

GAIN Data Access Experience

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Chair, GAIN Data Access Committee
Epidemiologist, Office of Population Genomics

GAIN Analysis Workshop II
October 18, 2007

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GAIN Design & Overview



Submission & Management of Data

Distribution & Secondary Use of Data

Research Participants



Submitting Investigators



GAIN Database



Recipient Investigators



GAIN Data Access Overview

GAIN Project Genotype & Phenotype Data

GAIN Database Public Access

Study Protocol Descriptive Information

Controlled Access

Coded Genotypes Phenotypes Pre-computes

Specific access rights

GAIN Data Access
Committee

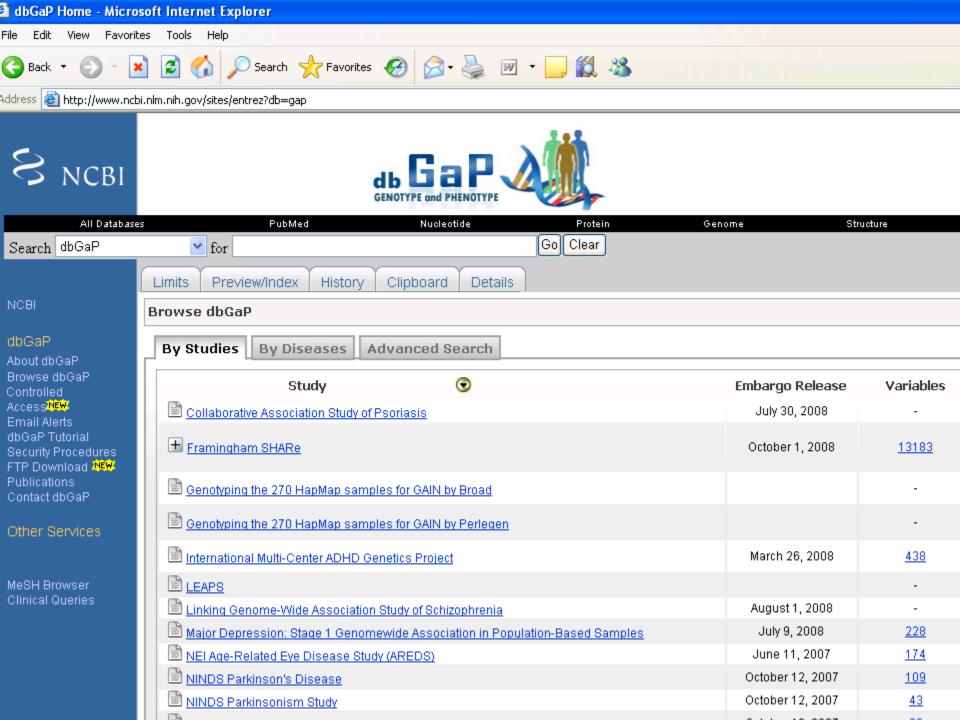
ALL potential users

- Request data for specific research use
- Agreement to Data Use
 Certification conditions

Requested Research Use

Request & Review Process

- PI completes Data Access Request (DAR)
- Institutional signing official (SO) approves DAR
- DAR posted in dbGaP for GAIN DAC review
- Staff reviews DAR and clarifies any issues
- DAC reviews DAR and makes decision to approve or disapprove
- DAC Chair records decision in dbGaP, which notifies PI and SO of decision



Collaborative Association Study of Psoriasis

Accession: phs000019.v1.p1

Description

The goal of this collaborative study is to combine the resources and expertise of three groups with long-standing studies of psoriasis gene in order to identify new genetic susceptibility factors for psoriasis, a common inflammatory skin disease that affects over 4 million America

CASP - Collaborative Association Study of Psoriasis

GAIN The Genetic Association Information Network

National Institute of Arthritis and Musculoskeletal and Skin Diseases

Participants: 2956Type: Case-control

Individual-Level Data

- Use restrictions
 - Consent Groups

General Research Use (GRU)

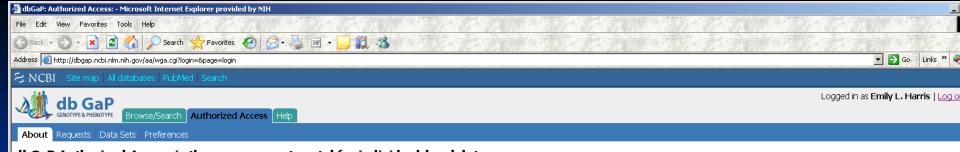
- May be used for any genetic studies.
- This consent group does not require IRB approval.
- Participant set: 1678

