**ADMINISTRATIVE CORE**

**RESEARCH STRATEGY**

**Overview/mission:**

The mission of the UC Denver DRC is to catalyze outstanding interdisciplinary diabetes research at the University of Colorado to achieve progress in the prediction, prevention, treatment and cure of T1D and T2D and their related complications. The UC Denver DRC serves 88 basic and clinical diabetes investigators primarily located at the University of Colorado Anschutz Medical Campus (UC AMC). The Administrative core will provide leadership, oversight and scientific direction for all aspects of the DRC to ensure it operates responsibly, effectively and efficiently. The Administrative core will facilitate a scientific environment that fosters interactive interdisciplinary research and resource sharing between DRC investigators. The DRC director reports to the Dean of the School of Medicine and works closely with DRC leadership and the internal and external advisory boards to provide optimal program oversight. Importantly, the DRC Director and co-directors will work together to ensure there is a strong and responsive leadership for the DRC programs at UC AMC in order to synergize and elevate diabetes research in Colorado to the highest level.

**ADMINISTRATIVE STRUCTURE**

**Leadership:**

**Director: Lori Sussel, PhD.** Dr. Sussel is a Professor of Pediatrics and Director of Basic and Translational Research at the Barbara Davis Center for Diabetes (BDC) at the University of Colorado Denver (UC Denver). She holds secondary appointments in the Department of Cell and Developmental Biology and is a member of the Gates Center for Regenerative Medicine. Dr. Sussel is also a member of the *Molecular Biology* and *Cell, Stem cell and Development* graduate programs. Dr. Sussel moved to the University of Colorado, Denver in May 2016 to assume directorship of the BDC research division. Dr. Sussel began her independent career at the Barbara Davis Center (1999-2007) and moved to the Naomi Berrie Diabetes Center at Columbia University, where she achieved the rank of Professor before returning to UC Denver. As an assistant professor at UC Denver, Dr. Sussel established and managed the former UC DERC Molecular Core. When she moved to Columbia University, she became director of Columbia’s DERC Histopathology Core. At Columbia University Dr. Sussel had several leadership roles, including co-director of the “umbrella” CMBS graduate program, Co-PI of the Endocrinology T32 training program and Interim Director of the Stem Cell Initiative.

Dr. Sussel received her PhD. at Columbia University, where she trained as a molecular biologist in the field of transcriptional regulation. She moved to University of California San Francisco for her postdoctoral fellowship, where she applied her expertise on transcriptional regulation to understanding the regulation of cell fate decisions in mice. After embarking on an independent research career, Dr. Sussel’s research program has explored the transcriptional regulation of pancreas development and islet cell biology. She is known for her discovery and characterization of the ghrelin cell population in the islet. More recently her research has made significant inroads into the determination and maintenance of islet cell fates. She has been continuously funded by the NIH since she began her career, with additional funding from the ADA, JDRF and other private sources. She has served on over 20 NIH review panels and was a permanent member on ADA, JDRF and NIDDK Cellular Aspects of Diabetes and Obesity (CADO) study sections. She is currently serving as an Editorial Board Member for the NIDDK RC2 High Impact, Interdisciplinary Science Awards. She recently completed a 5 year term as Associate editor of *Diabetes* and has been the lead organizer of three Keystone meetings. Dr. Sussel is highly regarded for her leadership abilities and ability to provide a balanced assessment of individual and institutional research programs. She currently participates on external scientific advisory boards for the NIH MMRRC, Helmholtz Munich Diabetes Center, Center for Regenerative Therapies Dresden, nPOD and UPenn DRC. In acknowledgement of Dr. Sussel’s successful research program, she received the Donald Steiner Award (U. Chicago) in 2018, and has been invited to give three named lectureships in 2019/2020, including the Kroc Lectureship (UPenn), the Brownlee Lecture (Joslin) and the Stefan S. Fajans Lecture in Diabetes (U. Michigan).

Dr. Sussel moved to the BDC to revitalize the BDC research division and make an impact on diabetes research at the University of Colorado. In three years, she has leveraged institutional funds and philanthropy to recruit 4 outstanding new faculty, upgraded the center infrastructure by replacing outdated instrumentation, established a successful biweekly seminar series and initiated a campus wide Diabetes Symposium. Her research connections with T1D and T2D, and past and present affiliations with several departments on the UC AMC campus have allowed her to unite the diabetes community to facilitate the preparation of this DRC proposal. These achievements are a testament to her ability to run a multidisciplinary DRC program (see Support letters).

Dr. Sussel will provide overall leadership to the UC Denver DRC and assumes full responsibility for the DRC program. She reports directly to Dean Reilly. As the DRC Administrative Director, Dr. Sussel will convene and chair monthly meetings of the DRC Executive Committee (Sussel, Reusch, Core and Program directors) and annual meetings of the Internal and External Advisory Boards. She will be responsible for reviewing the support and services provided to all DRC basic, translational and clinical research projects. Together with Drs. Reusch and Rozance, she will monitor the activities of the Pilot & Feasibility and Academic Enrichment programs. She will serve as the UC Denver DRC liaison officer with the NIDDK. She will be the principal spokesperson for the UC Denver DRC in public relations, and in interactions with local chapters of the American Diabetes Association and the Juvenile Diabetes Research Foundation. Dr. Sussel oversees the content and maintenance of the DRC website and databases that will be used for disseminating data and information to the research and lay communities, and all business operations, including ordering, billing of services and financial management*.*

**Associate Director: Jane Reusch, MD.** Dr. Reusch will serve as Associate Director of the UC Denver DRC. Her leadership experience and expertise in clinical and translational research and applied integrative physiology provides an outstanding complement to Dr. Sussel’s basic science expertise. Dr. Reusch also has extensive ties to the T2D and complications research and clinical communities at UC AMC and will provide balance to the leadership structure of the DRC and lead the Enrichment Core. Together, Drs. Sussel and Reusch are committed to leading a strong program of basic and translational research in diabetes at UC AMC. In the event that Dr. Sussel is unable to fulfill her duties as Program Director, Dr. Reusch will assume this leadership position. Dr Reusch has extensive local and national leadership experience, especially in team science. Locally she codirected the Dean’s research initiative in Vascular Biology, she has been on the planning and executive committee for the CCTSI since the first award in 2008 and co-director and designer of our CCTSI education pillar. Nationally she is working with the American Diabetes Association, the American Heart Association and the American College of Cardiology to address the global epidemic of cardiovascular disease in diabetes. Her national leadership includes: 2018 President for Medicine and Science of the American Diabetes Association and recipient of the Banting Medal for Leadership and Service, past president of the American Federation for Medical Research (AFMR), the Western AFMR and the Western Society for Clinical Investigation. She has served on the Research Policy Committees for ADA, the Endocrine Society, FASEB and on the Scientific Sessions Meeting Planning Committees for the ADA, AFMR, CTSA and the Endocrine Society.

