A. COVER PAGE

Project Title: CSULB Research Initiative for Scientific Enhancement 2015-20	
Grant Number: 5R25GM071638-13	**Project/Grant Period:** 09/30/2004 - 01/31/2020
Reporting Period: 02/01/2018 - 01/31/2019	**Requested Budget Period:** 02/01/2019 - 01/31/2020
Report Term Frequency: Annual	**Date Submitted:**
Program Director/Principal Investigator Information: PAUL T BUONORA , BS MS PHD **Phone number:** (562) 985-4946 **Email:** pbuonora@csulb.edu	**Recipient Organization:** CALIFORNIA STATE UNIVERSITY LONG BEACH CALIFORNIA STATE UNIVERSITY LONG BEACH 1250 Bellflower Blvd LONG BEACH, CA 908400004 **DUNS:** 006199129 **EIN:** 1956106694A1 **RECIPIENT ID:**
Change of Contact PD/PI: N/A	
Administrative Official: BESSIE STRATEGOS CSULB Office of Research & Sponsored Projects 6300 State University Drive, Ste 332 Long Beach, CA 90815 **Phone number:** 562-985-2444 **Email:** Bessie.Strategos@csulb.edu	**Signing Official:** BESSIE STRATEGOS CSULB Office of Research & Sponsored Projects 6300 State University Drive, Ste 332 Long Beach, CA 90815 **Phone number:** 562-985-2444 **Email:** Bessie.Strategos@csulb.edu
Human Subjects: No	**Vertebrate Animals:** No
hESC: No	**Inventions/Patents: Not Applicable**

B. ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

The following is a copy of the Specific Aims section from the proposal. These have not changed since the start of the program.

Part 2. Specific Aims
Building upon our historical commitment to serving a diverse student body and a comprehensive institutional self-assessment, this proposal is designed to maintain and advance the recent RISE program momentum to increase the interest, skills, and competitiveness of URS in pursuit of biomedical research careers.

Undergraduate Program
Specific Aim 1: Participants in our Pre-RISE program will participate in undergraduate research at higher level than their peer students. Pre-RISE Fellows will also matriculate to RISE and other student training programs at CSULB at a higher level than their peers within their respective departments.

Specific Aim 2: RISE Fellows year-to-year retention rates will be higher than the general student population within their respective departments. RISE Fellows will also demonstrate positive degree progress with at least 80% of each cohort completing 24 or more units annually with a GPA > 3.0 to facilitate RISE Fellows completing their degrees in a timely fashion. At least 75% of RISE Fellows will complete their degrees within 3 years of entering the Fellows' program. By modeling success, we expect to attain a progressive increase in the yearly retention rate for all URS in the participating departments over the period of the grant.

Specific Aim 3: At least 75% of RISE Fellows completing the program will enter a graduate program in the biomedical or behavioral sciences. At least 75% of the RISE Fellows who have entered a doctoral program in biomedical or behavioral sciences will successfully obtain a Ph.D. within five years.

Undergraduate and Masters Program
Specific Aim 4: The sense of common scientific community among RISE students, faculty and alumni will be enhanced. This will be achieved through activities throughout the program as participants and faculty are involved in shared learning community activities, leadership activities, Fellow and Family activities and Web and Facebook page activities. Success will be measured through assessments of scientific identity developed with expert researchers on this subject, and disseminated as output of the program.

Specific Aim 5: The aim of the proposed CSULB M.S. to Ph.D. RISE program is to provide promising URS an opportunity to sharpen their skills and readiness for Ph.D. programs, through their engagement in an intensive research experience in a supportive thesis-based M.S. program setting. Eight students will be enrolled each year of which > six will matriculate to Ph.D. programs after 3 years.

Measureable Goals and Outcomes
Under-Graduates
Academic Performance: 75% in top 50 percentile of undergraduate students completing similar major. 75% will perform above the 50th percentile on the general GRE.
Development of scientific and research skills: All will meet research development goals as demonstrated by student portfolio and faculty assessments.
Academic Program Completion: 75% complete upper division major in two years.
Preparation for acceptance to a Ph.D. program: 75% accepted by a post-bac or graduate program

M.S. to Ph.D.
Academic Performance: 90% with GPA of 3.5 or better. 75% at subject GRE performance of 50th percentile or better.
Development of Scientific and Research Skills: All will complete individual research plans as agreed to by advisor, student and RISE program. All will complete a thesis proposal approved by their thesis committee
Academic Program Completion: 75% Complete research thesis and graduate within two years
Preparation for Acceptance to a Ph.D. Program: 75% accepted by a Ph.D. program within 3 years

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

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B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

For this reporting period, is there one or more Revision/Supplement associated with this award for which reporting is required?

No

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B.4 2018 RISE RPPR.pdf

File uploaded: Tables 8A 8D 2018 CSULB RISE RPPR.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

As part of our shared outreach program with the MARC U*STAR and BUILD programs on campus, we share outreach to local community colleges (Long Beach City College, Goldenwest College, Cypress College, and Cerritos College) and the Long Beach Unified School District to inform their students about our programs and research careers in general. The outreach included presentations in Chemistry, Biology and Psychology classrooms and through the distribution of literature about our programs, including recruitment. At Cypress College, there was also a student panel discussion that included BUILD and RISE program trainees.

http://web.csulb.edu/colleges/cnsm/sas/rise/
This site is our main program information page hosted by the university. We use it to recruit students and Research Mentors into the program.

https://www.facebook.com/groups/BEACH.RISE/
This site is one of our two social media sites. We use it to promote the program activities to current and former CSULB RISE Fellows and to provide announcements of items of interest.

https://www.linkedin.com/groups/7012156
This site is our second social media site. We use it to promote the program activities to current and former CSULB RISE Fellows and to provide announcements of items of interest. We also created it to facilitate tracking of our Fellows, whom we have to create LinkedIn profiles while in the program. Our hope is that as trainees progress through their professional development they will find value in being members of LinkedIn and we will be able to track them more easily.

We also contribute information to the CSULB Office of Public Affairs to promote research at the university and within the RISE program, including awards earned by students at the ABRCMS and other professional meetings.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Goal 1: Enhance the recruitment of trainees from CSULB and local community colleges.
In 2016 the campus created the CSULB Office of Undergraduate Research Support (OURS). The OURS office will be institutionalizing the faculty-mentor matching that was initiated under the BUILD programs with advice and support of the RISE and MARC programs. Dr. Buonora is advocating for linking the matching algorithm with the faculty research profiles being created under the campus Office of Research and Sponsored Programs (ORSP) new online resource (FREE) to support creating a single site where students can identify not only potential faculty mentors but also be guided to programs such as RISE that can support the student's career interests.
We will also continue our efforts working across programs to develop a webpage showing the research interests of all faculty members participating in faculty-directed research. Coupled with the mentor-trainee matching algorithm this webpage should provide a clearer view of the possible research that students could participate in should facilitate our recruitment of sophomore and junior fellows.
As part of our shared recruitment plan the BUILD, MARC, and RISE programs will continue to share outreach presentations at local community colleges to bring in more interest from community College transfer students. With the changes in NIH student development programs and the winddown of the BUILD program, it will be important to move the structure of the common application into the institution and to ring other stakeholder programs into the common application. Dr. Buonora has already started talking with the director of the LS-AMP program on campus. Goal 2: Supporting the progress of the RISE Fellows
We are going to work with colleagues in computer science to develop a better system to not only track trainee activities, but proactively rather than reactively intervene to support the trainee's development of a complete portfolio of experiences that support training that supports a research career. This is part of the plan in the proposed RISE renewal submitted in the spring, so laying the groundwork for the effort will begin this coming year.
Our work with IDPs has shown that many published IDP activities are targeted to trainees in Ph.D. programs or post-doc positions, who are very committed to specific Ph.D. careers. This does not serve many of our undergraduates, who are still exploring areas of study and career options. We are committed to developing an undergraduate based IDP program and disseminating that program in the future.
Our testing of the IDP training in the new Research Career Exploration class that was developed by Paul Buonora under the BUILD program has demonstrated some challenges in identifying resources and organizing informational interviews which we hope to work to resolve with the aid of the CSULB Alumni Association and using LinkedIn.
Goal 4: Enhancing the dissemination of activities and results
Owing to the pressure of other duties, we have not had the time to keep up with our webpage, Facebook page, and LinkedIn Group as planned. Leaving the BUILD leadership should give us the time to bring our webpage in line with the new look of campus pages and to post more frequently on our Facebook and LinkedIn pages. In the renewal of the program, we proposed utilizing a Graduate Assistant partially supported by the College of Natural Sciences and Mathematics for this purpose. We will approach the College and the Office of Research and Sponsored Programs to see if we can get a start on this initiative as part institutionalizing activities into the OURS development.
Goal 5: Program Evaluation
We will continue working with the CSULB Center for Evaluation of Educational Effectiveness (CEEE) we will review the current evaluation results and revise our instruments to enable better formative development of the CSULB RISE Program. We will follow up on the URSSA (Undergraduate Research Student Self-Assessment) for current Fellows and add the new Fellows so that we can assess identity as a scientist.

