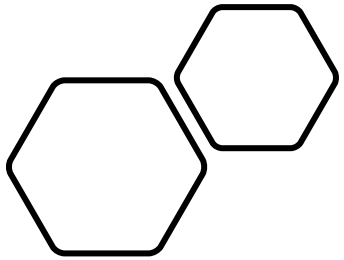
Part Sourcing: Finding the functions and sequences you need, fast-ish!



Clay Wright
Virginia Tech

Plant Cell Atlas Hackathon

2024 August 14

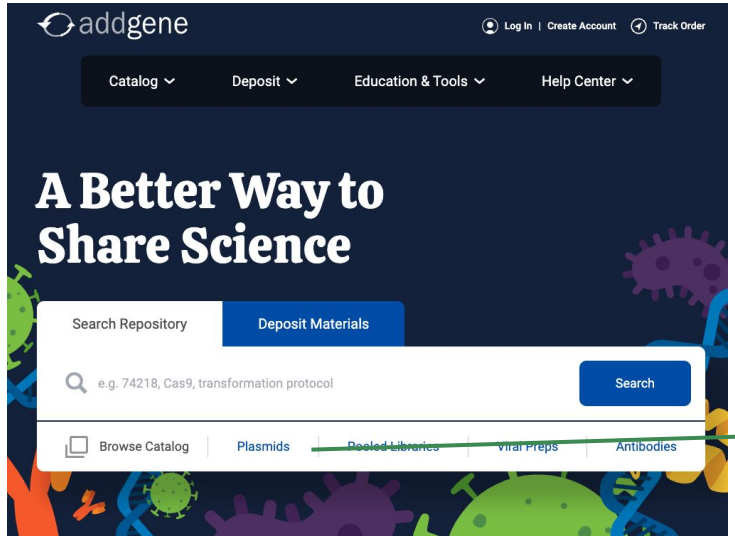
Primary sources

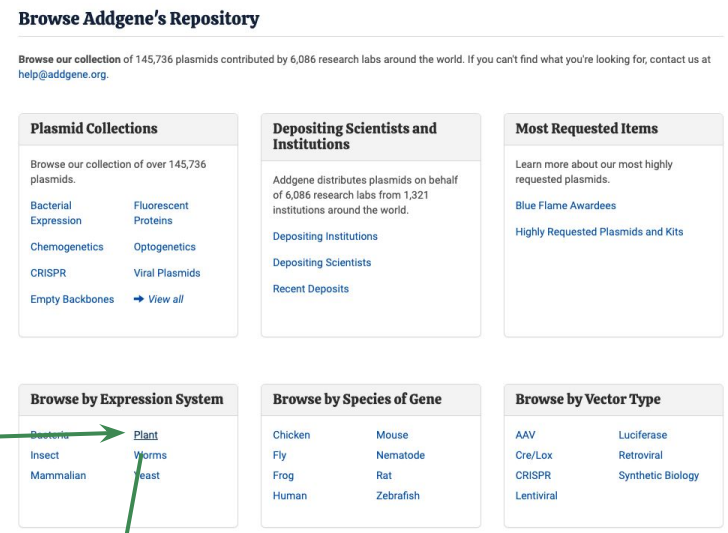
- Addgene (https://www.addgene.org/)
  - Part toolkits and backbone vectors

- Phytozome (https://phytozome-next.jgi.doe.gov/)
  - Species specific parts, plant-specific BLAST

