The Graduate Program in Pharmaceutical Sciences (GPPS) welcomes four new graduate students this fall (profiles on page 4). A.G.M. Mostofa will work in Dr. Ming-Hai Wang’s lab; Alok Ranjan will work in Dr. Sanjay Srivastava’s lab; Jee Hyun Park will work in Dr. Ulrich Bickel’s lab; and Tori Cowan will work in Dr. Paul Lockman’s lab. We wish them a warm welcome as they join our graduate program! The GPPS was also honored to have one of our graduating students, Dr. Prabodh Kandala, selected as the 2012 GSBS Outstanding Graduate Student. We are all very proud that Prabodh was selected for this honor, and his research determination makes this award well deserved. Over the last 7 years GPPS has had 6 of our graduates selected for this prestigious award! Also, last April we were excited to welcome back Dr. Haritha Mandula to present our Homecoming Seminar entitled “Bioequivalence of Drugs: a General Perspective” followed by a round-table discussion with graduate students and postdocs. Haritha graduated from the laboratory of Dr. Smith and is currently a Senior Staff Fellow at the FDA. Lastly, we would like to congratulate Dr. Quentin Smith for being selected as the new Dean of the School of Pharmacy. We are all looking forward to new opportunities with Dr. Smith’s leadership of the SOP.

2012 GSBS Outstanding Graduate Student

Prabodh Kumar Kandala was selected by students and GSBS faculty to carry the GSBS seal in the Commencement Exercises for the TTUHSC graduating class of 2012 on Sunday, May 20th. He is seen here receiving the Outstanding Graduate Student medalion from Dr. Abbruscato at the Convocation Ceremony on Saturday, May 19th at the Hall of Nations in the International Cultural Center. After receiving his award, Prabodh delivered the Convocation Address to the other graduates, faculty, honored guests, staff, friends and family. Pooja Naik, Vice-President of the GSAA, reported on GSA activities for the past year.

While a GPPS student, Prabodh accumulated 4 first author and 3 co-authored publications as well as honors including the GSBS Dean’s Scholars Award in 2009, the Mary Lou Clements Scholarship in 2010 and 2011, and 1st Place for the Department of Biomedical Sciences with his poster at the annual SOP Research Days in 2010 and 2011. Out of the twelve Ph.D. students who graduated in 2012, nine were from our GPPS program. Since 2005 two of our graduates received the Dean’s Recognition Award, and now six have garnered the Outstanding Graduate Student Award.

GPPS OFFICE - Suite 217 - 806-356-4015; Fax 356-4021
Dr. Tom Abbruscato, Associate Dean for GSBS,
Graduate Program Advisor, Associate Professor, Pharmaceutical Sciences, x320
Teresa Carlisle, Graduate Program Coordinator, x287
Shari Morris, Graduate Student Advisor, x227

Agonist is published every fall and spring semester by the Graduate Program of Pharmaceutical Sciences (GPPS). For updates and new information, email Shari at shari.morris@ttuhsc.edu.
Annual Homecoming Presentation

The Invited Alumni Speaker for 2012 was Haritha Mandula, Ph.D., Senior Staff Fellow with the FDA in Rockville, MD. She was a graduate student in Dr. Quentin Smith’s lab and graduated in Fall 2005. Haritha presented a seminar entitled “Bioequivalence of Drugs: a General Perspective” followed by a round-table discussion and lunch with current graduate students and postdocs. As AAPS chapter sponsor Dr. Fakhrul Ahsan presented her with a plaque from our local AAPS chapter commemorating her visit and her successful career in government. Haritha also met with her ex-committee members as well as other faculty members.
GRADUATE STUDENT SEMINAR PROGRAM - SPRING 2012

1/11/12 - Guest Speaker - Dr. Tom Hale, Professor, Pediatrics, SOM - “Using Medications in Breastfeeding Mothers”

1/18/12 - Chris Adkins - “The Role of HER2 in Brain Metastases of Breast Cancer”