Autoimmune Disease Only (ADO)

- Limited to genetic studies of autoimmune disease.
- This consent group does not require IRB approval.
- Participant set: 1224
- · Estimated Availability October 30, 2007. Apply here for controlled access to individual level data when available.
- Embargo Release Date: July 30, 2008

Publicly Available Data (Public ftp)

Estimated Availability October 30, 2007



dbGaP Authorized Access is the management portal for individual-level data.

Authorized users can use this site to submit a data access request, manage access requests, and download approved data sets.

Log in to the Authorized access system.

Help

In order to apply for authorized access to dbGaP studies you must have one of the following accounts:

- eRA Commons (for NIH Extramural principal investigators, grantees, or other extramural investigators). Register here.
- NIH Login (for intramural NIH scientists and staff)

Who can apply? NIH is committed to respecting the privacy and intentions of research participants with regard to how data pertaining to their individual information is used. Data access is therefore intended only for scientific investigators pursuing research questions that are consistent with the informed consent agreements provided by individual research participants. Furthermore, investigators provided access will be expected to utilize appropriate data security measures

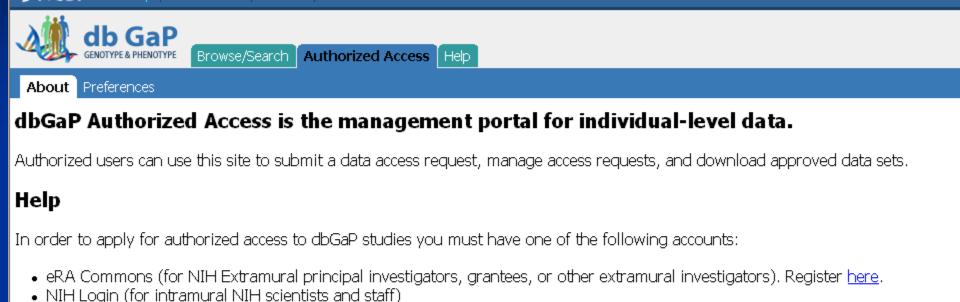
How does one apply? Researchers may now begin requesting individual-level genotype and phenotype data from dbGaP. Please follow request procedures for Principal Investigators and Signing Officials.

What is an authorized user within the data access request system? Authorized users are the Principal Investigators who may request data sets for specific research uses, the Institutional Signing Officials from the PIs home organization who certify and submit such requests, and the NIH staff who will review and process requests (e.g., members of the Data Access Committees).

dbGaP also maintains a help desk to assist investigators, institutional signing officials and NIH staff with authorized access management, and answer any questions related to the application process. Contact the help desk with your queries.

NIH Genotype and Phenotype database is a service of NCBI. Please contact us with any questions.

National Center for Biotechnology Information | U.S. National Library of Medicine Privacy Notice | Disclaimer | Accessibility National Institute of Health | United States Department of Health and Human Services | FirstGov.gov: The U.S. Government's Official Web Portal



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Furthermore, investigators provided access will be expected to utilize appropriate data security measures

dbGaP: Authorized Access: - Microsoft Internet Explorer

Address Addres

NCBI Site map All databases PubMed Search

File Edit View Favorites Tools Help

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Edit

View

Links eRA Partners Help

Online Registration - Microsoft Internet Explorer Favorites Tools

Help

Online Registration

Only Signing Officials can register their institutions with the NIH. Follow these directions to register your institution.

1. Complete the online Institution Registration Form and click Submit. A screen appears with information about NIH registration and the institution data entered in the Registration form.

Version 2.11.2.2

- Print the registration page, make any corrections and affix your signature as designated.
- 3. Fax the registration page to the number at the top of the page.

NIH will validate the information your institution submitted for approval and send a verification email to the Signing Official (SO).

Reply to the verification e-mail.

Upon receipt of the verification email, the NIH sets up your institution account, and sends an email to the SO with a link to a page showing their NIH institution name and associated information.

