's growing local and international markets. Thus, decreasing availability of raw materials that derive from unsustainable exploitation and other forces that affect biodiversity and inadequate scientific understanding of the botanical medicines are significant public health concerns.

Simultaneous with the pressure on biological diversity are accelerating losses of traditional knowledge associated with the biota. This knowledge of the identity and utility of specific organisms for medicinal and other uses has intrinsic value as part of our cultural patrimony, is critically important as a source of health care for many people, and may offer important leads for future treatments of numerous human ailments.

Advances in genomics and analytical methods have enabled more effective use of molecular diversity by identifying important targets, understanding mechanisms of action and enabling optimization of small molecules for therapeutic purposes, as well as optimizing the use of botanicals as health-promoting agents. Similarly, advances in chemical ecology and ethnobiology have expanded our ability to identify source organisms based on their interactions with nature and human societies. Finally, the molecular, statistical and computational tools that support the sciences of systematics and biological inventory have made enormous strides in recent years. The unfortunate irony is that, as advances in biology expand our ability to use genetic diversity to combat diseases, the raw material is being lost due to ecosystem degradation and species extinction.

The underlying causes of biodiversity loss are many and involve interwoven social, economic, and political elements. In developing countries struggling

to meet the most basic human needs, efforts to protect biological diversity will succeed only if implemented in the context of promoting sustainable economic opportunities. To be effective, efforts to protect biological diversity must include the active participation of affected local communities and national institutions, which ultimately will determine the success or failure of those efforts. Biological resources must benefit local populations and national institutions if the resources are to be conserved. Consequently, the sustainable economic potential of biological resources, such as developing pharmaceuticals or validated botanicals from natural sources, can be used to promote biodiversity conservation by providing an economic return from sustainable use of the resources while improving quality of life through better human health. The development of significant conservation incentives is most likely when both near- and long-term benefits accrue to stakeholders.

2. Objectives of this research and development program

The overall goals of the ICBG Program are drug discovery, biodiversity conservation, and economic development. The following cross-cutting approaches should guide the research and capacity-building efforts toward these goals: a) assisting with the discovery and development of drugs that address priority health needs of the participating developing country(ies) and of the United States; b) assisting with research on other natural products-based materials, such as locally used botanical medicines; c) developing biological inventories of native species and, where relevant, indigenous knowledge; d) training targeted toward achieving the research goals of this RFA and meeting the needs of the participating country; and, e) enhancing the scientific infrastructure within the host country. Specifically, the program objectives are to:

a) Conduct pre-clinical research to discover, isolate, evaluate and develop agents from natural sources to treat or prevent diseases of importance to developing countries, as well as those primarily important in developed countries. Particularly relevant disease areas and health needs include cancer, AIDS associated malignancies, HIV/AIDS and associated complications and co-infections, tuberculosis, malaria, and other emerging infectious diseases, mental disorders of adults and children, drug abuse and cardiovascular and pulmonary diseases. The scope of this RFA does not include the conduct of clinical trials. Source organisms may include any group found in nature that is likely to yield pharmaceutically useful molecules. While plants from both the temperate and tropical ecosystems have been and continue to be an important resource and focus of attention, applicants are also encouraged to consider marine coral reefs organisms, endophytic fungi, extremophilic bacteria and other less understood groups. Original field collections should be the predominant source of sample organisms for testing.

b) Conduct pre-clinical research to evaluate, authenticate and standardize locally important botanicals or other remedies based on crude biological materials, and develop ecologically-sustainable means of harvest or cultivation for local supply of high quality materials. Alternatively, a group may choose to include discovery of other natural-product based entities such as crop protection agents, animal veterinary medicines, or other useful products with the potential to provide economic benefits to local communities and other developing country partners through product earnings or stimulation of local industries. It is probable that in many cases research in these alternative areas can be conducted in parallel with drug discovery work with minimal additional cost by incorporating academic, governmental or commercial partners with the appropriate scientific resources.

c) Undertake inventories of biological diversity and produce documentation of all collected material in the form of museum catalogues, published works,

and/or databases, reporting specific locality and all features of biology relevant to standard botanical and zoological collections; assure accessibility of inventory specimens to the public by housing them in public institutions (such as universities and national museums), and accessibility to all inventory databases through publication on the Internet. All taxonomic groups are relevant and those proposed for inventory do not necessarily have to be the same as those being analyzed for drug discovery purposes. However, applicants should give careful thought to the potential synergies in expertise, data and cost-effectiveness if they overlap. Similarly, the choice of organisms and areas to study should reflect not only scientific value but their relevance to conservation planning.

d) Support research training targeted to meet the needs of the developing country represented within the Group and related to the scope of work of the RFA, and to augment field experience and training of U.S. scientists in areas of knowledge unique to the developing country.

Examples of relevant areas of training could include systematics, geographic information science, ethnomedicine, natural product chemistry, pharmacology, biotechnology, production methods, quality control in botanical production, data management, statistics, grant writing, scientific manuscript preparation, grants administration and bioethics. Incumbent Groups should plan to advance the level of training of developing country scientists beyond initial efforts to include advanced field and laboratory work such as the development and conduct of locally appropriate bioassays, isolation and analytical chemistry, database development, ecology and biodiversity analysis and management techniques.

Research training supported through this award may take place in the host country or in the United States and may be linked to degree-earning programs. Training may include, but is not limited to: i) practical and applied short-term courses or workshops for professionals or technicians; ii) course work, laboratory, or field training in essential research skills for technical assistants, graduate degree candidates, or professionals; and iii) fellowships for one or more years for degree candidates or post-doctoral trainees to conduct research related to the goals of the Group. Training costs and plans must be specified in the text of the application and in the application's budget request.

e) Assist in enhancing the scientific environment within the participating developing country(ies) to enable ongoing drug discovery and biodiversity science and an understanding of the economic context in which they may operate. Enhancing the scientific environment could include social, policy and technological instruments. The social environment might be enhanced through strengthening of networks of scientists or local healers. Groups are strongly encouraged to provide technical support for local and national governments interested in developing policy related to access and benefit-sharing for genetic resources. Physical infrastructure support could include assistance for herbaria, museums, and laboratories, the supply of necessary equipment in these facilities, and the enhancement of collecting and screening and analysis capabilities in the host country. Limited renovation of existing facilities, but not construction of new facilities, is allowable under this RFA. All renovation of facilities must be strictly relevant to the research objectives of the Group and requires prior approval of FIC.

Successful applications will most likely include some element of all five approaches (a-e). Without a comprehensive and multi-disciplinary approach, it would be difficult to meet the requirement that drug discovery, biodiversity conservation, and sustainable economic development be addressed.

Applications for funding as an ICBG should stress creative, synergistic approaches to biodiversity conservation, drug discovery, and sustainable economic development. Synergy among these goals is more likely when the varied activities of the ICBG have significant geographical overlap than when they are widely dispersed among different regions and countries. However, legitimate scientific or other considerations may lead to less geographically-localized programs. Applicants are encouraged to develop a plan that integrates the diverse activities above as tightly as possible.

MECHANISM OF SUPPORT

This RFA will use the NIH R21 award mechanism for two year PLANNING GRANTS and the NIH U01 award mechanism (Cooperative Agreement) for COMPREHENSIVE AWARDS (up to five years).

Planning grants (R21)

Planning grants (R21) will provide support for up to \$150,000 per year direct costs for up to two years for developing the partnership plans, access and benefit-sharing framework, specific aims, and preliminary data for a project to compete for a COMPREHENSIVE AWARD. The participating organizations intend to issue another RFA in approximately two years. It is likely that only recipients of R21 PLANNING GRANTS will be eligible to submit an application for COMPREHENSIVE AWARDS under that RFA.

Note that the R21 mechanism is specifically intended to support innovative ideas where preliminary data, as evidence of feasibility, are sparse or do not exist. R21 grants are not intended for large-scale undertakings or to support or supplement ongoing research. Rather, R21-supported projects are intended to serve as a basis for planning and strengthening future applications for a COMPREHENSIVE AWARD (U01 Cooperative Agreement). Successful responses to this solicitation must clearly outline how the work conducted during the two-year period of this award would inform, enhance, and lead to a longer-term (up to four-year) research project.

A planning grant application should describe your plan to consolidate partnerships, permits, contract elements and to develop preliminary data in preparation for an application for a full award. It must also clearly explain why the two-year award is necessary to the successful implementation of the envisioned research project. As an applicant, you will be solely responsible for planning, directing, and executing the proposed project.

Applications for planning grants should use the modular budget pages available in the PHS-398 Application forms and described below under SUBMITTING AN APPLICATION.

Comprehensive awards (U01)

Comprehensive ICBG awards (U01) will support awards of up to \$600,000 per year direct costs for up to five years to carry out the full spectrum of ICBG research and development activities in this RFA. These awards will use the NIH U01 cooperative agreement mechanism in which the Principal Investigator retains the primary responsibility and dominant role for planning, directing, and executing the proposed project, with NIH staff being substantially involved as a partner with the Principal Investigator. The nature of the U.S. Government's assistance is described under "Terms and Conditions of Award."