1/25/12 - Shuangling Zhang - “The Effects of Alpha 1-Acid Glycoprotein (AGP) in the Extracellular Matrix Modulators”

2/1/12 - Naomi Wangler - “Membrane-Bound Neurolysin (EC 3.4.24.16) is the Novel Non-AT1, Non-AT2 Angiotensin Binding Protein”

2/8/12 - Shahriar Absar - “Stealth Nanoconstruct for Targeting of Plasminogen Activators: Evaluation of Burst Effect and Targeting Specificity”

2/15/12 - Cancer Patient Advocacy Forum

2/22/12 - Guest Speaker - Dr. Srinivas Boreddy, Postdoctoral Research Associate, SOP - “Deguelin Suppresses Pancreatic Tumor Metastasis by Inhibiting Epithelial to Mesenchymal Transition”

2/29/12 - Hussaini Syed Sha Qhattal - “Optical Imaging of Tumor Targeted Nanoparticles”

3/7/12 - Guest Speaker - Dr. Rakhshanda L. Rahman, Associate Professor, Surgical Oncology, SOM - “Current Issues in Tumor Banking”

3/14/12 - Harinath Kotte - “Inhibition of DNA Topoisomerases and Other Repair Enzymes by S-thiolation”

3/21/12 - Guest Speaker - Dr. Yunxia Tao, Assistant Professor, Internal Medicine Research, SOM - “Targeted cancer therapies: lessons learned from renal cell carcinoma”

3/28/12 - Rajiv Balyan - “Pharmaceutical Studies on Chemo-therapeutic Agents for Melanoma and Breast Cancer”

3/28/12 - Nilesh Gupta - “Inhalable Engineered Erythrosomes as Natural Nano-reservoirs of a Rho-kinase Inhibitor, Fasudil”

4/11/12 - Guest Speaker - Dr. Yuxia Tao, Assistant Professor, Internal Medicine Research, SOM - “Targeted cancer therapies: lessons learned from renal cell carcinoma”

4/18/12 - Vindhya Edpuganti - “Effect of Hepatic Ischemia Reperfusion Injury on the Disposition of P450 Metabolites of Arachidonic Acid in Rat Livers”

4/25/12 - Rakatim Bhattacharya - “Differential Pro-apoptotic Effect of TCR mimic Antibodies on Breast Cancer and Brain Endothelial Cell Lines”

5/2/12 - Amit Bansal - “NOTCH-4 Inhibition to Increase Blood-Tumor Barrier Permeability”

5/2/12 - Sukesh Voruganti - “Novel Synthetic Makaluvamine Analogs for Pancreatic Cancer Therapy”

5/9/12 - Guest Speaker - Dr. Tetyana Vasylyeva, Professor, Pediatrics, SOM - “End Stage Renal Disease in Patients with Diabetes: Could We Do Better on Cardio-Vascular Health?”

New Students for Fall 2012

Left to Right:

A.G.M. Mostofoa, M.Pharm.
Lab:  Dr. Ming-Hai Wang
University of Dhaka
Bangladesh

Alok Ranjan, B.Pharm.
Lab:  Dr. Sanjay Srivastava
Babasaheb Bhimrao Ambedkar
Bihar University Muzaffarpur
Bihar, India

Jee Hyun Park, B.A., B.S. in Pharmaceutical Sciences
Lab:  Dr. Ulrich Bickel
University of Missouri at Kansas City
Kansas City, MO

Tori Cowan, B.S. in Chemistry
Lab:  Dr. Paul Lockman
West Texas A&M University
Canyon, Texas
At SRW 2012, sponsored by the Graduate School of Biomedical Sciences in Lubbock, there were over 70 poster entries in the categories of junior and senior basic science researchers, 16 of which were presented by our GPPS students. Also, two of our students were invited to give oral presentations. Keynote Speakers included Dr. Gerald Shulman, Yale University School of Medicine, and Dr. Luis Fernandez, University of Wisconsin School of Medicine.


