



THE UNIVERSITY OF TEXAS AT EL PASO

Newsletter

Fall 2015

[buildingscholars.utep.edu](http://buildingscholars.utep.edu)

## BUILDing the SCHOLARS' Framework:

BUILD Students and Partners Plan for Future Summers



“You can throw any curve balls at us, but you have to wait until we learn how to play baseball,” University of Texas at El Paso student Jose Perez said at the first annual BUILDing SCHOLARS Consortium Meeting. Of course Perez, a sophomore, wasn’t literally referring to the sport of baseball but of the learning curve when conducting research for the first time.

Perez was one of seven BUILD student panelists who provided feedback on BUILD activities during the October 9 meeting. The entire BUILDing SCHOLARS network, composed of UTEP BUILD PIs, representatives from pipeline and research partner institutions, and more than 50 BUILD students, assembled throughout the day to collaboratively review and plan the upcoming year of BUILD activities—particularly the BUILDing SCHOLARS Summer Research Program.

The 10-week research-intensive program places students at either UTEP or at a research partner institution during the summer to collaborate with health research experts in one of seven areas of biomedicine, including addiction, cancer, degenerative and chronic diseases, environmental health, health disparities, infectious diseases and translational biomedicine.

“We got to voice our opinions and concerns and it felt like they were accepted very well. It felt like they [partner institutions] really wanted to hear everything we had to say and really analyzed it and asked questions if they didn’t quite understand what we were saying,” panelist Hope Cervantes, an electrical engineering freshman minoring in biomedical engineering, said about the event.



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The panel also allowed for students to express their apprehension about the “unknowns” of the summer research program and about leaving El Paso—a first for many.

“This is my first year of college. I didn’t leave home, I stayed here at UTEP. I’ve never really left my family or been alone for a long period of time,” Cervantes said.

Lauren Chacon, a freshman majoring in kinesiology also voiced her concern about going away for the summer. “I love my family and I’m really connected to them, so leaving is going to be difficult.”

Many of those concerns were eased, however, when representatives from the BUILD research partner institutions gave short presentations on their undergraduate summer research programs and then met one-on-one with students during the afternoon information session.

“The afternoon session really helped with some of the fears that I have about leaving El Paso this summer. They [partner institutions] talked about most of the concerns that we all had and reassured us that we weren’t going alone. They each had their own program and were really passionate about them, which reassures me about the summer research programs,” Cervantes said.

This spring, UTEP BUILD students will be matched with faculty mentors at research partner institutions based on mutual research interests and skills through the Chronus online mentoring platform. Students are then required to complete one to three summers of research based on their academic classification.

“You have been exposed to a wide array of possibilities . . . None of us faculty here ever had those choices in our lives,” Dr. Lourdes Echegoyen, director of UTEP’s Campus Office of Undergraduate Research Initiatives and BUILD PI, explained to the students.

“What you have in front of you is just an amazing opportunity for growth—and we want you to grow. We want you to take advantage of that.”

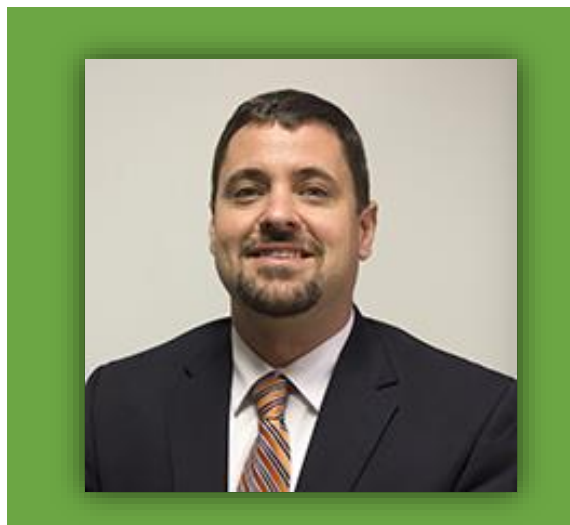


*Dr. Louis Brown (left), representing research partner institution UT Health Science Center at Houston, meets with UTEP BUILD students during the afternoon information session on Oct. 9. Photo by Alejandro Miramontes*

## Meet BUILD's Newest Member of the Family

Please help us welcome BUILDing SCHOLARS PI, Marc Cox, Ph.D., who assumed the role of Deputy Director and Co-Director of the Administrative Core in September.