An award will be made only to the Group Leader's institution, which will subcontract with the other participating institutions. All Group activities will be coordinated through the Group Leader's institution. Applicants must

comply with NIH policies concerning allowable costs. Note that foreign institutions are eligible for facilities and administrative (F&A) costs of up to eight percent. Questions about allowable costs may be directed to Mr. Bruce Butrum, Grants Management Officer, FIC.

Under the Cooperative Agreement, a relationship between the awardee and the Government is established in which the Group is responsive to the requirements and conditions set forth in the RFA. Specifically, the Group Leader defines the details for the project in response to the RFA, retains primary responsibility for the performance of the Group, and agrees to coordinate with the assistance of the Government in all aspects of scientific and technical management of the project in accordance with the terms and conditions outlined under "Terms and Conditions of Award."

Awards pursuant to this RFA are contingent upon availability of funds. Subsequent to receiving awards and with pre-approval, awardees may request supplemental support from the Government to expand their activities. Funding for such expansion should be administered through the FIC if they originate from one of the agencies sponsoring this RFA. Complementary funds could also be supplied, for example, from a non-governmental organization or a U.S. Governmental agency, not currently participating in this RFA. Applicants are encouraged to apply for funds from corporate partners or non-profit foundations to further enhance health, conservation and development activities in the host countries, perhaps utilizing trust funds in those countries for management of such resources. Regardless of the source, any supplemental support for Group activities must be reported to FIC.

Applications for Comprehensive Awards are anticipated to exceed \$250,000 and therefore SHOULD NOT USE modular budget formats in the PHS-398 application form. Supplemental instructions for these applications are below under SUBMITTING AN APPLICATION.

The anticipated award date is September 1, 2003.

Future UNSOLICITED, competing continuation applications based on this project will compete with all investigator-initiated applications and will be reviewed according to the customary NIH peer review procedures. At the present time FIC does not consider unsolicited applications but other parts of the NIH do.

FUNDS AVAILABLE

The participating organizations intend to fund four to six new and/or competing continuation grants for COMPREHENSIVE AWARDS and up to four PLANNING GRANTS in response to this RFA. For a COMPREHENSIVE AWARD, an applicant may request a project period of up to five years and a budget for direct costs of up to \$600,000 per year. For a PLANNING GRANT, an applicant may request a project period of two years and a budget up to \$150,000 direct costs. PLANNING GRANT recipients that successfully compete for COMPREHENSIVE AWARDS in response to the anticipated follow-up RFA (September 2004) will be able to request direct costs of up to \$600,000 per year for up to four years.

Because the nature and scope of the proposed research will vary from application to application, it is anticipated that the size and duration of each award will also vary. Although the financial plans of the IC(s) provide support for this program, awards pursuant to this RFA are contingent upon the availability of funds and the receipt of a sufficient number of meritorious applications. At this time, it is not known if this RFA will be reissued.

All currently funded Groups that wish to be eligible for funding beyond their fifth year of support under their current ICBG award must apply under this

RFA.

COMPOSITION OF GROUPS

Groups should be multi-disciplinary, including individuals and organizations with expertise in various relevant disciplines of the biological and physical sciences, as well as areas such as economics and sociology, and may include those who have not collaborated in programs of this type in the past.

Groups will be international in scope with participation of developing country institutions to the greatest extent possible. Since it is unlikely that all of the required capabilities will be located within one institution, Groups likely will be multi-institutional as well.

While not mandatory, the active participation of the private sector is encouraged because it: 1) will allow this segment of the scientific community to contribute its considerable intellectual and material resources; 2) will promote private sector participation in local health and conservation issues; and 3) will facilitate efforts to negotiate conditions for the equitable distribution of profits and other benefits to all parties, including developing country institutions involved in conservation and sustainable resource use. The interaction of academic and non-profit institutions with industry and Government will encourage the creation of novel, interdisciplinary approaches that may not otherwise develop. Private sector pharmaceutical partners may include companies, large and small, non-profit drug development organizations or a combination of these.

A version of this RFA is available on the internet at <http://www.nih.gov/fic/programs/icbg.html>. That version includes a diagram representing some possible relationships among scientists that might form an International Cooperative Biodiversity Group and the relationship to the Funding agencies. It depicts some of the scientific disciplines that may be included. No specified number of associate programs should be inferred by this sample, nor is a requisite inclusion of a particular discipline implied. Different ICBGs will vary considerably with respect to the number and kinds of scientific disciplines required.

1. The composition of an ICBG is envisioned as follows:

- a) A Group Leader who is likely to also head an associate program.
- b) Associate Programs, each headed by an Associate Program Leader, in diverse scientific disciplines, such as ecology, microbiology, cell biology, ethnobiology, sociology, anthropology, botany, zoology, entomology, pharmacology or chemistry, that may be appropriate to the realization of Group objectives. Associate Programs will be composed primarily of developing country and U.S. institutions. At least one of the Associate Programs must be located in a developing country and directed by a scientist or program administrator in a developing country institution. Developing country scientists must be substantially involved in the overall program design.
- c) The U. S. Government Coordinator (Advisory Committee Chairperson) appointed by the Technical Advisory Group to provide assistance to the Group.

2. The Group Leader, in addition to providing scientific and administrative leadership, may head an Associate Program. Associate Program Leaders will be directly responsible to the Group Leader. The formation of the Group, submission of the application in response to this RFA, the overall management of the Group, and the allocation of funds to the various Associate Programs based on anticipated needs, past performance and the overall Group needs at

any given time will be the responsibility of the Group Leader and the Group Leader's institution in accordance with PHS policies. The Group Leader will also be responsible for maintaining an integrated relational database of all the significant research and capacity-building activities of the Group as outlined under SPECIAL REQUIREMENTS.

3. The composition of the Group and its Associate Programs should depend on the talents required to accomplish its scientific and technical objectives as perceived by the Group Leader and Associate Program Leaders. The major consideration in structuring an ICBG should be the maximum utilization of intellectual, physical, and financial resources to carry out the proposed research and capacity-building. If the Group includes more than one Associate Program on a specific topic, each should be capable of contributing high quality, necessary, and non-overlapping talents.

4. An individual scientist or a single institution may be proposed as a Group Leader in only one application. However, an individual scientist may be an Associate Program Leader in more than one application, or a Group Leader and an Associate Program Leader on separate applications. If a scientist appears on more than one application, it is the responsibility of the Group Leader to demonstrate in their applications that there are no scientific or budgetary overlaps or proprietary conflicts with each individual's proposed activities. Likewise, individuals currently receiving funding via contracts, grants, gifts, commercial arrangements, or Cooperative Agreements may be funded under this RFA providing that there is no scientific or budgetary overlap or proprietary conflict in funded activities.

Any Associate Program Leader must complete their portion of the overall application in detail even if no funds are requested for his or her specific project. NSF Staff or intramural scientists at the NIH or the Department of Agriculture may participate in an ICBG as collaborators or consultants, but may not submit a formal application as an Associate Program Leader, assist in developing other portions of the application, or receive funds from this program. Such a government scientist must provide in the application a letter of commitment, a current curriculum vitae, and documentation of the required clearances from their Division, Institute or Agency director, as appropriate. The Group Leader must incorporate into the application, in the usual grant format, a full description of the project, including technical details and methodology. The participation of an intramural scientist is independent of and unrelated to the role of the Advisory Committee or the U.S. Government Scientific Coordinator as described under "Terms and Conditions of Award."

5. More than one Associate Program of a Group might be derived from a single institution. However, the varied talents and technologies required for the effective attainment of the objectives described in this RFA are not likely to be present in an individual institution. It is anticipated that the Associate Program Leaders within a Group will therefore likely be derived from several institutions.

6. No prescribed number of Associate Programs per Group is stipulated. However, the Group Leader could experience difficulty in providing the desirable level of guidance, and Group members might communicate and collaborate less efficiently, if the Group were to contain more than five or six Associate Programs. In addition, to ensure the most effective use of resources and management of data, the number of institutions collaborating in a Group should be considered carefully.

7. In forming Groups, potential Group Leaders should remain cognizant of the need for communication, including regular meetings of members, and transfer in a timely manner of data and materials to Group members located in all the

participating countries. A plan for communication and material transfer, including all permits and other legal documents required to assure this transfer, must be supplied.

8. Under the provisions of assistance via a Cooperative Agreement, the U.S. Government Scientific Coordinator will assist the ICBG and participate in the Group in a manner specified in "Terms and Conditions of Award," and carry out the scientific responsibilities required. The U.S. Government Scientific Coordinator will not conduct Associate Program activities.

ELIGIBLE INSTITUTIONS

You may submit an application if your institution has any of the following characteristics:

- o Non-profit organization
- o Public or private institutions, such as universities, colleges, hospitals, and laboratories
- o Eligible agencies of the U.S. Government
- o Domestic
- o Faith-based or community-based organizations

The Group Leader must be located in a public or private non-profit institution of the United States. Components of the sponsoring agencies, including NIH, the NSF, the FAS and the FS are not eligible either as Group Leaders or Associate Programs. If you are from a U.S. Government agency and are interested in participating in an application contact the Program Director for guidance on eligibility. Foreign and for-profit institutions may and are encouraged to participate in an ICBG as Associate Programs.