GPPS PRESENTERS:
Oral Presentation. Parul Gupta, Christopher Adkins, Paul Lockman and Sanjay K. Srivastava. “Phenethyl isothiocyanate inhibits breast tumor metastasis to brain in a mouse model by suppressing HER2 and VEGF expression”
-Raktima Bhattacharya, Jon Weidanz, Chris Adkins, Paul Lockman and Ulrich Bickel. “Apoptotic Effect of TCR mimic Monoclonal Antibodies against Brain Seeking Breast Cancer Cell Lines”
-Alejandra Fernandez, Nicolle Nicholson, Manoj Banjara and James Stoll. “Effects of Exercise on the Acute Phase of the Pilocarpine-induced Status Epilepticus Model”
-Neel M. Fofaria and Sanjay K. Srivastava. “Piperine Causes Cell Cycle Arrest and Cell Differentiation in Melanoma Cells”
-Prabodh K. Kandala and Sanjay K. Srivastava. “Diindolylmethane regulates anoikis through sonic hedgehog in ovarian cancer cells”
-Kamrun Nahar and Fakhrul Ahsan. “Stealth Magnetic Nanoconstructs for Targeted Delivery of Fasudil, a Rho-Kinase Inhibitor, for the Treatment of Pulmonary Arterial Hypertension”
-Pooja Naik and Luca Cucullo. “A New Modular Dynamic In Vitro Capillary-Venule System: Cerebrovascular Physiology in a Box”
-Snehal Padhye and Ming-Hai Wang. “Combined Inhibition of RON and c-Kit chemosensitizes Pancreatic Cancer Stem Cells to Gemcitabine”
-Brijeshkumar Patel and Fakhrul Ahsan. “Inhaled Montelukast as an Alternative to Oral Administration in the Treatment of Asthma”
-Shah KK, DeSilva S, Abbruscato TJ. “Glucose transporters at the blood brain barrier in diabetes”

This image by Nilesh Gupta was contributed to the Controlled Release Society. It was captured using a fluorescence microscope (Olympus Inc). These cell-based carrier systems were derived from erythrocytes after complete hemolysis and carefully engineered to produce nanoerythrosomes. See full article.


43rd Annual Meeting of the American Society for Neurochemistry
March 03 - 07, 2012 * Baltimore, MD


- Vindhya Edpuganti and Reza Mehvar. “Isoform-selective changes in arachidonic acid (AA) metabolizing cytochrome P450 (P450) enzymes in warm hepatic ischemia (IR) reperfusion injury”
- Pooja Naik, Quentin Smith, and Luca Cucullo. “Protective Role of Antioxidant Supplementation in Tobacco Smoke Toxicity at the Blood-Brain Barrier”

American Association for Cancer Research Annual Meeting
March 31 - April 4, 2012 * Chicago, IL

- Parul Gupta, Christopher Adkins, Paul Lockman, and Sanjay K. Srivastava. “Phenethyl Isothiocyanate Inhibits Breast Tumor Metastasis to Brain in a Mouse Model by Suppressing HER2 and VEGF Expression”

Barriers of the CNS, New London, NH
Gordon Research Seminar * 6/16-17/12
Bridging Barriers to Treat CNS Disease * 6/17-22/12

- Chris E Adkins, Quentin R Smith, and Paul R Lockman. “The Blood-Tumor Barrier in Brain Metastases of Breast Cancer is Disrupted but Retains Significant Residual Function” →Best Poster Award←
- Shah KK, Abruscato TJ. “Characterization of Glucose Transporters at the Blood Brain Barrier in Diabetes and Stroke”
- Shuangling Zhang, Quentin R. Smith, Karen S. Mark. “The Effects of α1-acid Glycoprotein in the Brain Microvasculature”