Dr. Cox is currently an Associate Professor in the Department of the Biological Sciences and Co-Director of the Toxicology and Cancer Cluster within the Border Biomedical Research Center. His research contributed to the development of a novel class of drugs for the treatment of castration-resistant prostate cancer.



Other leadership roles of his include UTEP Faculty Senate President and member of the UT System Faculty Advisory Council Executive Committee.

He co-implemented and currently facilitates the BUILDing SCHOLARS Tutoring Program, and also participates in the national NIH Diversity Consortium Communications Working Group Committee.

Dr. Cox can be reached at [mbcox@utep.edu](mailto:mbcox@utep.edu).

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## Tutoring for Success

We recognize that students must balance academic success with the pursuit of scholarly research. The demands on student time can be challenging, and we are making every effort to maximize student potential for academic success. As part of these ongoing efforts, the BUILDING SCHOLARS Center has officially launched the BUILD Tutoring Program.

Students requiring additional academic support in one or more courses are initially directed to available on-campus tutoring centers for support. The BUILDing SCHOLARS Center also maintains a list of suitable on-call tutors for subject matter not currently covered by available campus resources and for students that require additional attention beyond the available resources. Writing support is provided by BUILD's own in-house Science Writer.

As part of this program, students will be actively monitored for progress and receive one-on-one faculty advising in time management and study habits.

[Click here](#) to request tutoring. Contact the BUILDing SCHOLARS Center [here](#) if you are interested in serving as tutor.

## Students Develop Research Skills in RFC



It's not the norm for entering college freshmen to start their first semester with reading and discussing scientific literature—unless you're talking about the Research Foundations Course (RFC) offered at UTEP.

This primary course in students' Freshman Year Research Intensive Sequence (FYRIS) takes a novel approach to engaging and retaining first semester freshmen by combining several strategies such as using the SCALE-UP Innovation

Space (Student-Centered Active Learning Environment for Upside-down Pedagogies) and focusing on research skill development, participation and individual and group work. All BUILD students who have not already fulfilled their UNIV 1301/SCI 1301 requirement are required to take the RFC through SCI 1301.

This fall was the first time the semester-long course was offered. Students had the opportunity to develop their research skills through scientific reading and writing and then presenting their acquired scientific knowledge through oral presentations. Critical thinking was a key skill that the students exercised through journaling, brainstorming, forming hypotheses and experimental designs. At the end of the RFC, students learned about the research-driven courses that are available to them during the second and third semesters of FYRIS.

All of these strategies contributed to a high retention rate of 96% for two classes with a size of 45 and 54 students. The combination of research skill development, active learning, group activities, enthusiastic instructors and SCALE-UP space provided an academic setting that facilitated and enriched student learning.

[Click here](#) for more information on the Research Foundations Course.



*BUILD student Luis Aranda (center) presents his research proposal: "Exoskeleton—Can super human strength be achieved?"*



