

Consent Form

Protocol Title: Personal Genome Project
Principal Investigator: George M. Church, Ph.D.
Site-Responsible Investigator's Institution: Harvard Medical School
Co-Investigators & Study Staff: Joseph Thakuria, MD
Description of Subject Population: Volunteers knowledgeable of the benefits and risks of personal genome sequencing and relevant concepts from genetics and human subjects research. We are seeking a diverse range of volunteers, male and female, from as varied a set of genetic and environmental backgrounds as possible.

What is Informed Consent?

Informed consent means you understand the procedures, risks, possible benefits, and alternatives before you voluntarily agree to participate in a research project. Before you enroll, you need to understand if or how this project may affect you and your family. This form, along with other study documents, will help you make an informed decision about your participation in this study.

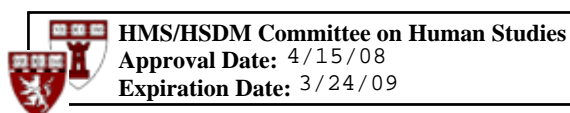
Why have you been asked to take part in this research study?

You have been invited to participate because you are an individual 21 years of age or older and your performance on the entrance exam indicates that you are able to give informed consent for this public and open-ended study. This study is being conducted by researchers at Harvard Medical School and Brigham and Women's Hospital.

PURPOSE

The main scientific goal of this study is to explore ways to connect human genetic information and human phenotype information, i.e. human DNA sequence, medical information, and physical traits, so that such data can be used for hypothesis-generating research and computational efforts worldwide. Additional goals include the determination of risks of such studies, developing a fully consented dataset to aid in the development of computational tools and user interfaces for scientists, clinicians and individuals. Other goals include the education of participants and the general public about the risks and potential alternative pathways that genetics can take. We also seek to develop a model system to allow a meeting place for experts on genetic counseling, insurance, employment, education, and research. We hope that our proposed specific datasets will help extend such discussions to planned case studies. We also hope to discover what individuals, clinicians, and researchers might want, not want, and why.

This project will collect from each volunteer participant tissue samples and information submitted via online questionnaires. If you are enrolled in the Personal Genome Project (PGP), information collected via questionnaires will be made available, along with your genome sequence, on a publicly accessible website and database. This information, including your genome sequence data, will be accessible to you as well.



Participants will not be receiving clinical data from the PGP and the DNA sequences you receive may not have any useful medical purposes for you. All information is for research purposes only and should not be used for medical purposes. Examples of genomic data similar to what you will receive as a participant can be found on the project website (www.personalgenomes.org).

We expect to enroll 100,000 participants in this project, although the pace at which we expand the project to large numbers of participants is unknown.

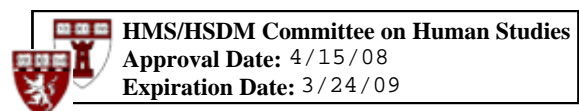
PROCEDURES

PRE-ENROLLMENT PHENOTYPE COLLECTION

- Before the Personal Genome Project (PGP) will consider you for enrollment, you are required to submit responses to online phenotype questionnaires, which include the following personal information: name, date of birth, current medications, allergies, vaccines, medical history, race/ethnicity/ancestry, environmental exposures, lifestyle, dietary habits, and measurements such as height, weight, blood pressure, full facial photograph, and resting heart rate. The full list of required personal information can be found on the project website (www.personalgenomes.org). Submitting this information will take about 1-3 hours. If you are enrolled in the project, you will be able to choose to publish this information on a publicly accessible website and database.
- An estimated 1-3 hours of personal time may be lost if you are not selected for enrollment after completion of the phenotype questionnaire.
- Additional personal information will be requested by the PGP as the study progresses, but participation in these activities is optional.

PRE-ENROLLMENT FEE DECLARATION

- All participants invited to enroll must pay a fee before enrollment is complete. The fee is \$1000.
- If you are unable to pay the full fee, you may request financial assistance based on your self-reported ability to pay. Financial assistance is not guaranteed. Assistance depends on the availability of funds and the number of individuals seeking financial assistance. The size of the financial assistance waitlist will be disclosed if you are invited to enroll.
- After the completion of your phenotype questionnaire, you will be asked to specify the fee amount you intend to pay if you enroll in this project. You will be asked to declare whether you intend to pay the full enrollment fee, more than the full enrollment fee or only a portion of the full enrollment fee. Fees are payable after the visit to a medical center, described below.
- Enrollment fees are intended to subsidize the costs of genome sequencing and related research activities. Examples of genomic data similar to what you will receive as a participant can be found on the project website (www.personalgenomes.org).