- Verify that all information is correct.
- Send confirmation response to this information and proceed.
- Receive email notification of registered SO account (userid/password) from the NIH.
- Create and maintain additional accounts for your institution staff.

Register Now



Browse/Search | Authorized Access | Help

Address 🙆 http://dbgap.ncbi.nlm.nih.gov/aa/wga.cgi?login=&page=login



About Preferences

dbGaP Authorized Access is the management portal for individual-level data.

Authorized users can use this site to submit a data access request, manage access requests, and download approved data sets.

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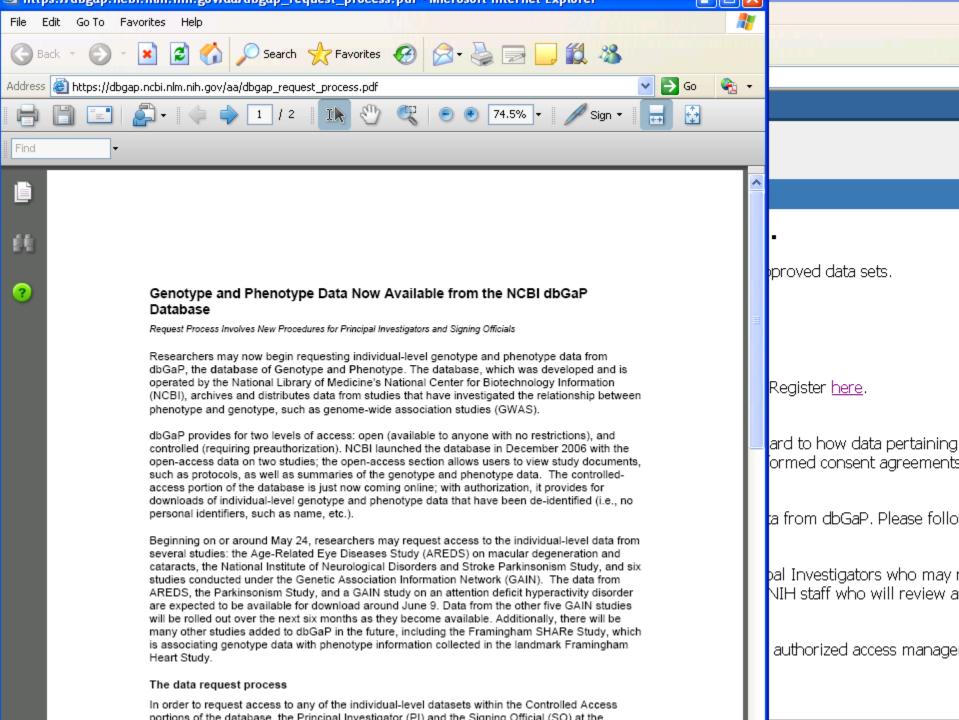
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The system is a service of NCBI. Please contact us with any questions.