B.2 What was accomplished under these goals?

We created **Specific Aim 1** knowing that a previous attempt to run a Pre-RISE cohort failed because a low percentage of participants became researcher trainees in their junior or senior year. Providing a more structured learning community rather than a series of workshops, limiting the number of trainees, and supporting the trainees appears to have made the program successful. During the application/selection cycle in spring 2018 one Pre-RISE fellow was recruited to the MARC U*STAR program, and two changed career plans. Out of our first ten Pre-RISE Fellows, seven chose to continue in RISE, one moved to the MARC program and two left the research career path. Eighty percent matriculation to biomedical research careers is within our goals. The Pre-RISE component of the program is our largest point of attrition, in part because our selection process involves looking at students with only one semester under their belts. Shifting to a selection that allows the applicant more time to adjust to college and think about careers may be warranted. Such plans were put forward in our renewal proposal.

Within **Specific Aim 2**, in the four years of the current program cycle, no trainees dropped out of school, so our retention rates are significantly better than the general student population. With regard to the GPA performance of the trainees, Eighty percent of the trainees earned GPAs above 3.0 in spring 2018, with an average GPA of 3.12. This report is being prepared in the last week of the Fall semester, so grades are not yet available for that semester. Only three trainees had semester GPAs below 3.0 in spring 2018. Two Pre-RISE students who had GPAs below 2.0 and subsequently elected to not participate in the RISE program. Without the those who left the program, the average GPA goes to 3.41.

Only two of the twenty-one total trainees who have completed RISE will have taken more than three years to complete their undergraduate degrees, putting us at 90% completion in three years. The third cohort of trainees will complete two years as RISE Fellows in May of 2019. All are on track to graduate on time, so the completion rate over three years should increase this year.

Given the number of degree programs and departments, the size of the programs, the small number of RISE trainees, and the introduction of the NIH BUILD program, which is much larger in size, it will be difficult to accurately assess the extent to which RISE activity is responsible for improvements in retention rates moving forward.

On **Specific Aim 3**, fourteen undergraduate trainees completed undergraduate degrees to date. Of these, nine are currently in biomedical Ph.D. programs, two are in MS programs, and three are employed. Therefore, 64% of the undergraduate trainees are in Ph.D. programs, and viewing the two in MS programs as being on track to the Ph.D., 79% are on track to the Ph.D. Of the remaining six trainees who have completed two years in RISE, two are completing post-bac. biotechnology certificate programs and four are currently completing their undergraduate degrees.

In the current cohort of ten trainees graduating between now and May 2019, all are currently on track to graduate in the spring of 2019. All have submitted applications to graduate programs and some have already received an interview offers.

In the current year we have made progress on **Specific Aim 4** since the Program Director, Paul Buonora, left the BUILD program and has been able to focus more on the RISE program. We have increased the number of shared activities with the BUILD and MARC programs started to have shared social events. The impact on science identity, which is already high has been difficult to assess.

Relative to **Specific Aim 5**, to date, eleven MS-to-Ph.D. Fellows completed the two-year program. Eight have entered Ph.D. programs, with an additional one starting his Ph.D. studies in Feb 2019. One of the eleven is scheduled to complete his MS in Spring 2019 and has applied to Ph.D. programs for entry in Fall 2019. Of those who have completed their MS degrees, 90% have been accepted to and entered Ph.D. study.

All of the MS-to-Ph.D. fellows completing the program in spring 2019 have applied to enter Ph.D. programs next fall, with one receiving interview offers so far.

All of the MS-to-Ph.D. Fellows have GPA's greater than 3.50, and the average is 3.81. With the decline in the number of graduate programs using the subject GRE, only one trainee has taken a GRE subject exam, so that goals can't be evaluated. The general GRE scores of the MS-to-Ph.D. Fellows show 75% scored above the national average on the Verbal section, 83% were above average on the quantitative, and 85% were above average on the Analytical Writing section. These numbers reflect the enhanced emphasis on verbal and

writing skills.

Another issue from this year was that two applicants accepted to the program last spring dropped out before starting the program in June. One was a transfer student who was accepted to UC Berkeley after accepting admission to CSULB. That applicant chose to withdraw from CSULB and enter Berkeley before any RISE funds had been expended on him. The other changed their mind on their career just before the start of their RISE participation. Neither trainee was replaced because there were less than six months left in the year and all our backup candidates had all been accepted to other programs. We chose to recruit to accept new trainees in February when the new fiscal year begins.

Overall, with improved time to degree, academic outcomes, and acceptance to graduate study, we feel that the program outcomes are solid. Our main focus is not establishing best practice for purposes of dissemination and addressing the weakness in the number of Pre-RISE trainees continuing into research training and Ph.D. programs.

B.4 What opportunities for training and professional development has the program provided?

All of the CSULB undergraduate and M.S.-to-Ph.D. RISE Fellows have participated in one-on-one faculty-directed research throughout the year.

We are utilizing Individual Development Plans (IDP's) with all of our Fellows to engage the trainees in an evolving and conscious plan of career development planning. All of them put together an initial written IDP in their first summer. As part of the training we provided, we recommended that they make a plan to update their CVs and their IDPs during the end of year break in classes. We have all of the students submit their revised CVs and IDPs to us for review and discussion with the Program Directors.

Within the Learning Community components of the RISE program, a series of professional development activities lead by the program coordinators and/or outside speakers were presented to the RISE Fellows. These included:

- Individual development plans part 1-Assessing values and interests in identifying career goals
- Individual development plans part 2-Skills evaluation and developing a research plan to achieve career goals
- Working with mentors on expectations and setting of goals
- Face-to-face Responsible Conduct of Research training (lead by CSULB Faculty)
- Fundamentals of statistics for biomedical researchers (lead by a Biostatistics faculty member)
- Searching and reviewing the literature
- Weekly writing assignment involving writing to a prompt using 10 assigned GRE Words
- Developing and writing a research hypothesis
- Writing research and personal statements
- Selecting internship and graduate programs
- Preparing infographics followed by an informal "infographic competition"

In the learning community meetings, one Fellow presents their research progress in a twenty-minute presentation each week that audience reviews for content and presentation with the goal of improving the Fellow's presentation skills.

With the exception of undergraduate Fellows who participated in off-campus summer research experiences, all of the other trainees participated in full-time summer research on the CSULB campus.

All of the trainees present their work as posters at the annual September CSULB College of Natural Sciences and Mathematics Research Symposium each fall. The table below shows the other professional society presentations by the Fellows.

Presentations by CSULB RISE Fellows in 2018

RISE Fellow	Fellow Type	Meeting	Notes
Vo, Kathy	MS-to-PhD	SICB Annual Meeting 1/3-7/18	
Flores, Angelina	Undergrad	CSUPERB 1/12-14/18	
Jackson, Charidan	MS-to-PhD	Western Regional American Society of Plant Biology 2018 Meeting 2/3-4/18	
Hinckley, William	Undergrad	Western Regional American Society of Plant Biology 2018 Meeting 2/3-4/18	
Leyva, Patrica	Undergrad	Western Regional American Society of Plant Biology 2018 Meeting 2/3-4/18	
Riley, Ciairra	Undergrad	Western Regional American Society of Plant Biology 2018 Meeting 2/3-4/18	
Vo, Kathy	MS-to-PhD	2018 Annual Meeting of The Wildlife Society 2/5-9/18	
Jackson, Charidan	MS-to-PhD	Plant Biology 2018, 7/14-18/18	
Comito, Robert	MS-to-PhD	Botany 2018, 7/21/18-7/25/18	
Hinckley, William	Undergrad	Society of Plant Biology National Meeting 08/2018	