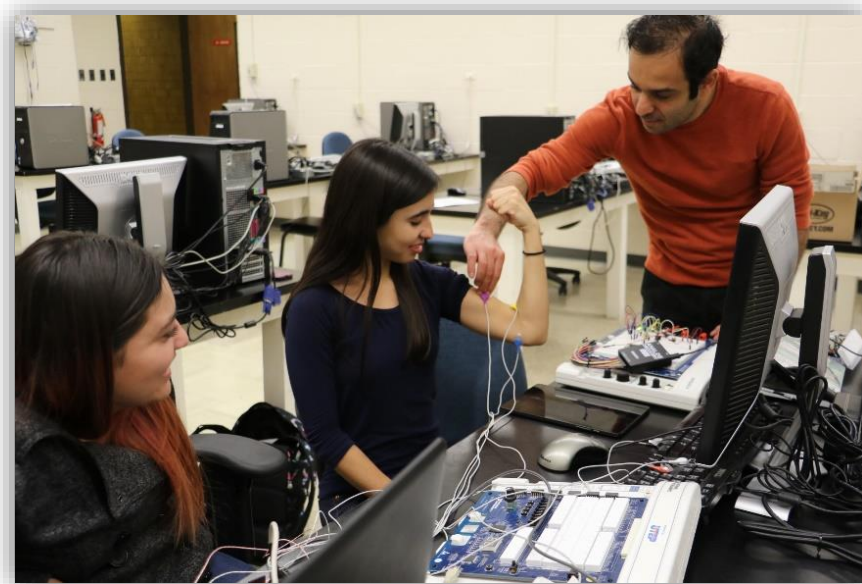
*Dr. Supriyo Ray (standing) facilitating discussion among his students in the RFC.*

## RDCs Immerse Students in Research Environments

Once a BUILD student has completed the RFC, the next step is to enroll in a research-driven course (RDC). RDCs are designed to integrate authentic research experiences into undergraduate coursework, fulfill the learning objectives of existing traditional lab or lecture courses and engage students in cutting-edge projects that generate data for the research agendas of the lead faculty who guide the courses. Two RDCs were offered this semester.

### EE 1105 mHealth Technologies

This course offered a unique opportunity for freshmen engineering students to learn about mobile health (mHealth) technology research. This is an emerging research area that focuses on the application of smart devices to study a myriad of factors leading to disease. An integral part of this RDC was to guide and enable students to research app development on mobile devices and learn how to develop their own apps for PPG monitoring using the MIT App Inventor. Students acquired valuable hands-on and research experience, met the objectives of this challenging RDC course and achieved satisfactory to outstanding outcomes.



*BUILD scholars Hope Cervantes (left) and Paola Perez (center) perform an EMG measurement with help from Dr. Mohammad Ghamari.*

*Photo by Alejandro Miramontes*

### PSY 1301 Cultural Effects on Health Decisions

While much of this course focused on theoretical knowledge necessary to understand health problems, students developed basic research methods including both practical and technical survey-based skills. The use of innovative technology applications and evidence-based teaching approaches, such as websites like Poll Everywhere and YouTube, were incorporated. Qualitative research skills were also integrated into the course, which helped to foster classroom discussion. According to BUILD instructors, these qualitative approaches were what the students appreciated the most. The end-of-semester paper proved that the students wanted to develop more than just their practical skills, but also strengthen their writing skills. Their comments and actions were reflective of the level of motivation and dedication that they have towards building themselves as future researchers.

[Click here](#) for more information on the Research-Driven Courses.

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## Peer Mentoring Program Kicks Off

Ben Franklin said it best: “Tell me and I forget, teach me and I may remember, involve me and I learn.” And involving students in peer learning is exactly what the BUILD Peer Mentoring program is all about.

To kick off the program, three non-BUILD sophomores and one junior were recruited by BUILD faculty and teaching staff to provide academic, social and personal support to 28 first-year SCHOLARS. Matches were based on professional and personal similarities using a matching algorithm designed specifically for this program and operated through the online Chronus platform.



*Peer Mentor Jaime Morales and his BUILD mentees.  
Photo by Alejandro Miramontes*

“I was extremely excited about this because I wanted to make a difference to as many people as I could,” peer mentor Jaime Morales, a biology major who is active in the STEM-based PERSIST program and a member of the University Honors Council, said about the program. Mentors Andrea Piña, Cecyl Castanon and Roy Arrieta are all active students in the sciences.