Fall 2012, Issue 10
Eleventh Annual School of Pharmacy Research Days

June 12-13, 2012

Over 140 faculty members, graduate students and residents converged on the TTUHSC Campus in Amarillo to showcase their research during the Eleventh Annual SOP Research Days, held Tuesday, June 12th and Wednesday, June 13th. The keynote speaker was Leslie Z. Benet, Ph.D., Professor, Department of Bioengineering & Therapeutic Sciences, University of California San Francisco. The TTUHSC Distinguished Research Presentation was given by C. Patrick Reynolds, M.D., Ph.D., Director, Cancer Center, TTUHSC School of Medicine, Lubbock. A Special Invited Medicinal Chemistry Presentation was given by Richard A. Glennon, Ph.D., Alfred and Frances Burger Professor of Medicinal Chemistry, Virginia Commonwealth University, Richmond, Virginia. Podium presentations were given by selected individuals. The annual dinner and social was held at the Amarillo Club on Tuesday evening with distinguished dinner guests including Dr. Tedd Mitchell, President, TTUHSC; Dr. Douglas Stucco, Executive Vice President for Research, TTUHSC; and the invited speakers.

**Excellence in Research Podium Presentations/Awards for Biomedical Sciences:**

- **Prabodh K. Kandala** and Sanjay K. Srivastava. “Gli1 Suppression Induces Anoikis in Ovarian Cancer Cells in vitro and Blocks Tumor Formation Ability in vivo”


**Excellence in Research Podium Presentations/Awards for Pharmaceutical Sciences:**

- **Hussaini Syed Sha Qhattal**, Tanvirul Hye and Xinli Liu. “Pharmacokinetics and Biodistribution of Hyaluronan-grafted Liposomes”


  →3rd Place Poster Presentation: **Brijeshkumar Patel**, Vivek Gupta and Fakhrul Ahsan. “Inhaled PLGA Based Large Porous Particles for Pulmonary Delivery of a Highly Soluble Drug, Low Molecular Weight Heparin”

- **Adkins CE**, Smith QR and Lockman PR. “Permability Characteristics of Triple-Negative Breast Cancer Brain Metastasis Over Time”
- **Manoj Banjara**, Katie Bennett and James Stoll. “Lipocalcin-2 Expression Mechanism in Non-Pathogen-Associated Neuroinflammation”

- **Amit Bansal**, Chris E. Adkins, Mohamed Nounou, Tori Cowan and Paul R. Lockman. “Inhibition of Notch-4 Expression on Endothelial Cells Increases Blood-Tumor Barrier Permeability”

- **Neel M. Fofaria** and Sanjay K. Srivastava. “Piperine Causes Cell Cycle Arrest and Differentiation in Melanoma Cells”
- **Parul Gupta** and Sanjay K. Srivastava. “Curcubitacin B Exhibits Cytotoxic Effects by Inhibiting ILK-Paxillin Signaling in Breast Cancer Cells”

(Continued on Page 10)
Eleventh Annual School of Pharmacy Research Days

Tanvirul Hye - 1st place
Pharmaceutical Sciences

Kamrun Nahar - 2nd place
Pharmaceutical Sciences

Brijesh Patel - 3rd place
Pharmaceutical Sciences

Sharad Sharma - 3rd place
Biomedical Sciences

Hussaini SS Qhattal
Podium Presentation
Pharmaceutical Sciences

Shahriar Absar
Podium Presentation
Pharmaceutical Sciences

Ameya Paranjpe
Podium Presentation
Biomedical Sciences

Not pictured:
Prabodh Kandala
Podium Presentation
Biomedical Sciences

City view from Amarillo Club
(Research Days Continued from Page 8)

▪ **Parul Gupta**, Christopher Adkins, Paul Lockman and Sanjay Srivastava. “Phenethyl Isothiocyanate Inhibits Breast Tumor Metastasis to Brain in a Mouse Model by Suppressing HER2 and VEGF Expression”

