



NOV. 04

**NIJ**

Solicitation for Concept Papers

**Forensic DNA Research and Development**

**Notice:**

You *must* submit your application using the Office of Justice Programs' automated Grants Management System. Paper applications will not be accepted. We suggest you begin the process as soon as possible. To start the process, go to <http://www.ojp.usdoj.gov/fundopps.htm>.

**Deadline for Concept Papers:**

**December 13, 2004**

**8 p.m. eastern time**

SL 000685

**U.S. Department of Justice**  
**Office of Justice Programs**  
810 Seventh Street N.W.  
Washington, DC 20531

**John Ashcroft**  
*Attorney General*

**Deborah J. Daniels**  
*Assistant Attorney General*

**Sarah V. Hart**  
*Director, National Institute of Justice*

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# Forensic DNA Research and Development

## I. Introduction

The National Institute of Justice (NIJ) is the research, development, and evaluation agency of the U.S. Department of Justice and a component of the Office of Justice Programs. NIJ provides objective, independent, evidence-based knowledge and tools to enhance the administration of justice and public safety. NIJ supports research that can provide knowledge and tools to guide policy and practice.

With this solicitation, NIJ seeks concept papers for research and development that can enhance the forensic uses of DNA technology. This solicitation focuses on:

1. Technologies that result in faster, more robust, less costly, and less labor-intensive identification, collection, preservation, and analysis of DNA evidence.
2. Characterization of genetic marker systems that reveal additional information about a DNA contributor.
3. Technologies to increase the successful analysis of compromised biological evidence.
4. Exploration of nonhuman DNA markers with the potential to provide information about a crime.

**Due date:** The due date for this concept paper is listed on the cover of this announcement and on the NIJ Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>. Extensions to the deadlines are generally not granted.

**Page limit:** The program narrative section of your concept paper must not exceed 7 double-spaced pages in 12-point font with 1-inch margins. Abstract, table of contents, charts, figures, appendixes, and government forms do not count toward the 7-page limit for the narrative section, but should not increase the total past 10 pages. (Full proposals, for applicants who will be invited to submit them, are usually limited to 25 to 30 pages.)

**Reasons for rejection:** NIJ may reject applications that are incomplete, do not respond to the scope of the solicitation, do not comply with format requirements, or are submitted after the deadline. No additions to the original submission are allowed.

**How to submit applications to NIJ:** Funding applications instructions are in "Guidelines: How to Submit Applications," available on the NIJ Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>.

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## II. Concept Paper Topics

Forensic DNA analysis has played a crucial role in the investigation and resolution of thousands of violent crimes since the late 1980s. Currently, short tandem repeats (STRs) are the most widely used markers for forensic DNA testing. Because of their high discriminatory power, good resolution of alleles, and the ability to rapidly process samples using multiplexed polymerase chain reaction (PCR), 13 STRs have been chosen as the core loci upon which the FBI's National DNA Index System (NDIS) has been built.

In recent years, other genetic polymorphisms, such as those found in the mitochondrial DNA (mtDNA) genome and the Y chromosome, have provided effective results that can augment traditional STR data. MtDNA analysis is especially useful for cases involving extremely degraded or limited biological residues, such as skeletal remains or shed hairs. Y chromosome markers can be beneficial in resolving sexual assault cases, particularly those with multiple male contributors. Single nucleotide polymorphisms, now known to be abundant throughout the nuclear genome, may become important genetic markers for the forensic scientist in the future. An increased understanding of the genetic properties of these systems, as well as the continued development of methods for detection, will increase their value as forensic tools.

The demand for tools and technologies in all areas of forensic science, including DNA testing, far exceeds the current capabilities of the field. The forensic DNA community would therefore greatly benefit from technical tools and innovations that can be appropriately validated, quality-controlled, quality-assured, and implemented for forensic use.