The NIH will review ONLY ONE APPLICATION FROM ANY ONE INSTITUTION. Therefore, you are encouraged to consult within your institution about other individuals who maybe considering applying before developing one yourself.

INDIVIDUALS ELIGIBLE TO BECOME PRINCIPAL INVESTIGATORS

Any individual with the skills, knowledge, and resources necessary to carry out the proposed research is invited to work with their institution to develop an application for support. Individuals from underrepresented racial and ethnic groups as well as individuals with disabilities are always encouraged to apply for NIH programs.

SPECIAL REQUIREMENTS

1. Award Monitoring and Evaluation

Progress of each funded Group will be monitored and evaluated using semi-annual technical reports progress prepared by the Group. Detailed reporting instructions will be provided to grantees upon receipt of award or by request. Part of this reporting process will rely on grantee cooperation with an ICBG Data Coordinating Center that will be supported under a contract from the Government. Evaluation of productivity and accomplishments of Groups will utilize diverse criteria including, but not limited to, scientific publications, new species, new compounds, new analytical or production methods, patents, trainees, courses, local income-generating activities, institutional capacity development and conservation or health policy impacts.

The U.S. Government Scientific Coordinator or the ICBG Program Director, with advice from the Advisory Committee, may also elect to conduct site visits or enlist the technical assistance of external consultants to review progress and

work with investigators to suggest mid-course changes or recommendations for non-competitive renewal of awards.

2. ICBG Data and Coordinating Center

To ensure the integrity of collaboration within groups and the ability of the Government to monitor and facilitate progress of the ICBGs minimum data elements, formats and standards for a subset of data will be developed in consultation with grantees. Grantees will be required to maintain an integrated relational database for bioinventory (e.g. species name and collection site) and drug discovery (e.g. bioactive compounds isolated) and to provide a subset of these data on a regular basis to a Data and Coordinating Center serving all groups. All grantee data will be treated as proprietary and confidential except where otherwise indicated by the grantees. The Data and Coordinating Center will also serve a variety of data analysis, data management, literature access, outreach and training needs of the funded groups. The Government will use the Natural Product Information System (NAPIS™) to consolidate these data and applicants are encouraged to use this or a compatible system to collect and store the relevant subset of their data.

3. Genetic Resources Access, Intellectual Property and Benefit-Sharing

Because the discovery of bioactive agents from natural products is one objective of this effort, along with ensuring an equitable economic benefit accrues to developing country organizations or communities associated with ICBG research, it is essential that applicants develop appropriate plans for access to genetic resources and contractual agreements for the treatment of intellectual property and benefits that may arise. The importance of carefully planned and executed approaches to access and benefit-sharing is a function of both their integral relationships with the goals of this program and the rapidly changing regulatory environment in many countries as they respond to the U.N. Convention on Biological Diversity. The development of these plans and agreements is frequently complex and challenging because multiple institutions and countries are involved, often with very different objectives, perceptions and expectations, and occasionally from very different legal environments.

In the application, each applicant Group must, therefore, provide a detailed description of its approach to prior informed consent, intellectual property and the sharing of benefits from ICBG-sponsored research. Descriptions should encompass both the conduct of collaborative research activities and the nature of contractual agreements among the collaborators. The research plan and contractual agreements among Group members must be designed such that they address the ICBG "Principles for Access, Intellectual Property and Benefit-Sharing" detailed in this RFA. Applicants may wish to consult the newly founded Center for the Management of Intellectual Property (MIHR)(<http://www.mihr.org>) for advice in developing their plans.

Prior to receiving an award, locally appropriate evidence of prior informed consent and formal agreements specifying the rights and responsibilities of each Group member institution (See Principles for Access to Genetic Resources, Treatment of Intellectual Property and the Sharing of Benefits) must be signed and dated by the organizational official authorized to enter into such arrangements, and must be on file at the Fogarty International Center. The FIC may issue restricted awards to allow a Group to complete negotiations or finalize documentation of informed consent. (See the section "MINIMUM REQUIREMENTS FOR APPLICATION"). Applications that represent continuation from previous ICBG awards must also provide updated, revised or new evidence of prior informed consent and agreements prior to receiving an award. The above applies to all research carried out under this RFA, including any that may

involve U.S. Government laboratories.

4. Terms and Conditions of Award

The following terms and conditions will be incorporated into the award statement and provided to the Principal Investigator (Group Leader) at the time of award. The "Terms and Conditions of Award" described in this section are in addition to, and not in lieu of, otherwise applicable OMB administrative guidelines, HHS Grant Administration Regulations at 45 CFR Parts 74 and 92, and other HHS, PHS, and NIH grant administration policy statements.

a) Awardee Rights and Responsibilities

Assistance via Cooperative Agreements differs from that of grants in that, in addition to programmatic and administrative stewardship responsibilities, the U.S. Government, in awarding the Cooperative Agreement, anticipates substantial scientific involvement during performance of the project. However, the Group must define its objectives and its approaches to attain these objectives in accord with its own interests, scientific creativity, capabilities and perceptions. In this process, Groups are invited to use novel and effective approaches to the interdependent program areas of drug development, biodiversity conservation and development of scientific and economic capacity. The Group must develop the details of the program design following the guidance given in this RFA. It is the primary responsibility of the Group Leader to state clearly the objectives of the Group, to direct the research and other activities stipulated in the application, and to ensure that the results obtained are properly disseminated and published. It is anticipated that decisions will be reached by consensus of the Group under the leadership of the Group Leader and that the U.S. Government Scientific Coordinator will have the opportunity to offer input to this process.

Each project is expected to contribute to the achievement of three classes of benefits: health benefits through the discovery of natural products which may lead to new pharmacologic agents, benefits in the understanding and conservation of biological diversity, and enhanced scientific and economic capacity of the host country. The following three sections describe responsibilities of the awardee relating to the realization of these benefits.

i. Drug Discovery

o One principal end product of the ICBG is the identification of bioactive natural products with potential for biomedical use. Grantees will actively pursue pre-clinical development of promising leads with support from the ICBG grant, industrial partners, NIH pre-clinical contract resources or other means. Additional health-related end products may include data, methods and local capacity toward development of botanicals of local importance. Research related to agricultural agents and other natural product-based materials may be included if the work requires modest support from the grant.

o Grantee organizations and their domestic and foreign partners retain custody and rights to all proprietary data and intellectual property that emerge from their research, as outlined in the section, "Principles for Access, Intellectual Property and Benefit-sharing." Currently proposed modifications to NIH rules governing foreign intellectual property from grants (NIH Guide: NOT-OD-02-039) will not apply to the ICBG program.

o The Government will retain the option to cross-file or independently file an application for investigational clinical trial [e.g. an Investigational New Drug Application (INDA) or an Investigational New Device] to the United States

Food and Drug Administration of any invention resulting from these Government-supported Cooperative Agreements. It is the responsibility of the Group Leader to submit to the U.S. Government Scientific Coordinator, upon request, reports of data generated by the Group or any of its members required for cross-filing purposes. Such reports will include background information, methods, results, and conclusions. They will be subject to approval and revision by Government staff and may be augmented with test results from other Government-sponsored projects prior to submission to the appropriate regulatory agency.

- o The awardee will retain custody of and rights to the data. Significant findings emerging from ICBG-funded research must be published in a timely fashion in peer-reviewed scientific journals except in cases in which clear proprietary concerns are present. Publications or oral presentations of work done under this agreement will require appropriate acknowledgment of joint support from the NIH, NSF and the USDA under this RFA.

ii. Biodiversity Conservation

- o The primary products of biodiversity conservation efforts should include: 1) the establishment of spatially explicit biotic inventories and collections of preserved or living specimens of plants, animals and microbes; 2) enhanced host country technical capabilities to implement sustainable resource use policies and programs; and 3) enhancement of the value of biodiversity to communities affected by conservation efforts through benefit-sharing activities, educational programs, sustainable use income opportunities, or other approaches. All projects focused on biodiversity conservation outcomes must be clearly related to the other scientific and development objectives of the program. Isolated or seemingly haphazard efforts must be avoided.

- o Projects must comply with all national and international regulations regarding collection, import/export and use of biological specimens. All requisite permits for inventory collections and for drug discovery collections from the relevant government organizations will be procured in advance of collection activities and copies must be provided to the Program Director. Requests to collect species that have been declared threshold or endangered by the Convention on International Trade in Endangered Species (CITES) must be particularly well-justified, and all regulations regarding these species must be scrupulously followed.

- o Collection of biological materials for inventories, assays, chemical analyses or commercial development must be conducted with close attention to the potential impact of collection on natural populations of target or associated organisms.