▪ **Tanvirul Hye**, Hussaini Syed Sha Qhattal and Xini Liu. “Self-Emulsifying Nanoemulsions Target Glioblastoma Tumors and Enhance Brain Delivery”

▪ **Harinath Kotte** and Kalkunte Srivenugopal. “Development of a Rational Nontoxic Redox Perturbing Agent for Increased Anticancer Efficacy and Thiolation of Topoisomerase Enzymes”

▪ **Jun Liu**, James Stoll. “Studies on the Low Affinity Choline Transporter”


(School of Pharmacy April 20, 2012)

**RECOGNIZING EXCELLENCE**

**Graduate Student Association at Amarillo Honors for Students, Faculty & Staff**

**GSAA Vice President Pooja Naik** presents the award for “Outstanding GSAA Student of the Year 2011-2012” to Shahriar ‘Abir’ Absar.

Dr. Fakhruil Ahsan was presented the “Graduate Faculty Mentor of the Year” award by GSAA President Absar.

The “Graduate Teaching Team of the Year (Basic Pharmaceutics)” award was presented to Dr. Reza Mehrvar.

The “Graduate Teacher of the Year (Physiology-based Pharmacology)” award was presented to Dr. Margaret Weis.

Other special recognitions were given as follows: GSBS Dean’s Scholar Award 2012 to **Prabodh Kandala**; first author publications - Shahriar Absar, Prabodh Kandala, Sivarama Koganti, Shashi Kudugunti, Pooja Naik, Snehal Padhye, Kaushik Shah, Russell Snyder, Hussaini Syed Sha Qhattal, Naomi Wangler

**AWARDS & SCHOLARSHIPS**

**Shahriar Absar**: $500 Phonathon Award; GSBS Dean’s Scholarship Award ($5000/year until graduation)

**Chris Adkins**: AFPE Pre-Doctoral Fellowship in Pharmaceutical Sciences 2012-2013 ($6500); Tuition scholarship for the 14th Annual Quantitative Fluorescence Microscopy at Mount Desert Island Biological Laboratory near Bar Harbor, ME in May 2012 ($3100)

**Kito Barrow, Nilesh Gupta, Kowser Miah, Brijesh Patel**: GSBS Course Evaluation Fall 2011 Scholarship ($250)

**Amit Bansal**: GSBS Course Evaluation Spring 2012 Scholarship ($250)

**Parul Gupta**: AACR Scholar-in-Training Award sponsored by Aflac, Inc, to 11th Annual International Conference on Frontiers in Cancer Prevention Research, 10/16-19/12, Anaheim, CA ($1000)

**Hussaini SS Qhattal**: Travelship to 2012 AAPS Annual Meeting & Exposition, Chicago ($1000)

→ **Nilesh Gupta** - one of 22 selected out of a total of 750 poster authors at CRS to contribute an article for the CRS Newsletter Publication giving him an opportunity to share his research with the scientific community all around the globe! (p7 for details)

→ **Brijesh Patel** - featured in article by Pharmaceutical Formulation & Quality: “PEG-PLGA Copolymers Show Promise for Pulmonary Delivery.” View here!

→ **Prabodh Kandala** - News Article from American Society for Biochemistry and Molecular Biology: “Researchers demonstrate potential role of Gli1 protein in anoikis resistance.” View here!

→ **Parul Gupta** - BioMed Central series blog: “Vegetable extract as a potential new therapy for HER2 positive breast cancer.” View here!

**Harinath Kotte 1979 - 2012**
The 10-week 2012 Amarillo Biomedical Research Internship Program concluded Friday, July 27th, with a presentation about the Graduate Program by Dr. Abbruscato and the movie “Naturally Obsessed - The Making of a Scientist.” Fourteen ABRI interns were working in SOP labs in Amarillo, Abilene and Dallas. The interns were given awards by Dr. Abbruscato and then enjoyed a luncheon with parents, faculty and graduate students. For the last event of the day, the interns presented their posters.

