Diabetes Research Center
UNIVERSITY of WASHINGTON

DICK AND JULIA McABEE ENDOWED POSTDOCTORAL FELLOWSHIP

General Application Instructions

The application is an abbreviated version of the standard NIH application. Please abide by the page limitations. The application will be reviewed as a fellowship proposal.

The application must be a PDF file and formatted using either Helvetica or Arial fonts no smaller than 11 point and margins must be no smaller than 0.5 inches. Applications that do not conform to these requirements will not be reviewed.

Please note: DRC uses the "Just-in-Time" method for all approvals. IRB and IACUC approvals are not required at the time of application submission. Before any funding can be distributed, verification must be provided to the DRC as follows:

- If the proposed research involves human subjects, IRB approval memo is required before funds will be released. Note: DRC is NIH funded, award #2P30 DK017047.
- If the research involves vertebrate animals, please provide IACUC protocol information with approval signature on the application cover page.

The Department Chair or Division Head's signature and Sponsor's signature must be obtained before the application can be considered complete. Electronic signatures are acceptable.

This is an internal application. As such, DO NOT complete the eGC-1 process or send the application to the Office of Sponsored Programs.

The application deadline is March 7, 2019, with awards beginning July 1, 2019. If you have any questions, please contact the DRC Manager (Corinne Lovato; 206-764-2692), DRC Program Operations Specialist (Celia Chor; 206-764-2695), Director of P&F Programs (Dr. Sakeneh Zraika; 206-768-5391) or Associate Director of P&F Programs (Dr. Mario Kratz; 206-667-7362).

NOTE: If you wish to use the Diabetes Research Center's core services, information that describes the Center, its cores, and the charges for core services can be found at http://depts.washington.edu/diabetes/

Detailed Application Instructions

Cover Page. Provide the information requested, including human subject and animal care committee review and approval information. If approvals are pending, indicate "pending" in the space provided. **Please note: DRC uses the "Just-in-Time" method for approvals**. List the key collaborators engaged in the project. All requested signatures are required at the time of submission for applications to be considered complete. Electronic signatures are acceptable.

Project Summary/Abstract. For the abstract, summarize the scientific aims, rationale and approach for achieving the stated goals (limited to 30 lines of text). In the space provided, indicate DRC core facilities that will be used. Information that describes the DRC core facilities, and charges for core services can be found at http://depts.washington.edu/diabetes

Biographical Sketch. Provide a separate biographical sketch for yourself, the sponsor, collaborators and each professional engaged in the project, using the standard NIH format described at https://grants.nih.gov/grants/forms/biosketch.htm. Detailed instructions and a sample are provided in Appendix A of this document.

Sponsor's Statement. To be completed by the sponsor. Summarize specific training plans (including course work if any) for the applicant. Describe the facilities available for the project including laboratories, clinical resources, office space, animal quarters, equipment available, etc. Explain how the proposed project relates to the applicant's career goals.

Other Support. List all active and pending grant support for yourself, the sponsor, collaborators and each professional engaged in the project. An example is provided in Appendix B of this document. Provide abstracts for all active support for yourself and the sponsor. Describe the relationship of any pending applications to this proposal.

Research Plan. The page limitations for each section are suggested guidelines, but the research plan must not be longer than **6 pages (the 6-page limitation applies to parts A-E).** In Section A, explain your career goals. In sections B-E, tell us what you intend to do. Why is the research important? What has already been done by you or others? How are you going to do the research?

A. **Goals.** Describe the applicant's career plans. Explain the relationship between the applicant's research on the fellowship award and the sponsor's ongoing research program.

B. **Specific Aims.** Outline the major question(s) to be investigated.

C. **Significance.** Describe the significance of the research in the context of the present status of the problem. Goals, Specific Aims and Significance together are recommended to be **two pages.**

D. **Preliminary Studies and Specific Background Information.** In this section, include personal experience and preliminary data that highlight the applicant's expertise to perform the proposed research. Pertinent background from the literature for the proposal should also be included. **One page** is recommended.

E. **Experimental Design and Methods.** Briefly present the experimental plan for addressing the specific aims. Describe the protocols and methods to be used, including details relating to scientific rigor and unbiased study design. Explain any new methods to be developed and indicate why you have chosen a new approach. Discuss how the data will be analyzed (statistics). Discuss potential difficulties and limitations and alternatives that may be used to

circumvent them. Explain how relevant biological variables (e.g. sex) are factored into the study design and analyses. This section need not present every experimental detail. It should convey your understanding of the important considerations and problems inherent in your proposed experimental approach. **Three pages** is recommended.