- o Voucher specimens should be made for all collections. These must be preserved in a manner suitable to allow subsequent identification and scientific analysis of the specimens. Specimen collections must be placed in appropriate depositories, such as major natural history museums, herbaria, and living organism stock collections. It is especially important to deposit specimens in the host country, and plans for the eventual deposition of all collections made during the life of the proposed ICBG should be included in the application.

- o Floral and faunal lists and identification keys should be published in English and in the major language(s) of the host country. When ethnobiological studies are involved, results should also be published in the language(s) of the subject population where possible.

- o The development of biodiversity databases, such as computerized keys,

inventory lists, and geographic information systems, is strongly encouraged. Where possible, these databases should be located at the host country institution where collections from ICBG activities are deposited. In all cases, the institutions where collections are housed and organizations with biodiversity management responsibilities in the host country must have ready access to the data. If these databases are linked to drug discovery databases with proprietary information, appropriate attention to security of those data is expected. However, it is anticipated that drug discovery collections would form only a part of inventory data and the entirety of the data related to taxonomy and location of species should be made public via the internet and/or other publicly available formats, except in extremely unusual and well-justified cases.

iii. Scientific and Economic Development

- o ICBG efforts must provide for both near- and long-term benefits to the source country and communities from the research process and any discoveries that emerge from it. It is important to recognize that a commercially successful pharmaceutical from a given research project is a relatively rare and much delayed outcome.

- o End products of special concern for economic development may include: 1) training targeted to the specific needs of the research program and the participating country; 2) enhancement of the scientific infrastructure of the participating country; and 3) identification of natural products suited for sustainable micro-enterprise development and/or health promotion in the participating country. Enhanced technical capacity to evaluate, standardize and sustainably harvest locally important botanical remedies is one means of integrating these goals. Scientific and technical support to the national process of policy formulation for access and benefit-sharing, for regulation of botanical products, for conservation of nature, or for investments in research represent other options. Whatever approach is taken, economic development strategies should be clearly related to the other goals of the ICBG and should be integrated with these activities.

- o ICBGs must present a strategic plan with benchmarks for years one, three, five and ten for the major capacity building, conservation and development goals of the project. The plan will address sustainability of their initiatives following the end of the grant period (e.g. ten year benchmarks). The plan is expected to evolve and be updated periodically during the course of the project.

- o Relevant host country governmental, non-governmental and community organizations should be consulted at the planning stage to ensure that research and development plans support national and local objectives, and to identify potential barriers to implementation early on. It is strongly recommended that Groups hold a public meeting or workshop in the host country during the very early developmental stage of the project. Such fora involving individuals from local communities as well as from university, government, and community organizations in a single meeting is a valuable means of gaining early feedback on working plans and broad-based support for future project efforts.

- o For projects that will have substantial interactions with indigenous and local communities, Groups are advised to develop formal, well-documented consultations with indigenous community leaders and respected local Non-Governmental Organizations during project planning and periodically thereafter. In many areas identifying appropriate representation of indigenous groups for the purposes of ICBG-type research is difficult, and researchers are advised to make minimal assumptions in this regard. Seeking

the advice or participation of social scientists and development organizations with local expertise is also advisable during this process.

- o In the enhancement of scientific infrastructure, project managers must specifically consult with participating country officials to assure that the enhanced research capabilities can be sustained after completion of the project, using locally available resources. Equipment procured will be of U.S. source and origin. Major equipment procurements that are not from U.S. sources or origins must be justified in writing and are subject to U.S. Government approval.

- o Where information is generated that would be useful to developing countries in meeting development objectives, such as information useful in establishing sustainable natural products-based industries or novel and important approaches to partnership frameworks, such information will be made available to the Government of the developing country partners and to the U.S. Government. Moreover, within the application, a plan to disseminate this information should be developed and implemented. The dissemination plan may include such elements as publication of results in appropriate scientific or technical journals, presentations at conferences, the transfer of relevant information to agricultural and industrial extension services, and direct publication and extension efforts by the collaborators.

- o In the licensing of a product for advanced development and/or commercial production, the licensee must be required to use the participating country and/or communities as the first source of raw or processed material, subject to the negotiation of mutually acceptable terms.

b) Nature of U.S. Government Assistance

The U.S. Government shall assist in the activities of the ICBG principally through the U.S. Government Scientific Coordinator and the FIC Biodiversity Program Director. Both the Program Director and the Coordinator are members of the Interagency Technical Advisory Group (TAG). This body of scientists representing the participating agencies meets regularly to discuss progress of funded ICBGs and make recommendations regarding technical, policy and funding issues. The Program Director shall be the primary Government contact with the Group Leader for issues relating to program administration, funding and policy. The Coordinator will be the primary Government contact with the Group Leader for scientific and technical issues.

The Coordinator and two to four advisors (Advisory Committee) from the TAG with relevant expertise will be appointed by the Government to provide assistance to your ICBG. During performance of the award, the Coordinator may provide appropriate assistance in the design of activities, in the identification of scientific resources, and in the collection of materials or information. In all cases, the role of the Coordinator will be to assist and facilitate, and not to direct activities.

The U.S. Government Scientific Coordinator, as well as any other Group member, may assist in research planning; may suggest studies within the scope of the Group's objectives; may present to the Group findings from published sources or from grant or contract projects in support of these suggestions; may participate in the design of project activities and experiments as agreed to by the Group; and may participate in the analysis, reporting and publication of results.

When appropriate and with prior knowledge of the Advisory Committee to the Government Scientific Coordinator, U.S. Government laboratories or contractor laboratories may be available for training related to the specific research

efforts of the ICBG. Prior written approval from the laboratory director must be obtained. With the exception of training provided by the ICBG Data Center, funding for this training must be within the ICBG's approved budget.

The in vitro human cancer cell line screen of the National Cancer Institute (NCI) will be available for testing of all ICBG materials, including extracts, either in the form of a primary prescreen or for confirmatory secondary testing, as appropriate.

The Group is encouraged to utilize NIH contract-based resources to facilitate development of important lead compounds that are not of interest to industrial collaborators. The intent is to help grantees further develop lead agents. It is not anticipated that NIH would retain any intellectual property rights from the work except as specified in the "Terms and Conditions of Award, a) Awardee Rights and Responsibilities." Upon recommendation of the U.S. Government Scientific Coordinator, and with appropriate prior mutual agreement, other Institutes of the NIH, including NCI, NIAID, NICHD, NIMH, NIDA, NCCAM, may use their contract resources in support of Group research activities. The following is a list of resources that may be available. It cannot be assumed that any specific resource will be provided, and accordingly they should not be included as part of the application unless formally agreed upon prior to submission, and documentation of such a commitment is provided with the application. All compounds and information exchanged between the awardee and the Government will be governed by confidentiality agreements among the parties involved. These resources include:

- i. Reference compounds for standardization of test systems, as analytical standards, and for related purposes.
- ii. Needed resources such as test materials and research results and other information that may not otherwise be available to the Group.
- iii. Laboratory testing capacity, whenever appropriate and possible, in the current contract-based pre-clinical therapy-related laboratory testing programs of several of the participating NIH Institutes. The Group is expected to provide sufficient test material for such testing.
- iv. Searches of computer databases of materials, chemical structures and biological activity, if requests for such searches are sufficiently focused to avoid excessive costs. Information given to an ICBG will be restricted by any standard confidentiality agreements between the Government and suppliers of test material to the Government.
- v. Experimental animals and other biological resources (e.g. cell cultures), if available, to Groups whose main research activities do not require these materials on a regular basis, and if fully justifiable. Note: in all cases, Groups whose experimental approach involves studies that require animals must 1) meet all PHS animal protection requirements (see below), and 2) budget for anticipated associated costs in their application.

A current list of resources potentially available for project support through the NIH and other participating agencies will be available through the FIC ICBG website: <http://www.nih.gov/fic/programs/icbg.html>.

These "Terms and Conditions of Award" require that the U.S. Government Scientific Coordinator approve the following: reports intended for inclusion in INDAs and Clinical Brochures; redistribution, outside the ICBG, of biological and chemical materials received from the U.S. Government; and dissemination of research or project findings resulting from the use of such materials to assure conformity to existing confidentiality agreements with

suppliers.

c) Data Access and Standards

The Government will have access to all data generated under this Cooperative Agreement and will periodically review the data for program management purposes. The Government may elect, following consultation with grantees, to publish summary results from program activities to fulfill its responsibility to disseminate lessons learned from the program.

Minimum data quality and format standards will be developed in consultation with awardees. Awardees will be required to maintain an integrated relational database of inventory and drug discovery activities and to provide these data on a regular basis to an ICBG Data and Coordinating Center serving all groups. Grantee data will be treated as proprietary and confidential except where otherwise agreed upon between the Government and the Awardees.

d) Collaborative Responsibilities

The Group Leader is responsible for organizing meetings of all Group members, including the Government Scientific Coordinator and the ICBG Program Director at least once per year, to review progress, plan and design research and technical activities, and establish priorities.