Mentors conducted face-to-face meetings with their own group of seven students twice a month, held a campus activity for their mentees and attended weekly training sessions to help improve their individual mentoring, leadership and emotional intelligence skills. They also worked as peer leaders in the Research Foundations Course.

Peer mentoring will continue this spring with the first group of BUILD sophomores participating as mentors to these 28 BUILD freshmen. Thank you to all of this semester’s peer mentors!

[Click here](#) for more information on the Peer Mentoring Program.

## Scholarship Recruitment in Full Swing

While representatives from BUILDing SCHOLARS weren't busy recruiting students at one of 28 high schools or Pipeline Partner institutions in the southwest region this fall, they were busy promoting the scholarship to over 30 thousand students via email.

Reaching out to high school and college counselors, administrators and faculty was the first step to informing students of the scholarship. After sharing BUILD's desire to work with their students as they applied, students' contact information was obtained and a series of emails promoting the scholarship were sent throughout the semester. Along with email communication, print material promoting the scholarship was disseminated to schools.

At the same time, BUILD reps also presented at area scholarship nights, classrooms and transfer fairs in the area. They even traveled to Albuquerque in mid-October to present the scholarship opportunity to students at partner institution Southwestern Indian Polytechnic Institute (SIPI). Reps also worked closely with UTEP's Office of Scholarships and the Office of Admissions and Recruitment to promote the scholarship and attended events hosted by both offices.

Two hundred and sixty eight online applications have been started and 21 completed at the date of this publication. Depending on the financial need of students selected, 35-40 scholarships will be awarded this spring. The application deadline is January 6, 2016.

[Click here](#) for more information on the BUILDing SCHOLARS scholarship.

Scholarship Recruitment Numbers	
# emails sent out	30K
# applications started	268
# applications submitted	21
# high schools & colleges visited	28

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## Dr. Joddar Receives BUILD Travel Award



Congratulations to Dr. Binata Joddar from the UTEP Department of Mechanical Engineering for receiving the first-ever BUILDing SCHOLARS faculty travel award, which she will use to travel to Nashville, Tennessee in February to present her research, *Nanotextured Surface Modification of Stainless Steel with Graphene Oxide for Cell Culture Applications*, at the TMS 2016 Annual Meeting and Exhibition.

The BUILD Faculty Travel Awards Program, which provides a maximum of \$2,000 to cover an individual's conference travel expenses, supports five conference trips per year for affiliated UTEP faculty and four conference trips per year for BUILDing SCHOLARS postdoctoral personnel.

For more information and to apply, [click here](#).

## The Students' Corner

### My BUILD Experience

By **Atzimba Casas**

Junior, Cellular & Molecular Biochemistry

Undergraduate Research Assistant

Inspired Materials and Stem Cell Based Tissue

Engineering Laboratory



As a first-generation BUILD scholar, my experience with this scholarship has been nothing but eye-opening. Although I had been previously exposed to different academic workshops in the past, the [COURI/BUILD-sponsored professional development] workshops held this fall were fast-paced, informative and engaging. The information presented was useful as I transitioned into a research lab.

My biomedical engineering lab challenges me to my full potential, both physically and mentally. My lab is based on translational research—we seek to translate scientific research into clinical applications. We are currently working on finding ways to mimic biological tissue to grow cancer cells outside of the human body and new ways to efficiently treat this disease.

Having an ambitious mentor has also impacted me in a positive way. Dr. Binata Joddar continuously pushes us to do more than the minimum and to stay on top of our research. Her drive has allowed me to experience research in a new manner—I find myself looking forward to working in her lab.

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## BUILDing SCHOLARS Participates in Showcase on Capitol Hill

Dr. Lourdes Echegoyen, director of UTEP's Campus Office of Undergraduate Research Initiatives and BUILD PI, was one of five individuals invited to represent UTEP at the UT System Research Showcase at the Rayburn House on December 2. The showcase was an opportunity for system representatives to speak with their congressmen about the importance of federal funds to continue research at their respective institutions.