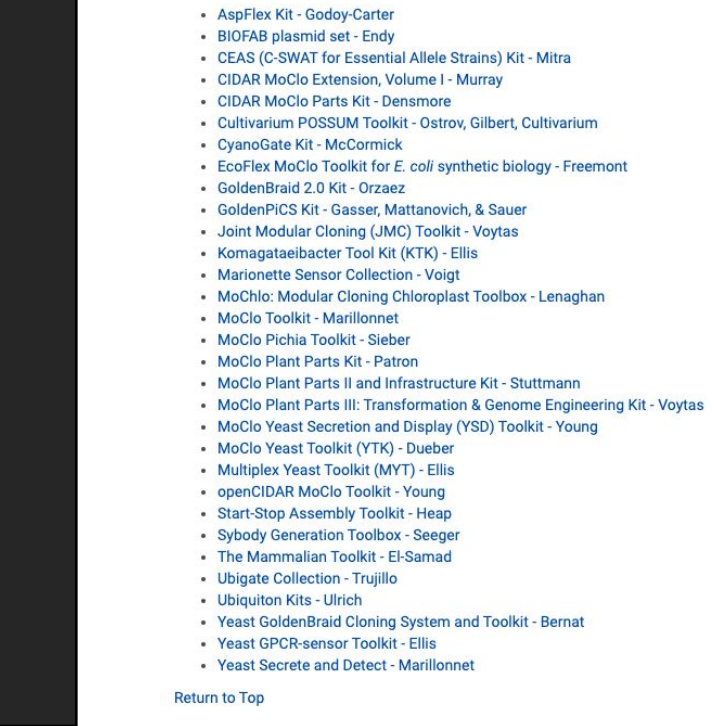
Addgene

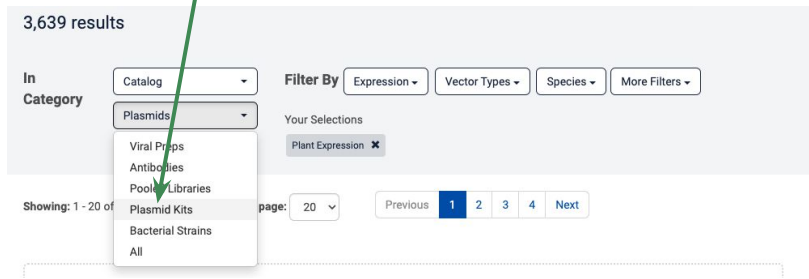
- Several ways to search and browse for useful sequences
- All plasmids have genbank files, but some are better annotated than others (http://plannotate.barricklab.org/ will auto-annotate sequences)
- Many parts have already been standardized