In addition, Group Leaders from each ICBG will meet every year at the NIH Campus to share findings and lessons with each other and the ICBG Technical Advisory Group. For at least two of these meetings during the five-year duration of awards under this RFA all Associate Program Leaders from each Group and all available TAG members will attend a joint meeting to share important information, to review the overall progress of the program and establish future priorities. Applicants should budget for these meetings from grant funds.

e) Arbitration

Disagreements pertaining to approval by the U.S. Government Scientific Coordinator on scientific and technical programmatic matters will be arbitrated by a panel composed of one Group designee, one Government designee assigned by the Government Scientific Coordinator, and a third designee with expertise in the relevant area chosen by the other two. This arbitration procedure in no way affects the awardee's right to appeal an adverse action in accordance with PHS regulations at 42 CFR Part 50, Subpart D, and HHS regulations at 45 CFR Part 16.

WHERE TO SEND INQUIRIES

We encourage inquiries concerning this RFA and welcome the opportunity to answer questions from potential applicants. Inquiries may fall into three areas: scientific/research, peer review, and financial or grants management issues.

o Direct your questions about scientific/research issues to:

Dr. Joshua Rosenthal
Deputy Director,
Division of International Training and Research
Fogarty International Center
National Institutes of Health
31 CENTER DRIVE, MSC 2220
BETHESDA, MD 20892-2220

Telephone: 301-496-1653
FAX: 301-402-0779
Email: joshua_rosenthal@nih.gov

o Direct your questions about peer review issues to:

Dr. Donald Schneider
Center for Scientific Review
Division of Molecular and Cellular Mechanisms
6701 Rockledge Drive, Room 5160
Bethesda, MD 20892-7842
Telephone: 301-435-1727
FAX: 301-480-1988
Email: schneido@mail.nih.gov

o Direct your questions about financial or grants management matters to:

Mr. Bruce Butrum
Grants Management Officer
Fogarty International Center
Bldg. 31, Room B2C29
Bethesda, MD 20892-2220
Telephone: (301) 496-1670
FAX: (301) 594-1211
Email: butrumb@mail.nih.gov

LETTER OF INTENT

Prospective applicants are asked to submit a letter of intent that includes the following information:

- o Descriptive title of the proposed research
- o Name, address, and telephone number of the Principal Investigator
- o Names of other key personnel
- o Participating institutions
- o Number and title of this RFA

Although a letter of intent is not required, is not binding, and does not enter into the review of a subsequent application, the information that it contains allows NIH staff to estimate the potential review workload and plan the review.

The letter of intent is to be sent by the date listed at the beginning of this document. The letter of intent should be sent to:

Dr. Joshua Rosenthal
Deputy Director
Division of International Training and Research
Fogarty International Center
National Institutes of Health
31 CENTER DRIVE MSC 2220
BETHESDA, MD 20892-2220
Telephone: 301-496-1653
FAX: 301-402-0779
Email: joshua_rosenthal@nih.gov

SUBMITTING AN APPLICATION

Applications must be prepared using the PHS 398 research grant application instructions and forms (rev. 5/2001). The PHS 398 is available at

<http://grants.nih.gov/grants/funding/phs398/phs398.html> in an interactive format. For further assistance contact GrantsInfo, Telephone (301) 435-0714, Email: GrantsInfo@nih.gov.

SPECIFIC INSTRUCTIONS FOR MODULAR GRANT APPLICATIONS (R21 PLANNING GRANTS ONLY): Applications requesting up to \$250,000 per year in direct costs must be submitted in a modular grant format. The modular grant format simplifies the preparation of the budget in these applications by limiting the level of budgetary detail. Applicants request direct costs in \$25,000 modules. Section C of the research grant application instructions for the PHS 398 (rev. 5/2001) at <http://grants.nih.gov/grants/funding/phs398/phs398.html> includes step-by-step guidance for preparing modular grants. Additional information on modular grants is available at <http://grants.nih.gov/grants/funding/modular/modular.htm>.

The research plan of Planning Grant applications must not exceed the 25 page limit specified in the PHS-398.

SPECIFIC INSTRUCTIONS FOR COMPREHENSIVE AWARD (U01)APPLICATIONS

This RFA requires the submission of a single application for each proposed International Cooperative Biodiversity Group. Applicants should follow the instructions given in the Form PHS-398 (Rev. 5/2001) package unless otherwise indicated in this announcement or in supplemental instructions. Because of the multi-institutional nature of an ICBG and the special requirements in this RFA, additional instructions regarding format and some modifications are given to guide the writing of a comprehensive application.

The application will be reviewed as a whole, and in addition each Associate Program will receive an individual critique. Therefore, the application should contain separate sections for each Associate Program, preceded by an integrated Group Plan section. Note that the Group plan and the plan for each Associate Program must not exceed 25 pages each. Applications that exceed the page limit will be returned to the applicant unread.

a) Group Plan

This section should contain the following portions of the PHS-398: Face Page; Description, Performance Sites, Key Personnel; Research Grant Table of Contents, Budget for Entire Period of Proposed Support, and Research Plan; Checklist. The 25-page limit described in the PHS-398 applies to this Group Plan or Planning Grant section.

Complete the FACE PAGE for the application as in a regular research grant application.

For the Group Plan section, KEY PERSONNEL should list the Associate Program Leaders for the whole Group. The TABLE OF CONTENTS should number pages for the entire application consecutively, with the FACE PAGE as page one.

The BUDGET page in this section (Form Page 5) should reflect the consolidated TOTAL DIRECT COSTS, by category, of the entire proposed ICBG. A summary page of the TOTAL DIRECT COSTS, by Associate Program, by year, must be included on a separate page. The Group Plan section should also provide, from the applying institution, a Detailed Budget for the first twelve-month period and a budget for the entire proposed project period for direct costs for the management and coordination of Group activities through a Central Operations Office and all travel, including the cost of annual Group meetings.

Often the various research tasks necessary to reach the Group's goals may need to be phased in, at least in part, in sequential fashion. For example, isolation chemistry will not likely begin until samples have been collected

and samples with biologically-active constituents have been identified and verified. In such cases, the budgets for the individual Associate Programs should, logically, reflect an appropriate change in relative emphasis among tasks until an operational steady state situation is attained. Justification for phase-in budgets also should be provided.

Incumbent Groups must describe, in ten pages or less, the progress they have attained toward the original goals of their program, including a list of publications, workshops and any other accomplishments of the Group.

Inasmuch as the Group Leader may also function as an Associate Program Leader for his/her Associate Program, detailed budget information that duplicates information provided in the section describing the Group Leader's Associate Program need not be included in the Group Plan Section.

The RESEARCH PLAN in the GROUP PLAN section should summarize and synthesize the associate programs to illustrate a coherent Group effort, e.g., how the projects are mutually reinforcing and how collectively they will further the goals of the proposed research. This should include a description of the interrelationships among members of the Group and organizational charts in accordance with Sections H and I of this RFA and how the data from the various associate programs involved in drug discovery and biodiversity inventory will be integrated into a single relational database. It is important to discuss any prior collaborative efforts among the investigators as evidence of the ability to work together in multi-disciplinary and/or international projects.

The Group Plan section should not repeat details that are provided in the Associate Program sections, however, it should contain any additional information about the proposed Group Leader or his/her institution that is evidence of the capability to carry out the scientific and administrative duties required in this RFA and the functions of the Central Operations Office.

The Group Plan Section must include the following elements to be considered responsive to minimum requirements:

- i. A statement assuring compliance with the ICBG Program Principles for Access, Intellectual Property and benefit-sharing detailed in this RFA.
- ii. A outline of the steps necessary to achieve prior informed consent of appropriate host country institutions, communities and individuals to carry out the proposed research and development activities.
- iii. A statement of acceptance of the provisions of "Terms and Conditions of Award," as described in that section of the RFA.
- iv. A plan to assure maintenance of close collaboration and effective communication among members of the Group.

b) Associate Programs

Each of the Associate Programs, including the Associate Program (if any) of the proposed Group Leader, should be numbered consecutively (i.e., AP 1, AP 2). Use Form PHS-398 for each Associate Program, but omit the checklist for the individual program. The 25-page limitation stipulated in the PHS-398 application package applies to each of the individual Associate Programs.

Each Associate Program section should begin with its own TITLE PAGE. The Associate Program Title or Topic, Associate Program Leader, and the Associate Program number within the group should be at the top of the page.

The TITLE PAGE should also state "International Cooperative Biodiversity Groups", the overall project title, and the Group Leader at the bottom of the page. The second page of the PHS-398 should follow with the abstract ("Description") of the Associate Program and the list of sites and key personnel.

The TABLE OF CONTENTS (Form Page 3) for each Associate Program section should be consistent with the GROUP PLAN TABLE OF CONTENTS, and should be detailed enough to enable reviewers to find specific information readily.

The remaining parts of the PHS-398, including the budget pages, except the CHECKLIST for each Associate Program section, should be completed as in a normal grant application, detailing the proposed work of the Associate Program, and where relevant, the interactions with other Associate Programs within the Group.

c) Appendices should follow the Group Plan, except where exclusively relevant to the activities of one Associate Program and should be listed individually in the table of contents:

i. If internal or external advisory groups will be used in addition to those specified in this RFA, list their membership and describe their roles.

ii. Include in one appendix all letters of support from Associate Program Leaders, Government officials, community leaders, as well as a list of documents or actions that will be required to fulfill local institutional and governmental regulations in order to carry out work.

iii. List in a separate table all consultants, both paid and unpaid. Include a signed letter of agreement from each consultant.