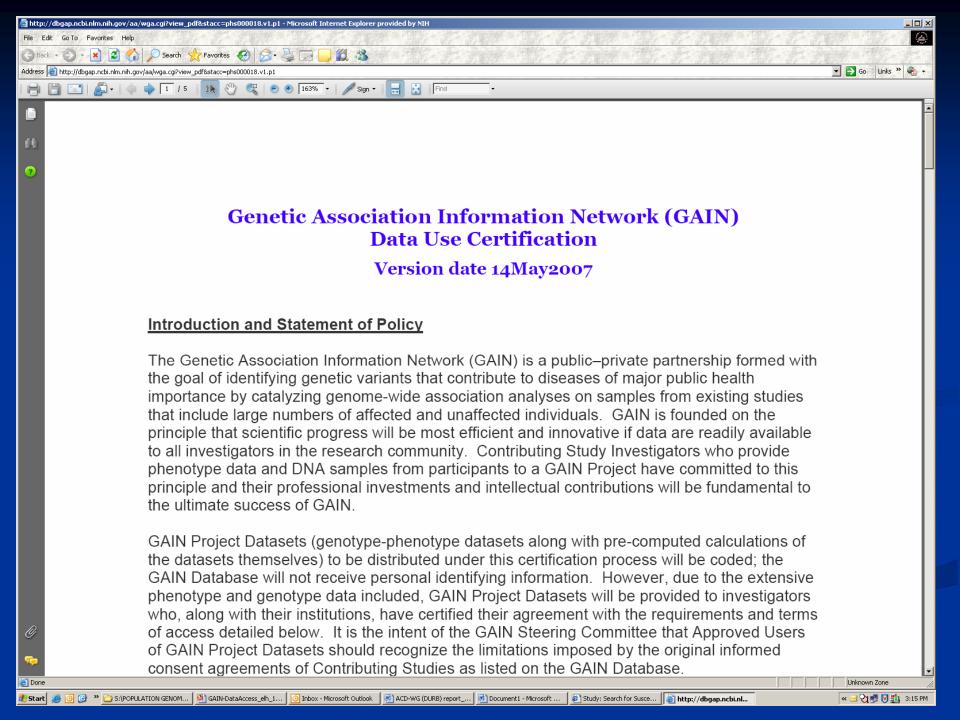


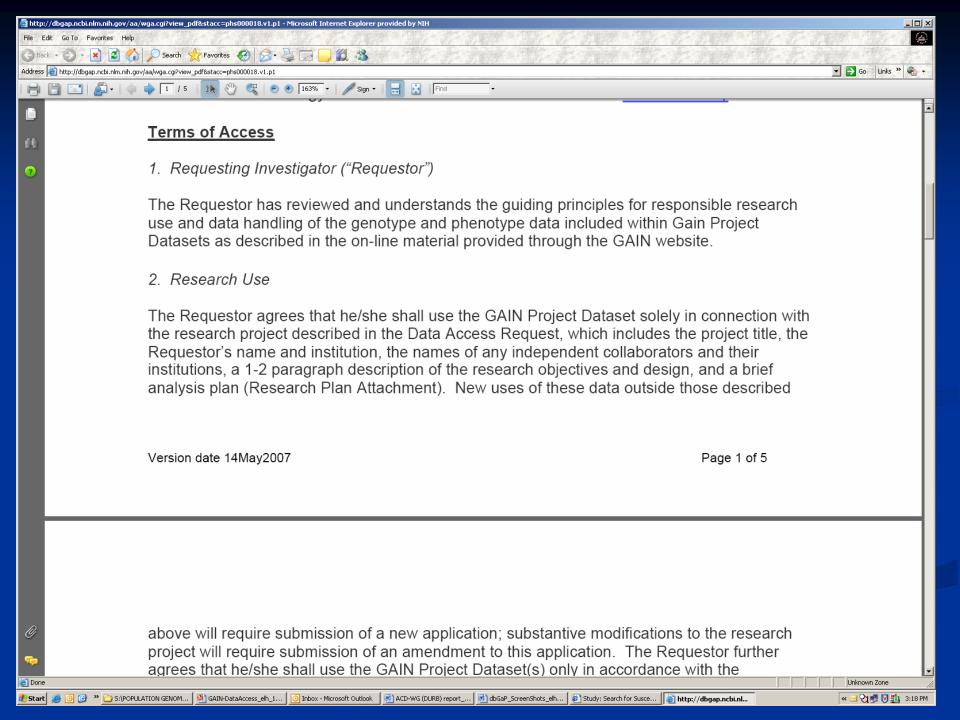
Data Access Request

Uses SF 424 (R&R) electronic submission form

- Authentication through eRA Commons login.
- Completed through web-based request process developed by NCBI.
- Requires research use statement, and request for access to a specific dataset(s).
- Requires investigator & institutional signing official to sign assurance that GAIN policies will be followed.
 - Agreement to terms of use (DUC) through the submission of access request.
 - Includes assurance that the home institution has considered participant protection issues (if any) and agrees that the research can go forward.