Concept papers submitted under this solicitation should demonstrate an appreciation of and general familiarity with the current use of forensic DNA testing. The research team should have an understanding of issues such as chain of custody, courtroom admissibility, degraded or limited DNA, and mixtures of DNA from multiple tissues or individuals. These issues significantly impact forensic DNA analysis but are not typically encountered in similar disciplines, such as molecular diagnostics.

Applicants should also demonstrate an appreciation of the costs to implement and maintain the proposed technology, as well the training that will be required. NIJ *strongly* encourages researchers to seek guidance from or partner with appropriate State or local crime laboratories. Such associations foster a greater understanding of the issues unique to the field of forensic DNA and may strengthen the scope of the proposed research plan.

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### **Suggested Areas of Research:**

A. Tools and technologies that will allow faster, more reliable, more robust, less costly, and less labor-intensive identification, collection, preservation, and analysis of DNA evidence and/or interpretation of DNA results.

These tools may include, but are not limited to, the following:

1. Improved methods to locate and/or identify probative DNA evidence at crime scenes.
2. Improved methods for detection of sperm in sexual assault evidence.
3. Improved methods for separation of sperm and epithelial cells in sexual assault evidence.
4. Improved methods for separation of mixtures from two or more contributors.
5. Non-PCR-based methods with the capability to detect forensic DNA markers.
6. Methods requiring decreased operator input.
7. Expert systems.

B. Identification and/or characterization of genetic marker systems that have the potential to reveal additional or more powerful information about the source of the biological evidence. Such research could examine genetic markers that have the potential to provide forensically useful information about the phenotype of the DNA contributor.

C. Tools or technologies that can increase the success rate of the analysis of aged, degraded, limited, or otherwise compromised biological evidence.

D. Exploration of *relevant* nonhuman (e.g., plant, animal, insect, bacterial) DNA markers with the potential to provide information about a victim or suspect and/or the circumstances surrounding a violent criminal offense (e.g., determination of post-mortem interval using appropriate entomological evidence, trace plant residues found at a crime scene or on a victim or suspect).

## **III. General Requirements and Guidance**

NIJ is asking you to submit a concept paper that captures the essence of a full proposal. The main difference between a concept paper and a proposal is that concept papers are much shorter and do not contain detailed budgets.

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Your concept paper should state the problem under investigation (including goals and objectives of the proposed project) and the relevance of the project to public policy, practice, or theory. The narrative program section should state the research question and objectives and explain how the work will contribute to knowledge and practice. It should describe in sufficient detail the research methods and analytic strategy.

While the concept paper should not include a detailed budget or management plan, it should include a staffing plan and an estimate of the funding required, summarized by task, and a general timeframe for completion of those tasks and the project as a whole.

The format for your concept paper is as follows:

1. Abstract of no more than 400 words.
2. Program narrative.
  - a. Research question or problem.
  - b. Research goals and objectives.
  - c. Research design and methods.
  - d. Implications for knowledge and practice.
  - e. Dissemination plan for project deliverables.
  - f. Description of estimated costs.
  - g. Staffing plan.
  - h. Timeline.
3. Tables, figures, charts, and appendixes (if applicable).

Peer reviewers will evaluate each concept paper and based on their recommendations, NIJ will invite authors of selected concept papers to submit full applications.

Instructions for submitting concept papers can be found in “Guidelines: How to Submit Applications,” (available at <http://www.ojp.usdoj.gov/nij/funding.htm>) and the Office of Justice Programs Grants Management System Handbook (available at <http://www.ojp.usdoj.gov/fundopps.htm>).

**A. Submit applications online:** Paper applications are not accepted. Applications must be submitted through the Office of Justice Programs’ online Grants Management System. NIJ suggests you begin the process early, especially if this is the first time you have used the system. To begin, go to <http://www.ojp.usdoj.gov/fundopps.htm>. There are three types of documents that can be uploaded to an application package: PDFs, Word documents, and text documents. The Grants Management System does not consider an application complete until three files are uploaded: (1) “Program Narrative.” (2) “Budget Detail Worksheet and Narrative,” and (3) “Other Program Attachments.” Upload your concept paper into the “Program Narrative” box. Concept papers do not have “Budget Detail Worksheets and

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Narratives” and do not have “Other Program Attachments.” Therefore, you should upload blank files into those boxes in the Grants Management System.