This RFA uses "Just in Time" procedures outlined in the PHS-398 instructions. Questions concerning use of human subjects in research should be referred to the Office for Human Research Protections of the Department of Health and Human Services (Telephone: (301) 496-7005, Office for Human Research Protections, Department of Health and Human Services, The Tower Building, 1101 Wootton Parkway, Suite 200, Rockville, MD 20852). Questions concerning the use of animal subjects in research should be referred to the Office of Laboratory Animal Welfare, National Institutes of Health (Telephone:(301) 594-2289, Office of Laboratory Animal Welfare, National Institutes of Health, Rockledge One, Suite 360, MSC 7982, 6705 Rockledge Drive, Bethesda, MD 20892-7982, for express or hand-delivered mail, use zip code 20817).

MINIMUM REQUIREMENTS FOR APPLICATION

Applications to the International Cooperative Biodiversity Groups must meet a set of minimum requirements, listed below, in order to be considered by the peer review panel. These requirements are each described elsewhere in this RFA and should be addressed in the relevant portions of the application or as detailed below.

PLANNING GRANTS (R21) and COMPREHENSIVE AWARDS (U01)

1. Identify a single Group Leader from a U.S. non-profit institution who will be responsible for the application, for Group research and technical activities, and for the disbursement of funds in support of Group activities.

2. Structure the Group to include at least one Associate Program located within and led by a developing country institution.

3. Identify the Group Leader's institution that will assume legal and financial responsibility and accountability for the use and disposition of funds awarded on the basis of this RFA; show availability of personnel and facilities capable of performing and supporting the administrative and scientific functions of this ICBG including data management.
4. Present, for each Associate Program, research, technical approaches, and budget requirements.
5. Describe the ways in which the Group Leader and the Associate Program Leaders possess the outstanding scientific and technical skills and leadership qualities to conduct the proposed research successfully, including past and current involvement in relevant research programs, experience, unique competencies, and pertinent publications, peer recognition or other evidence of accomplishment.
6. Describe how each component Associate Program is required for the attainment of the Group's objectives and that each has available the professional and technical personnel to permit efficient and successful conduct of the proposed research. Documentation should include curricula vitae for all key personnel involved in the Group.
7. Provide a description of the Group's plan for assuring adequate protection of intellectual property and sharing of benefits that may result from Government funding of the proposed work. The application requires an outline for the basic framework of an agreement or agreements among all Group members and their institutions, including local community organization representatives, signed and dated by the organizational official authorized to enter such arrangements for each Group member and member institution. The outline or plan need not list specific terms of agreements, but must indicate correspondence of the basic plan with relevant national and international laws and the program principles described in this RFA. Draft agreements among all Group members must be submitted to the FIC for review prior to award, and finalized, signed agreements must be in place before any research materials are collected or transferred among collaborators.

COMPREHENSIVE AWARDS ONLY

8. Provide a clear, concise plan in narrative and diagrammatic form that depicts the interrelationships among the members of the Group and the contribution of each to the fulfillment of Group objectives; provide an organizational chart of the Group showing the name, organization, and scientific discipline of the Group Leader and Associate Program Leaders; provide an organizational chart for each Associate Program within the Group showing relationships among the key personnel.
9. Provide a plan to assure the maintenance of close collaboration and effective communication, and exchange and maintenance of data among members of the Group and between the Group and host country government and community leaders. The application must include letters of commitment to the plan by all Associate Program Leaders (place in an appendix to Group Plan).
10. The application should include a letter of support for the project from the relevant developing country Government agency(ies), acknowledging the multiple objectives of the program. The application must include a list of the documents that will ultimately be necessary to satisfy local institutional and governmental requirements (place in an appendix to Group Plan). Copies of all permits and legal documents and certifications of governmental authorizations required to assure collaborations must be provided before an award is made.

11. Indicate that all key personnel have the time available for this project and show for all key professional personnel: 1) title, identifying number, percentage of effort devoted to the project, direct costs, and project period of all awarded and pending grants, contracts, Cooperative Agreements, and industrial commitments regardless of source of funding; and 2) identify and explain areas of potential scientific and/or budgetary overlap with active and pending grants, contracts, and Cooperative Agreements and what support would be relinquished if this Cooperative Agreement award is made.

12. Describe for each component Associate Program and the Group as a whole, the facilities available for conduct of the proposed research. Funds will be provided for alteration or renovation only for facilities in developing countries under this RFA.

13. Provide a research training plan for each relevant Associate program which includes types of training, numbers of long-term trainees, in-country courses and workshops, if any. Evidence of the facilities to conduct the training should be included. Costs associated with training activities must also be specified in the Budget section of the application.

14. Submit a strategic plan (in the Group Plan section) that outlines the schedule of activities and expected products of the Group's work with benchmarks for years one, three, five and ten of the initiative. The strategic plan must include not only activities for the funded period under the ICBG grant (e.g. year ten benchmarks) but plans to provide for long-term sustainability of segments of the program beyond this period.

USING THE RFA LABEL: The RFA label available in the PHS 398 (rev. 5/2001) application form must be affixed to the bottom of the face page of the application. Type the RFA number on the label. Failure to use this label could result in delayed processing of the application such that it may not reach the review committee in time for review. In addition, the RFA title and number must be typed on line 2 of the face page of the application form and the YES box must be marked. The RFA label is also available at: <http://grants.nih.gov/grants/funding/phs398/label-bk.pdf>.

SENDING AN APPLICATION TO THE NIH: Submit a signed, typewritten original of the application, including the Checklist, and five signed photocopies, in one package to:

Center For Scientific Review
National Institutes Of Health
6701 Rockledge Drive, Room 1040, MSC 7710
Bethesda, MD 20892-7710
Bethesda, MD 20817 (for express/courier service)

APPLICATION PROCESSING: Applications must be received by the application receipt date listed in the heading of this RFA. If an application is received after that date, it will be returned to the applicant without review.

The Center for Scientific Review (CSR) will not accept any application in response to this RFA that is essentially the same as one currently pending initial review, unless the applicant withdraws the pending application. The CSR will not accept any application that is essentially the same as one already reviewed. This does not preclude the submission of substantial revisions of applications already reviewed, but such applications must include an Introduction addressing the previous critique.

Upon receipt, applications will be reviewed for completeness by the CSR and

responsiveness by the FIC. Incomplete and/or non-responsive applications will be returned to the applicant without further consideration.

Applications that are complete and responsive to the RFA will be evaluated for scientific and technical merit by an appropriate peer review group convened by the National Institutes of Health in accordance with the review criteria stated below. As part of the initial merit review, all applications will:

- o Receive a written critique
- o Undergo a process in which only those applications deemed to have the highest scientific merit, generally the top half of the applications under review, will be discussed and assigned a priority score
- o Receive a second level review by the FIC Advisory Board

REVIEW CRITERIA

The goals of NIH-supported research are to advance our understanding of biological systems, improve the control of disease, and enhance health. In the written comments, reviewers will be asked to discuss the following aspects of your application in order to judge the likelihood that the proposed research will have a substantial impact on the pursuit of these goals:

- o Significance
- o Approach
- o Innovation
- o Investigator
- o Environment

The scientific review group will address and consider each of these criteria in assigning your application's overall score, weighting them as appropriate for each application. Your application does not need to be strong in all categories to be judged likely to have major scientific impact and thus deserve a high priority score. For example, you may propose to carry out important work that by its nature is not innovative but is essential to move a field forward.

(1) SIGNIFICANCE: What is the potential impact of your project on human health, biodiversity conservation, and sustainable economic opportunities? Will it advance scientific knowledge? What will be the effect of these studies on the concepts or methods that drive this field? Will it measurably advance the scientific capacity of the host country(ies)?

(2) APPROACH: Are the conceptual framework, design, methods, and analyses adequately developed, well integrated, and appropriate to the aims of the project? Do you acknowledge potential problem areas and consider alternative tactics? Is there likely to be strong multidisciplinary cooperation among associate programs and potential for synergy of activities toward the three goals of the program? Are the plans for intra-Group communication and data-sharing adequate and do they account for the special requirements of an international collaboration?

Is the plan to build capacity for biodiversity and biomedical research adequate and appropriate to local and international scientific needs beyond the specific targets of the proposed work? Is the extent and level of developing country participation and documentation of local community involvement and support appropriate and sufficient?

(3) INNOVATION: Does your project employ novel concepts, approaches or methods? Are the aims original and innovative? Does your project challenge existing paradigms or develop new methodologies or technologies?

(4) INVESTIGATOR: Are you and your Group appropriately trained and well suited to carry out this work? Is the work proposed appropriate to your experience level as the Principal Investigator and to that of other researchers? Do you and your group have the experience, competence, commitment, and time availability? Do you and your Associate Program leaders have a track record of success relevant to this RFA and demonstrated past support from NIH, NSF or other sources?