Pingul, Bianca	Undergrad	UC, Irvine SoCal Undergraduate Research Symposium, 07/2018	Outstanding Poster Presentation
Riley, Ciairra	Undergrad	Leadership Alliance National Symposium 7/27/18-7/29/18	
Vo, Kathy	MS-to-PhD	55th Annual conference of the Animal Behavior Society 8/6/18-8/6/18	
Huerta, Stephanie	Undergrad	Society for Neuroscience, 11/3-7/18	
Ly, Phillippe	MS-to-PhD	ACS Southwest Regional Meeting 11/7/18-11/10/18	
Arciga, Ilse	Undergrad	ABRCMS 11/14/18-11/17/18	
Cuevas, Emmanuel	Undergrad	ABRCMS 11/14/18-11/17/18	Certificate of Achievement in recognition for outstanding presentation
Ellis, Kendra	Undergrad	ABRCMS 11/14/18-11/17/18	
Hinckley, William	Undergrad	ABRCMS 11/14/18-11/17/18	Certificate of Achievement in recognition for outstanding presentation
Leon, Kathleen	Undergrad	ABRCMS 11/14/18-11/17/18	
Leyva, Patrica	Undergrad	ABRCMS 11/14/18-11/17/18	Certificate of Achievement in recognition for outstanding presentation
Ly, Phillippe	MS-to-PhD	ABRCMS 11/14/18-11/17/18	
Morfin, Cristobal	MS-to-PhD	ABRCMS 11/14/18-11/17/18	
Novales, Noelle Alexa	Undergrad	ABRCMS 11/14/18-11/17/18	
Pingul, Bianca	Undergrad	ABRCMS 11/14/18-11/17/18	Certificate of Achievement in recognition for outstanding presentation
Riley, Ciairra	Undergrad	ABRCMS 11/14/18-11/17/18	
Rivera, Maria	MS-to-PhD	ABRCMS 11/14/18-11/17/18	
Shipley, Wade	Undergrad	ABRCMS 11/14/18-11/17/18	
Talamantes, Darrian	Undergrad	ABRCMS 11/14/18-11/17/18	
Angele De Silva	MS-to-PhD	Autumn Immunology Conference, 11/16/18-11/19/18	
Rusali, Lisa	U-RISE	Southern California Conferences for Undergraduate Research (SCCUR); Pasadena, CA 11/17/2018	

We hosted multiple guest speakers in person during the year. Some represented graduate programs looking to recruit our students, while others were former CSULB RISE Fellows who Skype in to discuss topics of value to the community, such as applying to graduate school, interviewing, and the transition to a Ph.D. program. We also hosted a local psychologist to discuss dealing with imposter syndrome. All of these events were open to all the CSULB community and advertised across the student development programs on campus.

The summer learning community for the rising senior undergraduates and the second year MS-to-Ph.D. candidates is focused on preparing to apply to Ph.D. programs. The trainees are required to have completed their GREs. They must have updated CVs and IDP's ready. Throughout the summer we work with the students in developing their Personal, Purpose, and Research statements. Lastly, the student's research graduate programs and have a list of those they will apply to including required information, due dates, potential research mentors, and identified recommenders. The one challenge we have in this is that students who have delayed graduation and those who go away during the summer rarely have completed the work by the start of the fall semester. In the fall semester, the Directors spend a significant amount of time reviewing application materials with students.

The Trainee Diversity Report and Tables 8A and 8D have been submitted as part of this report.

Program Director/Principal Investigator (Last, First, Middle): Buonora, Paul, Thomas

Trainee Diversity Report

This report format should NOT be used for data collection from trainees.

Training Grant Title: CSULB Research Initiative for Scientific Enhancement 2015-20

Total Number of Appointed: 33 slots, but two cohorts are in one fiscal year.

Grant Number: 5R25GM071638-14

PART A. TOTAL TRAINEE APPOINTMENTS REPORT: Number of Trainees Appointed by Ethnicity and Race

Ethnic Category	Females	Males	Sex/Gender Unknown or Not Reported	Total
Hispanic or Latino	14	12	0	26 **
Not Hispanic or Latino	17	7	0	24
Unknown (individuals not reporting ethnicity)	1	1	0	2
Ethnic Category: Total of All Trainees*	32	20	0	52 *
Racial Categories				
American Indian/Alaska Native	0	0	0	0
Asian	11	3	0	14
Native Hawaiian or Other Pacific Islander	0	0	0	0
Black or African American	2	1	0	3
White	7	6	0	13
More Than One Race	1	3	0	4
Unknown or Not Reported	11	7	0	18
Racial Categories: Total of All Trainees*	32	20	0	52 *

PART B. HISPANIC TRAINEE APPOINTMENTS REPORT: Number of Hispanics or Latinos Appointed

Racial Categories	Females	Males	Sex/Gender Unknown or Not Reported	Total
American Indian or Alaska Native	0	0	0	0
Asian	1	0	0	1
Native Hawaiian or Other Pacific Islander	0	0	0	0
Black or African American	0	1	0	1
White	2	4	0	6
More Than One Race	1	1	0	2
Unknown or Not Reported	10	6	0	16
Racial Categories: Total of Hispanics or Latinos**	14	12	0	26 **

PART C. TRAINEES WITH DISABILITIES OR FROM DISADVANTAGED BACKGROUNDS

Number of Trainees with Disabilities:	0
Number of Trainees from Disadvantaged Backgrounds:	5

(*) (**) These totals must agree.

Table 8A. Program Outcomes: Predoctoral

Part I. Those Appointed to the Training Grant

Trainee	Faculty Member	Start Date	Summary of Support During Training	Terminal Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Benedicto, Vernon	Narayanaswami, Vas	6/2018	TY1: GM R25	In Training	Paclitoxol incorporation into ApoE3/DMPC nanodiscs	NA	NA	NA
Contreras, Altagarcia	Klig, Lisa	6/2018	TY1: GM R25	In Training	myo-inositol disruption in Drosphila	NA	NA	NA
Cruz, Gregory	Underwood, Dessie	6/2018	TY1: GM R25	In Training	Native vs. non-native bee pollination of Clinopodium chandleri	NA	NA	NA
De Silva, Angele	Fraser, Deborah	6/2018	TY1: GM R25	In Training	Production of C1q, C1r and C1s in response to foreign targets and damaged cell targets.	NA	NA	NA
Godinez, Jonathan	Schwans, Jason	6/2018	TY1: GM R25	In Training	Addition of cholinyl esters to BChE inhibitors	NA	NA	NA
Martinez, Daniel	Zhang, Mason	6/2018	TY1: GM R25	In Training	Nitrogen transporter function during leaf senescence	NA	NA	NA
Rivera, Maria	Klig, Lisa	6/2018	TY1: GM R25	In Training	Alleviation of type 2 diabetes by inositol in Drosophila	NA	NA	NA
Comito, Robert	Fisher, Amanda	06/2017	TY1: GM R25 TY2: GM R25	In Training	RAD-seq Based Phylogeny of the Genus *Barleria* (Acanthaceae)	NA	NA	NA
Jackson, Charidan	Brusslan, Judy	06/2017	TY1: GM R25 TY2: GM R25	In Training	Genetic research on *Arabidopsis thaliana*	NA	NA	NA
Ly, Phillippe	Nakayama, Ken	06/2017	TY1: GM R25 TY2: GM R25	In Training	Synthesize monovalent and heterobivalent organophosphorus compounds and enzymatically assay in vitro	NA	NA	NA
Morfin, Christobal	Slowinska, Kasha	06/2017	TY1: GM R25 TY2: GM R25	In Training	Coupling MOFs to Collagen-Mimetic Peptides	NA	NA	NA
Vo, Kathy	Stankowich, Ted	06/2017	TY1: GM R25 TY2: GM R25	In Training	Color Contrast and Pattern in Predator Avoidance	NA	NA	NA
Arias, Joshua	Fisher, Amanda	06/2016	TY1: GM R25 TY2: GM R25	In Training	Systematics and Phylogeny of the Plant Family Acanthaceae	NA	NA	NA

Trainee	Faculty Member	Start Date	Summary of Support During Training	Terminal Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Calderon, Rosanna	Bhandari, Deepali	06/2016	TY1: GM R25 TY2: GM R25	MS 2018	Analysis of the Effects of Phosphomimetic Mutations on the structure of Carboxyl-terminus of GIV (Gα-Interacting Vesicle Associated Protein)	Biomedical and Biological Sciences, PhD Candidate, Univ. Southern Calif.	Biomedical and Biological Sciences, PhD Candidate, Univ. Southern Calif.	
Pulanco, Marc	Fraser, Deborah	06/2016	TY1: GM R25 TY2: GM R25	MS 2018	C1q modulation of lipid metabolism in macrophage foam cells	PhD Candidate Microbio & Immunology, Albert Einstein College of Medicine	PhD Candidate Microbio & Immunology, Albert Einstein College of Medicine	
Alade, Ayoade	Schwans, Jason	06/2015	TY1: GM R25 TY2: GM R25	MS 2017	Understanding the chemical reaction rate enhancement provided by enzymes	Ph.D. Medicinal Chem, U Wash.	Ph.D. Medicinal Chem, U Wash.	
Barraza, Arthur	Lowe, Christopher	06/2015	TY1: GM R25 TY2: GM R25	MS 2017	Assessing persistent organic pollutants and trace metals in green sea turtles inhabiting Seal Beach and San Diego	Research Associate, CSULB	PhD Candidate Griffiths University (Australia) Feb 2019 start	
Lozano, Natalie	Carter, Ashley	06/2015	TY1: GM R25 TY2: GM R25	MS 2017	The influence of modularity, epistasis and pleiotropy on evolvability	Ph.D. Candidate, Ecology and Evolutionary Biology, UCLA	Ph.D. Candidate, Ecology and Evolutionary Biology, UCLA	NIH Systems & Integrative Biology Trainee UCLA 2017
Maddox, Adam	Bhandari, Deepali	06/2015	TY1: GM R25 TY2: GM R25	MS 2017	Structural Analysis of Wild-type and mutant GIV-CT Using Circular Dichroism Spectroscopy	Ph.D. Candidate, Biological Sciences City of Hope	Ph.D. Candidate, Biological Sciences City of Hope	
Urenda, Jean Paul	Brusslan, Judy	06/2015	TY1: GM R25 TY2: GM R25	ABT	Genetic and epigenetic regulation of leaf senescence	Ph.D. Candidate Univ. Southern Calif.	Biomedical and Biological Sciences Ph.D. Candidate, USC	
Bravo, Priscilla	Gharakhanian, Editte	06/2015	TY1: GM R25	MS 2016	Studies on state of vacuolar trafficking and drug sensitivities of hhy mutants of Saccharomyces cerevisiae	Research Associate Breast Cancer Lab Charles Drew University	Adjunct Faculty, Long Beach City College, Los Angles Valley College, Pasadena City College	