- B. Relevance of the project for policy and practice:** Higher quality concept papers clearly explain the practical implications of the project. They connect technical expertise with policy and practice. To ensure that the project has strong relevance for policy and practice, some researchers and technologists collaborate with practitioners and policymakers. You may include letters showing support from practitioners, but they carry less weight than clear evidence that you understand why policymakers and practitioners would benefit from your work and how they would use it. While a partnership may affect State or local activities, it should also have broader implications for others across the country.
- C. Equal opportunity for all applicants:** It is OJP’s policy that faith-based and community organizations that statutorily qualify as eligible applicants under OJP programs are invited and encouraged to apply for awards. Faith-based and community organizations will be considered for an award on the same basis as any other eligible applicants and, if they receive an award, will be treated on an equal basis with non-faith-based and community organization grantees in the administration of such awards. No eligible applicant or grantee will be discriminated against on the basis of its religious character or affiliation, religious name, or the religious composition of its board of directors or persons working in the organization.
- D. Cofunding:** A grant made by NIJ under this solicitation may account for up to 100 percent of the total cost of the project. You must indicate whether you believe it is feasible for you to contribute cash, facilities, or services as non-Federal support for the project. Your concept paper should identify generally any such contributions that you propose to make. If you are asked to submit a full proposal, your proposed budget should indicate in detail which items, if any, will be supported with non-Federal contributions.
- E. Number of grants to be awarded:** NIJ’s grant award process is highly competitive. The number of awards to be made is subject to the availability of funds and the number and quality of applications received.
- F. When awards will be made:** All applicants, whether they are accepted or rejected, will be notified. The review and approval process for concept papers takes about 8 weeks. The review and approval process for full proposals takes about 6 months. You should not propose to begin work until at least 8 months after the concept paper deadline on the cover of this solicitation. Also, you should not expect to receive notification of a decision for at least 8 months after that date. Lists of awards are updated regularly on NIJ’s Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>.

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- G. Financial audits are required:** If your organization spends \$500,000 or more of Federal funds during the fiscal year, you may be asked to submit an organization-wide financial and compliance audit report before any award is made. The audit must be performed in accordance with the U.S. Government Accountability Office Government Accounting Standards and must conform to Chapter 19 (“Audit Requirements”) of the Office of Justice Programs’ Financial Guide (available at <http://www.ojp.usdoj.gov/FinGuide>). You may include the costs of complying with these audits in the proposed budget submitted as part of your application. Detailed information regarding the independent audit is available in Office of Management and Budget Circular A-133 (available at <http://www.whitehouse.gov/omb/circulars>).
- H. An environmental assessment may be required:** All award recipients must comply with the National Environmental Policy Act (NEPA). To ensure NEPA compliance, NIJ may require some award recipients to submit additional information.
- I. Protection of confidentiality:** Federal regulations require applicants for NIJ funding to outline specific procedures for protecting private information about individuals as part of the Privacy Certificate submitted with the application package. For additional information, see “Guidelines: How to Submit Applications,” <http://www.ojp.usdoj.gov/nij/funding.htm>.
- J. A DUNS number is required:** The Office of Management and Budget requires that all businesses and nonprofit applicants for Federal funds include a DUNS (Data Universal Numeric System) number in their application for a new award or renewal of an award. Applications without a DUNS number are incomplete. A DUNS number is a unique nine-digit sequence recognized as the universal standard for identifying and keeping track of entities receiving Federal funds. The identifier is used for tracking purposes and to validate address and point of contact information. NIJ will use the DUNS number throughout the grant life cycle. Obtaining a DUNS number is a free, one-time activity. Obtain one by calling 1–866–705–5711 or by applying online at <http://www.dunandbradstreet.com>. Individuals are exempt from this requirement.
- K. Funds cannot be used to lobby:** Under the Anti-Lobbying Act (18 U.S.C. § 1913), grantees generally may not use funds to support the enactment, repeal, or modification of any law, regulation, or policy at any level of government. For additional information on rules and regulations, see “Guidelines: How to Submit Applications” at <http://www.ojp.usdoj.gov/nij/funding.htm> and OJP’s Financial Guide at <http://www.ojp.usdoj.gov/FinGuide>.
- L. What will *not* be funded:** Typically, NIJ *does not* fund the following:
1. Provision of training or direct service.