Do you have the ability and commitment, as measured by previous success, to cooperate with and train developing country nationals in the scientific and technical disciplines considered critical to meeting the objectives of the proposed programs?

Do you as the Group Leader have administrative experience and competence in the development, implementation, and management of comprehensive domestic and international research programs and has your institution demonstrated commitment to support these activities?

(5) ENVIRONMENT: Does the proposed work take place in a country or region that is a priority for biodiversity conservation and economic development efforts, and does it take advantage of the unique biological and intellectual resources of that country or region?

Are the physical facilities and research and training resources available adequate? Is there sufficient evidence of the availability and competence of the institutions involved to carry out all required legal, fiscal and policy responsibilities?

ADDITIONAL REVIEW CRITERIA: In addition to the above criteria, your application will also be reviewed with respect to the following:

- o PROTECTIONS: The adequacy of the proposed protection for humans, animals, or the environment, to the extent they may be adversely affected by the project proposed in the application.

- o INCLUSION: The adequacy of plans to include subjects from both genders, all racial and ethnic groups (and subgroups), and children as appropriate for the scientific goals of the research. Plans for the recruitment and retention of subjects will also be evaluated. (See Inclusion Criteria included in the section on Federal Citations, below)

- o DATA SHARING: The adequacy of the proposed plan to share data.

- o BUDGET: The reasonableness of the proposed budget and the requested period of support in relation to the proposed research.

- o OTHER REVIEW CRITERIA: Progress/accomplishments of incumbents made during the term of the previous ICBG grant, if applicable.

RECEIPT AND REVIEW SCHEDULE

Letter of Intent Receipt Date: January 20, 2003

Application Receipt Date: February 19, 2003

Peer Review Date: May 2003

Council Review: August 2003

Earliest Anticipated Start Date: September 1, 2003

AWARD CRITERIA

Award criteria that will be used to make award decisions include:

- o Scientific merit (as determined by peer review)
- o Availability of funds
- o Programmatic priorities, including unique research opportunities and interests of co-funding organizations.

REQUIRED FEDERAL CITATIONS

PUBLIC ACCESS TO RESEARCH DATA THROUGH THE FREEDOM OF INFORMATION ACT: The Office of Management and Budget (OMB) Circular A-110 has been revised to provide public access to research data through the Freedom of Information Act (FOIA) under some circumstances. Data that are (1) first produced in a project that is supported in whole or in part with Federal funds and (2) cited publicly and officially by a Federal agency in support of an action that has the force and effect of law (i.e., a regulation) may be accessed through FOIA. It is important for applicants to understand the basic scope of this amendment. NIH has provided guidance at http://grants.nih.gov/grants/policy/a110/a110_guidance_dec1999.htm.

Applicants may wish to place data collected under this RFA in a public archive, which can provide protections for the data and manage the distribution for an indefinite period of time. If so, the application should include a description of the archiving plan in the study design and include information about this in the budget justification section of the application. In addition, applicants should think about how to structure informed consent statements and other human subjects procedures given the potential for wider use of data collected under this award.

INCLUSION OF WOMEN AND MINORITIES IN CLINICAL RESEARCH: It is the policy of the NIH that women and members of minority groups and their sub-populations must be included in all NIH-supported clinical research projects unless a clear and compelling justification is provided indicating that inclusion is inappropriate with respect to the health of the subjects or the purpose of the research. This policy results from the NIH Revitalization Act of 1993 (Section 492B of Public Law 103-43).

All investigators proposing clinical research should read the AMENDMENT "NIH Guidelines for Inclusion of Women and Minorities as Subjects in Clinical Research - Amended, October, 2001," published in the NIH Guide for Grants and Contracts on October 9, 2001 (<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-02-001.html>); a complete copy of the updated Guidelines are available at http://grants.nih.gov/grants/funding/women_min/guidelines_amended_10_2001.htm. The amended policy incorporates: the use of an NIH definition of clinical research; updated racial and ethnic categories in compliance with the new OMB standards; clarification of language governing NIH-defined Phase III clinical trials consistent with the new PHS Form 398; and updated roles and responsibilities of NIH staff and the extramural community. The policy continues to require for all NIH-defined Phase III clinical trials that: a) all applications or proposals and/or protocols must provide a description of plans to conduct analyses, as appropriate, to address differences by sex/gender and/or racial/ethnic groups, including subgroups if applicable; and b) investigators must report annual accrual and progress in conducting analyses, as appropriate, by sex/gender and/or racial/ethnic group differences.

INCLUSION OF CHILDREN AS PARTICIPANTS IN RESEARCH INVOLVING HUMAN SUBJECTS: The NIH maintains a policy that children (i.e., individuals under the age of 21) must be included in all human subjects research, conducted or supported by the NIH, unless there are scientific and ethical reasons not to include them.

This policy applies to all initial (Type 1) applications submitted for receipt dates after October 1, 1998.

All investigators proposing research involving human subjects should read the "NIH Policy and Guidelines" on the inclusion of children as participants in research involving human subjects that is available at <http://grants.nih.gov/grants/funding/children/children.htm>.

REQUIRED EDUCATION ON THE PROTECTION OF HUMAN SUBJECT PARTICIPANTS: NIH policy requires education on the protection of human subject participants for all investigators submitting NIH proposals for research involving human subjects. You will find this policy announcement in the NIH Guide for Grants and Contracts Announcement, dated June 5, 2000, at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-039.html>.

URLS IN NIH GRANT APPLICATIONS OR APPENDICES: All applications and proposals for NIH funding must be self-contained within specified page limitations. Unless otherwise specified in an NIH solicitation, Internet addresses (URLs) should not be used to provide information necessary to the review because reviewers are under no obligation to view the Internet sites. Furthermore, we caution reviewers that their anonymity may be compromised when they directly access an Internet site.

HEALTHY PEOPLE 2010: The Public Health Service (PHS) is committed to achieving the health promotion and disease prevention objectives of "Healthy People 2010," a PHS-led national activity for setting priority areas. This RFA is related to one or more of the priority areas. Potential applicants may obtain a copy of "Healthy People 2010" at <http://www.health.gov/healthypeople>.

AUTHORITY AND REGULATIONS: This program is described in the Catalog of Federal Domestic Assistance No. 93.989. Awards are made under authorization of the Public Health Service Act 42 USC 241 and 287b and administered under NIH grants policies described at <http://grants.nih.gov/grants/policy/policy.htm> and under Federal Regulations 42 CFR 52 and 45 CFR Parts 74 and 92.

The PHS strongly encourages all grant recipients to provide a smoke-free workplace and discourage the use of all tobacco products. In addition, Public Law 103-227, the Pro-Children Act of 1994, prohibits smoking in certain facilities (or in some cases, any portion of a facility) in which regular or routine education, library, day care, health care, or early childhood development services are provided to children. This is consistent with the PHS mission to protect and advance the physical and mental health of the American people.

PRINCIPLES FOR ACCESSING GENETIC RESOURCES, THE TREATMENT OF INTELLECTUAL PROPERTY AND THE SHARING OF BENEFITS ASSOCIATED WITH ICBG-SPONSORED RESEARCH

In developing both research plans and intellectual property agreements, it is important that all involved understand the differences between patent coverage and benefit-sharing agreements. While legal protection of the right to commercialize an invention is generally accomplished through the patent system, agreements among collaborators are generally required to designate the terms of partnerships including, among other things, the licensing of an invention and the sharing of any financial or other benefits that accrue from it.

The conduct of ICBG-sponsored research and the agreements among the collaborators must address the following principles to be eligible for funding.

1. Disclosure to and informed consent of host country stakeholders

a) Plans to collect samples for drug discovery should be vetted with the national government authorities of the host country and with any other national or local organizations they, you or your partners deem appropriate at the earliest stage of planning and once again, formally, before any collections take place.

b) Where national governments do not have clear regulations to guide informed consent procedures, activities should follow a two phase approach to distinguish basic and commercial research. Basic research intended primarily for publication, including collecting and analyzing biodiversity, as well as bioassay and chemistry work, may be considered "basic" research. If, at any time, researchers intend to file a patent application based on this work or to send a sample for testing to an industrial partner, the research immediately enters the commercial realm and must follow all the requisite permit and contract standards.

c) Arrangements for the use of traditional knowledge or the collection of samples from the lands of local peoples should be based upon full disclosure and informed consent of those peoples. Under best practices such arrangements develop as a partnership with early and ongoing full participation of appropriate community representatives in project design.

d) Indigenous concepts of intellectual property should be respected. If, for instance, cooperating indigenous groups, on the basis of religious or other concerns, object to specific uses, widespread dissemination or other treatments of the knowledge they provide, these concerns should be respected in the conduct of ICBG projects.

e) The process of disclosure and informed consent should be as inclusive and formal as is possible and culturally appropriate. The best practice is the development of written agreements with a community following complete and formal mutual agreement on the Group's goals and methods. Presentations by scientists to host country stakeholders should provide realistic descriptions of the type, amounts and probabilities of benefits, as well as any costs or risks that may accrue to cooperating communities or organizations. Arrangements with individuals who cooperate or provide information should be based upon prior community-level agreements whenever possible or appropriate.