F. Human Subjects. All applicants must complete Section A. Complete Section B if applicable.

NOTE: DRC uses the "Just-In-Time" method for required approvals. Therefore, before funding can be distributed, the IRB protocol must be approved and related information provided to the DRC.

G. Vertebrate Animals. If the research involves vertebrate animals, address the following points.

1. Provide a detailed description of the proposed use of the animals in the research previously outlined in the experimental design and methods section. Identify the species, strains, ages, sex, and numbers of animals to be used in the proposed research.
2. Justify the use of animals, the choice of species, and the numbers used. If animals are in short supply, costly, or to be used in large numbers, provide an additional rationale for their selection and their numbers. Explain why the research goals cannot be accomplished using an alternative model.
3. Describe the procedures for ensuring the discomfort, distress, pain, and injury will be limited to that which is unavoidable in the conduct of scientifically sound research. Describe the use of analgesic, anesthetic, and tranquilizing drugs and/or comfortable restraining devices where appropriate to minimize discomfort, distress, pain, and injury.
4. Indicate whether vertebrate animals are euthanized and if the method is consistent with the recommendations of the Panel on Euthanasia of the American Veterinary Medical Association. If not, present a justification for not following the recommendations.

Although no specific page limitation applies to this section of the application, be succinct.

NOTE: DRC uses the "Just-In-Time" method for required approvals. Therefore, before funding can be distributed, appropriate Animal Care approval signature must be provided to the DRC on the signature sheet.

H. Consultants/Collaborators. Attach an appropriate letter from each individual confirming his or her role in the project. Include an NIH style biographical sketch for each.

I. Literature Cited. Cite references with the style used by *Diabetes* (see http://diabetes.diabetesjournals.org). Briefly, cite references sequentially by numbers (in parentheses) in the body of the application and list the citations in numerical order in the Literature Cited section. Include all authors and full titles. Be selective, citing only those references that you consider directly relevant to your proposal. **Do not exceed two pages.**

NOTE: Do not attach appendices, reprints, or preprints to the application. These will be discarded and not reviewed.

--- APPENDIX A ---

OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME:

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE:

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY

NOTE: The Biographical Sketch may not exceed five pages. Follow the formats and instructions below.

A. Personal Statement

Briefly describe why you are well-suited for your role in the project described in this application. Relevant factors may include aspects of your training; your previous experimental work on this specific topic or related topics; your technical expertise; your collaborators or scientific environment; and your past performance in this or related fields (you may mention specific contributions to science that are not included in Section C). Also, you may identify up to four peer reviewed publications that specifically highlight your experience and qualifications for this project. If you wish to explain impediments to your past productivity, you may include a description of factors such as family care responsibilities, illness, disability, and active duty military service.

B. Positions and Honors

List in chronological order previous positions, concluding with the present position. List any honors. Postdoctorates and junior faculty should include scholarships, traineeships, fellowships, and development awards, as applicable. Include present membership on any Federal Government public advisory committee.

C. Contribution to Science

Briefly describe up to five of your most significant contributions to science. For each contribution, indicate the historical background that frames the scientific problem; the central finding(s); the influence

of the finding(s) on the progress of science or the application of those finding(s) to health or technology; and your specific role in the described work. For each of these contributions, reference up to four peer-reviewed publications or other non-publication research products (can include audio or video products; patents; data and research materials; databases; educational aids or curricula; instruments or equipment; models; protocols; and software or netware) that are relevant to the described contribution. The description of each contribution should be no longer than one half page including figures and citations. Also provide a URL to a full list of your published work as found in a publicly available digital database such as SciENcv or My Bibliography, which are maintained by the US National Library of Medicine.

D. Additional Information: Research Support and/or Scholastic Performance

Research Support: List both selected ongoing and completed research projects for the past three years (Federal or non-Federally-supported). *Begin with the projects that are most relevant to the research proposed in the application.* Briefly indicate the overall goals of the projects and responsibilities of the key person identified on the Biographical Sketch. Do not include number of person months or direct costs.