Trainee	Faculty Member	Start Date	Summary of Support During Training	Terminal Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Cervantes, Vanessa	Gharakhanian, Editte	06/2015	TY1: GM R25	ABT	Studies on localization and membrane association of yeast Env9	Ph.D. Candidate, Cell/ Molecular Bio, UC Davis	Ph.D. Candidate, Cell/ Molecular Bio, UC Davis	
Donovan, Alexandra	Narayanaswami, Vas	06/2015	TY1: GM R25	MS 2016	Comparative biophysical analysis of APOE3 and APOE4: a mechanistic investigation	Ph.D. Candidate, Neuroscience, Univ. Southern Calif.	Ph.D. Candidate, Neuroscience, Univ. Southern Calif.	

Undergrad Student Participant	Faculty Member	Start Date	Summary of Support During Training	Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Elder, August	Perla, Ayala	06/2018	TY1: GM R25	In Training	Tissue Engineering of Skeletal Muscle	NA	NA	NA
Ellis, Kendra	Pace, Douglas	06/2018	TY1: GM R25	In Training	Density Studies in Echinoderm Larvae	NA	NA	NA
Eugenio, Robyn Joan	Fraser, Deborah	06/2018	TY1: GM R25	In Training	C1q modulation of exysterols in microglia	NA	NA	NA
Gamble, Darian	Slowinska, Kasha	06/2018	TY1: GM R25	In Training	Pharmokinetics of collagen nanoparticles	NA	NA	NA
Gutierrez, Sarah	Lo, Roger	06/2018	TY1: GM R25	In Training	Open sources instrument development	NA	NA	NA
Husain, Aida	Bandari, Deepali	06/2018	TY1: GM R25	In Training	Molecular interaction between GIV and ATF6	NA	NA	NA
Jardon, Lizbeth	Stankowich, Ted	06/2018	TY1: GM R25	In Training	Skull morphology comparison	NA	NA	NA
La Forest, Maxwell	Sinchak, Kevin	06/2018	TY1: GM R25	In Training	Steroid signaling pathways	NA	NA	NA
Nunez, Bethany	Sinchak, Kevin	06/2018	TY1: GM R25	In Training	Estrogen signaling in the brain	NA	NA	NA
Rusali, Lisa	Schramm, Michael	06/2018	TY1: GM R25	In Training	Cyclization of terminal alkynes using gold cavitands	NA	NA	NA
Shinh, Reema	Mezyk, Stephen	06/2018	TY1: GM R25	In Training	Environmental wastewater chemistry	NA	NA	NA
Winzler, Meghan	Dillon, Jesse	06/2018	TY1: GM R25	In Training	Environmental haloalkaliphilic viruses in lakes	NA	NA	NA
Arciga, Ilse	Eldon, Beth	06/2017	TY1: GM R25 TY2: GM R25	In Training	The Effects of a High Fat Diet on Developmental Timing and Lifespan in Drosophila melanogaster	NA	NA	NA
Cuevas, Emmanuel	Pace, Douglas	06/2017	TY1: GM R25 TY2: GM R25	In Training	Determining the survival and invasion capability of Toxoplasma gondii strains RH and PRU	NA	NA	NA
Novales, Noelle Alexa	Schwans, Jason	06/2017	TY1: GM R25 TY2: GM R25	In Training	Analysis of protein structure to aid the design of biocatalysts	NA	NA	NA
Pingul Bianca	Schwans, Jason	06/2017	TY1: GM R25 TY2: GM R25	In Training	Synthesis of Fmoc-Amino Esters as Potential Butyrylcholinesterase Inhibitors	NA	NA	NA
Shipley, Wade	Barjasteh, Ehsan	06/2017	TY1: GM R25 TY2: GM R25	In Training	Fabrication of graphene-based polymer nano-composites	NA	NA	NA
Bui, Angela	Tian, Fangyuan	06/2017	TY1: GM R25 TY2: GM T32	In Training	Study of metal-organic framework as a drug-eluting stent coating	NA	NA	NA

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Juarez-Rojas, Alejandra	Stout, David	06/2017	TY1: GM R25	In Training	Human cadriomyocyte behavior with graphene fibers in collagen composites	NA	NA	NA
Leyva, Patricia	Brusslan, Judy	06/2017	TY1: GM R25 TY2: GM R25	In Training	Additive effects of negative regulators of leaf senescence	NA	NA	NA
Nedic, Teodora	Schramm, Michael	06/2017	TY1: GM R25 TY2: GM R25	In Training	New Selection Rules Testing Gold Cavitand Reactivity	NA	NA	NA
Rodriguez, Justin	Dillon, Jesse	06/2017	TY1: GM R25	In Training	Characterization of halophilic culture isolates from Searles Lake, CA	NA	NA	NA
Arciva, Stephanie	Mezyk, Stephen	06/2016	TY1: GM R25 TY2: GM R25	BS 2018	The Removal of Alkyl Nitrate Contaminants in Wastewater Using Advanced Oxidative Processes	PhD Candidate UC Davis, Agricultural and Environmental Chemistry	PhD Candidate UC Davis, Agricultural and Environmental Chemistry	UC Davis Agricultural and Environmental Chemistry NIH Undergraduate Preparation Fellowship for academic year 2018-19
Bourland, Ronnie	Li, Lijuan	06/2016	TY1: GM R25 TY2: GM R25	BS 2018	Attachment of nitrosyl groups from iron pentacarbonyl to nucleic acids and diphenylphosphine ligands	PhD Candidate, Texas A&M, Biochemistry & Biophysics	PhD Candidate, Texas A&M, Biochemistry & Biophysics	NA
Cordova, Jaime	Brusslan, Judy	06/2016	TY1: GM R25 TY2: GM R25	BS 2018	The Role of Receptor Like Proteins RLP28 and RLP35 in Leaf Senescence of Arabidopsis thaliana	Ph.D. Candidate, University of Wisconsin-Madison, Genetics	Ph.D. Candidate, University of Wisconsin-Madison, Genetics	NA
Hinkley, Will	Brusslan, Judy	06/2016	TY1: GM R25 TY2: GM R25 TY3: GM R25	In Training	Receptor Like Proteins RLP28 and RLP35 in Leaf Senescence	NA	NA	NA
Leon, Kathleen	Young, Kelly	06/2016	TY1: GM R25 TY2: GM R25 TY3: GM R25	In Training	Effect of Photoperiod Exposures on Folliculogenic Factors	NA	NA	NA

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Martinez, Xavier	Sorin, Eric	06/2016	TY1: GM R25 TY2: GM R25	BS 2018	Quantitative Analysis of RNA Pseudoknot Molecular Dynamics Simulations	Web Developer for Juristerra Platform	Lead Engineer/Backend Web Developer, Juristerra	NA
Riley, Ciairra	Brusslan, Judy	06/2016	TY1: GM R25 TY2: GM R25 TY3: GM R25	In Training	Signaling of Leaf Senescence in Arabidopsis thaliana	NA	NA	NA
Talamantes, Damian	Berlemont	06/2016	TY1: GM R25 TY2: GM R25 TY3: GM R25	In Training	Predictive metagenomics for glycoside hydrolases	NA	NA	NA
Tominna, Reema	Sinchak, Kevin	06/2016	TY1: GM R25 TY2: GM R25	In Training	Investigating the signaling pathway of G protein-coupled estrogen receptor-1 in a sexual receptivity model circuit	NA	NA	NA
Vinh, Jennifer	Dillon, Jesse	06/2016	TY1: GM R25 TY2: GM R25	BS 2018	The effect of chemical irrigants on oral biofilms	MEng Bioprocess Engineering Candidate, Keck Graduate Institute	MEng Bioprocess Engineering Candidate, Keck Graduate Institute	NA
Cantu, Annabelle	Schramm, Michael	06/2015	TY1: GM R25 TY2: GM R25	BS Chemistry 2017	Exploration into the Structural Modification of a Supramolecular Cyclotriveratrylene molecule	PhD Candidate, Chemistry Department, UCLA	PhD Candidate, Chemistry Department, UCLA	NSF GRF Awardee 2017
Castaneda, Nelly	Brusslan, Judy	06/2015	TY1: GM R25 TY2: GM R25	BS BIOLMOL C CELL/ PHYSIO 2017	Characterizing the Senescence Phenotype of Arabidopsis thaliana Mutants	Lab Technician Grossing at Pathnostics	Lab Technician Grossing at Pathnostics	NA
Flores, Abraham	Fraser, Deborah	06/2015	TY1: GM R25 TY2: GM R25	In Training	Investigating C1q Regulation of Disease Markers in Atherosclerosis	NA	NA	NA
Flores, Angelina	Klig, Lisa	06/2015	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2018	The effects of inositol supplementation on a high sugar diet	Stem Cell Certificate Program, City of Hope	Stem Cell Certificate Program, City of Hope	NA