To prepare for the event, Dr. Echegoyen was asked to provide ideas and content to showcase the BUILDing SCHOLARS Center. "It was such a point of pride to recognize how much we've accomplished in just one year of funding, but we only had one page to say it all. That was a challenge! Lucky for us, our University Communications office was able to include a video of one of our post-docs facilitating a Research Foundations class in the new SCALE-UP room."



According to Dr. Echegoyen, the highlight of the evening was when U.S. Rep. Beto O'Rourke, D-El Paso, arrived. "He was one of the few congressmen to show-up in person; most other districts sent staffers," Dr. Echegoyen said.

O'Rourke spoke with two UTEP student representatives, who were eager to explain their research in *Brain-mapping* and *Integrating Electric Circuits during 3-D Printing*. When O'Rourke asked the students about future plans, both indicated that they would like to stay in the El Paso area to be close to family, but were looking elsewhere due to the lack of jobs for scientists and engineers.

Despite a large number of highly qualified students that graduate from UTEP each year—especially in STEM areas—the economic level of the area remains relatively flat because many graduates either leave or accept jobs outside of their fields.

Dr. Echegoyen explained that BUILDing SCHOLARS' goal is to develop and retain the next generation of biomedical researchers in the U.S. Southwest region. She also spoke of another promising initiative, partly fueled by members of the UTEP community: a biomedical technology incubator, with lab and office space in Central El Paso, to attract biomedical startups.

O'Rourke was familiar with the incubator and promised to encourage the City of El Paso to consider incentives for biotech companies to establish themselves in the area.

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## UTEP COURI-BUILD Host Workshop Series

The UTEP Campus Office of Undergraduate Research Initiatives (COURI) partnered with BUILDing SCHOLARS to host the Fall 2015 Professional Development Workshop Series. Students met on Saturday mornings to receive training on topics such as applying to graduate school, responsible conduct of research/ethics, preparing a CV/resume, writing personal statements and entrepreneurship. All BUILD juniors were required to attend.

The spring workshop series will begin in January and will be offered on Friday afternoons. Most workshops will be from 12–5 p.m. in the SCALE-UP space. [Click here](#) for complete information and to RSVP.

Entrepreneurship	Friday, January 29, 2016
Preparing an Abstract of your Research	Saturday, February 6, 2016
Academic Help Resources and Stress Management	Saturday, Feb 13, 2016
Preparing & Delivering Presentations	Saturday, March 19, 2016
Statistics	April TBA

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## Supermentor Program Fall Update

This fall, the second cohort of the BUILDing SCHOLARS Supermentor Program was in regular communication via email, phone and even in person. Supermentors continued to provide mentorship for grant proposal ideas, journal articles and other activities on which mentees have sought guidance. Below is a summary of their activity.

### **Supermentor Fernando Valenzuela, Ph.D., University of New Mexico (UNM)**

#### **Mentee Ulises Ricoy, Ph.D., Northern New Mexico College (NNMC)**

Dr. Valenzuela supported Dr. Ricoy on various grant proposals including a submission to New Mexico IDEa Networks of Biomedical Research Excellence (NM-INBRE) titled, *Modulation by Octopamine of Sensory Perception in a Model System*; a proposal to the BUILD Seed Funding Program titled, *Biomedical Research and Methods Experience*; and an NSF Research Experiences for Undergraduates proposal titled, *REU on Polymers*. They also plan to collaboratively apply to the 2016 BUILD Summer Sabbatical Program.

### **Supermentor Louis Brown, Ph.D., University of Texas Health Science Center at Houston (UTHealth)**

#### **Mentee Jennifer Sanchez, Ph.D., University of Texas at El Paso (UTEP)**

Dr. Brown continued to assist Dr. Sanchez as she applied for NIH R21 or R03, and NIMH and NIMHD grants. Dr. Sanchez also applied for a BUILD pilot research grant in August.