Dr Reusch is Professor of Medicine, Bioengineering and Biochemistry, Associate Director of the Center for Women’s Health Research (CWHR) at the University of Colorado Anschutz Medical Campus, and staff physician and merit investigator at the Rocky Mountain Regional VAMC. She is a graduate of Norte Dame and obtained her MD degrees from the University of Minnesota, Minneapolis, MN. Dr. Reusch completed her internship and residency training in Internal Medicine and Fellowship training in Endocrinology and Metabolism at the University of Colorado Health Sciences Center (UCHSC). A physician-scientist, Dr. Reusch made a fundamental contribution to our understanding of cellular metabolism and diabetes complications. The overarching hypothesis of the Reusch Lab is that the chronic metabolic, oxidative and inflammatory stress of diabetes decreases resilience and homeostasis, which contributes to diabetic complications-cardiovascular complications specifically. The focus of her basic science program is to identify the cellular and molecular mechanisms, mediated by diabetes, that contribute to cardiac, vascular and skeletal muscle dysfunction in diabetes. Her group established that CREB serves a crucial role of decreasing VSMC activation (proliferation, migration, matrix production and apoptosis) and regulation of antioxidant defense and mitochondrial biogenesis- a response blunted by diabetes. They identified that cells and organs from models of diabetes have decreased differentiation, decreased metabolic flexibility and increased susceptibility to apoptosis. Her shared translational research program with Dr Judy Regensteiner examines and targets the biological variables in people with diabetes that lead to decreased functional exercise capacity in youth and adults. This work includes the development of novel non-invasive techniques for evaluation of metabolism and cardiovascular structure and function in human subjects. Ongoing studies seek to understand why this impairment more severe in women with diabetes than in men with diabetes. Dr. Reusch’s work has resulted in more than 150 publications (including has original papers, reviews, and chapters plus two books). In recognition of her outstanding contributions, Dr. Reusch has received numerous awards, including an elected member of American Society for Clinical Investigation and Association of American Physicians, the University of Tennessee Given lecture and numerous invited lectureships at national and international venues. Dr Reusch has served as a permanent study section member of VA ENDO A and the ADA grant review panel and Chair of two NIH special emphasis panels and an R21 IAR panel plus ad hoc reviews for NIH, ADA, and JDRF.

Dr. Reusch will also serve as Director of the Pilot and Feasibility Programs. She will work with Dr. Paul Rozance to establish and monitor the P&F program and will be responsible for appointing a committee to review the evaluations of P&F proposals. As DRC Co-Director ,she will also oversee the Enrichment and Outreach program and coordinate this program with existing activities and training programs on campus.

**Responsibilities of the Director and oversight by the Institution**

The Program Director is ultimately responsible for maintaining a high level of scientific, administrative and ethical activities under the auspices of the DRC. The Director of the DRC reports directly to the Dean. Dr. John J. Reilly was appointed as the Dean of the School of Medicine in 2015. Dean Reilly has immediate authority over all employees at UC Denver, including members of the DRC. The Dean’s office and the Office of Diversity have the ultimate authority to decide on the appointment of staff to the DRC. Funds for the DRC are administered by the Grants and Contracts Division of the Dean’s office. The UC Denver Human Resources Section oversees staff welfare at UC AMC. The Dean has pledged his support of the DRC and Pilot and Feasibility Program.

**Accountability for Budget and Expenditures**

Dr. Sussel, Program Director will be accountable for the budget and expenditures of the DRC at monthly meetings with the Executive Committee, and the IAB and EAB annual. The Administrative Director and staff will manage the budget and have monthly meetings with Dr. Sussel prior to each executive meeting to review expenditures and budget projections.

**Executive Committee**

Members of the DRC Executive Committee are mandated with the responsibility of ensuring the successful implementation of the mission of the UC Denver DRC. The committee will advise the Director on daily operations of the DRC, DRC membership, and oversight of the bioresource cores, P&F programs and enrichment program.

The executive committee is comprised of the Program Directors and Associate Directors (Sussel, Reusch), one designated Director from each of the four Biomedical Cores, the P&F co-Director and the Program Administrator. An Executive Committee meeting will be convened on a monthly basis during the academic year. The committee will discuss activities of the individual Biomedical Cores, review and prioritize expenditures, and mediate any disputes that arise. The committee is the major forum for discussion of the addition or termination of Core services, allocation/reallocation of funds, and hiring or dismissal of staff within each core. The Program Director will be responsible for conveying concerns from the Executive Committee to university authorities such as the Dean (Reilly), or university administrators within Grants and Contracts, Human Resources, Finances, Facilities etc. The Program Director will also be responsible for communicating issues and topics arising from the Executive Committee to the Internal and External Advisory Boards. The committee also provides oversight and advice to the P&F and Enrichment and Outreach program. The committee will also rule on applications for DRC membership and have the authority to terminate membership if warranted.

