Interactive, shareable plots of GWAS data with LocusZoom

AP Boughton, RP Welch, D Taliun, SA Gagliano Taliun, P VandeHaar, GR Abecasis, M Boehnke

[1]Center for Statistical Genetics, University of Michigan School of Public Health, Ann Arbor, Michigan, USA
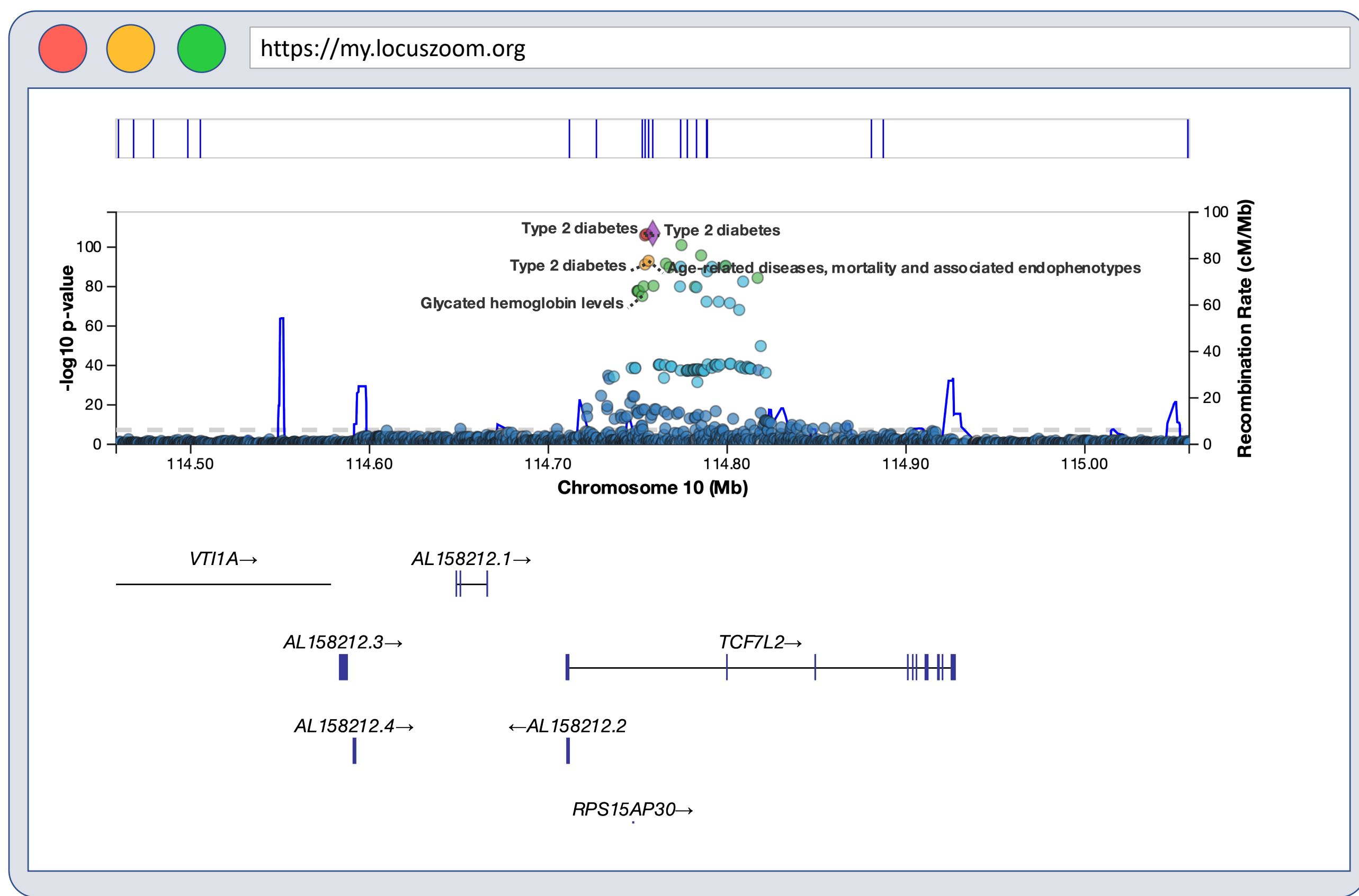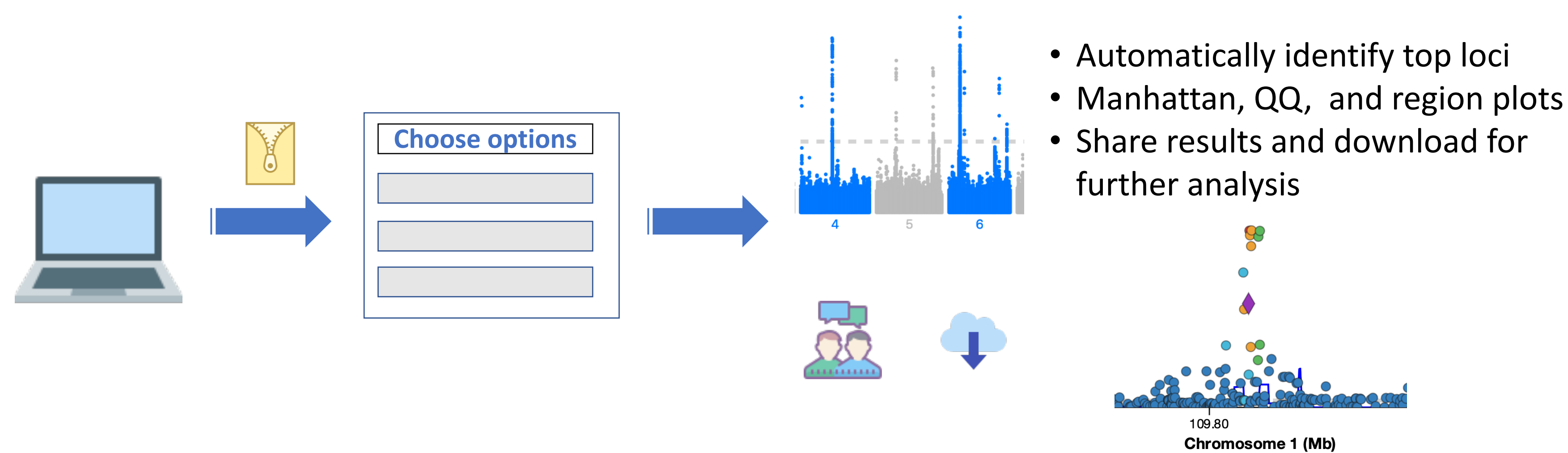[2]Department of Biostatistics, University of Michigan School of Public Health, Ann Arbor, Michigan, USA
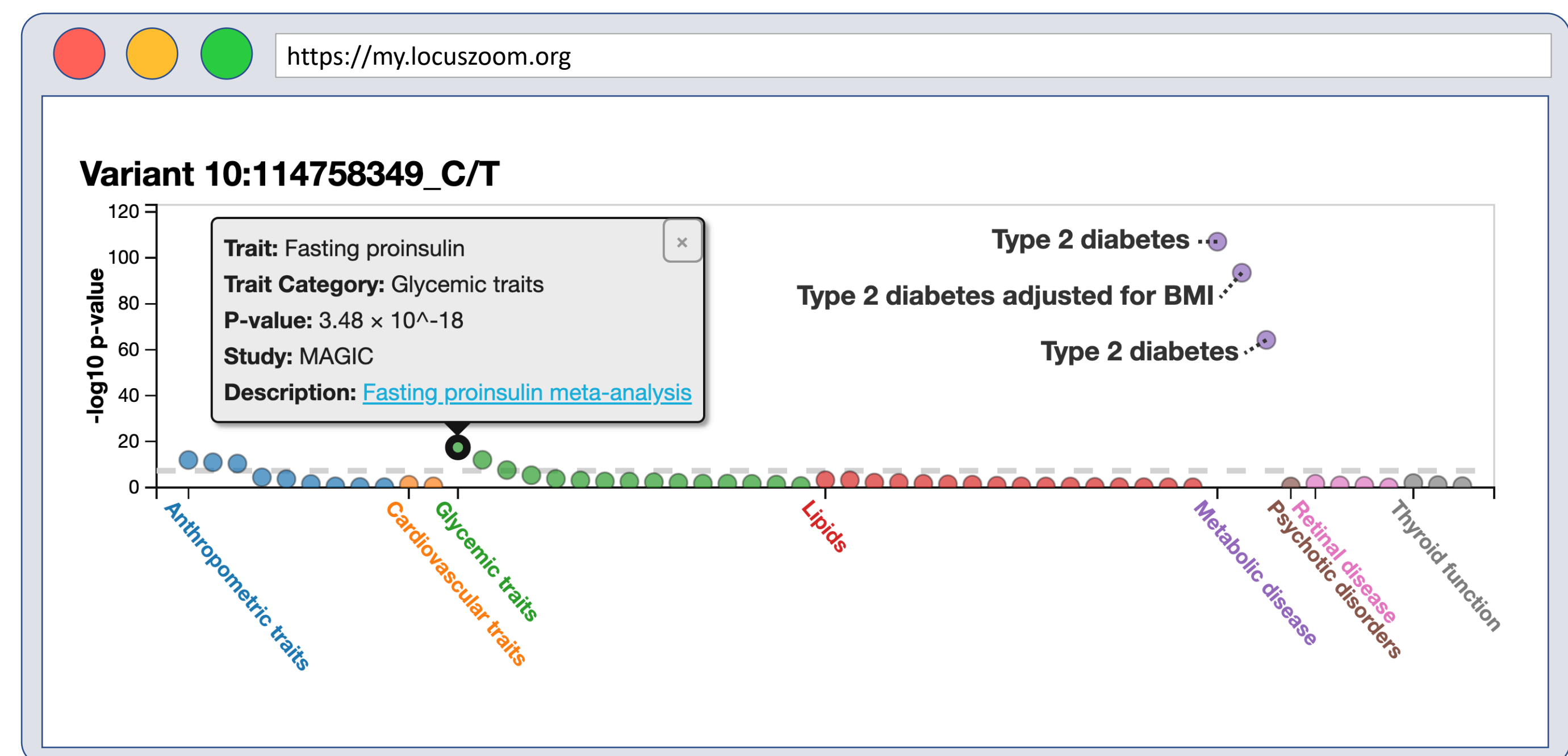
Use LocusZoom in Your Web Browser