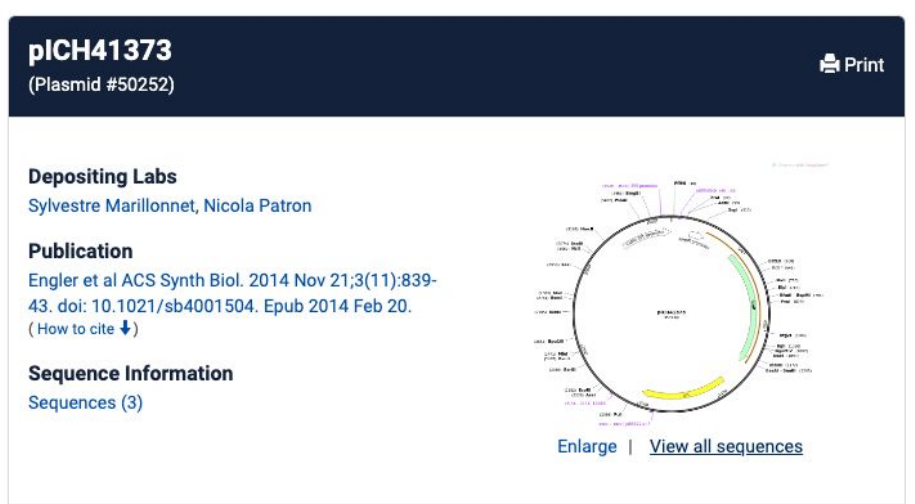




https://www.addgene.org/kits/

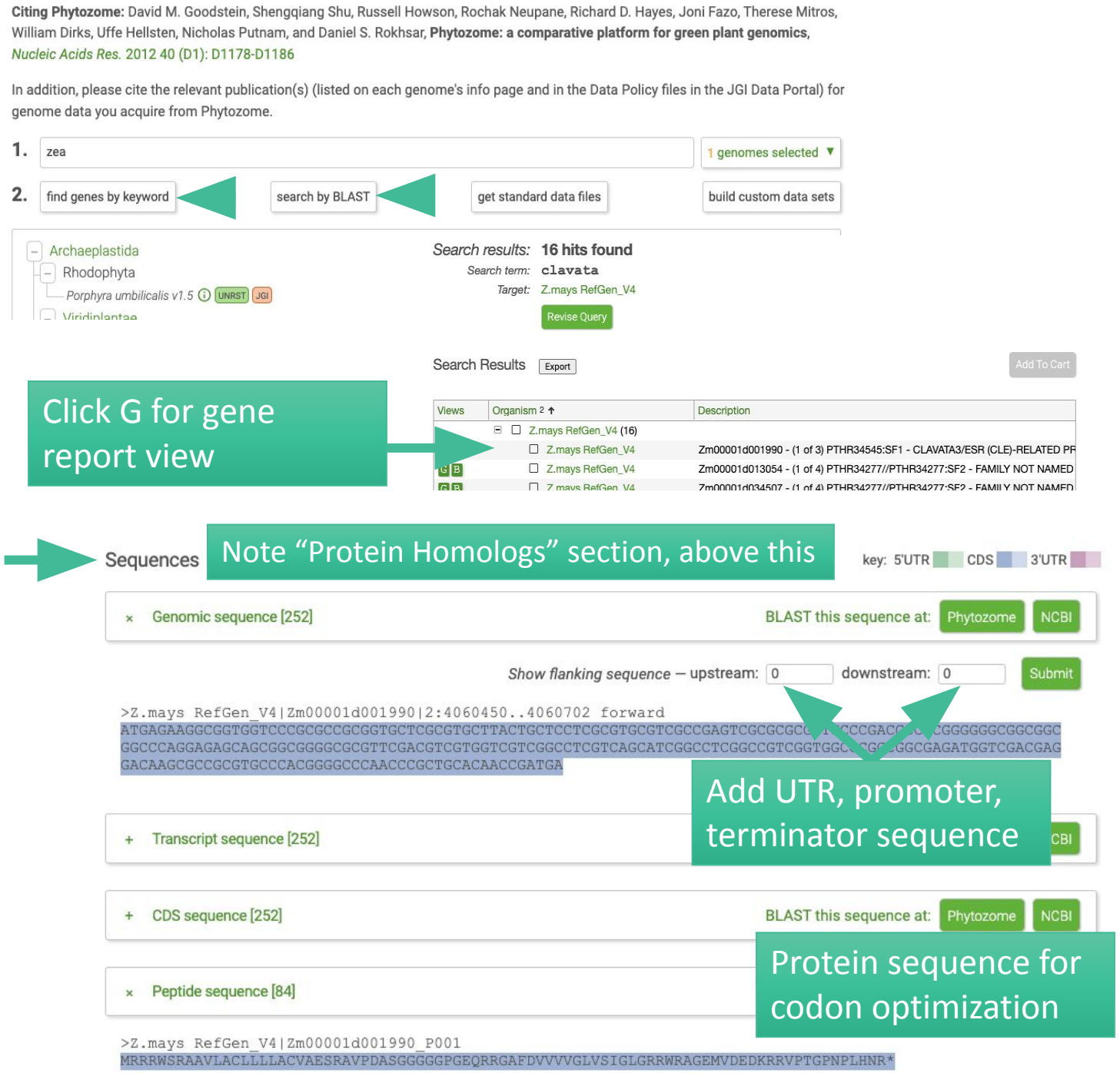






New parts! Phytozome and Plant GeneAtlas

- Login before searching to save!
- Comparative genomics for identifying similar genes across plant species
- Easy-ish sequence viewer tools



Plant GeneAtlas

- Allows you to view expression across tissues of specific genes

ePlant https://bar.utoronto.ca/

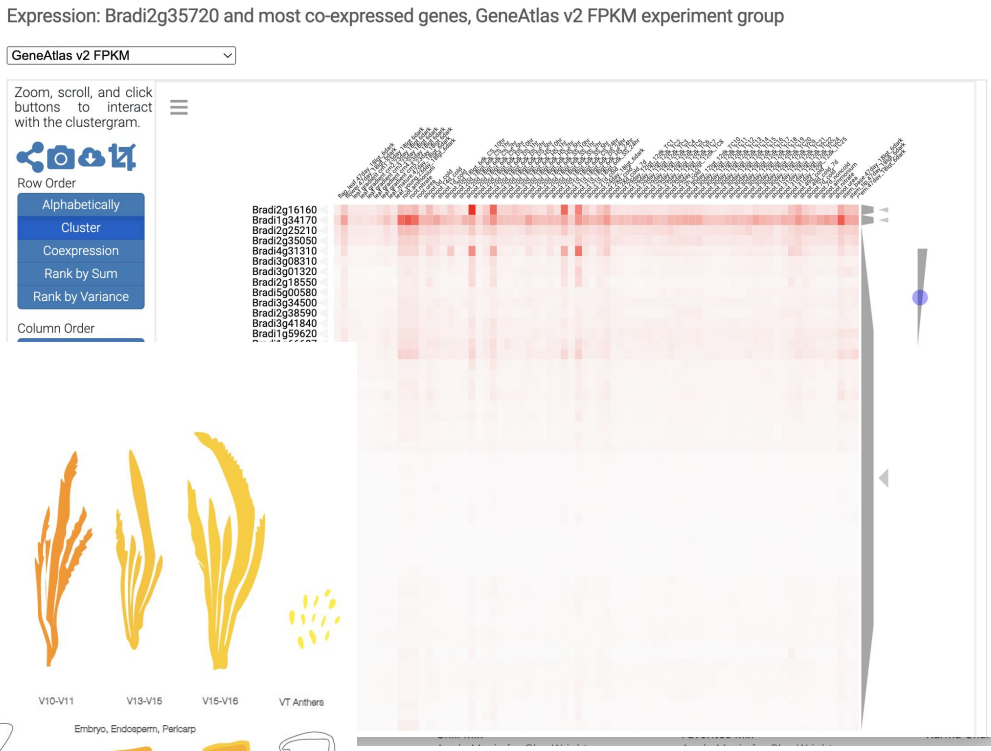
- does it better!
- but needs gene IDs (GRMZM2G158252)
- Expression Anglers

Arabidopsis Developmental Atlas Viewer http://neomorph.salk.edu:9000/

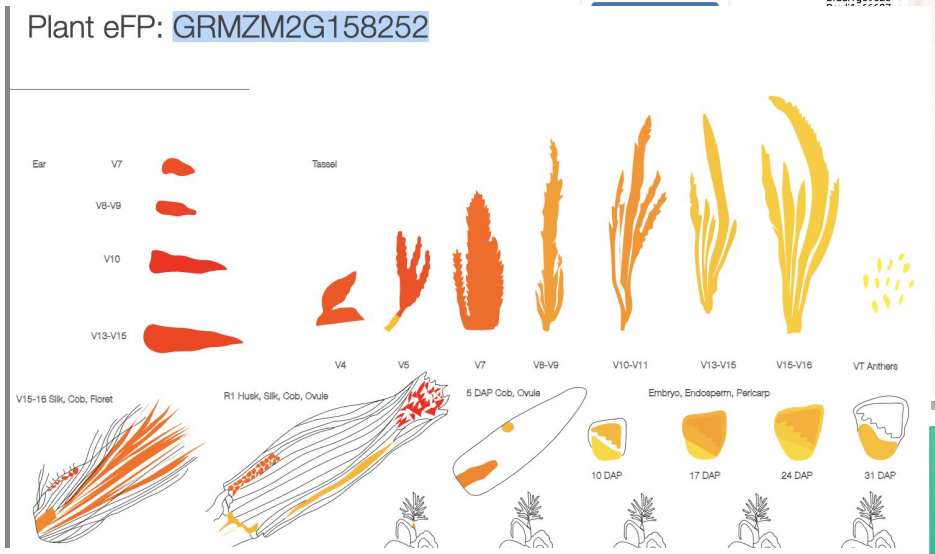
- Single-cell expression!
- Pretty slow to load

Other sources!

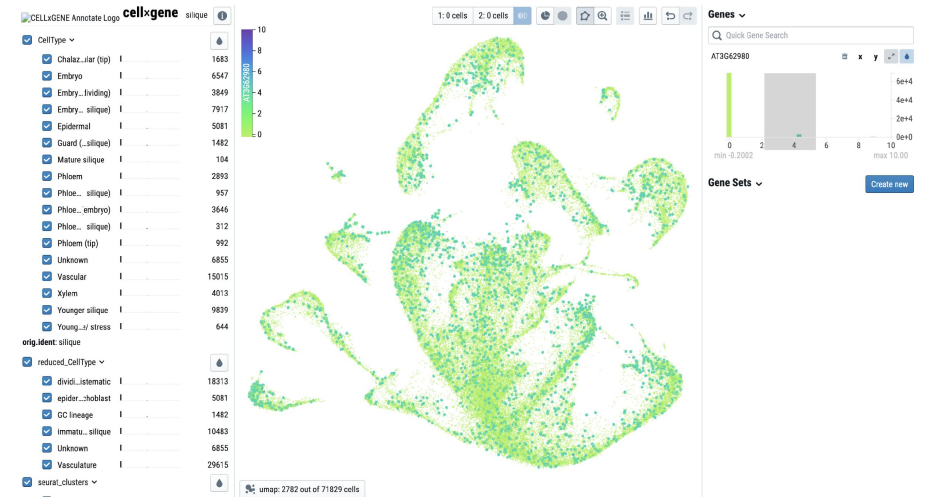
Plant GeneAtlas



ePlant



Expression Anglers - Find genes according to their expression pattern.



Arabidopsis Developmental Atlas Viewer – click on raindrops to color by different features

Other part sources:

- For chromatin information (selecting promoter regions): https://epigenome.genetics.uga.edu/PlantEpigenome/
- SCPlantDB for additional single-cell expression data: https://biobigdata.nju.edu.cn/scplantdb/home