APPLICATION FOR FEDERAL ASSISTANCE	2. DATE SUBMITTED	Applicant Identifier				
SF 424 (R&R)	3. DATE RECEIVED BY STATE	State Application Identifier	11. C - D			
1. * TYPE OF SUBMISSION	4. Federal		abGaP			
Pre-application Application Changed/Corrected Application	4. I ederal		dbGaP Data Access			
5. APPLICANT INFORMATION	* Organizational DU	NS:	Data Access			
* Legal Name:	Distriction (Daggagt			
Department: * Street1:	Division: Street2:		Request			
	unty:	* State: * ZIP Code:	*			
* Country:		20 (200 (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2				
Person to be contacted on matters involving this application Prefix: * First Name: * Phone Number: F 6. * EMPLOYER IDENTIFICATION (EIN) or (TIN):	Ax Number: Provide below a brief Resea Research Use Statement wil statement against the Limite individuals that participated	l be reviewed by all NIH programs with data coverations of Use for the respective dataset(s), which real in the original study. The Research Use Statement and non-technical sum is the control of the statement and non-technical sum is the control of the statement and non-technical sum is th	well as a non-technical summary of this statement. The cred by the access request. Each program will compare this effect the informed consent provided by the the			
	Please enter your Research	Use Statement in the area below.				
Research & Related Senior/Key Pe	erson Profile					
List of other Independent Collaborating Investion organization. Any collaborators at different organization on the form below, requestors a terms and statements within the Data Use Certification.	nizations must complete separate requests p nd Institutional Signing Officials affirm tha	per institution. By submitting an				
INVESTIGATOR 1						
Prefix: First Name:	Middle Name: Last	Name: Suffix:				
Position/Title:						
Phone Number:	ax Number:	mail:				
INVESTIGATOR 2						





Request & Review Process

- PI completes Data Access Request (DAR)
- Institutional signing official (SO) approves DAR
- DAR posted in dbGaP for GAIN DAC review
- Staff reviews DAR and clarifies any issues
- DAC reviews DAR and makes decision to approve or disapprove
- DAC Chair records decision in dbGaP, which notifies PI and SO of decision

Primary Considerations

- Data Access Request complete and consistent with requirements
- Proposed research use consistent with any data use limitations
- Any potential unanticipated group harms considered

Data Access Committee Membership

Regular	Emily Harris (Chair)	NHGRI			
	Christine Grady	NIH Clinical Center			
	Thomas Lehner	NIMH			
	Catherine McKeon	NIDDK			
	Joel Moss	NHLBI			
	Bradley Ozenberger	NHGRI			
	William Sharrock	NIAMS			
	Vaurice Starks	NCI			
Ex-officio	Teri Manolio	NHGRI			
	Laura Lyman Rodriguez	NHGRI			
Staff	Lisa McNeil	NHGRI			
	Erin Ramos	NHGRI			











Search for Susceptibility Genes for Diabetic Nephropathy in Type 1 Diabetes

Accession: phs000018.v1.p1

Description

Genetics of Kidneys in Diabetes (GoKinD) study is an initiative aimed at identifying susceptibility genes for diabetic nephropathy in type 1 diabetes. A large number of individuals with type 1 diabetes were screened to identify two subsets, one with clear-cut kidney disease and another with normal renal status despite long-term diabetes. Those who met additional entry criteria and consented to participate were enrolled. When possible, both parents were also enrolled to form family trios. Altogether, GoKinD includes 3043 participants comprising 931 cases, 944 singletons, 268 pairs of parents of cases, and 316 pairs of parents of control. Accessible as a GAIN database are 905 of the cases, 890 of the controls, 10 pairs of parents of cases and 10 pairs of parents of controls. The other parents and the remaining cases and controls are available by a separate application process through NIDDK. Interested investigators may request the DNA collection and corresponding clinical data for GoKinD participants using the instructions and application form available at http://www.gokind.org/access or by contacting the Juvenile Diabetes Research Foundation.

GAIN The Genetic Association Information Network

GoKinD

- Participants: 1825
- . Type: Case-control

Individual-Level Data

- Use restrictions
 - o Consent Group

Type 1 diabetes and its complications (Diabetic complications only, DCO)

- Limited to genetic research on type 1 diabetes and its complications. Complications include nephropathy, cardiovascular disease, retinopathy, neuropathy, and mortality. Phenotypes related to diabetes and its complications, such as body mass index, blood pressure, lipids, and hemoglobin A1c, may also be studied.
- This consent group does not require IRB approval.
- Participant set: 1825
- Data Use Certification Requirements (DUC)
- Apply here for controlled access to individual level data
- Embargo Release Date: July 16, 2008

Publicly Available Data (Public ftp)

· Connect to ftp site

Inclusion/Exclusion Criteria

Inclusion criteria

🔼 Done

🎒 Start

Probands for this data collection must have type 1 diabetes and either presence or absence of diabetic nephropathy according to the following definitions:

Type 1 diabetes is diagnosed if:

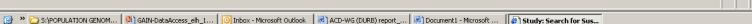
- Subject had diabetes diagnosed before age 31
- · Treatment with insulin was instituted within one year of diagnosis



Search for Susceptibility Genes for Diabetic Nephropathy in Type 1 Diabetes
Questionnaires Support Documents

Internet

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- o Centers for disease Control and Prevention, Atlanta, GA, USA.
- o University of Minnesota, Minneapolis, MN, USA.
- o Juvenile Diabetes Research Foundation, New York, NY, USA.