- LocusZoom region plots are well established, and have been upgraded with new capabilities to meet evolving needs
- Real-time interactivity enables exploration among many loci
- Dynamic plotting tools support collaboration and data sharing
- Annotation data are continually evolving, and web version receives new or updated builds automatically
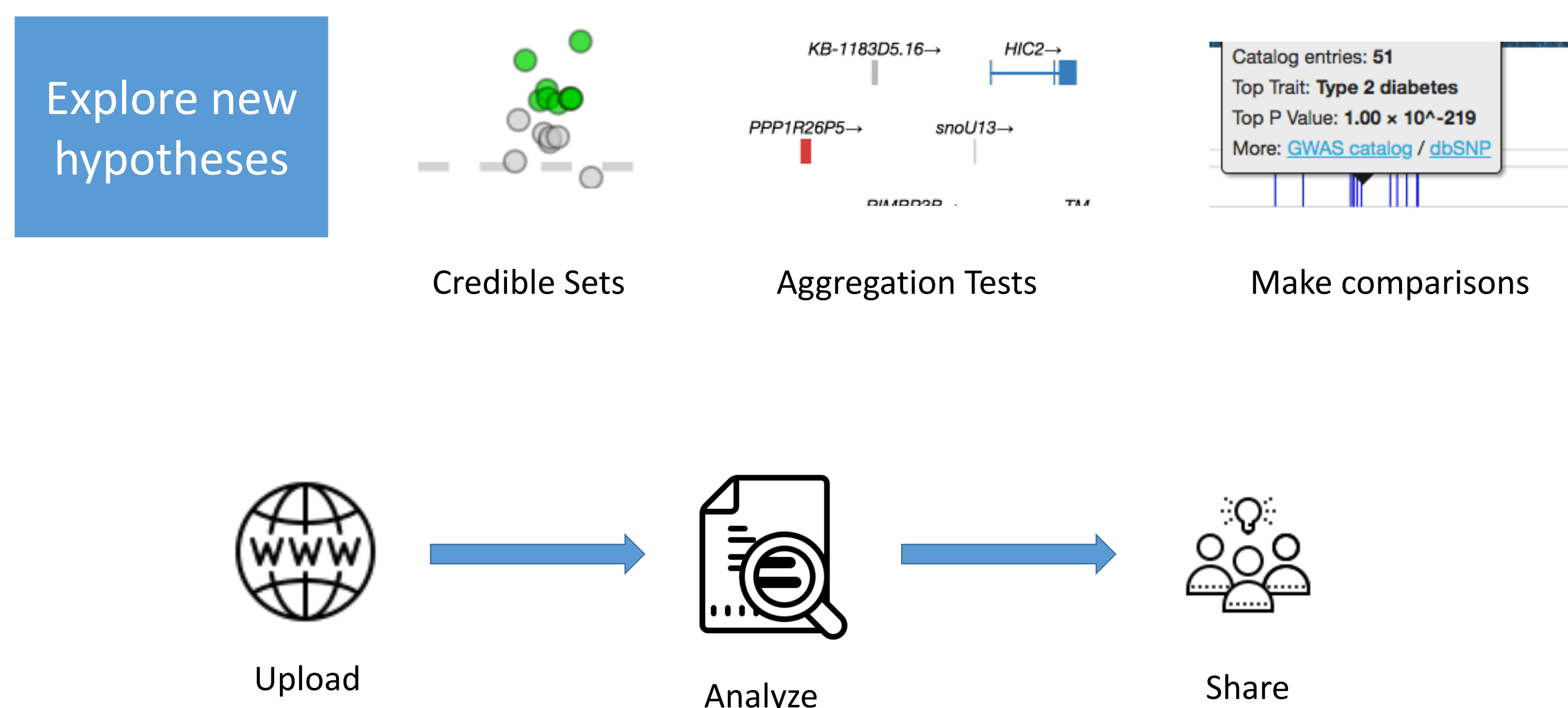- Go beyond viewing data: apply methods and interpret