### **Supermentor Mark “Marty” Pagel, Ph.D., University of Arizona (U of A)**

#### **Mentee Karina Castillo, Ph.D., El Paso Community College (EPCC)**

Dr. Pagel supported Dr. Castillo as she applied for and received a BUILD Seed Funding award. He also worked with her on a grant proposal to study cancer cells.

### **Supermentor Kristina Mena, Ph.D., University of Texas Health Science Center at Houston (UTHealth)**

#### **Mentee Carolina Chianelli, Ph.D., El Paso Community College (EPCC)**

The pair continued to search for grant opportunities to support research on contamination of water by viruses, which will make a nice extension of the similar work EPCC is doing on identifying fecal coliform bacteria in water.

### **Supermentor William Yost, Ph.D., Arizona State University (ASU)**

#### **Mentee Jaime Desjardins, Ph.D., University of Texas at El Paso (UTEP)**

Dr. Yost provided valuable and extensive feedback on Dr. Desjardins' NIH/NIDCD R03 grant proposal on younger monolingual adults, younger bilingual adults and older bilingual adults, which will support her work in auditory aging research. She will continue drafting her specific aims, as well as collect pilot data, to include in her grant application.

### **Supermentor Cato T. Laurencin, M.D., Ph.D., University of Connecticut (UConn)**

#### **Mentee Brenda Linnell, Ph.D., Northern New Mexico College (NNMC)**

Dr. Laurencin guided Dr. Linnell as she reviewed research literature directly related to isolation and characterization of organic molecules (e.g., anti-oxidants, antiseptic and pesticides) in local water, food resources and traditional remedies. Their objective is to publish a review and then find available grants suitable to her topic of interest and to the NNMC infrastructure.

BUILDing SCHOLARS is proud of the Supermentor Program's accomplishments during the first quarter and continues to offer support to the participants!

[Click here](#) for more information on the Supermentor Program.

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## Partner Faculty to Implement New Courses, Research Experiences

Three Pipeline Partner faculty members were selected to each receive \$20,000 in seed funding to promote institutional development at their institutions as well as at UTEP in the area of undergraduate research training. Recipients include William Schaedla, Ph.D., Southwestern Indian Polytechnic Institute (SIPI); Ulises Ricoy, Ph.D., Northern New Mexico College (NNMC); and Karina Castillo, Ph.D., El Paso Community College (EPCC).

Dr. Schaedla's project, *Learning Integration to Nurture Key Skills and Research Training (LINKSTART)*, is designed to promote Native American involvement in STEM by fostering student development and motivating subsequent pursuit of environmental health studies. LINKSTART will engage students with interests in the biomedical sciences at SIPI through a new introductory scientific research and communication course, provide them with research experience in environmental health issues and prime them for 4-year and graduate degrees.

With help from Dr. Eddie Castañeda from the UTEP Department of Psychology, Dr. Ricoy aims to create an NNMC-UTEP "Neuroscience Corridor." Dr. Ricoy's project, *Biomedical Research and Methods*, is designed to enhance the undergraduate research training and capacity of students from NNMC via the creation of a new biomedical course to be offered at NNMC with student research training at UTEP.

Dr. Castillo's project, *Enhancing Student Learning by Incorporating Research Using Scientific Instrumentation into the General Chemistry and Organic Chemistry Curriculum*, seeks to expand undergraduate research training opportunities at EPCC by implementing a course-based undergraduate research project focused on determining the health and environmental effects of industry emissions in the El Paso area.

[Click here](#) for more information on the Seed Funding Program. Request for proposals for the next award cycle will be announced in the late spring.

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## UTEP Faculty Members Recognized for Excellence in Mentoring

The BUILDing SCHOLARS Center and the UTEP Colleges of Engineering, Health Sciences, Liberal Arts and Science recognized the inaugural recipients of the Mentoring Awards Program at the UTEP Office of Research and Sponsored Project's Research Forum on October 8.