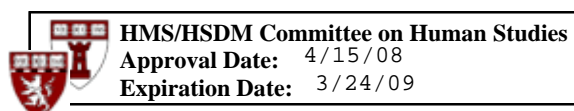


PRE-ENROLLMENT INVITATION

- After the completion of the phenotype questionnaires and fee declaration, you will be notified that you are either: (1) selected for the next stage of the enrollment process, (2) waitlisted, or (3) rejected.
- If you are rejected for enrollment, the PGP will permanently delete your phenotype questionnaire data within 6 months. You may also request that your phenotype questionnaire data be deleted immediately (prior to 6 months).
- If you are selected for the next stage of the enrollment process, you will be asked to schedule an appointment to visit a designated medical center. Please review the locations of participating medical centers because they may be long distances from your home. A list of participating medical centers can be found on the PGP website, along with instructions for scheduling an appointment either by phone or web (www.personalgenomes.org).

PRE-ENROLLMENT INTERVIEW AT A MEDICAL CENTER

- The day of your visit to a medical center, you will meet with one or more PGP staff members who will verify your identity and consent, confirm your familiarity with study protocols, review and confirm your phenotype questionnaire responses. The interview will take approximately 1 hour.
- After the completion of the interview, you will be notified that you are either: (1) selected for the next stage of the enrollment process, (2) waitlisted, or (3) rejected.
- If you are rejected for enrollment, the PGP will permanently delete your phenotype questionnaire data within 6 months. You may also request that your phenotype questionnaire data be deleted immediately (prior to 6 months).
- Costs that you might incur the day you visit a medical center include, but are not limited to transportation costs to and from the medical center (tolls, gas, etc) and loss of personal time.
- If you are selected for the next stage of the enrollment process, PGP staff members at the medical center will collect tissue specimens.

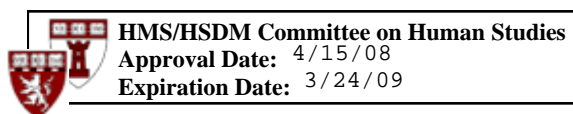


TISSUE SPECIMEN COLLECTION AT A MEDICAL CENTER

- Following the pre-enrollment interview and if you are selected to enroll in the PGP, blood sample collection and/or skin biopsy procedures will be performed at the medical center by trained professionals appointed by the PGP. The type of tissue specimens collected will be determined by the PGP. All participants enrolled in the project must submit either a blood sample or a skin biopsy specimen.
- Tissue samples submitted to the PGP will be used to study biological characteristics, DNA, RNA (gene expression), physical traits, and/or the presence and characteristics of micro-organisms in the specimen sample.
- Blood samples require a minimum of 5ml of blood. Blood samples submitted to the PGP will be used to create a living tissue sample known as a cell line. A cell line will provide a renewable supply of your cells and DNA. Cell lines will be deposited in and distributed by the Coriell NIGMS repository and other biorepositories. Cell lines will allow researchers worldwide to confirm and extend the scientific observations made by the PGP.
- A full-thickness skin punch biopsy (1/8 inch block, 3 mm diameter) is collected from the underside of the upper arm or hip requiring local anesthesia. The skin cells (i.e. fibroblasts) will be used to create a living tissue sample known as a cell line. A cell line will provide a renewable supply of your cells and DNA. Cell lines will be deposited in and distributed by the Coriell NIGMS repository and other biorepositories. Cell lines will allow researchers worldwide to confirm and extend the scientific observations made by the PGP. Cell lines created from the skin cells will be studied for their growth and gene expression characteristics, and transformed into adult stem-cell lines for further analyses. Adult stem cells are cells with the ability to divide for indefinite periods and to give rise to specialized cells.
- The PGP cannot make guarantees about accuracy of genotyping, success of cell line or adult stem cell creation, or turn around time for these activities. Information derived from these activities is for research purposes only and should not be used for medical purposes.

PAYMENT OF ENROLLMENT FEES

- After tissue specimens are collected at the medical center, your enrollment in the PGP will be complete after you pay your enrollment fees online.
- The enrollment fees are payable online via secure credit card transaction.
- Enrollment is not complete until payment is received. Access to tools will be restricted and DNA analysis of submitted tissue specimens will not occur until payment is received.
- After payment is received, DNA analysis will occur.



DISCLOSURE OF DNA SEQUENCE DATA

- Upon completion of DNA analysis, your DNA sequence data will be made available to you via a password protected area on the PGP website.
- The PGP cannot guarantee turn around time for sequencing activities.