Authorized Data Access Requests

1. Requestor: BARMADA, MAHMUD

Affiliation: UNIVERSITY OF PITTSBURGH AT PITTSBURGH

Project: Control Comparisons

Date project was started: 2007-08-24

Show project summaries

2. Requestor: Bull, Shelley

Affiliation: MT SINAI HOSP-SAMUEL LUNENFELD RES INST

Project: Genome-wide association of common alleles wirh long-term diabetic complications

Date project was started: 2007-08-15

Show project summaries

3. Requestor: COX, NANCY

Affiliation: UNIVERSITY OF CHICAGO

Project: Genetic Studies of Diabetic Complications

Date project was started: 2007-07-25

Show project summaries

4. Requestor: Friddle, Carl

Affiliation: LEXICON PHARMACEUTICALS, INC.

Project: SNP Association of Candidate Genes for Type 1 Diabetes and Obesity

Date project was started: 2007-07-02

Show project summaries

5. Requestor: HIRSCHHORN, JOEL

Affiliation: Massachusetts Institute of Technology

Project: Genetics of Diabetic Complications **Date project was started:** 2007-08-30

Show project summaries

Requestor: HOH, JOSEPHINE Affiliation: YALE UNIVERSITY

Project: Gene-gene and gene-environmental interactions in complex human traits

Date project was started: 2007-07-18

Show project summaries

7. Requestor: Koller, Daphne

Affiliation: STANFORD UNIVERSITY

Project: Probabilistic Models for Individual Variation in Human Genotype Data

Date project was started: 2007-08-09

Show project summaries



Study: Search for Susceptibility Genes for Diabetic Nephropathy in Type 1 Diabetes - Microsoft Internet Explorer provided by NI

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Search

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- o Public Summary: Type 1 diabetes mellitus is a major health problem affecting millions of people worldwide. Despite extensive attempts at clinical management of type 1 diabetes, many patients will develop long-term complications including eye, kidney, nerve, and heart disease. Using a combination of laboratory and statistical analyses, we aim to identify the genes that contribute to the differences in risk of diabetic complications by studying DNA samples provided by a study of diabetic nephropathy, GoKinD, (an 'extreme case' 'extremecontrol' study). We will use clinical data and appropriate risk factors from the GoKinD study. We will test about 550,000 common variations in the genome across the whole of the genome for association with retinal and renal complications of type 1 diabetes. In addition, the same variations will be tested for association with risk factors for cardiovascular disease, intermediate measures of atherosclerosis and clinical neuropathy. Through this initiative, we will provide insights into the basic genetic mechanisms that underlie the long-term complications of type 1 diabetes. The information obtained will assist caregivers of individuals with type 1 diabetes predict the risk of developing specific diabetic complications, and may change treatment strategies, therapeutics, and prognosis for people with type 1 diabetes.
- o Technical Summary: Type 1 diabetes mellitus is a major health problem affecting millions of people worldwide. Despite extensive attempts at clinical management of type 1 diabetes, many patients will develop long-term complications including retinopathy, nephropathy, neuropathy and cardiovascular disease. Using a combination of laboratory and statistical analyses, we aim to identify the genes that contribute to the differences in risk of diabetic complications by studying DNA samples provided by a study of diabetic nephropathy, GoKinD, (an 'extreme case' 'extreme-control' study). We will use clinical data and appropriate risk factors from the GoKinD study. We will test about 500,000 common variations in the genome across the whole of the genome for association with retinal and renal complications of type 1 diabetes, as well as CNV's. In addition, the same variations will be tested for association with risk factors for cardiovascular disease, intermediate measures of atherosclerosis and clinical neuropathy. Through this initiative, we will provide insights into the basic genetic mechanisms that underlie the long-term complications of type 1 diabetes. The information obtained will assist caregivers of individuals with type 1 diabetes predict the risk of developing specific diabetic complications, and may change treatment strategies, therapeutics, and prognosis for people with type 1 diabetes.