For Postdoctorates only -
Scholastic Performance: List by institution and year all graduate scientific and/or professional courses with grades. In addition, explain any grading system used if it differs from a 1- 100 scale; an A, B, C, D, F system; or a 0- 4.0 scale. Also indicate the levels required for a passing grade.

YEAR	COURSE TITLE	GRADE

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Robertson-Chang, Leilani

eRA COMMONS USER NAME (credential, e.g., agency login): RobertsonL

POSITION TITLE: Postdoctoral Researcher

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	START DATE MM/YYYY	END DATE MM/YYYY	FIELD OF STUDY
Swarthmore College	BS	08/1995	05/1999	Engineering
UC San Diego	PHD	08/2001	09/2007	Molecular Biology
Michigan State University	NIH training grant	09/2007	present	Bioinformatics/Immunology

A. Personal Statement

My long term research interests involve the development of a comprehensive understanding of key developmental pathways and how alterations in gene expression contribute to human disease. My academic training and research experience have provided me with an excellent background in multiple biological disciplines including molecular biology, microbiology, biochemistry, and genetics. As an undergraduate, I was able to conduct research with Dr. Xavier Factor on the mechanisms of action of a new class of antibiotics. As a predoctoral student with Dr. Tanti Auguri, my research focused on the regulation of transcription in yeast, and I gained expertise in the isolation and biochemical characterization of transcription complexes. I developed a novel protocol for the purification for components of large transcription complexes. I was first author of the initial description of the Most Novel Complex. A subsequent first author publication challenged a key paradigm of transcription elongation and was a featured article in a major journal. During my undergraduate and graduate careers, I received several academic and teaching awards. For my postdoctoral training, I will continue to build on my previous training in transcriptional controls by moving into a mammalian system that will allow me to address additional questions regarding the regulation of differentiation and development. My sponsor Dr. I.M. Creative is an internationally recognized leader in the transcription/chromatin field and has an extensive record for training postdoctoral fellows. The proposed research will provide me with new conceptual and technical training in developmental biology and whole genome analysis. In addition, the proposed training plan outlines a set of career development activities and workshops – e.g. grant writing, public speaking, lab management, and mentoring students – designed to enhance my ability to be an independent investigator. My choice of sponsor, research project, and training will give me a solid foundation to reach my goal of studying developmental diseases in man. During my second postdoctoral year in Dr. Creative's lab my father had a severe stroke that eventually ended his life. I was out of the lab for six months dealing with my father's incapacitating illness and end-of-life issues. This hiatus in training reduced my scientific productivity.

1. Robertson-Chang L, Schneider K, Chen M, Auguri T. Rapid isolation and characterization of the most novel transcription complex in Saccharomyces cerevisiae and its role in transcription elongation. CSHL Meeting on Mechanisms of Eukaryotic Transcription; 2009 August; Cold Spring Harbor, NY.

2. Robertson-Chang L, Schneider K, Chen M, Auguri T. Rapid isolation and characterization of the most novel transcription complex in Saccharomyces cerevisiae and its role in transcription elongation. Cell. 2006; 128:770.

3. Robertson-Chang L, Auguri T. A tandem affinity purification tag approach allows for isolation of interacting proteins in Saccharomyces cerevisiae. Proceedings of the National Academy of Sciences of the United States of America. 2004; 98:151.

B. Positions and Honors

Positions and Employment

1999 - 2001	Engineer, The IBeam Group
2007 - 2007	Postdoctoral Researcher, UC San Diego
2008 -	Postdoctoral Researcher, Michigan State University

Other Experience and Professional Memberships

1997 -	Member, Sigma Xi
2000 -	Member, Association for Women in Science
2002 -	Member, National Society for Bioinformatics and Biotechnology

Honors

1995 - 1997	Scholarship, Daughters of Hawaii Society
1995 - 1999	Scholarship, National Merit Scholarship Program
1999	Paula F. Laufenberg award for best senior project in the Department of Engineering, Swarthmore College
1999	B.S. awarded with high honors, Swarthmore College
2001	STAR award for public service in engineering, The IBeam Group
2002 - 2005	Predoctoral Fellowship for Minorities, Ford Foundation

C. Contribution to Science

1. **Early Career:** My early career contributions were focused on applying my knowledge of structural engineering to improving the design and integrity of tensile structures. More specifically, I worked with a team of engineers at the IBeam Group to develop concrete with a higher tensile strength that could be utilized in large structures such as suspension bridges. My particular role in the project was to identify candidate polymers, determine the ultimate tensile strength of these polymers, and make recommendations as to which polymer would afford concrete the most structural integrity under various stresses.

   a. Lorentson C, Robertson-Chang L, Sauer N, Mehta S. Use of high-tensile concrete in cantilevered structures. J Applied Engineering. 2000; 63:413.

   b. Robertson-Chang L, Janessa AJ. Redesigning the Golden Gate bridge. National Undergraduate Symposium on Science and Engineering; 1998; Baltimore, MD. c1998.