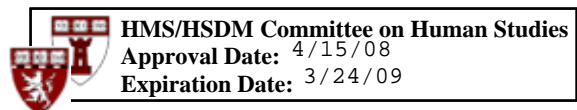
ADDITIONAL SPECIMEN COLLECTION

- Upon payment of enrollment fees, participants will be asked to supply a mailing address where additional enrollment materials will be sent. These materials include tissue specimen collection kits that can be self-administered.
- Enrolled participants must submit either a saliva sample or a buccal sample (cheek swab), as determined by the PGP. Samples must be collected and returned as instructed by the PGP. The PGP will provide sample collection materials, including instructions and mailing packages. Instructions can also be found on the PGP website (www.personalgenomes.org).
- Tissue samples submitted to the PGP will be used to study biological characteristics, DNA, RNA (gene expression), physical traits, the presence and characteristics of micro-organisms in the specimen sample.
- Additional tissue samples, such as sterile skin swabs and fecal samples, may be requested by the PGP and submitted by participants on a voluntary basis.

RECONTACT

- Other than the Safety Questionnaires below, you are under no obligation to receive study notices or participate after providing the initial tissue samples and exchange of the information outlined above unless you choose YES below. In which case, additional tissue specimens and questionnaires can be voluntarily submitted at later dates as requested by the PGP. You can change your choice on this option at any time.

Willing to be re-contacted YES / NO

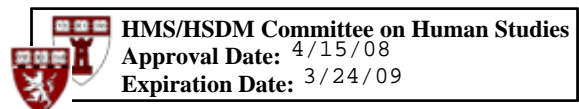


SAFETY QUESTIONNAIRES

- Every three months we will send out an email request to each participant containing the following questions:
 1. What negative and/or positive events have happened to you and/or your relatives related to your participation in the PGP?
 2. What are the reactions or responses of relatives and acquaintances to the posting of your genetic and medical data?
 3. Please report incidents of being contacted regarding your data being posted online.
 4. In what ways has this study positively or negatively influenced your health care or interactions with your medical care providers?
- It will be requested that answers to the questions or a "no change" reply be returned to the Investigator within one week of receipt.
- Additionally, at five year intervals and at the end of participation in the study, participants will be asked to write their thoughts about the project overall and whether this consent form adequately described the procedures and risks associated with study participation. We request that participants report immediately to PGP staff any acute differences between their experiences as a participant and the contents of the consent form and other study documents.

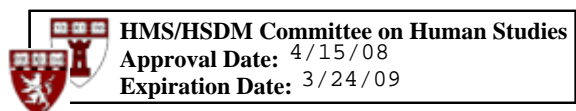
DURATION OF THE PROJECT

- The duration of your participation is 25 years from the time of enrollment, however you may choose to opt-out of participation at any time. Sample analysis and data processing will continue for up to an additional 25 years. The open web version of your genetic data and other information, such as medical information and physical trait data, submitted to the PGP will be maintained for 50 years, unless removal is requested in writing before that.



RISKS AND DISCOMFORTS

- We encourage you to discuss this study and the potential risks, as outlined below and on the project website, with your immediate family members.
- No known or foreseeable risks or side effects are associated with buccal, saliva, skin swab, or fecal sampling procedures. The blood draw and skin biopsy may involve a small amount of pain and may also cause temporary bruising and/or infection at the site of puncture.
- The risks of public disclosure of your genotype and phenotype information could affect employment, insurance, financial well-being, and social interactions for you and your immediate family. For example, data such as facial images can be used to identify you which could result in higher than normal levels of contacts from the press and other members of the public motivated by positive or negative feelings about the study. This could mean a significant loss of privacy and personal time.
- You should also be aware of the ways in which knowledge of your genotype and phenotype might be used. For example, anyone with sufficient knowledge could take your genome and/or posted medical information and use them to (1) infer paternity or other features of your genealogy, (2) claim statistical evidence that could affect your employment or insurance or ability to obtain financial services, (3) claim relatedness to criminals or incriminate relatives, (4) make synthetic DNA and plant it at a crime scene, (5) reveal the possibility of a disease or unknown propensity for a disease.
- The genetic, medical, and non-medical information posted on the study website, while directly associated only with you, may also have relevance to your family members. The risks that the public availability of this information poses to you is yet unknown. It may or may not be small. In any case, the risk to your relatives will be smaller. In many instances, anything that is later inferred solely from your DNA sequence will be speculative with respect to you, and even less predictive with respect to your family, since inheritance of nearly any particular genetic variation is 50:50.
- Additional risks will be posted on the study web page as they become apparent. (www.personalgenomes.org)
- A Data Safety Monitoring Board (DSMB) will monitor risks to study participants and study progress.
- If physical injury resulting from participation in this research should occur, please seek medical care immediately and contact the Principal Investigator. Although Harvard's policy is not to provide compensation, medical treatment will be available including first aid, emergency treatment and follow-up care as needed, and your insurance carrier may be billed for the cost of such treatment. In making such medical treatment available, or providing it, the persons conducting this research project are not admitting that your injury was their fault.
- In the unlikely event that you, in conjunction with your health care team, decide that follow-up clinical tests, monitoring, or treatments are necessary as a result of any information obtained as a participant in the PGP, payment must be provided by you or your third party payer, if applicable. No special arrangements will be made by the PGP for compensation or for payment solely because of your participation in this study.



