GCBS
Kudos on accomplishments

Dr. Q. Quinn Li, Professor of GCBS, with his students, postdocs and collaborators, has published 10 research papers where he is a corresponding author since January 2019. A few are highlighted here:

1. Working with a single-cell resolution RNA-seq dataset, they extracted mRNA polyadenylation [poly(A)] profiles of the transcriptomes from individual cells, thus revealing the role of mRNA processing in leukemia as published in *RNA Biology*. They further developed a bioinformatics tool set for single cell transcriptome and poly(A) site analysis as shown in *Bioinformatics*.
2. Each cell type may response to heavy metal pollution differently. In this work, the response of different root cell types to heavy metal cadmium was elucidated at the transcriptome level. *Root hair single cell type specific alternative polyadenylation under cadmium stress* in *Frontiers in Plant Sciences*.
3. Dynamic adjustment of transcriptome is key during environmental responses in any organisms. Alternative poly(A) profile represents gene expression regulation through determination of transcript ends. Thus, the change of poly(A) profile was expected but less demonstrated. Dr. Li's team developed a bioinformatic pipeline to extract poly(A) site information from abundant, free RNA-seq datasets. Its application results in a set of biotic and abiotic responses in terms of poly(A) profiles as published in *Ecotoxicology and Environmental Safety*.
4. Almost every mRNA transcript in eukaryotic cells receives a poly(A) tail for protection and translatability. However, recognition of the site for poly(A) addition by what proteins was not resolved until recently. Dr. Li's group used advance genetic tools in *Arabidopsis* and dissected the proteins involved in AAUAAA signal recognition. Their result supports the structural biology work, and was published in *Plant Cell* recently.
5. The evolution of poly(A) signals is still debatable because lower organisms do not have the same AAUAAA signal as found in animals and plants. Dr. Li's team studied the origin of the signal from single cell organism to human and concluded that it may come from stop codon UAA > UAAA > AAUAAA. The work was published in *International J. Molecular Sciences*.