This management structure is designed to provide a relatively autonomous day-to-day operation of the DRC at the level of the individual Biomedical Cores. Each Core Director is provided with an annual budget, a target for Core usage and guidelines for cost recovery. **Cost recoveries** are determined annually based on core expenditures (personnel, reagents, service contracts, etc) and revenues and are subject to the guidelines of the university (see below for details). The Core managers are responsible for purchasing of supplies, prioritization and scheduling of services and billing that is managed through an automated web-based system. Dr. Sussel has **facilitated the establishment if iLABs software** for the BDC (islet isolation, molecular cell line authentication, shared instrumentation, including cytometers, FACs and confocal microscope). **All DRC cores will have access to the iLABs license and will implement iLABs immediately**. Core personnel report directly to their respective Biomedical Core Director on a weekly basis on issues of such as Core usage, quality control and user satisfaction. Disputes or conflicts that cannot be resolved at this level are brought to the attention of the Executive Committee. The monthly meetings of the Executive committee are the usual forum at which decisions to introduce changes in protocols and address questions concerning performance and training of Core staff.

**Internal Advisory Board (IAB)**

The Internal Advisory board consists of prominent investigators and program leaders at UC Denver who do not serve other administrative roles within the DRC. These individuals were carefully chosen to represent leadership in relevant Departments, Centers and Programs at the UC Denver so that they can provide broad insight to address the needs of basic and clinical investigators involved in diabetes research. Additional faculty will be invited to serve on the board as the needs and/or directions of the DRC evolve. The IAB will meet once a year with the Executive committee and once a year with the Executive committee and External Advisory Board. Additional meetings will be scheduled on an *ad hoc* basis if conflicts arise within the DRC leadership or between Core Directors. The IAB will advise the Program Director and Executive Committee about relevant University policies, perceived needs of the research community, possible areas of interactions between campus programs and opportunities for establishing collaborative projects and funding. Letters of support from the IAB members are included in the proposal. Current faculty who have agreed to serve as IAB members are:

**Arthur Gutierrez-Hartmann, MD:** Professor, Department of Medicine (Division of Endocrinology, Diabetes and Metabolism) & Department of Biochemistry & Molecular Genetics. Associate Dean for Research Education SOM; Director, Medical Scientist Training Program (MSTP); and Director, Physician Scientist Residency Training Program

**Paul Maclean:** Professor of Medicine, Interim Director Center for Human Nutrition (NORC) and Director of the Energy Metabolism Program.

**Ronald Sokol, MD:** Professor and Vice Chair of Pediatrics; Director of the Colorado Clinical and Translational Sciences Institute (CCTSI)

**External Advisory Board (EAB)**

As a new DRC applicant, we are instructed to assemble an EAB only after the DRC is awarded. In the event that the UC Denver DRC is established, we will invite prominent scientists in the areas of basic and clinical research in T1D and T2D to provide advice and guidance on the entire DRC program and each bioresource core. The EAB will meet annually, on a day immediately preceding or following the DRC Retreat (see Enrichment section) where we bring DRC members and P&F recipients together to discuss DRC activities, research programs, core resources and enrichment programs. We would encourage the EAB members to attend the retreat if their schedules permit.

The EAB would be expected to convene for 3-4 hours with members of the Executive Committee and Core Directors to review DRC operations, core facilities, and the P&F and Enrichment programs. The EAB will compile a summary of their observations and recommendations that will subsequently be reviewed by the Executive committee for action. The EAB will consist of a standing committee that serves for 2-3 year terms, so that there is continuity on the board. Individuals will be selected by the DRC Executive Committee in consultation with the Internal Advisory Board.

**COORDINATION, INTEGRATION, AND ASSESSMENT OF DRC ACTIVITIES**

The Administrative Core is responsible for the implementation, coordination and integration of all UC Denver DRC core components and activities. Program Director, Dr. Sussel, with the assistance of her administrative staff, including the DRC Coordinator and DRC Administrator will provide central organization and administrative support for the bioresource cores, P&F program, and activities within the Enrichment program, including the annual DRC retreat. The Administrative core will also compile information and metrics for annual IAB and EAB meetings. Specifically, the Administrative Core will be responsible for:

* Scheduling, creating agenda and documenting discussion for all DRC leadership and advisory meetings, including monthly Executive Committee Meetings, annual internal advisory board meetings and annual external advisory board meetings
* Preparing annual NIH progress reports and renewal applications
* Collecting and documenting membership publications and collaborations
* Coordinating and promoting enrichment activities, including the annual DRC retreat, UC AMC Diabetes Day and selection of John Hutton memorial keynote speaker, weekly UC Denver diabetes seminar series, and weekly Research in Progress series.
* Disseminating information to DRC members regarding relevant campus wide activities, including monthly Dean’s Distinguished Seminars, departmental and division seminar series and special forums on campus. Outreach will include email announcements, website posting, posting of paper and electronic fliers.
* Assisting in the coordination of activities (special symposia, named lectureships, etc.) with other UC AMC programs, including the CCTSI, NORC and CWHR
* Monitoring and Evaluation of Core directors and programs (see below)
* Facilitating the implementation of iLABs for all biomedical cores
* Administrative support for Cores, P&F program and Enrichment program (see below)
* Implementation and maintenance of UC Denver DRC website (see below)
* Assessing metrics of program success (see below)

**MONITORING AND EVALUATION OF DRC LEADERSHIP AND CORE RESOURCES**

UC Denver DRC leadership places a high priority on ensuring DRC members receive maximum support and benefit from the DRC cores. Continual oversight and monitoring will be provided by the Executive committee and IAB. Annual reviews by the EAB will provide an additional layer oversight and evaluation.

**Evaluation and Replacement of Directors of Cores or Program Components**

The Director and Core Directors will be subject to an annual performance assessment by the External Advisory Committee. Metrics of the Director to be evaluated: scheduling (and convening) monthly executive meetings, appropriate fiscal oversight of DRC resources, facilitation of core operations, including iLAB software implementation, integration of Biomedical core operations, integration of P&F and enrichment programs, establishment and maintenance of website, evidence of appropriate leadership (core facilities operating without deficit and providing the diabetes community with requested services as determined by annual DRC membership surveys). If Dr. Sussel is not able to adequately perform these duties or leaves the institute, Dr. Reusch will step into the role of Program Director until a suitable replacement is identified by the Executive committee in consultation with the IAB. Core directors are expected to attend monthly and annual meetings, participate in enrichment programs, work with P&F recipients, hire and supervise experienced core personnel, ensure the Biomedical cores provide relevant services for DRC members, and oversee annual cost studies. If a Core director is not able to fulfill these duties, the Program Director will nominate replacements after consulting with the Executive Committee and IAB. Input and advice will also be solicited from the DRC membership/core users.

