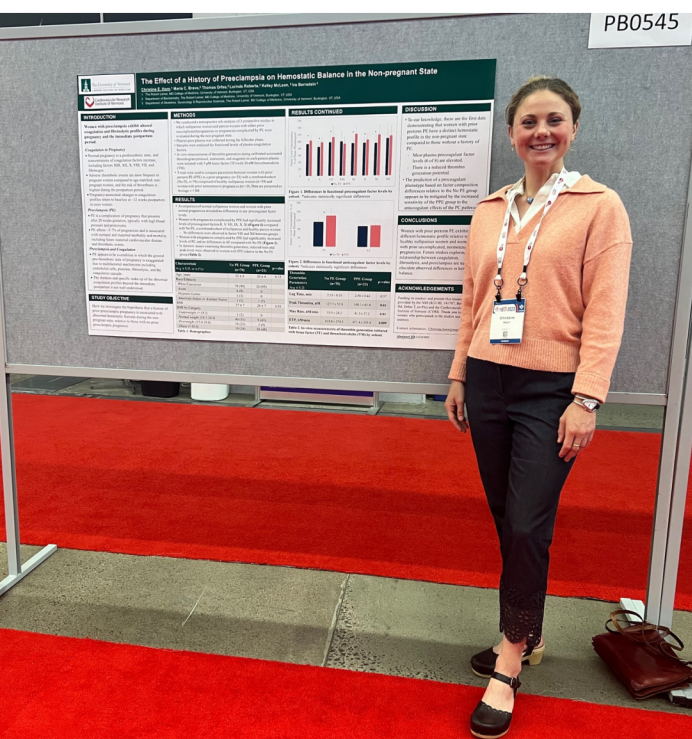




CULTIVATING A CAREER IN RESEARCH



Christine Horn is a third year medical student at the Robert Larner, MD College of Medicine at the University of Vermont. Part of the class of 2025, Horn's plan is to apply to Obstetrics and Gynecology residencies, which makes sense given that following her undergrad she worked as a Clinical Research Coordinator at Brigham and Women's Hospital in Boston and conducted research related to gestational diabetes and preeclampsia. The former is a condition causing high blood sugar that sometimes develops in pregnant women who did not previously have diabetes and it can lead to serious complications. The latter is a hypertensive disorder most frequently occurring in pregnancies that have reached at least 20 weeks and it too can create serious, even deadly, complications. Even as an undergrad at Colgate University ('19 BA in Biology with minor in Art and Art History), Horn had a clear view of a future professional career involving research.

"I wanted to be a Beckman Scholar in undergrad and have the opportunity to pursue a research project that I was intrinsically interested in while working with a mentor I had already developed a close professional relationship with earlier in college," Horn explained about the motivation behind applying to the Beckman Scholars Program. "I thought it would be a great experience to be at the center of a research project and help with study design, execution, data analysis, and every other aspect of the research process..."

Through the Beckman Scholars Program, the Arnold and Mabel Beckman Foundation provides 15-month mentored research experiences for exceptional undergraduate students in chemistry, biological sciences, and interdisciplinary combinations thereof. Horn's project involved analysis of total and relative volatile organic compound (VOC) profiles in tomato plants. Nine varieties

At left: A portrait of 2017 Beckman Scholar Christine Horn (top), poster presentations during time at University of Vermont, in the Frey lab working with tomato plants as an undergrad at Colgate University.

within three cultivars were investigated before and after simulated herbivory treatments to learn how agricultural selection for more phenotypically appealing traits (aka “better” tomatoes) impacted plant defenses against predators, the results of which represented Horn’s concrete expectations for the work.

“More abstractly, I anticipated it positively impacting my career by providing me the opportunity to work closely with a research mentor, gain research experience, and present findings at a conference,” shared Horn. “I presented my findings at the Beckman Symposium, which was a wonderful networking opportunity as well as a great introduction into scientific conferences.”

That presentation conveyed the myriad research activities related to the Beckman-funded project: literature review, development of experimental protocol, design and construction of a headspace apparatus that would allow constitutive measurement of VOC emission, greenhouse cultivation of more than 300 tomato plants, sample analysis using gas chromatography, lycopene measurement via spectrophotometry, as well as chroma and hue assessment that involved ImageJ software and data analysis by SPSS software. The focus may have

been different from Horn’s current research, but the experience turned out to be seminal to the career path ahead.

“I hope to do a mix of clinical work and research in my career,” said Horn. “I currently am working on several research projects that explore various topics including assessment of lifestyle interventions for women with recent cardiometabolic complications of pregnancy, utility of opioids for pain control following common obstetric and gynecologic surgical procedures, and the relationship between preeclampsia history and continued hemostatic disturbances in the non-pregnant state. Very excited to see what’s next!” ■

At right, top: Horn is shown following a white coat ceremony at University of Vermont.

At right, middle: Hitting the slopes during downtime.

At right, bottom: Presenting research findings as a Beckman Scholar during one of the poster sessions at the 2018 Beckman Symposium held in Irvine, California.