» Yasemin Celik - Dr. Paul Lockman, Pharmaceutical Sciences - “Pharmacological Concentrations of Paclitaxel Kills Brain Metastases and Central Nervous System Cells”

» Clayton Cleveland - Dr. Maciej Markiewski (Abilene), Biomedical Sciences - “Immunosuppressive properties of pre-metastatic niche in breast cancer are complement dependent”

» Shaun Cooper - Dr. Sanjay Srivastava, Biomedical Sciences - “Piperlongumine inhibits Pancreatic Cancer Growth by Causing Cell Cycle Arrest and Apoptosis”

» Toni Cowan - Dr. Magdalena Karbowniczek (Abilene), Biomedical Sciences - “Identifying the mechanism of Rheb-induced Notch activation”

» Anthony Gipson - Dr. Margaret Weis, Biomedical Sciences - “Fatty-Acyl-CoA Synthase Activity Kinetics and Inhibition by Triacsin C”

» Nicole Hoerster - Dr. U.S. Rao, Biomedical Sciences “Molecular Characterization of CEA Expression During Colorectal Cancer Progression and Metastasis”

» Monika Jones-Higgins - Dr. James Stoll, Biomedical Sciences - “Evaluation of Markers in Epileptogenesis”

» Sara Lim - Dr. Kalkunte Srivenugopal, Biomedical Sciences - “Inhibition of MGMT-mediated Base Excision Repair by the Antiestrogen Fulvestrant: Implications for Breast Cancer Therapy”

» Sandirai Musuka - Dr. Richard Leff (Dallas), Pharmacy Practice - “Determination of ARQ 501 (β – Lapachone) Content in Serum Using a Sensitive and Selective LC-MS/MS Method: A Novel Cytotoxic Agent for Management of Solid Tumors & Hematologic Malignancies”

» Joel Oliver - Dr. Xinli Liu, Pharmaceutical Sciences “Preparation of Tumor Vasculature Targeted Liposomes to Deliver Vascular-Disruptive Microtubule Inhibitor BPR0L075”

» Camila Robles - Dr. Irene La-Beck (Abilene), Pharmacy Practice - “Effects of Liposome Nanoparticle on Tumor Angiogenesis”

» Hugh Teng - Dr. Ulrich Bickel, Pharmaceutical Sciences - “Method Development for Triacsin C Quantitation in Blood and Organ Samples”

» Kariana Weis - Dr. Vardan Karanyan, Pharmaceutical Sciences - “Effects of Opioid Agonists on Heterodimerized mu-and delta-Opioid Receptors in HEK293 cells”

» Wesley Wingo - Dr. Quentin Smith, Pharmaceutical Sciences - “Ang1007 and Doxorubicin Delivery to Metastatic Brain Tumors”
COMMUNITY SERVICE OPPORTUNITIES

GPPS students participated in:
* Highland Park ISD Science Fair judging - March
* Ronald McDonald House fundraising event - March
* American Heart Association Heart Walk - August
* TTUHSC Medication Clean out — September

Planned Community Events:
* Clothing Drive
* Hospital Service/Walk with a Doc

Social Events:
* Camping, bowling, Halloween party, international night/fundraiser

CRAZY FUN WITH GSAA

2012-2013 Officers of the Amarillo AAPS Chapter
Chair - Rashedul Islam
Chair-Elect - Brijesh Patel
Vice-Chair - Nilesh Gupta
Treasurer - Shanal DeSilva

Officers for 2012-2013: President, Vindhya Edpuganti; Vice-President, Alejandra Fernandez; Treasurer, Shikha; Secretary, Neel Fofaria, Student Senate Representative, Manoj Banjara; Historian, Sukesh Voruganti; International Student Representative, Sharad Sharma.

GSAA

General Body Meetings
* October 11th
* November 8th
* Christmas Party

Dr. Abbruscato & daughters at the Great Sand Dunes in Colorado