BENEFITS

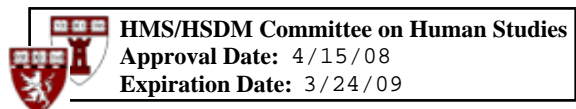
- There are no proven benefits to you from your participation in this study.
- The study may also benefit the community as a whole – for example, finding genetic causes and predispositions for common diseases and/or preventative measures observable in existing populations might be due to variation in lifestyle. You may experience satisfaction from participating in research that may benefit medical science.

INTELLECTUAL PROPERTY

- Your tissue specimens, DNA samples, and personal information will not be sold by the PGP to any person, institution, or company for financial gain or commercial profit. However, neither you nor your heirs will gain financially from discoveries made using the information and/or specimens that you provide.

CONFIDENTIALITY

- If you are enrolled in the PGP, personal information collected via phenotype questionnaires will be made available, along with your genome sequence, to the PGP staff. You will be able to choose to publish this information on a publicly accessible website and database.
- Your genotype and phenotype data will not be sent to your health care provider by the Personal Genome Project and will therefore not become part of your medical record due to any activities of the PGP staff, without your permission.
- Your reply to the quarterly Safety Questionnaires will be confidential by default. However, the DSMB or study sponsor may request this information in order to judge the risks to you and any other study participants.
- Responses to the Safety Questionnaires that may impact other participants or the public generally will be paraphrased and/or de-identified prior to making this information publicly available on the web for purposes of public education or risk management. If you would like your answers to be identified, then you will need to indicate that as part of your response to the questionnaires.
- The results of this study may be published in a medical book, journal, website or webpage, or used for teaching purposes. Your name and other identifiers (such as your photograph and medical information provided during the course of the study) may be used in such publications or teaching materials. You will not be notified by the PGP prior to the use of your information for these activities.



REFUSAL OR WITHDRAWAL OF PARTICIPATION

- Participation in this study is voluntary. You do not have to participate in this study.
- You may withdraw your participation and/or your data from this study at any time; however you are advised that once this information is posted on the Internet, it is impossible to confirm that it is ever fully removed.
- The Investigator may decide to end your participation in this study at any time after he/she has explained the reasons for doing so.
- Participation may be ended if participants do not comply with the Safety Questionnaires described above.

ALTERNATIVES

- The alternative is not to participate in this research study.
- If you choose not to participate, your medical treatment at your hospital and other medical care providers will be unaffected.

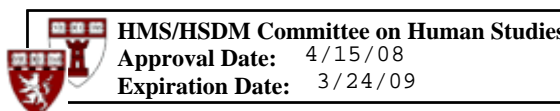
RESEARCH-RELATED CONTACT INFORMATION:

- If you have any questions or concerns about the study, or if you suffer a research related injury, you may contact the investigator: George Church, PhD, at (617) 432-7562 or <http://arep.med.harvard.edu/gmc/email.html> .
- If you wish to discuss your rights as a participant in a research study, or if you feel under any pressure to enroll in this study you may contact: Carolyn Connelly, PhD, the Director of the Office for Research Subject Protection at Harvard Medical School (617) 432-0651 or Carolyn_connelly@hms.harvard.edu.

MONOZYGOTIC TWIN

- If you have any living siblings who are your identical (monozygotic) twin, then the sibling(s) will need to provide consent for your participation in this research project before the PGP will consider you for enrollment. Instructions for obtaining consent can be found on the project website (www.personalgenomes.org).

Do you have a living identical (monozygotic) twin? YES / NO



SIGNATURE

I have read this entire form and I understand it completely. I confirm that I understand the purpose of the research, the study procedures, possible risks and discomforts, potential benefits that I may experience, and alternatives to my participation in this study. All my questions have been answered to my complete satisfaction.

I understand that by typing my name and email address in the box below I am signing this form and therefore am providing informed consent for this study.

Name:

Email:

