Theresa Pizarro, Ph.D.

After receiving an undergraduate degree in Psychology/Biology at Case Western Reserve University in Cleveland, OH, Dr. Theresa Pizarro obtained a Ph.D. focused on transplant immunology from the Department of Cell Biology, Neurobiology & Anatomy at Loyola University in Chicago in 1993. She then completed a postdoctoral fellowship in mucosal immunology at the University of Southern California/LAC Medical Center in Los Angeles, and began her career in academia in 1995 as faculty in the Department of Medicine at the University of Virginia in Charlottesville, VA. She remained at UVA for 13 years and rose to the rank of tenured Associate Professor before returning to Case in 2009 as faculty in the Department of Pathology. In 2005-06, she spent a one-year sabbatical as Visiting Professor studying common immunological pathways between inflammatory bowel disease and autoimmune liver disease at the Università degli Studi di Firenze in Florence, Italy, where she continues to be a member of the "denothe" Research Center of Excellence. Dr. Pizarro has served on numerous NIH and foundation scientific review panels, including the Crohn's & Colitis Foundation of America (CCFA) where she currently is a member of the Research Training Awards Committee. She has been a member of several editorial boards for GI-related journals and is an active member of the American Gastroenterological Association (AGA), where she has served on several committees, including the Women's Taskforce and Committee on Gastroenterology Research. She has also served as Basic Science Councilor for the Inflammation, Microbiology & IBD Section of the AGA. Dr. Pizarro is currently Associate Professor in the Department of Pathology and was recently appointed as the Director of Research in the Department of Surgery at Case.

Have you always been interested in scientific research?

I would have to say that I was introduced relatively late to biomedical research (in college), but have always been somewhat of a science nerd.

Can you give us a brief description of your current research and what most excites you about it now?

My primary research interest over the last several years has been on mucosal immunity and inflammatory bowel disease (IBD), with a primary focus on investigating epithelial-immune cell interactions and basic cytokine biology, particularly with regard to IL-1 family members. My most current (and new) area of research is the role gender plays in modulating the pathogenesis of IBD, particularly in Crohn's disease. It is well established that several autoimmune disorders display a gender bias, but up until now very little was known regarding the impact of gender on IBD. In Crohn's there is an increased, albeit modest, incidence in females versus males; however, emerging evidence suggests disease severity in females is much greater than males. The precise

pathogenic mechanism(s) involved in this phenomenon is not yet known and is currently an open area of investigation, but likely involves the interplay between sex hormones and their receptors, particularly on distinct mucosal immune cell populations, genetics (ChrX contains important genes involved in T regulatory cell function and a TLR cluster), as well as the influence of the intestinal microbiota on these processes. Again, very little research has been done in this area and therefore the results generated are in general novel and have been extremely exciting.

During your graduate and post-doc years did you have mentor(s) that helped guide you along the way?

One of my Ph.D. mentors is truly a role model for balancing career and family. She gave birth to her daughter early in her academic career and raised her child as a single mom. I was her first graduate student, so I witnessed first hand the struggles of juggling career and family, particularly while navigating the way through the academic ranks. She remained in academia and is now a very successful and accomplished investigator that wears several hats, in research as well as in the administrative arenas. She probably had the biggest impact on me regarding my confidence in my ability to do both--have a successful career in academia and raise an active family of four children.

The mentor that probably had the greatest influence on my research career was my postdoctoral mentor, who also happens to be my husband. Some may consider this a fatal flaw regarding a career in academia, but overall it has worked out. As a research and career mentor, he has provided me with valuable insight on the academic system and what benchmarks needed to be achieved at particular points in one's career. He has also helped me develop my expertise in grantsmanship and taught me his philosophy on accepting and knowing when to allow your mentees/trainees to move forward towards independence.

What was (were) the biggest challenge(s) you faced in pursuing your career?

The answer to this question ties in closely with the previous one. Although balancing family and career was, and continues to be, a tremendous challenge, I think my biggest challenge in an academic setting was establishing independency in the eyes of my peers as well as in my research area of investigation. This was particularly relevant when I began my first independent faculty position, and was obviously compounded by moving with my "postdoc mentor" to a very small city with only one major university and limited career opportunities in the field of mucosal immunology. However, regardless of my own situation, I believe the independence issue occurs in most mentor-trainee relationships at some point. I also believe, though, that independency or the lack of is very transparent. In the end, your track record of obtaining independent funding and publications, and the interactions and collaborations you have with your peers nationally, internationally, and within your own institution speaks for itself. Having said that, and looking at things from the trainee/mentee side, it is (and also was for me) a challenge to admit and realize that there is no set time schedule for becoming an independent researcher. Of course, there are recommended time frames when one should progress towards independency; however I believe that this is driven on an individual and situational basis, and not on a set time schedule.

Do you feel that being a woman in science came with advantages or disadvantages? What were they?

Being a woman in science comes with both advantages as well as disadvantages. Unfortunately, the disadvantages are not insignificant. I still see the presence of gender-based inequalities for salaries, taking into account similar academic rank and seniority,

but I think that an effort is being made to correct this in recent years. In addition, most academic institutions allow new parents (traditionally moms) to take time off their clocks for promotion and/or tenure consideration. However, although this added time helps tremendously, it doesn't completely solve the problem--the child and associated responsibilities do not disappear after the (standard) one year time off the clock, and often the parental duties actually increase as your children grow! Finally, although there are some great female role models out there, they are not in abundance, particularly those at the Professor level and/or in academic leadership positions. However, having recently relocated to Case, I'm proud to say that both our Dean of the School of Medicine (Pam Davis), as well as the President of the University (Barbara Snyder) are females and outstanding role models.

What strategies do you use to maintain balance in your life?
My main strategies to maintain balance are to establish priorities and to set realistic goals. I'm not ashamed to say in an interview that is highlighting my career successes that I established long ago that my main priority was raising my kids in the best possible way that I think I'm capable. This is not to diminish how important my career is for me, because ultimately I think that I'm a better mom because I have a job that, after several years, I still absolutely love. But, if I have to miss a national meeting or a conference where all the leaders in my area of research will be presenting, or turn down an invitation to give a talk or to participate in a review panel in order to attend one of my kids' events, I don't have a problem doing so. My philosophy is that "there will always be a next time,"…and there always is.

What advice would you give to female graduate students that are interested in a career as an academic researcher?
My advice is to seek support and advice at every and all stages of your career from female role models that have been through the academic experience. Also, to not compete with your male peers in regard to attaining academic status and goals under the same time constraints, which is particularly relevant for a female starting her career that coincides with raising a family. Go ahead and take the time off the clock if this option is available. Success in academia should be self-motivated and not a race, with the focus on producing high quality and sound research; everything else (the grants, publications, recognition, etc.) will fall into place if this is achieved. Finally, don't give up! I believe that if junior female investigators can get past the initial, difficult stages of a career in academic research, that the playing field does somewhat even out.