

August 1st, 2014

Paul, Alison, and Isabella Frase
Joshua Frase Foundation
P.O. Box 2041
Ponte Vedra Beach, FL 32004

Dear Frase family,

I am writing to expressly thank you for your witness to Joshua's legacy through supporting the Wake Forest Institute for Regenerative Medicine's Summer Scholars program. When I encountered Joshua's story this summer, it struck a particular chord in my heart which I have carried with me throughout my internship when serving as a biomedical engineering researcher at WFIRM.

When I began my journey at the University of Notre Dame as an engineering student, I brought to the table two particular loves—my love of science and my love of serving through ministry—and was fortunate to exercise both through two particular summer experiences. I first served as a missionary through Life Teen Inc. mentoring and empowering middle and high school youth to take ownership in practicing their faith in Christ once they left camp and entered the real world. The following summer, I served as a biomedical engineering intern with the Zhang lab at Notre Dame's Harper Cancer Research Institute, performing cutting-edge biomedical research to solve clinical problems related to preclinical studies in breast cancer metastases.

I was initially conflicted after these experiences; I struggled to see the particular relationship between the pursuit of technical knowledge and making a life-altering impact on those I wished to serve. However, through diligence and inspiration from people like Joshua, I eventually realized that my desires to both exercise my heart through serving others and to exercise my mind through innovative scientific discovery do not have to be mutually exclusive nor compartmentalized. Rather, I confirmed that uniting my greatest joys could be realized through a career in biomedical engineering. I was consequently drawn to the WFIRM summer scholars program due to its emphasis on training world-class leaders to advance clinical research centered on Regenerative Medicine.

Jonathan Swift once wrote: "Vision is the art of seeing things invisible." At WFIRM, I have been working under the direction of Dr. Frank Marini and Dr. George Christ on projects related to optical imaging techniques in regenerative medicine. Throughout my brief yet exciting summer, we have enhanced the ability to visualize the microenvironments of nearly every soft biological tissue with high fidelity, single-cell resolution through a process known as two-photon excitation microscopy (TPEM). While TPEM is considered an established imaging modality over the past three decades, we have implemented a series of novel tissue preparation protocols and designed computational image analysis tools that significantly enhance our ability to discern mechanisms of regeneration at the cellular level. This work will greatly benefit tissue

engineering and gene therapy studies for the treatment of genetic conditions like myotubular myopathy as it holds unparalleled potential to give scientists and clinicians insights into the particular mechanisms of regeneration in biological tissues.

This summer was a true affirmation that pursuing my particular vocation is life-giving to me as its end ultimately serves to give patients another chance to find the truth, goodness, and beauty life has to offer. I believe a biomedical engineer is called on a specific scientific mission: to not only ask some of the toughest questions in human history, but also to bring a dream to reality by envisioning and achieving innovative solutions to complex medical problems. I dream of a world with more birthdays, whereby through my life's work, I can give a suffering person another chance at living this life to its fullest.

When it comes to performing the cutting-edge next generation of regeneration medicine research with the goal of translating our findings to patients to overcome myotubular myopathy, it takes a dedicated team to bring the dream of a cure to reality. Indeed, teamwork makes the dream work, and as Walt Disney once noted, "If you can dream it, you can do it." At WFIRM, we are engineering new solutions to facilitate discoveries that will one day soon lead to a cure. I want to thank you for supporting my education through this program, for in doing so, I am honored to join Joshua's team and wish to sincerely thank you for helping me achieve my wildest dreams.

May this upcoming year be filled with great joy for your family as all of you continue to honor Joshua's memory with your lives and through your work with the foundation.

With gratitude and blessings,



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