In early November 2017 I got invited so speak at Cell Line Development and Engineering US by the event organisers of KNECT365. The conference was held in San Francisco from the 12th – 14th of June 2018. As a PhD student I felt very honoured to get invited and I was looking forward to speaking at a very well-known conference. The stream of the conference with my session focused on cell line engineering, characterisation and genome editing. Besides having a lot of industry researchers attending, very well-known academic researchers including Alan Dickson (University of Manchester), David James (University of Sheffield) and Nathan Lewis (UC San Diego) joined the conference and presented their newest data on CHO cell engineering and strategies to improve host cell performance. Being able to speak beside very famous researches in my field was a great experience as being "only" a fourth year PhD student and I was only able to attend with the help of the travel bursary I got awarded with by ESACT-UK. The conference organisers of KNECT365 did a great effort in balancing the right amount of networking sessions and talks. Furthermore, it was a smaller conference with around 160 attendees which made networking very easy and fun. Additionally, lunch time discussion panels were held together with speakers which was very interesting in terms of discussions, questioning and networking on relevant topics. All sponsors which attended the conference were also very relevant to both streams making the networking sessions even more successful.

One main key area of the conference was the usage of the recently developed CRISPR/Cas9 system in CHO cells. The system itself was named one of the key technologies for future applications in cell line development as well as next generation therapeutics but has also many considerations coming along with it. Main considerations were reported to be off-target effects and efficiency as well as strategies in how to overcome them. Interestingly many talks were also focused on newest developments in CRISPR/Cas9 technology making the system much more reliable and effective. Another key area was the improvement of cell line development pipelines to reduce times and increase predictability of processes. Two key presentations were hereby Alan Dickson's talk on aims of CHO cell engineering as well as Nathan Lewis's talk on engineering multiple targets at the same time. This was especially interesting as it sparked discussions with industry researchers in respect with long-term stability of CHO cell lines and regulatory considerations. Two other very interesting key presentations were given by Susan Scharfstein (SUNY Polytechnic Institute) and David James. Both researchers focus their work on understanding the "big picture" by combining systems biology as well as 'omic tools. David James presented a more rational approach in how to engineer CHO cells. Susan Scharfstein's work was focused on combining technologies i.e. RNA sequencing, proteomics and phosphor proteomics to understand high-producing CHO cells.

The sessions were complemented by interesting reports and case studies from industry including representatives of Biogen, Amgen, Novartis and Genentech. This is particularly interesting as a lot of research in industry was set on how to create better predictable cell lines. This was very well described by James Lambropolous (Biogen) who presented a case study on how to combine the incredible amount of data generated from their cell line development approach to make the process more efficient. The aim was to shorten development times to obtain material faster for pre-clinical studies and improve the clone screening process.

Overall, it was a very exciting and successful conference and I am very grateful that I got the chance to present my research. This was especially possible thanks to the kind contribution of ESACT-UK which fortunately supports early stage researchers by providing bursaries and also organising brilliant yearly conferences.