3. Requestor: COX, NANCY

Affiliation: UNIVERSITY OF CHICAGO

Project: Genetic Studies of Diabetic Complications

Date project was started: 2007-07-25

Hide project summaries

- o Public Summary: A variety of the complications of diabetes have been shown to have a genetic component. Thus, we believe that identification and characterization of genetic factors influencing the risk of developing complications of diabetes would have great potential value for developing therapies to reduce, postpone or (ideally) eliminate such compications. We propose to conduct genome-wide association studies on case and control samples (cases with diabetes and complications and controls with diabetes but without complications) to identify genetic risk factors for complications of diabetes, including diabetic kidney disease, retinopathy, and cardiovascular disease. In addition, we are interested in learning more about the genetic risk factors for type 1 diabetes and autoimmune diseases (often more common in family members of an individual diagnosed with an autoimmune disease such as type 1 diabetes), and whether any of those genetic risk factors are also associated with risk of complications.
- o **Technical Summary:** We propose to use genotype and phenotype data that will enable us to identify and characterize genetic risk factors for diabetic complications, including but not necessarily limited to diabetic kidney disease, retinopathy, and cardiovascular disease, as well as risk factors for type 1 diabetes and other autoimmune diseases. We will conduct both case/control studies on unrelated individuals and family-based studies using trio data and will utilize data on both Americans of European descent and African Americans. We had already received permission to use the GoKiND phenotype data and DNA through application to GoKiND and NIDDK, as well as funding for the analyses of these data through DK077489, and are now making formal application to GAIN for the GoKiND samples, as well as other data sets that may be used to enable us to study the genetic basis of type 1 diabetes and other autoimmune disorders. These studies may allow us to identify genes with pleiotropic effects on both primary susceptibility to disease and risk of complications. As GoKiND samples all have type 1 diabetes, we would propose to utilize all other available European and African American samples that can be used as cases or controls for studies on type 1 diabetes and autoimmune disease, or with respect to diabetic complications, such as eye disease. Unfortunately, it seems that I am

Data Access Activity

Through August 2007

GAIN/institutional affiliation of requestors

Type of requestor	Total Number	Number Domestic	Number Foreign
GAIN PI or collaborator	5	3	2
Not a GAIN PI or collaborator, from:	15	14	1
Academic institution	8	8	0
Pharmaceutical or biotechnology company	4	4	0
Other non-Federal research institution	2	1	1
Federal agency (e.g., NIH)	_1_	1	0

Time to decision for Data Access Requests

Step	Number of requests	Days elapsed (median, range)
Investigator submission to institutional approval	24	3, 0-17
Institutional approval to DAC decision	22	14, 9-34
Overall (investigator submission to DAC decision)	22	20, 9-38

Downloading Data

Dataset	Number of Approved Users	Number who have downloaded the dataset
ADHD	13	9

ADHD	Download activity for 9 dbGaP users with data (13 currently approved for ADHD)									
Component type	1	2	3	4	5	6	7	8	9	Total number of files for component
Genotype-calls-filtered	2	3	1	10	3	4			1	10
Genotype-calls-unfiltered	3			12		1	1			12
Genotype-intensities				78				78		78
Genotype-qc	1	1		1	1	1		1		1
Genotype-scatterplots				3						3
Linkage-disequilibrium				1						2
Phenotype-individual-traits	7	7	2	7	7	7		7		7
Use-contents	2	2	2	2	2	2	2	2	2	2
Use-restrictions	.1	1	1	1	1	1	1	1	1	1

Challenges

- Request process
 - Questions about signing official approval process
 - Technical problems with dbGaP
 - Questions about data/data file
 - Questions about IRB review/approval
- Review process
 - Understanding the DAC's role in the overall process, and developing review procedures and material
 - Reviewing methodologic research
 - Considering potential group harms

Acknowledgments

- GAIN Data Access
 Committee members
- NCBI colleagues
- NHGRI colleagues
- Other NIH colleagues

- FNIH colleagues
- ACD Working Group (oversight group)
- GAIN Principal Investigators and collaborators
- GAIN dataset requestors and signing officials