2. Clear designation of the rights and responsibilities of all partners.

a) This is principally done through the design of adequate contractual agreements. Agreements should be among all collaborating organizations, whether or not they are recipients of government funds. These may include commercial drug developers, source country and U.S. research institutions, and indigenous and local peoples whose resources, biological or intellectual, are utilized in the research process.

b) It is strongly recommended that all parties to agreements have separate, competent legal counsel to represent their interests.

c) Useful contractual tools for the designation of rights and responsibilities include material transfer agreements, research and development agreements, license options agreements, know-how licenses, benefit-sharing agreements, and structured trust funds.

d) Unless stipulated otherwise in agreements among source country institutions and their collaborators, biological samples and associated

information collected under ICBG-sponsored research is the property of the source country institutions. The Government retains "march-in" rights to require licensing if the inventing organization(s) fail to pursue development of the process or invention, as described in the "Terms and Conditions of Award."

e) The ownership and compensation terms of first generation and subsequent inventions based upon a lead discovered in ICBG work should be clearly stipulated in agreements.

f) Agreements should specify that the basic goals of the collaboration include drug discovery, economic opportunities, and the conservation and sustainable use of biological diversity.

g) Agreements should also indicate how a sustainable source of materials for follow-up analysis of a lead compound will be developed, and should preferentially use the participating country and/or communities as the first source of raw or processed materials.

3. Protection of inventions using patents or other legal mechanisms.

a) Non-profit organizations (including universities) and small business firms retain the rights to any patents resulting from U.S. Government contracts, grants, or Cooperative Agreements. PL 96-517, through regulation, extends to businesses of any size the first option to the ownership of rights to inventions made in the performance of a federally-funded contract, grant, or Cooperative Agreement. All group members, therefore, including businesses of any size, might be full partners in the research of the Group and in rights to file patents for any inventions resulting therefrom as specified in the Group's research agreement(s). This includes communities organized into or represented by an appropriate legal entity.

b) The specific intellectual property arrangements among the institutions may vary and could include joint patent ownership, exclusive licensing arrangements, etc. Valuable intellectual resources that cannot or will not be patented, such as novel assays or traditional medicinal techniques, may require alternative protection methods, such as trade secrets. Applicants are encouraged to develop an arrangement that best suits the particular circumstances of their Group.

4. Sharing of benefits with the appropriate source country parties.

a) Equitable distribution of benefits should accrue to all those who contribute to a commercialized product, whether they are members of the consortium or not, including research institutions and local or indigenous people who provide useful traditional knowledge.

b) Benefits should flow back to the area in which the source plant, animal or microorganism was found, in such a way that they at least indirectly promote conservation of biological diversity.

c) The selection of beneficiaries must be justified in terms of program goals, as well as local and international laws and customs.

d) Benefits should be structured such that they are appropriate to the needs of the communities and the resources of the other collaborators. For example, trust funds managed by a community or community-project board may be more effective in support of conservation and health or education services than cash payments to a single individual or authority. Note that direct cash compensation may even have injurious effects on non-money economies.

e) Ideally, compensation begins flowing early in the collaboration through initial payments, training, equipment or services, to provide near-term conservation incentives.

5. Information flow that balances proprietary, collaborative and public needs.

a) Agreements and research plans should anticipate the tension between the traditional scientific ethic of public access to information, including publication of results, and the understandable desire of indigenous or commercial partners for confidentiality of information with potential commercial value, pending protection through patenting or other means.

b) Sharing of information among collaborating organizations should be an ongoing and regular process and should be as complete as possible to maximize efficiency of research and equity in partnerships while recognizing the proprietary concerns of those partners. Reporting back to collaborating communities, where relevant, on significant project developments should be a regular and expected component of the project.

6. Respect for and compliance with relevant national and international laws, conventions and other standards.

a) Relevant international conventions, such as the United Nations Convention on Biological Diversity and national laws regarding study, use and commercialization of chemical, biological and cultural resources, should be observed rigorously in the development of agreements and the conduct of research.

b) An essential goal of this program is to develop models for sustainable and equitable commercial use of biodiversity-rich ecosystems. As such, ICBG research agreements and activities should, wherever possible, go beyond the minimum legal standards regarding international research collaborations, looking to best practices and other standards for guidance.

DEFINITIONS

ADVISORY COMMITTEE: A subset of two or more U.S. Government scientific advisers from the Technical Advisory Group (TAG) to assist the work of the Group by providing advice and assistance and through the Scientific Coordinator (Committee Chair), to the Group. The Advisory Committee assists in such matters as reviewing the Group's progress reports and suggesting mid-course corrections and future directions for the Group. The Advisory Committee assembled for each Group is determined by the TAG. Each committee, including the Scientific Coordinator, attends groups meetings, where possible, meets separately at least once per year, and maintains ongoing communication regarding group progress.

ASSOCIATE PROGRAM: A component of the overall Group with a separate, detailed program plan and budget, that brings to the Group a unique resource, capability or expertise.

ASSOCIATE PROGRAM LEADER: The director of one of the Associate Programs of the ICBG.

BOTANICAL: A preparation of plant-based materials used as a form of healthcare in its whole or extracted form, including various chemical constituents, rather than as a single isolated compound. For the purposes of this RFA, botanicals include "phytomedicines" and may also include

preparations of non-plant biological materials used similarly but derived from terrestrial or marine sources including fungal, bacterial or animal origin.

CENTRAL OPERATIONS OFFICE: An administrative unit located at the Group Leader's institution, which is responsible for coordinating and/or providing administrative support for all Group activities including budgets from the Group's associate programs.

COOPERATIVE AGREEMENT: An assistance mechanism in which substantial Government scientific and programmatic involvement with the recipient is anticipated during performance of the planned activity.

CONTRACTUAL AGREEMENT: Any formal written agreement negotiated among participating institutions in an ICBG, or between the ICBG and other organizations, that stipulates the rights and responsibilities of the parties with respect to the research process, the access to genetic resources, treatment of intellectual property and the sharing of benefits.

DEVELOPING COUNTRY: low- and middle-income countries as listed at: <http://www.worldbank.org/data/countryclass/classgroups.htm>. Note that this economic criterion is a minimal criterion of eligibility. High indices of biodiversity and other scientific features of potential host country sites that enable ICBG research and development activities are an important part of the peer review. If you have questions about the eligibility or competitiveness of a given country or region you are encouraged to contact program staff.

FIC BIODIVERSITY PROGRAM DIRECTOR: A representative of the Fogarty International Center, a member of the TAG, and the Government program administrator for all funded Groups. The Program Director has lead responsibility for day-to-day funding and policy decisions in coordination with the Director of the FIC and the TAG. In conjunction with the Government Scientific Coordinator for each ICBG, the Program Director supports the activities of the Groups, where possible, through policy and program functions.

GROUP LEADER: The Principal Investigator identified in the application who assembles the ICBG, submits the single application in response to this RFA, and who is responsible for the performance of the Group as a whole and of each Associate Program Leader. The Group Leader will coordinate Group activities both scientifically and administratively and, in addition, may lead one of the Associate Programs of the Group. The Group Leader's institution is legally and fiscally accountable for the disbursement of funds awarded. The Group Leader's institution must be a not for-profit institution in the US.

INTERNATIONAL COOPERATIVE BIODIVERSITY GROUP: A consortium of Associate Programs, at least one of which is located in a developing country institution, representing diverse scientific disciplines and organizations which join together under guidance and direction of a single Group Leader (Principal Investigator) and which function as a unit with a common goal: to promote, through multidisciplinary approaches, drug development, biodiversity conservation, and sustainable scientific and economic development. In this RFA, the terms International Cooperative Biodiversity Group, ICBG, and "Group" are used synonymously.

NATURAL PRODUCT: In the context of the ICBG, a term used broadly to encompass any naturally occurring bioactive agent selected for pre-clinical evaluation against a disease or for another medical, agricultural, cosmetic or industrial need. This, of course, excludes materials which are synthesized de novo as well as any semi-synthetic derivatives which do not require the collection of material from nature.

PATENTABLE INVENTION: Any new and useful process, machine, manufacture or composition of matter, or any new and useful improvements thereof, as defined under the U.S. Patent Statute (35 USC 101).

TECHNICAL ADVISORY GROUP (TAG): A committee of advisors with relevant expertise from the Participating Agencies and Institutes, including the Director of the Fogarty International Center (FIC). The TAG reviews applications to make funding recommendations following the initial peer review, and meets several times per year, as necessary, to review developments in the ICBG program as a whole and progress of individual Groups.

U.S. GOVERNMENT SCIENTIFIC COORDINATOR: A representative of the TAG who assists a specific ICBG, attends Group meetings, interacts scientifically with the Group, and facilitates the role of the Government as a participant in the Group. The U.S. Government Scientific Coordinator serves as the chair of his or her respective Advisory Committee.

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