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Gause, Haley	Pace, Douglas	06/2015	TY1: GM R25 TY2: GM R25	BS MICROBIOLOGY 2017	Investigating the cellular physiology of parasitism	Intern in the Department of Discovery Immunology, Genentech Inc., South San Francisco, CA	Ph.D. Candidate, UCSF, Biochem & Cell Bio.	NA
Huerta, Stephanie	Sinchak, Kevin	06/2015	TY1: GM R25 TY2: GM R25 TY3: GM R25	In Training	Subpopulations of Arcuate Nucleus β-endorphin Neurons Express G protein-coupled estrogen receptor and Estrogen Receptor-α	NA	NA	NA
Leon, Ernesto	Fraser, Deborah	06/2015	TY1: GM R25 TY2: GM R25	BS BIOLMOLC CELL/ PHYSIO 20172	The role of C1q in the Modulation of the NLRP3 Inflammasome in Macrophages	Biotech Certificate Candidate CSULB	PhD Candidate, UNC-Chapel Hill, PhD. Immunology	Basic Immune Mechanisms Pre-Doctoral Training Grant (T32)
(Cruz) Lozano, Andrew	Bhandari, Deepalli	06/2015	TY1: GM R25 TY2: GM R25	BS BIOMOLC CELL/ PHYSIO 20164	*In Silico* and *In Vitro* Analyses of the Effects of Phosphomimetic Mutations o n the Structure of Carboxyl-terminus of Gα- Interacting Vesicle Associated Protein	Research Asst. Biological Sciences, CSULB	PhD Candidate, Gerontology, Univ. Southern Calif.	NA
Machado Estrada, Diana	Klig, Lisa	06/2015	TY1: GM R25 TY2: GM R25	BS 2018	Measure MIPS mRNA levels at different ages and stages through qPCR on *Drosophila melanogaster*	Biotech Certificate Candidate CSULB	Ph.D. Candidate, UT MD Anderson, Cancer Biology	NA
Rivera, Rae Jillian	Marayong	06/2015	TY1: GM R25 TY2: GM R25 TY3: GM R25	In Training	Design Improvements of a Vibrotactile Device for Lower- Limb Amputation Rehabilitation	NA	NA	NA
Rodriguez, Yoanna	Bhandari, Deepalli	06/2015	TY1: GM R25 TY2: GM R25	In Training	Novel Insights into Cancer Cell Survival during Endoplasmic Reticulum Stress	Research Grant, Charles Drew	Data Analyst at Rastegar Law Group, APC	NA
Soto, Karla	Eldon, Beth	06/2015	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2018	The Effect of a High Fat Diet-Induced Obesity in *Drosophila melanogaster*	Stem Cell Certificate, UCI	Stem Cell Certificate, UCI	NA

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Tate-Pulliam, Elishebah	Klig, Lisa	06/2015	TY1: GM R25 TY2: GM R25	BS BIOLOGY 20172	The Effects of Cicandian Rhythm Variation on the Expression of the MIPS gene in Drosophila melanogaster	Research Asst. Biological Sciences, CSULB	MS Biology Degree Candidate Biological Sciences, CSULB	NA
Tran, Amy	Bhandari, Deepalli	06/2015	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2018	Exploring autophosphorylation in cyclin-dependent kinase 5	NA	NA	NA
Voong, Calvin	Weers, Paul	06/2015	TY1: GM R25 TY2: GM R25	BS 2018	The importance of the lysine residues of the CT domain of apoA-I in binding to the membrane components of gram-negative bacteria	Ph.D. Candidate, Colorado, Biochem	Ph.D. Candidate, Colorado, Biochem	NA
Blaimont, Pauline	Carter, Ashley	06/2012	TY1: GM R25	BS 2013		PhD Candidate, UC Santa Cruz, Ecology and Evolutionary Biology	PhD Candidate, UC Santa Cruz, Ecology and Evolutionary Biology	
Cooper, Nicole	Rourke, Brian	06/2012	TY1: GM R25	BS 2013		Clinical laboratory Scientist Certificate	Clinical Laboratory Scientist, Hoag Hospital	
De La Cruz, Timothy	Eldon, Beth	06/2012	TY1: GM R25 TY2: GM R25	BS Biomed & Clinical Engr. 2017		Research Assistant CSULB	Medical Device Assembler, Medtronic	NA
Embretson, Kirsten	Haas-Stapleton. Eric	06/2012	TY1: GM R25	BS 2013		Clinical Laboratory Scientist Certificate	Clinical Laboratory Scientist Hoag Hospital Newport Beach	

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Fuhr, Addis	Bu, Xianhui	06/2012	TY1: GM R25	BA 2013 BS 2013		PhD Candidate Chemical Engineering UCLA	PhD Candidate Chemical Engineering UCLA	
Gonzalez, Fernandez, Ezekiel	Lopez, Marco	06/2012	TY1: GM R25 TY2: GM R25	BA 2014		MD/PhD Candidate University of Mississippi Medical Center	MD/PhD Candidate University of Mississippi Medical Center	
Maciel, Maribel	Sinchak, Kevin	06/2012	TY1: GM R25	BS 2013		QA Technician Captek Softgels International	QA Technician Captek Softgels International	
Magno, Patrick	Fraser, Deborah	06/2012	TY1: GM R25 TY2: GM R25	BS 2014 DPT 2017		DocPT Candidate USC	DocPT Candidate USC	
Ramos, Dagoberto	Schwans	06/2012	TY1: GM R25 TY2: GM R25	BS 2014		Chemist I at BACHEM	Chemist I at BACHEM	
Rojas, LIzzette	Dillon, Jesse	06/2012	TY1: GM R25 TY2: GM R25	BS 2014		Associate Found Animals Foundation	Quality Control Microbiologist Agensys, Inc.	
Ruiz, Fiona	Gharahanian, Editte	06/2012	TY1: GM R25 TY2: GM R25	BS 2014		PhD Candidate Washington University	PhD Candidate Washington University	
Villarreal, Eliseo	Klig, Lisa	06/2012	TY1: GM R25 TY2: GM R25	NONE		Unknown	Unknown	
Asamoto, DeeAnn	Mezyk, Stephen	09/2011	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2014		PhD Candidate Chemistry Dept. UCSD	PhD Candidate Chemistry Dept. UCSD	

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Del Cid, Joselyn	Acey, Roger	09/2011	TY1: GM R25	BS 2012 PhD 2018	Aryl d-akyl phosphate inhibitors of Butyrylcholinesterase as potential therapeutics for Alzheimer's disease	PhD Candidate Biochem Mol Bio UCSF	R&D, Early Discovery Research, Genetech	NIH Training Grant: UCSF Tetrad Graduate Program 2013-2015
Chagnon, Matthew	Mezyk, Stephen	09/2011	TY1: GM R25 TY2: GM R25	BS 2013		Unknown	Unknown	
Lopez, Christina	Marinez, Eric	09/2011	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2014		Unknown	Unknown	
Ramirez, Reginald	Buonora, Paul	09/2011	TY1: GM R25	BA 2012 PharmD 2017		PharmD Candidate Univ. of Pacific	PharmD Candidate Univ. of Pacific	
Newton, Shanna	Carter, Josh	06/2011	TY1: GM R25 TY2: GM R25	BS 2013		PhD Candidate Univ. Calif., San Diego, Reproductive Medicine	PhD Candidate Univ. Calif., San Diego, Reproductive Medicine	
Foltz, Christopher	Zhang, Mason	06/2011	TY1: GM R25	BS 2011		Unknown	Unknown	
Long, Nathan	Sinchak, Kevin	01/2011	TY1: GM R25	BS 2012 MS 2016		Teaching Assistant CSULB Dept of Biological Sciences	Unknown	
Ortiz, Maria	Dillon, Jesse	01/2011	TY1: GM R25 TY2: GM R25	BS 2013		MS Candidate Biology CSU Northridge	Lab Accessioner, Rady's Children's Hospital Genomic Institute	
Perez (Ramirez), Lizeth	Buonora, Paul	01/2011	TY1: GM R25	BS 2013 Ph.D. 2018		PhD Candidate Chemistry UC Riverside	Calif. Council on Sci. & Tech Fellow	