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2. Proposals primarily to purchase equipment, materials, or supplies. (Your budget may include these items if they are necessary to conduct applied research, development, demonstration, evaluation, or analysis, but NIJ does not fund proposals that are primarily to purchase equipment.)
  3. Proposals that do not contain a research and/or development component or are otherwise nonresponsive to the general goals of this solicitation.

**M. Call for assistance:**

1. For technical guidance about using the Grants Management System, call the hotline at 1-888-549-9901.
2. For questions about this solicitation, the research being solicited, or other NIJ funding opportunities, contact NIJ at 202-307-2942.

## IV. Selection Criteria

NIJ is firmly committed to the competitive process in awarding grants. All concept papers and proposals are subjected to an independent peer-review panel evaluation. External peer-review panelists consider both technical and programmatic merits. Panelists are selected based on their expertise in subject areas pertinent to the proposals.

Peer-review panelists will evaluate concept papers and full proposals using the criteria listed below. Following this assessment, NIJ will then invite selected applicants to submit full proposals. Full proposals will also be peer reviewed. NIJ staff then make recommendations to the NIJ Director. The Director makes final award decisions.

Successful applicants must demonstrate the following:

**A. Understanding of the problem and its importance.**

Include appropriate scientific and legal citations to demonstrate awareness of the problem and the potential contribution of the proposed research to the forensic DNA community.

**B. Quality and technical merit.**

1. Awareness of the state of current research or technology.
2. Soundness of methodology and analytic and technical approach.
3. Feasibility of proposed project and awareness of pitfalls.
4. Innovation and creativity (when appropriate).

**C. Impact of the proposed project.**

1. Potential for significant advances in scientific or technical understanding of the problem.
2. Potential for significant advances in the field.

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3. Relevance for improving the policy and practice of criminal justice and related agencies and improving public safety, security, and quality of life.
  4. Affordability and cost-effectiveness of proposed end products, when applicable (e.g., purchase price and maintenance costs for a new technology or cost of training to use the technology).
  5. Perceived potential for commercialization and/or implementation of a new technology (when applicable).

**D. Capabilities, demonstrated productivity, and experience of applicants.**

1. Qualifications and experience of proposed staff.
2. Demonstrated ability of proposed staff and organization to manage the effort.
3. Adequacy of the plan to manage the project, including how various tasks are subdivided and resources are used.
4. Successful past performance on NIJ grants and contracts (when applicable).

**E. Budget.**

1. Total cost of the project relative to the perceived benefit.
2. Appropriateness of the budget relative to the level of effort.
3. Use of existing resources to conserve costs.

**F. Dissemination strategy.**

1. Well-defined plan for the grant recipient to disseminate results to appropriate audiences, including researchers, practitioners, and policymakers.
2. Suggestions for print and electronic products NIJ might develop for practitioners and policymakers.

## V. Requirements for Successful Applicants

If you are invited to submit a proposal and your proposal is funded, you will be required to submit several reports and other materials as follows:

- A. Final report:** The final report should be a comprehensive overview of the project and should include a detailed description of the project design, data, and methods; a full presentation of scientific findings; and a thorough discussion of the implications of the project findings for criminal justice practice and policy. It must contain an abstract of no more than 400 words and an executive summary of no more than 2,500 words.