**Mechanisms to address to underutilization, inappropriate use or low productivity**

An annual survey of DRC users will be implemented to gain feedback regarding core resources and services. If there has been under-utilization, inappropriate use, low productivity, or other problems in a DRC shared resource or core component, a report will be generated by the Core Director for review by the Executive Committee. Actions taken may include counseling or increased support for a component director, re-allocation of resources to a more utilized component, establishment of new programs, instituting strategies to increase utilization, or termination of a program.

**Administrative evaluation of quality, productivity and equitable distribution of core resources**

Each program or core director will prepare an Annual Report for submission to the DRC Executive Committee and IAB. In addition, the External Advisory Committee will independently assess the performance of each program, component and shared resource using input from investigators, trainees, and community members, where appropriate. Using these data, the Executive Committee will determine the appropriate budget and resource allocation for the subsequent year, and present these data to the IAB and EAB for their input. Consideration for allocation of resources will include the value of the resource or activity, the utilization of the resources and the performance measurement for the prior year, any potential negative impacts if the function were to be scaled back or eliminate. The final decision on the distribution of resources and the budget will rest with the Executive Committee and will be shared with the IAB and the EAB.

**Administrative Support of the Bioresource Cores**

If the DRC is awarded, Drs. Sussel and the DRC administrative manager will meet with each of the core directors to discuss core operations, implementation of core services, hiring of personnel, etc. Each core director will be given the latitude to make their own decisions, but will also be expected to follow DRC and university policies. Monthly executive committee meetings will provide a forum for continual discussion of core operations and evolution. When necessary, Core Directors will schedule additional meetings with Dr. Sussel, Reusch and/or the Program Administrator to assist with core logistics. When necessary, the Administrative core will also assist each core with establishing workflow records and service assignments, as discussed within each Bioresource core.

The DRC administrative manager will also assist each core director with setting up a fee structure that is based on an annual cost study analysis (see below). In 2016, UC AMC began to implement iLabs Core Facility Management software, an online system designed to streamline the process of ordering and billing for all campus service center service requests. Users can initiate service requests and reserve instrumentation time through the iLab system, which is fully integrated with the UC Denver PeopleSoft Finance system. This allows accounts (“speedtypes”) designated by users to be automatically charged for services and the core lab will receive payment through an interface between the two systems. Core lab staff will not have to follow-up on unpaid bills or track down “speedtypes”. Furthermore, reports can be easily generated for regular monitoring usage of core services and equipment, and/or annual progress reports. Users will be able to manage their instrument reservations and track their service requests through iLab. Copies of itemized service invoices are available online and customizable reports of laboratory’s utilization of service cores are easily generated. The UC Cancer Center has implemented iLABs for most of their cores. Dr. Sussel has implemented iLABs for some of the services offered within the BDC. iLABs will be implemented for all services in each of the Bioresource cores. The Administrative core will assist in the transition to iLabs for all DRC cores and services.

**Cost study analysis**

The development of business plans, costing models and fee structure implementation is outlined within each core section and is governed by university policies. Core managers and directors are required annually to prepare a cost study for each core service based on time spent per service, equipment and supplies used per service and volume of activity. The Finance and Budget Offices offer training sessions related to management of auxiliary service centers. Managers of DRC Service Centers will be trained to conduct cost studies, prepare budgets, maintain adequate internal controls, keep accurate fiscal records, and ultimately keep their operation in a positive financial position. If a manager believes she or he needs additional training in any of these areas, personal training is available from the Finance and Budget Offices. iLABs software will track income and usage; this information will facilitate cost studies for subsequent years.

**Administrative Support of the Enrichment Program**

The enrichment program is critical for promoting interactions, collaborations and exchange of information between DRC members and other research investigators at UC AMC. The Administrative Core will assist Dr. Reusch and her seminar committees with sending out seminar invitations, coordinating the seminar schedule, travel scheduling and reimbursements, coordinating meetings with faculty, booking seminar rooms and all other basic logistics related to the seminar program. Similar assistance will be provided the DRC retreat and UC AMC Diabetes Symposia. The administrative staff will also assist with publicizing these DRC events via campus wide emails, posters and website postings.

**Administrative Support of the P&F Program**

The Administrative Core will assist with all of the administrative logistics related to the P&F program. The core will publicize the call for applications through campus wide email announcements and posting on the DRC website. The Core will assist Drs. Reusch and Rozance with collecting proposals, scheduling P&F Program Committee meetings, distributing proposals and soliciting reviewers, collecting and collating reviews and processing honoraria for external reviewers. The administrative core will also assist Drs. Reusch and Rozance with collecting and collating progress reports from grant recipients and monitoring their resulting publications, evaluation, grant awards and career trajectories.

**Curation and maintenance of the UC Denver DRC website**

The UC Denver DRC website will provide an essential portal to DRC activities. It will include information on the mission of the DRC, contact information, DRC leadership, directory of faculty members, membership criteria and application process, and available resources. It will also provide updated information regarding the P&F program, weekly seminars, and DRC related events. The website will also host updated information about DRC member achievements, publications and award. Importantly, the website will also provide links to each Bioresource core. The individual core webpages will contain information about core management, core services and resources, fee structure, protocols, standard operating procedures and data sharing. The Executive committee will work with Mr. Joshua Hartz - IT Director at the BDC - to design and oversee the website content and management.

**Metrics of Success**

The purpose of the DRC is to catalyze and synergize diabetes research on campus. The resources provided by the cores, P&F program and enrichment activities are intended to provide “added value” to an already rich diabetes environment. The creation of an interactive diabetes community who are actively engaged in program activities and utilize DRC core services would provide subjective evidence of added value. The Administrative Core will also conduct annual surveys to collect statistical information about core usage, satisfaction with core services and resources, and feedback on the P&F program and Enrichment activities. Important tangible metrics of success will also include high profile publications by DRC membership that cite core usage, success with NIH funding, increased numbers of collaborative publications and grants, increased numbers of cross-over studies between T1D and T2D, and the recruitment of new faculty into diabetes research. Ultimately, the most critical evidence of success will be our ability to advance diabetes prediction, prevention, treatments and/or cures.

**Local Collaboration**

The UC Denver DRC strives to complement, but not duplicate other centers/programs on campus. The NORC, CCTSI and Colorado Cancer Center each provide core services, training programs and enrichment opportunities. The Directors of the NORC (Maclean) and CCTSI (Sokol) are members of our internal advisory boards and will allow us to optimally coordinate our respective research efforts. The CCTSI has established outstanding training programs that we will adapt for DRC members (see enrichment below). The DRC and NORC will co-sponsor seminars and symposia when there are overlapping scientific interests. The DRC will also “buy in” to existing cores on campus, by adapting services for the needs of DRC members (see TPP core; acquisition of primary human tissue) or by providing diabetes specific reagents (see TPA core; MIBI and CytoF panels). The goal is to work with existing facilities and programs to tailor them for diabetes researchers and/or develop new services, equipment and opportunities that are not currently available.

**National Collaboration**

The UC Denver DRC is fully committed to active participation in all committees of the National DRC and DRTC, to cooperatively address impediments to research in diabetes, to work towards adopting and implementing agreed-on best practices, policies, and procedures to advance clinical and translation research and training. Furthermore, we will commit to work towards creating a networked environment in which at multiple sites and institutions including providing Core services to other Centers and sharing of data.

**ENRICHMENT PROGRAM**

The goal of the UC Denver DRC Enrichment Program is to enhance the diabetes research environment at the University of Colorado Anschutz Medical Campus (UC AMC) and its affiliates, by boosting the visibility, breadth and impact of diabetes research. Execution of this plan will create an integrated diabetes research home. We will achieve these goals through the following specific aims:

**AIM 1: To improve communication between DRC members, and provide enrichment activities that increase collaboration and create interdisciplinary cohesion.** Collaboration, particularly across disciplines and research areas, is a key element in accelerating diabetes research at UC AMCand increasing its impact.In addition to providing networking opportunities via a variety of diabetes-related seminar series and mini-symposia, the UC Denver DRC will establish a Diabetes Retreat. The Diabetes Retreat will be open to all UC Denver DRC members and include multiple opportunities for diabetes investigators to share their research, establish a meaningful network of like-minded investigators, and initiate collaborative studies/projects and grants.

**AIM 2: To fortify our diabetes research base via retention and recruitment of outstanding diabetes researchers to UC AMC.** Activities supported by the UC Denver DRC Enrichment Program will serve not only to retain diabetes investigators at UC AMC, but also to enhance recruitment of scientists into diabetes research and foster their transition to independent careers. We plan to capitalize upon existing institutional NIH T32 and KL2/K12 training programs (both directed by DRC scientists and others across the campus), other UC AMC programs that support career development, grant writing and promotion, and internal funding mechanisms to achieve this aim. The DRC Enrichment Program will also strive to improve access and awareness of these programs amongst its membership.

**AIM 3: To provide effective community outreach that increases public awareness about advances in diabetes research at UC AMC.** The goal of this aim is to position the University of Colorado, and the UCDenver DRC, as a “destination” for faculty, students, patients, community leaders and philanthropists; where support of cutting-edge diabetes research drives advancement of prevention, screening, and treatment of diabetes and its complications.

**OVERVIEW:**  The University of Colorado Anschutz Medical Campus (UC AMC), and its affiliated institutions, has an extraordinary breadth and depth of well-funded diabetes basic, translational and clinical research that will synergize and flourish under the auspices of the UC Denver DRC. As evidenced by the funding and publication records of the DRC membership, researchers at UC-AMC demonstrate international leadership in virtually all diabetes and diabetes-related disciplines, e.g. the genetics of T1D, immunology of autoimmune disease, islet development, islet transplantation, intrauterine origins of dysmetabolism and risk for islet failure, dysmetabolism, obesity and diabetes, T2D in youth, cardiovascular disease in T1D and T2D, renal complications of diabetes, diabetes technology, diabetes clinical trials, fetal origin of diabetes and many more. Historically, the various diabetes research groups at UC-AMC have operated in parallel, failing to take full advantage of potential synergies to enhance the visibility, breadth and impact of diabetes research at UC-AMC. Establishment of a campus-wide Chancellor-supported goal of reaching “Top 5 Status” combined with recruitment of new leadership at UC AMC, especially School of Medicine Dean, Dr. John Reilly (recruited 2015), who established a Dean’s Transformational Research Funding Program, and BDC Research Director, Dr. Lori Sussel (recruited 2016), has inspired the development of this inclusive, campus-wide UC Denver DRC proposal.

***Figure 1:*** *Organization of UCDenver DRC Enrichment Program.*

**ORGANIZATION AND LEADERSHIP OF THE ENRICHMENT PROGRAM:**

The enrichment program will be directed by Dr. Jane Reusch who will be responsible for the initiation, implementation, and monitoring of the proposed activities. Dr. Reusch will meet regularly with Dr. Lori Sussel and the UC Denver DRC leadership to review upcoming events and strategize how to best facilitate/enhance engagement of the DRC membership. Together, the team of Drs. Reusch and Sussel will forge connections across all diabetes research programs at UC AMC and its affiliates, capitalizing on all available resources to increase the visibility and impact of diabetes research in Colorado (Figure 1).

**NETWORKING AND RECRUITMENT OPPORTUNITIES:**

The UC Denver DRC Enrichment Program strives to promote communication, and ultimately collaboration, between individual DRC members, and between DRC members and the UC AMC research community as a whole. The DRC Enrichment Program will support the following activities by increasing awareness (DRC website, campus-wide email announcements, campus-wide elevator and electronic postings) and encouraging participation of the DRC membership.

**Mini-Symposia**

**Diabetes Research Day:** Dr. Sussel established an annual “Diabetes Research Day” day-long research mini-symposium with philanthropic funds and featuring a keynote address: the “John Hutton Memorial Lecture” (see agendas). The goal of this day is to highlight diabetes research conducted at UC-AMC to the diabetes and non-diabetes communities, and to provide an opportunity for trainees and faculty to network via a poster session. The entire UC-AMC research community is invited attend and participate. The first event, held January 27, 2017, included 13 speakers from each of the 4 DRC research areas and attracted over 30 posters. Dr. Christopher Rhodes, Vice President of Medimmune and former postdoctoral fellow of Dr. Hutton was the invited Keynote speaker. We have since held 2 additional symposia (see attached).

Upon successful award of the DRC, the Diabetes Research Day will morph into the Annual DRC symposium/retreat that will be open to all UC Denver DRC members and will include opportunities for diabetes investigators to share their research (talks and posters), establish a meaningful networks and initiate collaborative studies/projects and grants. Lectures at the Diabetes Retreat will be given by DRC members and will cover topics from each of the four DRC research areas, T1D, T2D, diabetes complications, and autoimmunity. In addition, P&F award recipients will be required to present their work. Breakout sessions/forums will be held to discuss the DRC Research Cores and to brainstorm about new services and equipment. A committee with representatives from the T1D, T2D, complications and autoimmunity communities performing basic, translational and clinical research will be formed to plan the event. The meeting will be co-sponsored by the UC Denver DRC, BDC, NORC, and other interested institutes. The annual External Advisory Board meeting will be scheduled on a day flanking the retreat. EAB members would be encouraged to attend the retreat.

**Postdoctoral Research Day:** Trainees of DRC members will be encouraged to participate in UC AMC Postdoctoral Research Day. This is an annual event sponsored by the UC Denver Postdoctoral Office that includes a keynote lecture, career development workshop, oral presentations, posters, and scientific networking opportunities (see agenda). Similar “Research Day” events are sponsored by the Department of Medicine, Department of Pediatrics, Center for Women’s Health Research, and the VA. The DRC Administrative Core will assist in disseminating announcements for these events to DRC membership to encourage participation.

**Seminar Series (**see appendix for past and upcoming programs**)**

The following seminar series showcase ongoing diabetes or diabetes-related research at UC AMC, as well as provide the UC AMC research community with access to outside scholars. DRC members will be provided opportunities to present their research at some of these lecture series. We will post information about relevant seminars on the DRC website.

**University of Colorado Diabetes Seminar Series:** This is a new seminar series initiated by the BDC Research Director and UCDenver DRC Program Director, Dr. Sussel, and supported with funds from the Davis Trust. This bi-weekly speaker series includes both local and visiting scientists, speaking on a broad range of diabetes topics, including T1D, T2D and related complications (see schedule). For the development of the 2016-2017 series, speaker suggestions were solicited from DRC membership (determined by the survey). The Diabetes seminar series was strategically placed on Fridays so that we can invite speakers who are attending relevant Keystone Symposia held in the Colorado mountains. This is especially useful for inviting international scientists. ***UC Denver DRC support will allow the expansion of this series to a weekly format.***

**BDC Research in Progress (RIP):** This is an established diabetes research seminar series collaboratively organized by the BDC and Immunology department post-doctoral fellows and a member of the BDC junior faculty (see schedules). RIP offers trainees, UC Denver DRC P&F recipients, and junior faculty a forum for colleagues and senior faculty to critique their work in progress, offering suggestions on project design, data interpretation and future directions, and providing input for manuscript/grant development. It is designed to be a collegial that allows a free exchange of ideas.

**Endocrine Research Conference (ERC):** This is a collaborative research forum that emphasizes basic, pre-clinical, and mechanistic-clinical research in endocrinology. ECR overlaps with two other seminar series- Nutrition & Metabolism Seminar Series (N&M) and Hormones & Related Malignancies Seminar Series (H&RM), covering topics of interest to diabetes/nutrition/obesity and cancer researchers. This research conference offers a forum for career development in presentation skills, critique of research, and networking (see Hernandez LOS).

**Endocrine Grand Rounds (EGR):** EGR will serve as a translational, clinical application, and community outreach forum for DRC Researchers (see schedule; Cornier LOS). More than half of the covered topics are directly related to diabetes and metabolism.

**Integrative Physiology Seminar Series:** A weekly seminar series put on by the Department of Physiology and Biophysics that often features topics in diabetes and metabolism (see McManaman LOS).

**Immunology & Microbiology Seminar Series:** Weekly seminar series that primarily hosts outside speakers, and often includes autoimmunity topics. The Enrichment Director will work with DRC administrative team to identify seminars of interest to the DRC community.

**Immunology/Autoimmunity Journal Club:** Weekly journal club hosted collaboratively between the department of Immunology and the BDC. Presentation and discussion of new literature by students, fellows and faculty to promotes exchange of ideas, provides new insights/perspectives, and encourages networking.

**Dean’s Distinguished Seminar Series:** Monthly seminar series hosting internationally-renown scientists presenting on a variety of topics.

**Summer Research Programs**

The programs described below will allow the UC Denver DRC to establish a pipeline of new diabetes researchers. DRC members will be encouraged to engage summer students in diabetes research.

**NIDDK Medical Student Research Program in Diabetes:** This program allows “medical students to conduct research under the direction of an established scientist in the areas of diabetes, hormone action, physiology, islet cell biology or obesity” during the summer between years 1-2 or years 2-3 of medical school. In August, all NIDDK Summer Students are invited to a conference at Vanderbilt, which includes an opportunity to present a poster of their summer project to other students and the preceptors of the conference. DRC members Kristen Nadeau, Paul Wadwa, Janet Snell-Bergeon, Phil Zeitler, and Jane Reusch have participated as mentors.

**UC SOM Summer Internship Programs:** A number of summer internships are available on campus through Pediatrics, the NIH Cancer Center, NIH GEMS, Gates Center for Regenerative Medicine, and others. The DRC Enrichment Director will post new opportunities on the DRC website as they arise.

**Denver Student Training in Research Science (STaRS) Program** **and Partners Summer Undergraduate Minority Mentoring in Translational Science (SUMMiT):** These programs provide an opportunity for high-ability high school students from traditionally underrepresented backgrounds to explore careers and educational opportunities in various areas of research, including biomedical and clinical fields, and translational sciences. The program consists of a series of workshops, mentoring opportunities, and research experiences designed to broaden and encourage applications to undergraduate, medical, and graduate programs at UC-AMC.

**Colorado Conferences**

**Annual Clinical Diabetes and Endocrinology Conference:** Yearly educational symposium in its 57th year CME organized/sponsored by ION Business Strategies in collaboration with the Clinical Diabetes Endocrine Institute. Held in Aspen/Snowmass, Colorado for basic scientists, clinical scientists, physicians in practice, in training and early career investigators (see schedules).

**Practical Ways to Achieve Targets in Diabetes Care:** Annual four-day course designed to assist healthcare providers caring for patients with diabetes. Sponsored/hosted by the BDC in conjunction with the University of Colorado Denver, School of Medicine, and held each summer in Keystone, Colorado (see schedules).

**Keystone Symposia:** *Keystone Symposia* is nonprofit organization headquartered in Silverthorne, Colorado, that convenes open, peer-reviewed conferences across a broad range of life-sciences disciplines. In the past 5 years, Keystone Symposia has organized 21 diabetes or diabetes-related conferences that were held in **Colorado;** currently 8 conferences are scheduled for sites in Colorado in 2019-2020 relevant to the interests of our membership (see attachment). UC Denver DRC investigators are well positioned geographically to take advantage of these international conferences held in the Colorado mountains for robust intersections will leading investigators. In addition, the UC Denver DRC is uniquely positioned to piggy-back speakers for their own University of Colorado Diabetes Seminar Series.

**CAREER DEVELOPMENT SUPPORT FOR DRC MEMBERS AND THEIR TRAINEES:**

The activities/opportunities described below will serve not only to retain diabetes investigators at UC AMC, but also to enhance recruitment of scientists into diabetes research, and foster their transition to independent careers. The DRC Enrichment Program will facilitate access to these and other career development programs.

**Institutional Training Programs**

Diabetes research is multi-disciplinary; DRC members can secure support from a variety of institutional training programs to enrich diabetes research opportunities for their trainees, and to extend the UC AMC diabetes research community. The UC Denver DRC Enrichment Program will coordinate with the program directors of these campus-wide resources to increase the number of trainees/early career investigators entering diabetes research (see LOS in Overall component).

**Current Diabetes-Relevant NIH T32 grants at UC AMC:** *\*indicates diabetes is a focus of the training program; #indicates PI is DRC member; $indicates PI is on the DRC internal advisory board*

\*Training Program in Diabetes Research (NIH: T32DK063687); *#*Robert Slover, MD

\*Obesity and Cardiovascular Disease (NIH: T32HL116276); *#*Robert Eckel, MD

\*Institutional Training Program in Nutrition (NIH: T32DK007658); Nancy Krebs, MD

Research Training in Rheumatology (NIH: T32AR007534); *#*V Michael Holers, MD

Integrative Physiology of Aging Training Grant (NIH: T32AG000279); *#*Robert Schwartz, MD

Renal and Electrolyte Disease and Hypertension (NIH: T32DK007135); *#*Richard Johnson, MD

Training Program in Immunology (NIH: T32AI007405); Raul Torres, PhD

Training Program in Perinatal Biology and Medicine (NIH: T32HD007186); William Hay, MD

Gastrointestinal Diseases Training Grant (NIH: T32DK007038); Sean Colgan, PhD

Translational Pulmonary Vascular Biology Program (NIH: T32HL007171); Kurt Stenmark, MD

Cardiovascular Biomechanics and Imaging (NIH: T32HL072738); Robin Shandas, PhD

Medical Scientist Training Program (NIH: T32GM008497) *$*Arthur Gutierrez-Hartmann, MD/PhD

Pre-doctoral Training Program in Molecular Biology (NIH: 3T32GM008730): Rytis Prekeris, PhD

Pre-doctoral Training Grant in Pharmacology (NIH: T32GM007635); Andrew Thornburn, PhD

Training in Immunodermatology (NIH: T32AR007411); Dennis Roop, PhD

**Current Diabetes-Relevant NIH KL2/K12 Grants at UC AMC:**

\*Developing Pediatric Diabetes Investigators for the Future (NIH: K12DK094712); *#*Andrea Steck, MD/PhD

\*The Colorado Building Interdisciplinary Research Careers in Women's Health Program (NIH: K12 HD057022): *#*Judy Regensteiner, MD

Colorado Clinical and Translational Science Institute (NIH: KL2TR001080, TL1TR001081, UL1TR001082); *$*Ron Sokol, MD

Women's Reproductive Health Research Career Development Ctr (NIH: K12HD001271); Nanette Santoro, MD

Training in Basic and Translational Child Health Research (NIH: K12HD068372); Stephen Daniels, MD/PhD

**Current Diabetes-Relevant Pilot/Small Award Grant Programs at UC AMC (in addition to DRC P&F):**

Career transition requires the generation of data to support independent funding. In this highly competitive era it is critical that young scientists to generate preliminary data; this is often accomplished using seed grant mechanisms. In addition to the DRC P&F program, a number of other pilot programs are available to DRC investigators and trainees. These include: NORC P&F (students, fellows and faculty are eligible); CCTSI- Colorado Pilot Program (CO-Pilot) and MicroGrant Program; Child & Maternal Health Pilot Program (CMH-Pilot); Community Engagement Pilot Program (CE-Pilot); Novel Clinical & Translational Methods Pilot Program (NCTM-Pilot); Center for Women’s Health Research- Small Grants Program (the CWHR is focused on diabetes and cardiometabolic outcomes in women); and others via the Dean’s Transformational Research Initiative.

**School of Medicine Dean’s Office**

**Career Development:** The Office of Faculty Affairs, in collaboration with the Academy of Medical Educators, has developed a Faculty Development Seminar and Workshop designed to provide information on grant-writing, starting and managing a laboratory, preparing dossiers for promotion and tenure, and time management (see Lowenstein LOS in P&F).