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Polovin, George	Sinchak, Kevin	01/2011	TY1: GM R25 TY2: GM R25	BS 2013 PhD 2017		PhD Candidate UColorado Boulder	Senior Research Associate, Epitomics Inc.	
Madrigal, Alma	Carter, Josh	09/2010	TY1: GM R25 TY2: GM R25	BS 2012 MS 2017		MS Candidate Biological Sci Cal Poly Pomona	Lecturer, Cal. Poly. Pomona	
Bolivar, Steven	Dillon, Jesse	06/2010	TY1: GM R25 TY2: GM R25	BS 2012		Laboratory Assistant, LA County Department of Public Health	Laboratory Assistant, LA County Department of Public Health	
Chu, Tiffany	Haas-Stapleton. Eric	06/2010	TY1: GM R25 TY2: GM R25	BS 2012		Technical Support Technician Focus Diagnostics	Research Associate Regulus Therapeutics	
Emigh, Aiyana	Klig, Lisa	06/2010	TY1: GM R25 TY2: GM R25	BS 2013		Lead Tutor The Tutoring Center	PhD Candidate Biophysics UC Davis	
Robles, Manuel	Rourke, Brian	06/2010	TY1: GM R25 TY2: GM R25	BS 2012		Biology Lab Tech LA Trade Tech College	QC Analyst Altor Biscience	
Vincent, Heather	Haas-Stapleton, Eric	06/2010	TY1: GM R25	BS 2011 PhD 2017		PhD Candidate Microbiology U. North Carolina School of Medicine	unknown	
Moreno-Habel, Daniela	Haas-Stapleton, Eric	01/2010	TY1: GM R25 TY2: GM R25	BS 2012		PhD Candidate Microbiology Univ. Washington	PhD Candidate Microbiology Univ. Washington	

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Tabet, Anthony	Weers, Paul	01/2010	TY1: GM R25	BS 2012 MD 2017		Intern Kaiser Permanente	Resident Physician, North Hollywood, CA.	
Nieto, Ruben	Bu, Xianhui	9/2009	TY1: GM R25	NONE		Unknown	Unknown	
Trujillo, Massiel	Schramm, Michael	09/2009	TY1: GM R25	BS 2010 PharmD 2014		PharmD Candidate Univ. of the Pacific	Staff Pharmacist Chinese Hospital, San Francisco	
Aguilera, Christian	Gharahanian, Editte	09/2008	TY1: GM R25 TY2: GM T34	BS 2008 PhD 2016		PhD Candidate Microbio UCLA	Post Doc University North Carolina, Chapel Hill	
Abud, Edsel	Mezyk, Stephen	01/2008	TY1: GM R25 TY2: GM T34	BS 2008		MD/PhD candidate UCI	MD/PhD candidate UCI	
Ascher, Heather	Buonora, Paul	01/2008	TY1: GM R25	BA 2011		Inventory Analyst Lakeshore Learning Materials	Inventory Analyst Lakeshore Learning Materials	
Austria, Theresa	Zhang, Mason	01/2008	TY1: GM R25	BS 2009		PhD candidate Pathology U Southern Calif.	PhD candidate Pathology U Southern Calif.	
Bowlby, Robyn	Sinchak, Kevin	01/2008	TY1: GM R25 TY2: GM R25	BS 2010		Inside Sales Support Ross Organic Specialty Sales	Technical Sales Ross Organic Specialty Sales	

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Feliciano, Timothy	Mezyk, Stephen	01/2008	TY1: GM R25 TY2: other S TY3: other S	BS 2010		MD/PhD Candidate Northwestern University	Candidate MD/PhD Northwestern University	
Garcia, Stacey	Rourke, Brian	01/2008	TY1: GM R25	BA 2010		Unknown	Unknown	
Gonzalez (Sanchez), Tami	Kelley, Kevin	01/2008	TY1: GM R25 TY2: GM R25	BS 2010		Unknown	Laboratory Manager UCSD-Yelon Lab	
Moncada Zaragoza, Marcela	Dillon, Jesse	01/2008	TY1: GM R25 TY2: GM R25	BS 2009		Unknown	Unknown	
Moreno, Denisse	Gharakhanian, Editte	01/2008	TY1: GM R25	BS 2012		Staff Research Associate Institute for memory Impairments and Neurological Disorders	MS CNL program U San Francisco	
Juarez, Melina	Khatra, Balwant	01/2008	TY1: GM R25 TY2: GM R25	BS 2010		Unknown	Quality Control Tech Eurofins Lancaster Labs	
Perez, Jonae	Young, Kelly	01/2008	TY1: GM R25	BS 2013 MPH 2014		Research Assistant Biology Dept. CSU Long Beach	Clinical Dietitian Professional Child Development Associates	
Sam, Thara	Archie, James	01/2008	TY1: GM R25 TY2: GM R25	BS 2009		Unknown	Microbiologist Calmo Manufacturing Inc.	

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Shah, Forum	McClain, Brian	01/2008	TY1: GM R25	BS 2010 MS 2013		MS Candidate Genetic Counseling UC Irvine	Genetic Counselor St Joseph Hospital Orange CA	
Velis (Aguilar), Brenda	Brusslan, Judy	09/2007	TY1: GM R25 TY2: GM R25 TY3: GM T34 TY4: GM T34	BS 2010		El Camino College Lab Technician	Lab Technician Georgia Dept of Natural Resources-Environmental Protection Division	
Cyrus, Susanne	Buonora, Paul	06/2007	TY1: GM R25	BS 2010		Started Family	Owns small business	
Johnson, Daisy	Marykwas	06/2007	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2010 MS 2013		MS Grad Student Biology CSU Los Angeles	PhD Candidate Biology UC Davis	
Graziano, Rebecca	Acey, Roger	01/2007	TY1: GM R25 TY2: GM R25	BS 2008		Clinical Lab Scientist Certificate training UC Irvine	Clinical Lab Scientist Hoag Hospital	
Maravilla, Eugenia	Weers, Paul	01/2007	TY1: GM R25 TY2: GM R25 TY3: GM R25 TY4: GM R25	BS 2009 MS 2015		MS Candidate Biochemistry CSU Long Beach	Adjunct Faculty Cerritos College	
Trejo, Jeanette	Eldon, Beth	01/2007	TY1: GM R25 TY2: GM R25	BS 2008 PA 2014		PA Candidate U Southern Calif.	Physician Assistant, Downey CA	
Vielmas, Erika	Eldon, Beth	01/2007	TY1: GM R25 TY2: GM R25	BS 2008 MS 2010		MS Candidate Biology CSU LA	Cell Biology Research Technician Chandler Lab Cal Tech	

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Vrooman, Lisa	Young, Kelly	01/2007	TY1: GM R25 TY2: other S	BS 2008 PhD 2014	Role of matrix metalloproteinases in ovarian function of Siberian hamsters *(Phodopus sungorus)*	PhD Candidate Genetics Cell Bio Washington State University	Postdoctoral Researcher University of Pennsylvania	
Tremino, Ronald	Fernandez-Juricic	9/2006	TY1:GM R25 TY2: GM R25	BS 2008 MS 2010		MS Candidate, Wildlife Science, New Mexico State	unknown	
Austria, Cristina	Bu, Xianhui	06/2006	TY1: GM R25	BS 2007		Unknown	Unknown	
Cabrera (Meleika), Ilva	Klig, Lisa	06/2006	TY1: GM R25	BS 2009 PhD 2015		PhD Candidate Genetic Informatics UC Riverside	Adjunct Faculty Irvine Valley College	
Duran, Edward	Marinez, Eric	06/2006	TY1: GM R25 TY2: GM R25	BS 2007 MD ?		MD Boston University School of Medicine	Residency St. Elizabeth's Medical Center Brighton MA	
Flores (Rangel), Daisy	Brusslan, Judy	06/2006	TY1: GM R25	BS 2007 MS 2011 PhD 2016		MS Candidate Biology CSU Long Beach	PhD Candidate Biochem Molec Bio USC	
Hernandez, Sandra	Li, Lijuan	06/2006	TY1: GM R25 TY2: GM R25 TY3: GM R25 TY4: GM R25	BS 2010 MS 2012		MS Candidate Electrical Eng. CSU Long Beach	Accounts Payable Manager GOH Express	
Lee, Gemayel	Zhang, Mason	06/2006	TY1: GM R25	BS 2007 MD 2012		MD Candidate Anesthesiology UCSF	Anesthesiologist Private Practice La Jolla, CA	