A draft of the final report, abstract, and executive summary must be submitted 90 days before the end date of the grant. The draft final report will be peer reviewed upon submission. The reviews will be forwarded to the author with suggestions for revisions. The author must then submit the revised final report, abstract, and executive summary by the end date of the grant.

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The abstract, executive summary, and final report must be submitted in both paper and electronic formats.

For evaluation studies, the final report should include a section on measuring program performance. This section should outline the measures used to evaluate program effectiveness, modifications made to those measures as a result of the evaluation, and recommendations regarding these and other potential performance measures for similar programs. (This information will be particularly valuable to NIJ and other Federal program agencies in implementing performance measures for federally funded criminal justice programs.)

**B. Interim reports:** Grantees must submit quarterly financial reports, semi-annual progress reports, and a final progress report. Future awards and fund drawdowns may be withheld if reports are delinquent. Post-award reporting requirements are described in “Guidelines: How to Submit Applications,” available at <http://www.ojp.usdoj.gov/nij/funding.htm>.

**C. Materials concerning protection of confidential information and human subjects:** Recipients of NIJ research funds must comply with Federal regulations concerning the protection of private information about individuals. Recipients also must comply with Federal regulations concerning protection of human subjects. In general, all research involving human subjects that is conducted or supported by NIJ funds must be reviewed and approved by an Institutional Review Board before Federal funds are expended for that research. NIJ may also ask grant recipients for additional information related to privacy and human subjects testing.

Additional general information regarding NIJ’s requirements for privacy and protection of human subjects appears in “Guidelines: How to Submit Applications,” available at <http://www.ojp.usdoj.gov/nij/funding.htm>. Complete information about NIJ’s requirements can be found at <http://www.ojp.usdoj.gov/nij/humansubjects>.

**D. Electronic data:** Some grant recipients will be required to submit electronic data and supporting documentation, such as a codebook or dictionary, capable of being re-analyzed and used by other researchers. The materials must be submitted by the end date of the grant. Grant applicants should ensure that the proposed timeline and budget accommodate these requirements.

**E. Performance guidelines:** As part of government-wide efforts to measure the performance of Federal funding, in May 2002, the White House issued guidance on how to evaluate the performance of Federal research programs. Research should be: (1) relevant—that is, important and appropriate for meeting the needs of the field, (2) of high quality, and (3) well-managed by grantees and well-monitored by the Federal agency. Therefore, in addition to the reporting requirements discussed above, a grantee’s performance on an award made under

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this solicitation will be evaluated on whether the final research report was (1) relevant to the needs of the field as measured by whether the grantee's substantive scope did not deviate from the funded proposal or any subsequent agency modifications to the scope; (2) of high quality as assessed by peer reviewers; and (3) well-managed as measured by whether significant interim project milestones were achieved, final deadlines were met, and costs remained within approved limits. For more information see "Guidelines: How to Submit Applications," available at <http://www.ojp.usdoj.gov/nij/funding.htm>.

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### **Tips for Submitting Your Application**

1. Begin the application process early—especially if you have never used the online Grants Management System before. NIJ will not accept applications received after the closing date and time listed on the cover. To start the process, go to <http://www.ojp.usdoj.gov/fundopps.htm>.
2. Review “Guidelines: How to Submit Applications” for complete instructions, available at <http://www.ojp.usdoj.gov/nij/funding.htm>.
3. Although your proposal may budget for the purchase of equipment if the equipment is necessary to conduct the project, NIJ will not fund applications that are primarily to purchase equipment, materials, or supplies.
4. Call for help:
  - For technical guidance about the Grants Management System, call the hotline at 1–888–549–9901.
  - For questions about this solicitation, the research being solicited, or other NIJ funding opportunities, contact NIJ at 202–307–2942.

View or print a copy of this document from the NIJ Web site

(<http://www.ojp.usdoj.gov/nij/funding.htm>) or request one by calling NCJRS at 1–800–851–3420 or e-mailing [askncjrs@ncjrs.org](mailto:askncjrs@ncjrs.org).

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NIJ is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.