SHREE BOSE

SHREEBOSE.COM

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As a student with an early passion for biology and medicine, I was honored as the **Grand Prize winner of the first ever Google Global Science Fair in 2011** for my work with drug resistance in ovarian cancer. Competing against 10,000 students from 91 countries who submitted their projects online, I was judged by a panel of scientific luminaries, earning a $50,000 Google scholarship, a trip to the Galapagos Islands with National Geographic Expeditions, and a trip to CERN. After receiving an incredible platform to speak around the world, I have become a dedicated STEM education advocate, working with various organizations to further K-12 STEM education.

As a MD/PhD student at Duke, I hope to pursue a career at the intersection of medicine and research.

EDUCATION

Current **MD/PhD Candidate (NIH Medical Scientist Training Program, Predicted Graduation: 2024)**
Duke School of Medicine, Durham, North Carolina
Activities: Editor-in-chief for the Duke Science Review

2016 **B.A., Molecular and Cellular Biology (Minor: Global Health and Health Policy)**
Harvard College, Cambridge, Massachussetts
Activities: Editor-in-chief for the Harvard Science Review, Volunteer EMT through Crimson EMS (serving on-campus events), Design Editor for Harvard Crimson (Student Newspaper), Tutor for Phillip Brooks House Association John Marshall Program (Tutor for at-risk 4th and 5th grade Boston students), Designed curriculum and taught 7-week course to 6th-8th graders through Harvard Educational Studies Program

2012 **High School**
Fort Worth Country Day School, Fort Worth, Texas
Awards: National Merit Scholar, Cum Laude (Top 10%), Penn Book Award, Brown University Book Award, Bausch and Lomb Honorary Science Award, Latin Underclassman Award, Most Valuable Journalism Staff Member
Other Activities: School Newspaper (Editor-in-chief), Literary Magazine (Editor-in-Chief), Opinion Magazine (Editor-in-Chief), Varsity Swimming (Captain), Volunteer at JPS Hospital, Fort Worth (46 hours of service; Mentee in ReLaTee Mentoring Program)

EXPERIENCE

2015 - Current **Board of Trustees, ASM (American Society of Metals) Foundation**
ASM Materials Education Foundation, Materials Park, Ohio
The ASM Materials Education Foundation provides for the advancement of scientific and engineering knowledge. As a member of the board, I have helped shape the direction of various initiatives meant to facilitate K-12 materials science education.

2014 - Current **Academic Director**
National Academy of Future Physicians and Medical Scientists, Washington D.C.
As a speaker and academic director for the National Academy for Future Physicians and Medical Scientists and its sister organization, the National Academy for Future Scientists and Technologists, I have mentored K-12 students interested in future STEM careers.

2013 - 2016 **Co-founder/Curriculum Development**
Piper Inc., San Francisco, California
Piper is the first toolbox a child can use to create a familiar Minecraft interface to learn and play with the basics of technology to create their own gadgets (playpiper.com)

- Selected as one of Inc.com's Coolest College Startups
- Selected as a 2014 Kairos Global Fellow
- Featured on Forbes, Fast Company, ABC7 News, and Medium
- Raised over $280K in crowdfunding campaign, $3M in sales in 2016

2013 **Global STEM Ambassador**
Girlstart, Austin, Texas
Girlstart is a national organization focused on fostering STEM education for K-12 girls, that has been recognized by Change the Equation as one of only four exemplary STEM education programs in the country. As the Girlstart global STEM ambassador, I worked on outreach and was honored at the annual luncheon.

SPECIAL RECOGNITION

2015 **Top Ten College Women in Nation** (Glamour Magazine, New York City, NYC)
Recognized for creating accessible, educational tools for kids. Awarded $3K scholarship, featured in April 2015 issue of Glamour Magazine (pg. 160), and honored at event in NYC.

2015 **22 Under 22** (Her Campus, Boston, Massachusetts)
Recognized for advocacy work to get girls excited about STEM careers

PAST RESEARCH EXPERIENCE

2014 - 2016 **The True Powerhouse of the Cell: The Role of Neuronal Glycolysis in Acute Metabolic Stress During Glucose and Ketone Body Metabolism**
Undergraduate Thesis Research (for partial fulfillment of honors B.A.),
Mentor: Gary Yellen, Harvard Medical School (Boston, MA)
In this thesis work, I optimized and validated an experimental approach using concurrent expression of the genetically encoded, metabolic biosensors Perceval, an ATP:ADP ratiometric sensor, and pHRed, an intracellular pH sensor, in *in vitro* primary hippocampal neuron cultures. The flexibility of this model in allowing visualization of real-time, dynamic changes at the single cell level allowed us to (1) compare the modulation of acute metabolic stress responses with ketone body vs. glucose fuel sources, and (2) dissect glycolytic and oxidative phosphorylation pathways involved in acute metabolic stress responses. These experiments provide preliminary evidence to suggest that the metabolic responses of neurons to periods of acute stress are modulated differently by glucose and ketone body metabolism, and that glycolytic machinery serves as the major compensatory energy production pathway during these periods.