2. **Graduate Career:** My graduate research contributions focused on transcriptional gene regulation in Saccharomyces cerevisiae. Results from my research were highly relevant as they provided new details into the workings of complex biological systems, and allowed for further extrapolations into the development of certain diseases and their progression. I originally developed a novel protocol for the purification for components of large protein complexes. A subsequent publication, in which I isolated and characterized a long sought after transcription complex, challenged a key paradigm of transcription elongation and was a featured article in a major journal.

a. Robertson-Chang L, Schneider K, Chen M, Auguri T. Rapid isolation and characterization of the most novel transcription complex in Saccharomyces cerevisiae and its role in transcription elongation. CSHL Meeting on Mechanisms of Eukaryotic Transcription; 2009 August; Cold Spring Harbor, NY.

b. Robertson-Chang L, Schneider K, Chen M, Auguri T. Rapid isolation and characterization of the most novel transcription complex in Saccharomyces cerevisiae and its role in transcription elongation. Cell. 2006; 128:770.

c. Robertson-Chang L, Auguri T. A tandem affinity purification tag approach allows for isolation of interacting proteins in Saccharomyces cerevisiae. Yeast Genetics and Molecular Biology Meeting; 2004 September; Seattle, WA.

d. Robertson-Chang L, Auguri T. A tandem affinity purification tag approach allows for isolation of interacting proteins in Saccharomyces cerevisiae. Proceedings of the National Academy of Sciences of the United States of America. 2004; 98:151.

3. **Postdoctoral Career:** As a postdoctoral fellow, my research has provided a compelling link between mutations arising in stress response proteins and the development of various autoimmune diseases in humans. Previous studies have shown dysregulation in the innate immune response lead to autoimmune diseases in humans. A few Rtc homologues have now been identified in humans and appear to play a role in the regulation of genes in the innate immune response. My research is focused on the transcriptional regulator Rtc from Drosophila melanogastor.

a. Robertson-Chang L, Cescaloo Q, Murray GC. Structural analysis of Drosophila Rtc. Nature. Forthcoming;

b. Robertson-Chang L, Yager LN, Murray GC. Rtc is an essential component of the Drosophila innate immune response. Genetics. 2007; 145:884.

c. Yao M, Dionne CF, Robertson-Chang L, Murray GC. Up-regulation of Drosophila innate immunity genes in response to stress. Science (New York, N.Y.). 2007; 304:1754.

d. Robertson-Chang L, Murray GC. Stress, flies, and videotape: the Drosophila stress response. Annual review of physiology. 2006; 346:223.

Complete List of Published Work in My Bibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/collections/public/1tay8xsxteXIw5R2StTcjhq5X

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

F32 DA942367 Robertson-Chang (PI) 09/01/08-08/31/16
Health trajectories and behavioral interventions among older substance abusers
The goal of this study is to compare the effects of two substance abuse interventions on health outcomes in an urban population of older opiate addicts.
Role: PI

Scholastic Performance

YEAR	COURSE TITLE	GRADE
	SWARTHMORE COLLEGE	
1996	Introduction to Molecular Biology	A
1995	Introduction to Engineering	A
1996	Introductory Chemistry I	B

YEAR	COURSE TITLE	GRADE
1995	Calculus I	A
1996	Calculus II	B
1996	Structures and Design	A
1996	Linear Algebra	B
1996	Physics for Engineers	A
1997	Introductory Chemistry II	C
1997	Organic Chemistry I	A
1997	Structural Materials	B
1997	Structural Materials Laboratory	A
1997	Numerical Computation and Graphics Tools	A
1997	Engineering Graphics and Computer-Assisted Design	A
1997	Principles of Structural Design I	B
1997	Statistics, Probability, and Reliability	A
1998	Principles of Structural Design II	A
1999	Senior Project	A
1999	Biochemistry	A
1999	Cell Biology	A
	UC SAN DIEGO	
2001	Seminar in Genetics	P
2002	Statistics for the Life Sciences	P
2003	Ethics in Biological Research	CRE
2004	Seminar in Physiology and Behavior	P

Except for the scientific ethics course, UC San Diego graduate courses are graded P (pass) or F (fail). Passing is C plus or better. The scientific ethics course is graded CRE (credit) or NC (no credit). Students must attend at least seven of the eight presentation/discussion sessions for credit.