**Women in Medicine and Science:** The goal of WIMS is to facilitate the success of women in all ranks of the academic medical community and to promote academic excellence at all levels for faculty, trainees, and staff while reducing areas in which gender hinders success (see Regensteiner LOS). This office supports bi-annual career development workshops and sponsors faculty attendance at three AAMC leadership conferences (junior faculty, mid-level faculty and minority faculty). A unique offering is the WIM Junior Faculty Leadership Program based on the national curriculum for the National Executive Leadership Training in Academic Medicine (ELAM).

**Graduate School**

The mission of the Postdoctoral Office at UC AMC is to assist both graduate students and postdoctoral fellows acquire the non-science skills and experiences they need to successfully navigate career transitions both inside and outside of academia (see attached program PDF).

**Colorado Clinical and Translational Sciences Institute (CCTSI)**

The objective of the CCTSI Education, Training, and Career Development (ETCD) Program is to build human capacity for clinical & translational research. This program provides clinical-translational scientists and trainees with knowledge, training, and career skills. ETCD offerings span critical periods, from the beginning of research training at the pre-doctoral level through senior faculty. The aim of the ETCD is to create a robust local workforce and a national leadership pool for clinical-translational research. As mentioned below the CCTSI has two institutional training programs TL1 (T32) Pre-doctoral Fellowships and the KL2 (K12) Research Scholar Awards (Mentored Junior Faculty Awards). (See Cicutto LOS P&F)

**Colorado Mentoring Training (CO-Mentor) Program:** CO-Mentor provides formal mentoring instruction to faculty members. Evidence-based strategies will teach mentor/mentee pairs the skills they need to get the most out of their mentoring relationships. Most training occurs in mentor/mentee pairs; however, some activities are for mentors or mentees separately. The goal is to help participants build practical, overarching skills for mentoring success, including career mapping and creation career development plans, CV building, communication, understanding of personality types, writing of effective mentor letters, and negotiation.

**Clinical Faculty Scholars Program (CFSP):** This program is designed to assist emerging investigators in establishing independence in health services research. Participants utilize guided project development, educational seminars, grant writing classes, and mentorship, to obtain individual research funding.

**Leadership in Innovative Team Science (LITeS):** This is a year-long program designed for senior and mid-career faculty who aspire to improve their management and leadership skills. This program provides professional and executive training tailored to the needs of academics in the biomedical, clinical, and health sciences. An important goal of the program is to create and sustain a strong network of colleagues who, in addition to their own work, will train the next generation of clinical and translational scientists at the UC AMC. The UC Denver DRC leadership team will nominate senior DRC members for the LITeS program. Participation in LITeS affords an opportunity to for diabetes researchers to move into more prominent campus roles.

**Mock Study Sections:** PreK Program- for fellows and junior faculty, directed by Cara Wilson and Paul MacLean (DRC member); K to R Transition (KTR) Program- for K Awardees, directed by Margaret Wierman (DRC Consulting Member). These programs expose investigators to the grant review process by revealing the perspectives of experienced grant reviewers, and provide valuable input to improve investigator applications, thereby increasing their chances for success. Both the proposed PI and his/her mentor(s) are required to attend the mock study section where the grants are discussed.

**Research Studio Consult Program:** The Studio Program offers a dynamic and integrative way of increasing and improving the quality of clinical and translational research. A “Studio” session is a structured thinktank and collaborative roundtable discussion that brings together relevant research experts to help investigators with specific questions at a specific stage in the research process.

**OUTREACH:**

The UC Denver DRC will disseminate information that increases public awareness about advances in diabetes research at UC AMC via the DRC website. Articles on the website will highlight not only ***new and exciting*** scientific and clinical discoveries, but also faculty hires, acquisition of advanced/specialized equipment, and procurement of funding and philanthropic gifts. Links on the website will also direct the public toward local and state-wide diabetes resources. The ultimate goal is to position the University of Colorado, and the UC Denver DRC, as a “destination” for faculty, students, patients, community leaders and philanthropists; where support of cutting-edge diabetes research drives advancement of prevention, screening, and treatment of diabetes and its complications (see Nease LOS).

**EVALUATION OF THE UC DENVER DRC ENRICHEMENT PROGRAM:**

The UC Denver DRC Enrichment Program is a critical tool for improving communication and collaboration among DRC members by providing networking and recruitment opportunities, as well as career development support for themselves and their trainees. In addition, the UC Denver DRC Enrichment program is an essential mechanism that drives diabetes community outreach to the UC AMC academic community, the local healthcare-provider community, and to the general public in Denver and state-wide. The Enrichment Program will administer an annual survey to the entire DRC membership to gauge overall satisfaction, quality and accessibility/availability of networking, recruitment, and career development opportunities. The survey will also ask DRC members to report on specific activities in which they participated, and to rate the impact those activities had on their diabetes research and/or career goals. Collection of survey data will allow the Enrichment Director to understand which elements of the Enrichment Program are meeting/exceeding expectations, and which are falling short and why. Identified problems will be addressed by Dr. Reusch and other members of the UC Denver DRC leadership team. Further discussion of the Enrichment Program will occur at the annual Diabetes Retreat. In addition, the UC Denver DRC Administrative Core will track collaborations, projects, publications, and grants, established between DRC members. Our hope is that participation in enrichment activities will promote/increase collaboration. Overall, survey data and tracking data will be used synergistically to direct Enrichment Program quality improvement.

**FUTURE DIRECTIONS AND EVOLUTION OF THE PROGRAM:**

A central feature of the UC Denver Enrichment Program is to provide networking and career development opportunities to the DRC membership, and diabetes outreach to the local community; to this end, our future goals include: 1) Moving the UC Denver DRC Diabetes Retreat offsite to encourage dedicated attendance; 2) Extending our enrichment program to other Colorado institutes and academic institutes located in states surrounding Colorado who have limited access to diabetes resources and information; 3) Extending our community outreach into the entire Rocky Mountain Region and surrounding states.