2014 **Investigating the Anatomical and Functional Role of Cholinergic Inputs to the Basilar Pontine Nucleus**
Janelia Undergraduate Scholar, Howard Hughes Medical Insitute
Mentor: Adam Hantman, Janelia Farm Research Campus (Ashburn, VA)
Previous work has suggested the pedunculopontine nucleus (PPN) may be a source of cholinergic input to the pons. Therefore, we set out to characterize the origin of this cholinergic input to the BPN using fluorescent label imaging and to investigate its function in a reach task behavior using optogenetic manipulation.

2013 **A Phase II Trial for Newly Diagnosed Multiple Myeloma Using Carfilzomib, Revlimid, and Low-dose Dexamethosone**
Summer Intern, National Institutes of Health
Mentor: Ola Landgren, National Cancer Institute (Bethesda, MD)
Working with the multiple myeloma treatment team at the NIH clinical center, I worked on characterizing vessel irritation following IV treatment, a common side effect found in patient on a novel combination therapy trial using carfilzomib, revlimid, and dexamethasone. Using statistical techniques and past patient histories in addition to survey data collected throughout the summer, we found changing the temperature of drug to be a significant controllable factor which impacted the severity of the vessel irritation.

2012 **Cellular Localization of the ATP-Binding Cassette Transporter ABCB5 in Melanoma Cell Lines and its Potential Role as a Mitochondrial Transporter**
Summer Intern, National Institutes of Health
Mentor: Michael Gottesman, National Cancer Institute (Bethesda, MD)
As a NIH summer intern working under the supervision of Dr. Jean-Pierre Gillet (Laboratory for Cell Biology –Multidrug Resistance Section), I worked on the localization of ABCB5, an ATP binding cassette transporter, using confocal microscopy and mitochondrial localization studies. We found ABCB5 localized in lysosomes and mitochondria, but surprisingly not in the plasma membrane.

2010 **Targeting AMP Kinase to Reverse Cisplatin Resistance in Ovarian Cancer Cells**
Mentor: Alakananda Basu, University of North Texas Health Science Center (Fort Worth, TX)
Working with cisplatin sensitive and resistant ovarian cancer cell lines, we used Western blot procedures, immunological staining, and fluorescence activated cell sorting (FACS) to elucidate the extreme importance of AMP kinase in cisplatin resistance. This may be a potential therapeutic target in the future.

PRESENTATIONS/CONFERENCES

2016 **Panel Discussion, Exponential Manufacturing Conference** *(Boston, MA)*

2015 **Speaker, Genentech National Medical Meeting (organized by USMA)** *(Phoenix, AZ)*
Speaker in session titled "Inventing the Inventor" at event for 200 Genentech employees and executives

2014 **Speaker, L'Oreal Inspiration Day** *(New World Stage, NYC, NY)*
Speaker and Panelist at event for 400 L'Oreal brand executives

2014 **Speaker, La Ciudad de Las Ideas** *(Puebla, Mexico)*
Speaker in Wunder 18 Session in event with theme "Change the World"

2014 **Speaker, NCAA Final Four Innovation Summit** *(Dallas, TX)*
Spoke at event tied to Final Four Summit hosted by Turner Media

2013 **Panelist, Clinton Global Initiative University Opening Plenary Session** *(Arizona State University)*
On a panel with President Clinton, John McCain, and the founder of Wikipedia

2013 **Speaker, Youtheca Global Science Exhibition** *(Seoul, South Korea)*
Spoke at exhibition for South Korean students doing various projects related to social entrepreneurship

2012 **Speaker, TedxGateway** *(Mumbai, India)*
Invited to speak at independently organized TED event

2012 **Judge, Google Global Science Fair** *(Palo Alto, CA)*

2012 **Keynote Speaker, UNTHSC Outreach Event** *(Fort Worth, TX)*
Invited as keynote to speak to students in new UNTHSC's outreach program, TABS (Texas Academy of Biomedical Sciences)

2012 Speaker, Austin Forum *(Austin, TX)*
Monthly speaker series and networking event that hosts leaders

2012 **Invited to Second Annual White House Science Fair** *(Washington D.C.)*
Mentioned by President Obama during National Medals of Science, Technology, and Innovation ceremony, selected to present research to esteemed guests such as Bill Nye