- Automatically identify top loci
- Manhattan, QQ, and region plots
- Share results and download for further analysis

Drag to pan
Scroll to zoom
Click to interact

Analyze Locally

- Make a standard LocusZoom plot from tabixed GWAS summary statistics, in a web browser, without uploading files
- Full support for build GRCh37 and GRCh38
- Annotate with hits found in the GWAS catalog
- Perform region-based credible set calculations, in your web browser
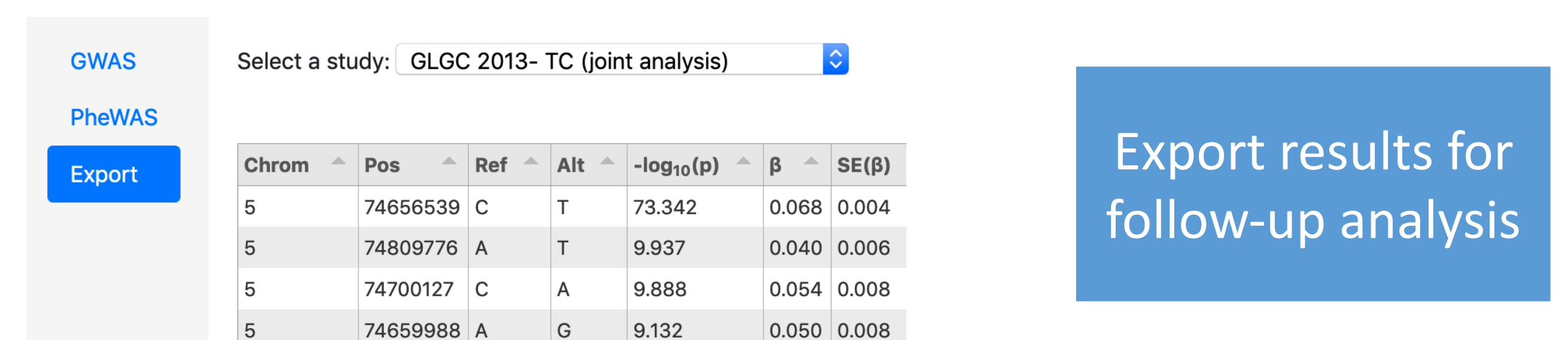- Explore hits for any SNP in a PheWAS of the UK BioBank

Explore new hypotheses

Credible Sets   Aggregation Tests   Make comparisons

Upload   Analyze   Share

...Or Upload To Our Servers

- Enhanced view with additional information: top loci, Manhattan plot
- Supports a variety of GWAS file formats (no need to run tabix first)
- New website allows you to make your data public, or preview an analysis privately and share with trusted collaborators
- Explore publicly shared results from other studies

Flexible Options To Fit Your Needs

- All tools are open-source, and all annotation data is hosted in public REST APIs
- Multiple levels of privacy and sharing options. Choose the level of customization for your needs:
  - Interactive plotting widget (LocusZoom.js): complete customization and control over user experience
  - Browser-based local analysis tool (LocalZoom)
  - Full upload service (my.locuszoom.org)
- On-the-fly calculations let you explore new hypotheses

Export results for follow-up analysis

What's Next?

- More annotation options to see results in biological context
  - Choice of LD reference panels
  - Select pre-computed BED annotations for your plot
- More datasets
  - Public summary statistics from published studies
  - Tag and search features
  - Compare your results to others
- Support more region-based calculations in your browser
  - Custom aggregation tests (Burden, SKAT, VT, SKAT-O)

https://github.com/statgen/locuszoom/

Plot locally:
https://statgen.github.io/localzoom/

Upload and share:
https://my.locuszoom.org/

Take our user survey
https://bit.ly/32ZClo8