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## AN OPEN LETTER TO THE MEMBERS OF MY LABORATORY

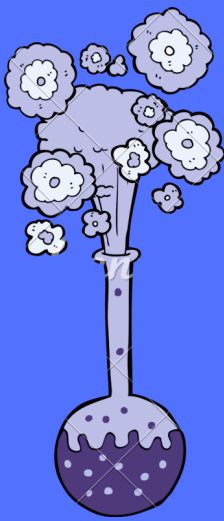
### OUR MISSION

It is very difficult to make any meaningful progress in life unless you have identified and stated a goal to work toward. This is true in your early careers in medical science, and it holds true for a laboratory as well. The mission of the Brusko Lab is to have an impact on the lives of those with type 1 diabetes. One may ask, why not have a goal of curing the disease? While that would certainly be ideal, we must accept that science is an iterative process and biological systems are complex. I want to see that our work and efforts make even a small advance in the lives of those with this disease. Once we make that initial step, the next step becomes infinitely easier to achieve. At the very least, I want everyone who comes in contact with our laboratory to get a strong sense of hope that our efforts are passionately directed toward finding a therapy that counteracts the initiating autoimmune response.



### THE URGENCY OF NOW

I don't know any other way to state it more clearly than that. We are working on a disease that impacts the lives of those who live with it 24/7/365. Importantly, this is a family disease. Parents and family members of those affected with T1D live in the constant fear of their children succumbing to catastrophic or fatal consequences of low blood glucose, and as if that isn't enough, they also must deal with rigorous management to stave off long-term complications. The incidence of T1D is ~1:300 in the general population. The incidence among siblings with a first-degree T1D relative is ~1:20. The parents of child with T1D live in constant fear that their unaffected children may progress to develop the disease. During your time in the laboratory, I ask that all members make a concerted effort to directly interact with patients and families of those impacted by this disease. It is always my greatest motivating factor to work faster and with greater purpose.



In order to achieve great things, you must be prepared to fail mightily.

### LABORATORY ENVIRONMENT

My goal is to create a laboratory environment that is inclusive and accommodating. I always try to remember back to my first experience walking into a lab as an undergrad. I was absolutely terrified. One of the legends of type 1 diabetes research is the late Dr. George Eisenbarth. George taught me one of the most important lessons of my career when he visited our Diabetes Institute. George would treat everyone with the exact same level of excitement. That extended from the most pre-eminent PIs within the Institute all the way down to first year graduate students. While it is often a challenge for me to spend equal time interacting with all staff, please know that I value everyone's opinions and ideas. I make this point because I often get the sense I am difficult to approach or intimidating. I am busy and that often translates into me being very direct. It is never my intention to be arrogant or rude. Please make an effort to reach out to me. No question is too small or insignificant. When you walk in you should know that you will be judged on your intellect, character, work ethic, creativity, and ultimately your capacity to deliver on the tasks you commit to accomplish. I will never tolerate discriminatory and/or sexist comments in my laboratory, and ask that any such comments or actions be reported to me so situations can be handled expediently.

### EXPECTATIONS AND WORK ETHIC

I was raised by a single mother who cleaned houses for \$10/hr. That upbringing taught me several very important lessons from a very young age. First, be honest (she always told me she never stole even a dime off the floor from a house she worked in and I respect that), second, work hard, and third, solve your own problems and innovate when resources are scarce. Those lessons, when combined with an innate curiosity have brought me to where I am today. Take your own talents and interests and direct them toward your personal goals. Nothing is more rewarding to me than seeing my students and trainees achieve the major goals they have set forth for themselves in life.

The urgency I note above sets the tone for the lab. Everyone who enters the lab has a responsibility to work to the best of their ability to advance the mission of the lab. I don't monitor whether you are working 9-5, but I know when you are working hard and when you are slacking off. As far as I am concerned, if you aren't excited about seeing new data that no one else has ever seen, you may be in the wrong line of work.

## MONEY

I would like to say that money doesn't matter - but it does. It is my job as PI to ensure you have the resources you need to conduct science. That said, I need your help to ensure we are operating efficiently. My laboratory and early career was started with grant funding from the JDRF, ADA, and other small private organizations. Much of that money comes from walks, bike rides, charity dinners, and small \$1-5 donations from family members and those impacted by this disease. Keep that in mind when you purchase items and spend money.



## LEARN FROM FAILURE

I often find these days that academic rigor has forced parents and students to place too much emphasis on letter grades and standardized test scores. In my opinion, this tends to stifle creativity. I myself was never the best student, sort of mediocre to good, but never the best. Current students must attain a nearly perfect 4.0 GPA and optimal standardized test scores to even enter UF as an undergraduate. I get frustrated when I see students paralyzed at a desk worried about not getting the result they want or expect in an experiment. If the result turns out exactly as you predict, the chances are high that you are asking incremental questions that are not likely to add significantly to what we already know. I can assure you that I will never fault you for trying and failing (as long as your approach and methods are soundly reasoned). You should always learn something from a well-designed experiment, even if it fails to support your original hypothesis.

There are times in a career when you get to witness people setting off with the same goal but who take completely divergent paths. This happens at the beginning of graduate school and it may happen again at the start of a post-doc or junior faculty appointment. Sometimes a person is not cut out for bench science and the reasons for this are diverse, ranging from a lack of interest, innate curiosity, or they simply lack of tools and resources needed to succeed. Others work their tails off but do not work efficiently. This type of person is most likely to struggle and suffer from burnout. Ideally, you want to be the person who makes smart and efficient decisions about what experiments to conduct, capable of identifying when to push forward despite exhaustion, able to identify what questions are important to pursue, and most importantly, able to identify when to take a break, think, relax, and reflect. Strive to be the last person, but recognize that you will feel like the others from time to time. When you do, seek assistance from myself and other lab members. You will acquire these decision-making skills over time by experience and from observing those around you who are highly efficient and successful. The take home message here is that you need to develop the skills to multi-task and drive progress on several fronts so that you do not hit a technical hurdle (which are inevitable in science) and think it's a wall.

## IT'S ALL ABOUT THE LITTLE THINGS

Success in science is often about how you handle the little things. How much time and attention did you pay to a catalogue number? How precise and detailed were your laboratory notes? How clean were you when handling your samples? How precise are your figures for your paper or grant? All of these small things add up over time and translate into success in science, and ultimately, in life. Always seek excellence in the minor details of life. I have witnessed how cutting a small corner in science has ruined a 3-month experiment more times than I would like to admit. See "Learn from failure."

## HAVE FUN

The chances are high that you will not make a lot of money, you will likely work an inordinate number of hours, and you will suffer the frustration of many failed experiments. That said, you are incredibly lucky to be able to work in science. The relationships I have built through a career in science are some of the most rewarding interactions I have experienced in life. Scientists are creative, brilliant, tolerant, and often eccentric people. Embrace the experience and I can assure you that you will grow as a person from it. I have worked my fair share of manual labor jobs and also been fortunate to work alongside pre-eminent scientists. I can tell you that life is much better working around the laboratory than in a "real" 9-5 job.