**Raymond C. Rumpf, Ph.D.**

Associate Professor

Department of Electrical and Computer Engineering



**Christina Sobin, Ph.D.**

Associate Professor

Department of Public Health Sciences



**Maria Cristina Morales, Ph.D.**

Associate Professor

Department of Sociology and Anthropology



**Elizabeth Walsh, Ph.D.**

Professor

Department of Biological Sciences

The program honors four full-time UTEP faculty members for their work with students in research. Recipients were selected through a highly competitive application review process.

The goal of the BUILD-sponsored Mentoring Awards Program is to foster a campus-wide culture of commitment to mentoring students, particularly through engagement in mentored research, scholarly or creative activities. The program is run on an annual basis. UTEP faculty members in the Colleges of Engineering, Health Sciences, Liberal Arts and Science are eligible to apply.

The call for applications for the 2016 Mentoring Awards will be posted on our website in the spring.

## Recipients Selected for Innovative Biomedical Pilot Grants

The first two pilot grants of \$20,000 each were awarded to UTEP faculty Binata Joddar, Ph.D., assistant professor, Department of Mechanical Engineering and Giulio Francia, Ph.D., assistant professor, Department of Biological Sciences to carry out a pilot project during the upcoming year. BUILD pilot projects must have transformative potential in the biomedical field; must provide experiences for undergraduate students; must involve a UTEP faculty member as a principal investigator; and must include at least one other BUILDing SCHOLARS partner institution in some capacity.

Dr. Joddar's project, *Novel techniques for differentiation of mesenchymal stem-cells to vascular cells*, involves a collaboration with Dr. Laura Suggs at UT Austin. The project seeks to apply stem cell-based tissue engineering techniques to create new therapeutic treatments for ischemic disease and chronic wounds.

Dr. Francia is joining forces with Dr. Miguel Aguilar from the El Paso Community College in a project titled, *Development of Expression Plasmids for Genetic Alteration of Human Cancer Cells*. The project is intended to expose undergraduate students at both UTEP and EPCC to the translational research process of developing models of orthotopically implanted human cancers growing in mice. Students will receive hands-on laboratory experience in the development of molecular and cellular tools to monitor tumor progression in mice and to evaluate the efficacy of different anti-cancer therapies in vivo.

[Click here](#) for more information on the Pilot Grant Program. Request for proposals for the next award cycle will be announced in the late spring.

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## BUILD's Summer Research Program in El Paso



While much of the discussion at the October Consortium Meeting focused on UTEP BUILD students traveling to Research Partner institutions (see page 1), the BUILDing SCHOLARS Summer Research Program offers additional research opportunities for community college, regional four-year university and even early college-high school students.

Fifteen rising freshmen and sophomores from Pipeline Partner institutions will be conducting research this summer here at UTEP. They will take part in a compressed version of our successful *Research Foundations Course* before beginning full-time work in one of UTEP's research labs studying addiction, cancer, degenerative and chronic diseases, environmental health, health disparities, infectious diseases or translational biomedicine. They will also receive mentee training and attend professional development workshops alongside those UTEP BUILD students staying at UTEP for the summer.

In partnership with the El Paso Community College, BUILDing SCHOLARS offers 8-week summer research internships for Transmountain Early College-High School (TMECHS) science students. These internships provide an opportunity for high school students to experience research for the first time in an age appropriate, low-stress environment. Research in environmental health and infectious diseases is the focus during these internships at EPCC.

The opportunities afforded to students in both programs will be formative in their decisions to pursue research careers.

[Click here](#) for more information on the entire BUILDing SCHOLARS Summer Research Program.

## Happy 1<sup>st</sup> Anniversary BUILDing SCHOLARS!

Students, faculty and staff celebrated the 1<sup>st</sup> anniversary of BUILDing SCHOLARS during the Fall Harvest Celebration on November 20 held at the Tech Café. It was great to see so many smiling faces giving thanks to a wonderful and productive year.





# BUILDing SCHOLARS Newsletter

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