--- APPENDIX B ---

OTHER SUPPORT

Other Support includes all financial resources, whether Federal, non-Federal, commercial or institutional, available in direct support of an individual's research endeavors, including but not limited to research grants, cooperative agreements, contracts, and/or institutional awards. Prizes or gifts do not need to be included.

Format

NAME OF INDIVIDUAL ACTIVE/PENDING		
Project Number (Principal Investigator) Source Title of Project *(or Subproject)* The major goals of this project are…	Dates of Approved/Proposed Project Annual Direct Costs	Person Months (Cal/Academic/ Summer)

OVERLAP *(summarized for each individual)*

Samples

ANDERSON, R.R.

ACTIVE

2 R01 HL 00000-13 (Anderson) 3/1/1997 – 2/28/2002 3.60 calendar
NIH/NHLBI $186,529
Chloride and Sodium Transport in Airway Epithelial Cells
The major goals of this project are to define the biochemistry of chloride and sodium transport in airway epithelial cells and clone the gene(s) involved in transport.

5 R01 HL 00000-07 (Baker) 4/1/1994 – 3/31/2002 1.20 calendar
NIH/NHLBI $122,717
Ion Transport in Lungs
The major goal of this project is to study chloride and sodium transport in normal and diseased lungs.

R000 (Anderson) 9/1/1996 – 8/31/2002 1.20 calendar
Cystic Fibrosis Foundation $43,123
Gene Transfer of CFTR to the Airway Epithelium
The major goals of this project are to identify and isolate airway epithelium progenitor cells and express human CFTR in airway epithelial cells.

PENDING

DCB 950000 (Anderson) 12/01/2002 – 11/30/2004 2.40 calendar
National Science Foundation $82,163
Liposome Membrane Composition and Function
The major goals of this project are to define biochemical properties of liposome membrane components and maximize liposome uptake into cells.

OVERLAP

There is scientific overlap between aim 2 of NSF DCB 950000 and aim 4 of the application under consideration. If both are funded, the budgets will be adjusted appropriately in conjunction with agency staff.

RICHARDS, L.

NONE

HERNANDEZ, M.

ACTIVE

5 R01 CA 00000-07 (Hernandez)	4/1/1995 – 3/31/2002	3.60 academic
NIH/NCI	$110,532	

Gene Therapy for Small Cell Lung Carcinoma

The major goals of this project are to use viral strategies to express the normal p53 gene in human SCLC cell lines and to study the effect on growth and invasiveness of the lines.

5 P01 CA 00000-03 (Chen)	7/1/2000 – 6/30/2002	1.80 academic
NIH/NCI	$104,428 (sub only)	3.00 summer

Mutations in p53 in Progression of Small Cell Lung Carcinoma

The major goals of this subproject are to define the p53 mutations in SCLC and their contribution to tumor progression and metastasis.

BE 00000 (Hernandez)	9/1/1996 – 8/31/2002	1.80 academic
American Cancer Society	$86,732	

p53 Mutations in Breast Cancer

The major goals of this project are to define the spectrum of p53 mutations in human breast cancer samples and correlate the results with clinical outcome.

OVERLAP

Potential commitment overlap for Dr. Hernandez between 5 R01 CA 00000-07 and the application under consideration. If the application under consideration is funded with Dr. Hernandez committed at 3.60 person months, Dr. Hernandez will request approval to reduce her months on the NCI grant.

BENNETT, P.

ACTIVE

Investigator Award (Bennett)	9/1/1999 – 8/31/2002	9.00 calendar
Howard Hughes Medical Institute	$581,317	

Gene Cloning and Targeting for Neurological Disease Genes

This award supports the PI's program to map and clone the gene(s) implicated in the development of Alzheimer's disease and to target expression of the cloned gene(s) to relevant cells.

OVERLAP: None