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Sandoval, Natalie	Eldon, Beth	06/2006	TY1: GM R25 TY2: GM R25 TY3: GMR25 TY4: GMR25	BS 2008 MS 2010		MS Candidate Biology CSU LA	Cell Therapy Specialist I, Kite Pharma	Minorities Opportunities in REsearch (MORE) Fellow, Cal. St. LA 2008-10
Vasquez, Leslie	Weers, Paul	06/2006	TY1: GM R25	BS 2007 MS 2010 PharmD 2014		MS Candidate San Francisco State Univ.	Pharmacist, Downey	
Belanger, Eileen	Brusslan, Judy	01/2006	TY1: GM R25	BS 2006 MS 2009		MS Candidate Microbiology CSU Long Beach	Teacher Century Academy	
Brown, Kim	Marinez, Eric	01/2006	TY1: GM R25 TY2: GM R25	BS 2007		Unknown	Unknown	
Bryant, LaQwente	Myers, Michael	1/2006	TY1: GM R25	BS 2007		Unknown	Unknown	
Casteneda, Luciano	Slowinska, Kasha	01/2006	TY2: GM R25	BS 2006 MD 2009		MS Candidate Chemistry CSU Long Beach	MD Private Practice Sylmar CA	
Cox, Casandra	Mezyk, Stephen	01/2006	TY1: GM R25 TY2: GM T34	BS 2008 PhD 2014		PhD Candidate Chemistry MIT	Currently in the BASF Professional Developmen t Program	
Martinez, Ivann	Brusslan, Judy	01/2006	TY1: GM R25 TY2: GM R25	BS 2008 PhD 2013		PhD Candidate Biology UC Riverside	Adjunct Faculty Cerritos College	
Siler, Dominic	Eldon, Beth	01/2006	TY1: GM R25	BS 2006 DPN 2014 MD/PhD 2014		Clinical Training Oregon Health & Science University	Neurooncolo gy Clinical Fellow at OHSU	

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Tan, James	Cohlberg, Jeff	01/2006	TY1: GM R25	BS 2006 DDS 2013		DDS Candidate U Southern Calif.	Dentist Private Practice, Lakewood CA	
Brown, Margaret	Buonora, Paul	09/2005	TY1: GM R25	BS 2006 MS 2011		MS Candidate Chemistry CSU Northridge	Senior Scientist Merck	
Glover, Keith	Marinez, Eric	06/2005	TY1: GM R25	BS 2007 MD 2011		MD Candidate Stanford Univ.	Residency Clinical-Vascular Surgery	
Ruiz, Jose	Brazier, Chris	06/2005	TY1: GM R25	BS 2006 MS 2014		MS Candidate Chemistry CSU Long Beach	Unknown	
Valencia (Somoza), Amber	Marinez, Eric	06/2005	TY1: GM R25 TY2: GM R25	BS 2007 PhD 2012		PhD Candidate Chemistry U. Southern Calif.	Associate Scientist II, Gilead Sciences San Dimas, CA	
Adame, Erika	Marykwas	01/2005	TY1: GM R25 TY2: GM R25	BS 2007		unknown	unknown	
Alcaraz, Jordan	Lopez, Marco	01/2005	TY1: GM R25	BS 2005		Reformer Operator BP West Coast Products	Reefinery Shift Supertendent, Andeavour LS Refinery	
Ambert, Karen	Zhang, Mason	01/2005	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2007 MPH 2011 MD 2015		unknown	MD resident Brooklyn Hospital	

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Badillo, Joseph	Buonora, Paul	01/2005	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2008 PhD 2013		PhD Candidate Chemistry UC Davis	Asst. Prof Seton Hall Univ.	NSF Graduate Research Fellowship (NSF-GRF) 2010-2015 NIH Postdoctoral Diversity Research Fellow (PA-16-288-GM103558-05) 2014-2017
Balangue (Cruz), Cyril-Jaimee	Rourke, Brian	01/2005	TY1: GM R25 TY2: GM R25	BS 2006		unknown	Teacher Century Academy, Oxnard Ca	
Dinh, Phong	Cohlberg, Jeff	01/2005	TY1: GM R25 TY 2: Other S TY 3: Other S	BS 2007 MS 2011		MS Candidate Civil Engineering CSU Long Beach	Unknown	
Dominguez, Christina	Gharahanian, Editte	01/2005	TY1: GM R25 TY2: GM R25	BS 2006 MD 2013		MD candidate Universidad Autonoma de Guadalajara	Richmond University Medical Center Intern	
Garcia, Angelica	Zhang, Mason	01/2005	TY1: GM R25	BS 2005 MD 2014 MS 2015		Medical School UPR MS Boston University	Resident Pediatrics U Mass	
Garza, Melissa	Underwood, Dessie	01/2005	TY1: GM R25 TY2: GM R25 TY3: GM R25 TY4: GM R25	BS 2008 PhD 2013		PhD Candidate University of Portland	PostDoc Sanford/Burnham Medical Research Institute	

Undergrad Student Participant	Faculty Member	Start Date	Summary of Support During Training	Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Godinez, Ivan	Klig, Lisa	01/2005	TY1: GM R25	BS 2006 PhD 2011		PhD Candidate Microbiology UC Davis	Technical Applications Scientist II- Illumina Inc.	
Gonzalez, Reyna	Khatra, Balwant	01/2005	TY1: GM R25	BS 2007 MS 2010 MD 2014		PhD Candidate Microbiology U Southern Calif.	General Surgery Resident, Rutgers New Jersey Medical School	
Jacob, Verna	Wilson, Ray	01/2005	TY1: GM R25	BS 2005		Unknown	Biologist II LA County Sanitation District	
Jenkins, Luwanda	Young, Kelly	01/2005	TY1: GM R25 TY2: GM R25	BS 2006 PA 2013		PA Candidate USC	Unknown	
Leon, Leonardo	Weers, Paul	01/2005	TY1: GM R25	BS 2005 PhD 2013		PhD Candidate Pharmacology UC Davis	Post-Doc Sanford/Burnham Medical Research Institute	
Loayza, Michelle	Gharahanian, Editte	01/2005	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2010		Unknown	Unknown	
Loke-Smith, Kerri	Young, Kelly	01/2005	TY1: GM R25 TY2: GM R25	BS 2007 MS 2011		MS Candidate Biology CSU Long Beach	Scientist Reproductive Biology CA Department of Fish & Game	
May, Jo Ann	Wilson, Ray	01/2005	TY1: GM R25	BS 2005		Unknown	Unknown	

Undergrad Student Participant	Faculty Member	Start Date	Summary of Support During Training	Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Meas, Rithy	Marykwas	01/2005	TY1: GM R25 TY2: GM R25	BS 2006 PhD 2015		PhD Degree Candidate Washington State University	Postdoc Dept of Therapeutic Radiology, Yale Univ.	
Miranda, Rene	Meyers, Mike	01/2005	TY1: GM R25	BS 2005		Unknown	Toxicology Program Coordinator, BD Biosciences, San Diego CA	
Nishiya, Casey	Zhang, Mason	01/2005	TY1: GM R25	BS 2005 MS 2008		MS Candidate Microbiology CSU Long Beach	Clinical Lab Scientist, Hoag Hospital	
Paig-Tran, Erin	Lowe, Chris	01/2005	TY1: GM R25 TY2: GM R25	BS 2006 PHD 2012		PhD Candidate Arizona State University	Assistant Professor CSU Fullerton Dept of Biological Science	
Payton, Deborah	Wilson, Ray	01/2005	TY1: GM R25	BS 2006		MS Candidate Nursing	Unknown	
Rodrigo, Yasa	Eveland, Vern	01/2005	TY1: GM R25	BS 2005 MHSA 2007 MD 2009		MD Candidate St. Matthew's School of Medicine	Unknown	
Roman (Peterson), Yanett	Wilson, Ray	01/2005	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2007 MS 2010		MS Candidate Biology CSU LA	Stay at home mom	
Sanchez, Heather	Li, Lijuan	01/2005	TY1: GM R25 TY2: GM R25	BS 2007 DVM 2011		DVM Candidate, Iowa State University	Scottsdale Ranch Animal Hospital	
Serrano, Juan	Marinez, Eric	01/2005	TY1: GM R25	NONE		Unknown	Unknown	

Undergrad Student Participant	Faculty Member	Start Date	Summary of Support During Training	Degree(s) Received and Year(s)	Topic of Research Project	Initial Position Department Institution Activity	Current Position Department Institution Activity	Subsequent Grant(s)/ Role/Year Awarded
Solorio, Veronica	Rourke, Brian	01/2005	TY1: GM R25 TY2: GM R25	BS 2005 MPH 2008 MD 2015		MPH Candidate Columbia Univ.	MD Private Practice, Torrance CA	
Sury, Jonathan	Young, Kelly	01/2005	TY1: GM R25	BS 2005 MPH 2008		MPH Candidate Columbia Univ.	Senior Research Coordinator National Center for Defense Preparedness	
Valle, Henry	Bu, Xianhui	01/2005	TY1: GM R25 TY2: GM R25 TY3: GM R25	BS 2008 MS 2010 PhD 2018		MS Candidate Chemistry CSU Los Angeles	Lecturer Miss State Univ.	
Vo, Thuy	Dillon, Jesse	01/2005	TY1: GM R25	BS 2005 PharmD 2012		Pharm Tech Certificate Candidate	Unknown	

*

C. PRODUCTS

C.1 PUBLICATIONS

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?

