NREL National Bioenergy Center
15013 Denver West Parkway,
Golden, CO, 80401

August 16, 2018

Dear Dr. Pienkos,

Sharing NREL's passion for renewables, I would wholeheartedly invest my laboratory experience, strong work ethic and analytical thinking to find affordable fossil fuel alternatives and to work towards the National Bioenergy Center's goal of accelerating the adoption of biofuels. My experience in engineering and analyzing microorganisms like algae, cyanobacteria and *E. coli* combined with the team spirit and interpersonal skills I developed during the iGEM (international Genetically Engineered Machine) competition make me a perfect fit for the NBC. Furthermore, the initiative and ability to adapt to new situations I have displayed while working at Europe's flagship laboratory for the life sciences (EMBL) ensure that I can quickly transition to your lab and begin making contributions from day one.

My journey with photosynthetic organisms started during my B.Sc. thesis with the diatom *P. tricornutum*, in which I expressed a recombinant antibody to characterize intracellular protein transport. Later during my M.Sc. thesis, I explored the use of the endogenous CRISPR-Cas system of Synechocystis sp. PCC6803 in metabolic engineering by modifying the Cas proteins of one of its CRISPR loci via homologous recombination and providing an artificial crRNA via conjugation. In the process I became familiar with extracting and analyzing RNA *in vitro* and from Synechocystis cultures, documenting pigment content via photometric measurements and producing genetic constructs and recombinant proteins in *E. coli*. Having improved my writing and research skills since my B.Sc., I successfully *published* the findings of my M.Sc. thesis.

During this time I also participated in an interdisciplinary team of 20 students to develop a low-cost, multiplexed and label-free diagnostic tool as part of the Univerisity of Freiburg's team in the iGEM competition. Within eight months of wet lab we produced high-value *data*, presenting our findings on our *website* and at iGEM's international conference at MIT, where we were awarded a Gold medal and nominated for Best Health and Medicine Project, Best Innovation in Medicine and Best Wiki. Throughout iGEM we successfully ran our own lab independently, including ordering reagents, communicating with companies and funding agencies for financial or material aid, making and sterilizing media and keeping the lab and our data organized. This experience further demonstrates my strong work ethic, team-player attitude and ability to distill the essentials from scientific findings for my team and a wider audience.

After my M.Sc., I began working in EMBL's Genetic Engineering Facility, which evolved into the Genetic and Viral Engineering Facility soon after I started. As part of this transition, I quickly adapted and established new protocols for the production and quantification of viral vector tools in mammalian cell culture. Initially our two person team only provided recombinant AAV, but as my skills progressed, the scope of my portfolio has expanded to include recombinant lentivirus and we are in the process of adding HSV. In my position with EMBL I have expanded on my organizational skills and taken the initiative to extend the facility's database and automate calculations for protocols using Excel and Filemaker, helping

streamline the lab and more consistently produce and record valuable data. Additionally, I am continually applying techniques I learned from a professional development course on project management for scientists across more than 12 projects to deliver high quality final products in a timely fashion to our partners.

Although EMBL offered extensive experience in the lab and provided room for growth, the research focus is simply not after my own heart. Your lab offers the opportunity both to continue my journey with photosynthetic organisms and help bring a sustainable alternative to fossil fuels to fruition. If you agree, I would appreciate the opportunity to discuss any potential position and my contributions in more detail. Thank you for your time and consideration, I look forward to hearing from you.

Sincerely,

Rabea Jesser