Yes

Publications Reported for this Reporting Period

Public Access Compliance	Citation
Complete	Roach BL, Ngo JM, Limso C, Oloja KB, Bhandari D. Identification and characterization of a novel phosphoregulatory site on cyclin-dependent kinase 5. Biochemical and biophysical research communications. 2018 October 12;504(4):753-758. PubMed PMID: 30217452; PubMed Central PMCID: PMC6173645.
In Process at NIHMS	Preparation of Diverse BODIPY Diesters. Tetrahedron letters.
In Process at NIHMS	Preparation of Diverse BODIPY Diesters. Tetrahedron letters.

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Nothing to report

C.3 TECHNOLOGIES OR TECHNIQUES

Not Applicable

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. PARTICIPANTS

D.1 WHAT INDIVIDUALS HAVE WORKED ON THE PROJECT?

Commons ID	S/K	Name	Degree(s)	Role	Cal	Aca	Sum	Foreign Org	Country	SS
PBUONORA	Y	BUONORA, PAUL T	BS,MS,PHD	PD/PI	0.0	2.0	1.0			NA
JBRUSSLAN	Y	BRUSSLAN, JUDY Ann	BA,PHD	PD/PI	0.0	2.0	1.0			NA
	N	Ramirez-Castano, Yvette		Fiscal Assistant	6.0	0.0	0.0			NA

Glossary of acronyms:
S/K - Senior/Key
DOB - Date of Birth
Cal - Person Months (Calendar)
Aca - Person Months (Academic)
Sum - Person Months (Summer)
Foreign Org - Foreign Organization Affiliation
SS - Supplement Support
RE - Reentry Supplement
DI - Diversity Supplement
OT - Other
NA - Not Applicable

D.2 PERSONNEL UPDATES

D.2.a Level of Effort

Will there be, in the next budget period, either (1) a reduction of 25% or more in the level of effort from what was approved by the agency for the PD/PI(s) or other senior/key personnel designated in the Notice of Award, or (2) a reduction in the level of effort below the minimum amount of effort required by the Notice of Award?

No

D.2.b New Senior/Key Personnel

Are there, or will there be, new senior/key personnel?

No

D.2.c Changes in Other Support

Has there been a change in the active other support of senior/key personnel since the last reporting period?

No

D.2.d New Other Significant Contributors

Are there, or will there be, new other significant contributors?

No

D.2.e Multi-PI (MPI) Leadership Plan

Will there be a change in the MPI Leadership Plan for the next budget period?

No

E. IMPACT

E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?

By virtue of the support for trainee participation in directed research, the RISE program is designed to support research in relevant fields.

At the undergraduate level, the RISE program largely serves a population who, while successful, are not strangers to academic and personal struggle. Many suffer from imposter syndrome, and adversity to risk beyond what many from well represented groups display. The RISE program evaluation suggests that a consistent message of growth mindset, development of a sense of community, and skills development together have been effective in developing a “Yes, I can” attitude in the students.

In our RISE program, we require trainees take the Introduction to Biomedical Research Methods, Scientific Research Communication, and Advanced Biomedical Research Methods, which are part of the CSULB Research Curriculum currently being institutionalized. The courses are designed to prepare students for research careers, and the participation of RISE Fellows in the courses during their early development has helped ensure the institutionalization of the Research Curriculum. While the development of these courses was funded through the NIH BUILD program on campus, the RISE Program Director, Paul Buonora, is leading the development and implementation of these courses.

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

Not Applicable

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

NOTHING TO REPORT

F. CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

NOTHING TO REPORT

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

A challenge to project implementation is the region's scheduled increases in the minimum wage. In developing the proposal, we knew the California minimum wage was scheduled to go from $9:50 to $10 on 1 Jan. 2016, so we built the budget based on staying $2 an hour above minimum wage to enable us to be competitive with other opportunities students have. Since submission of the proposal the State of California, the city and county of Los Angeles, and the city of Long Beach all passed schedules to increase the minimum wage over the remaining funding period to $15 per hour. In July 2019, the LA county minimum wage will be $14.25. Without increasing our wages, we will not be competitive with minimum wage jobs in the region. We therefore plan to increase the wage for undergraduates to $16.25 an hour. The M.S.-to-Ph.D. wage will be increased to $18.25 per hour in the coming year.
Our intent at this time is to utilize the carried over unobligated balance to increase the salary of participants to stay ahead of the minimum wage. While we recognize that the unobligated balance can not cover the needed funds for the entirety of the program's life, we will continue to ensure we stay above the legal minimum wage by increasing the wages of Fellows. This will consume most of the carried over funds. Any remaining balance will be used either as a no-cost-extension to allow the trainees remaining in January 2020 to finish out the period until the end of May 2020.

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS

F.3.a Human Subjects

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

NOTHING TO REPORT

G.2 RESPONSIBLE CONDUCT OF RESEARCH

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G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Are there personnel on this project who are newly involved in the design or conduct of human subjects research?

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Does this project involve vertebrate animals?

No

G.8 PROJECT/PERFORMANCE SITES

Organization Name:	DUNS	Congressional District	Address
Primary: California State University Long Beach	006199129	CA-047	1250 Bellflower Blvd. Chem & Biochem Long Beach CA 908400004
California State University, Long Beach	006199129	CA-047	1250 Bellflower Blvd CNSM-Biological Sciences / MLSC 203 Long Beach CA 908409502
CALIFORNIA STATE UNIVERSITY LONG BEACH RESEARCH	006199129		1250 Bellflower Blvd LONG BEACH CA 908404509

FDN			
California State University Long Beach	006199129	CA-047	1250 Bellflower Blvd. Chem & Biochem Long Beach CA 908409507
California State University, Long Beach	006199129	CA-047	1250 Bellflower Blvd CNSM-Biological Sciences / MLSC 203 Long Beach CA 908409502
CALIFORNIA STATE UNIVERSITY LONG BEACH RESEARCH FDN	006199129		CALIFORNIA STATE UNIVERSITY LONG BEACH 1250 Bellflower Blvd LONG BEACH CA 908400004
California State University Long Beach	006199129	CA-047	1250 Bellflower Blvd. Chem & Biochem Long Beach CA 908409507
California State University, Long Beach	006199129	CA-047	1250 Bellflower Blvd CNSM-Biological Sciences / MLSC 203 Long Beach CA 908409502
CALIFORNIA STATE UNIVERSITY LONG BEACH RESEARCH FDN	006199129		1250 Bellflower Blvd LONG BEACH CA 908404509
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CALIFORNIA STATE UNIVERSITY LONG BEACH RESEARCH FDN	006199129		CALIFORNIA STATE UNIVERSITY LONG BEACH 1250 Bellflower Blvd LONG BEACH CA 908400004
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G.9 FOREIGN COMPONENT

No foreign component

G.10 ESTIMATED UNOBLIGATED BALANCE

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

No

G.11 PROGRAM INCOME

Is program income anticipated during the next budget period?

No

G.12 F&A COSTS

Is there a change in performance sites that will affect F&A costs?

No

G. Special Reporting Requirements
G.2 Responsible Conduct of Research

CSULB uses the CITI Program to provide pieces of training that fulfill both internal and external requirements for Human Subjects Protection, Animal Welfare, and Financial Conflicts of Interest. These online training modules address most federal RCR requirements. The Office of Research and Sponsored Programs (ORSP) Research Compliance office provides additional face-to-face RCR training as required for any NIH training, career development award (individual or institutional), research education grant, and dissertation research grant training.

All of the current RISE participants have completed the online Responsible Conduct of Research training through the CITI RCR module (https://www.citiprogram.org/). They are also required to do eight hours of face-to-face RCR training in their first year in the program. The content of the face-to-face modules subject areas includes: Mentoring; Collaboration; Peer Review; Acquisition, Management, Sharing and Ownership of Data; Research Misconduct; Plagiarism; Animal Welfare, Human Subjects, and Ethics. These training workshops are typically one hour long. There are typically six per semester to ensure trainees from the various student development programs can get eight hours of training in the year. The face-to-face training activities are led by faculty members with expertise in the topics area. RCR training in the student development learning communities can also count toward the face-to-face hours if approved by the ORSP.