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## REVIEW OF GENOME MATE PRO

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## Product Review: Genome Mate Pro

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With the rapid rise in autosomal DNA testing over the past few years, data management has become a serious challenge. For example, as of 6 October, 2016, I had 1,036 matching relatives in FTDNA's Family Finder, 1,611 at 23andMe (of which 380 are "sharing" segment data with me), 2,742 at GedMatch (using Matching Segment Search), and 7,268 at [Ancestry.com](http://Ancestry.com). Trying to cross-reference which of these relatives have tested at multiple sites, track how they triangulate with one another, maintain research notes on particular individuals, and update the data as new matches arrive was a Sisyphean task for just one tester, much less several.

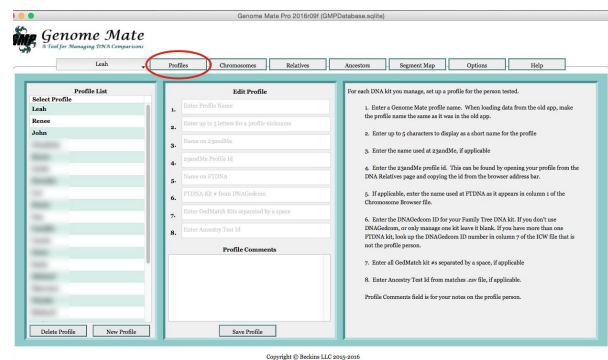
Enter *Genome Mate Pro* (GMP) by Becky Mason Walker. GMP (<https://genomemate.org/>) is a utility for managing autosomal DNA segment data (and other genealogical information) on Windows, Mac, or Linux operating systems. It replaces the earlier *Genome Mate*. GMP is supported by an extensive User Guide developed by Jim Sipe, videos, and a support group on Facebook (<https://www.facebook.com/groups/GenomeMatePro/>). Best of all, the program remains supported by donations.

GMP is too powerful and complex a program to describe in complete detail. Instead, I will summarize the main features that might influence a new user to try it by describing the available tabs: Profiles, Chromosomes, Relatives, Ancestors, Segment Map, Options, and Help. This review is also not a "how to" guide. For that, readers are referred to the excellent User Guide. Note that I'm using an option called "Privatize Display for Sharing" to truncate the user names; normally, I can see the full name provided by each tester.

### The Profiles Tab

The first step in using GMP is to set up a profile in the Profiles tab (Figure 1) for one or more testers. One person who has tested at multiple sites has a single profile to manage all of their data, and each unique tester has their own "profile". The eight

fields in the center collect information to consolidate the test results from different sources. For example, I have tested at 23andMe, FTDNA, and Ancestry and am also at GedMatch. By filling in all eight fields according to the instructions on the right, I can manage all of those results within a single profile for myself in GMP. (Of course, a profile still works with data from only one source.)



**Figure 1. The Profiles tab.** Some profile names have been blurred for privacy.

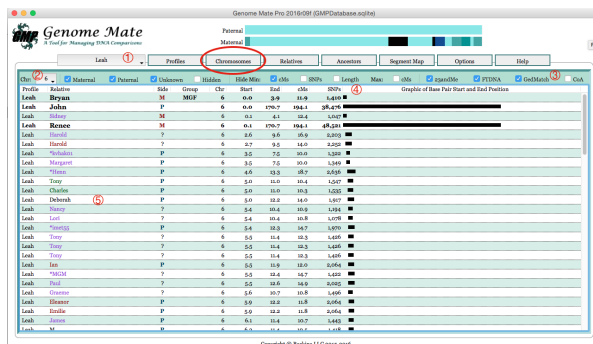
Once you set up a profile, you can import the data from Genome Mate (the predecessor to GMP), 23andMe, 529andYou, FTDNA, GedMatch, DNAGedcom, or AncestryDNA using a set of templates in the Options tab. The templates allow for easy transitions when a data source changes its export format. Advanced users can also create their own templates to import data from a customized spreadsheet.

You can switch easily between profiles in any of the other tabs by using the pulldown at the top left of the GMP window.

### The Chromosomes Tab

The Chromosomes tab is where you will do most of your work. It has several powerful features that are numbered in Figure 2 for easy reference. A pulldown (1) lets you change profiles, another pulldown (2) switches between chromosomes (chr 6 is shown here), and a set of filters (3) lets you select which data you want to see. For

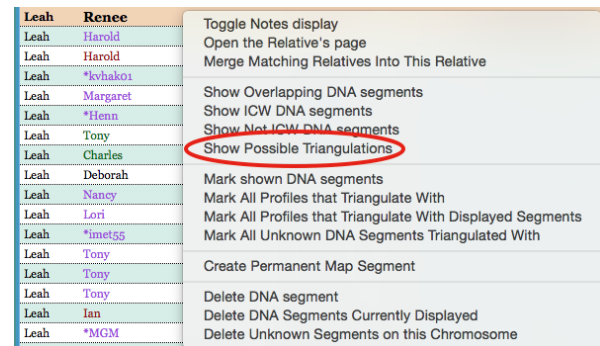
example, you might want to see only maternal matches, only segments above a certain threshold (set in the Options tab), or only matches from 23andMe. The bulk of the screen is dedicated to the DNA matches of the profile person. The Profile and Chr (chromosome) columns reflect the pulldown settings. The other columns (4) are all sortable. Note that the relative names are color coded (5) by the source of the segment data. Default colors are lilac for GedMatch, maroon for FTDNA, green for 23andMe, and black for data that has been merged from two or more sources. Names in bold have had a most recent common ancestor (MRCA) designated for that segment (see Relatives Tab). Segment start and stop points (in bp), cM, and SNPs are imported from the original source, while Side and Group are assigned by the user. Note that some of my matching segments are on my maternal side (M), others on my paternal side (P), and the remainder have not been assigned. (“B” for both and “I” for IBS are also options.) Bryan is my mother’s first cousin; I designated his group MGF, because he is related to me through my maternal grandfather.



**Figure 2. The Chromosomes tab.** The names of the matches have been truncated for privacy. Refer to the text for an explanation of the red numbers.

One of the most labor-saving features of GMP is the ease of marking possible triangulations. Right-click on a relative’s name for a suite of options. In this case, I chose my mother, Renée. Select “Show possible triangulations”, and GMP will filter the list of matches to include only those who share that particular segment with both me and my mother. Right-click again on that relative in the filtered list and select “Mark shown DNA segments” to have

all of those potential triangulations marked with the same side and group as the selected relative. Because I have profiles for both of my parents in GMP, I was able to assign all but a few of my matches on chr 6 to either my maternal or paternal side with just a few clicks. Similarly, I could easily mark everyone who triangulates with cousin Bryan as MGF.



**Figure 3. Actions available in the Chromosomes tab.**

How does GMP triangulate? It accepts imported triangulation data from the GedMatch Tier 1 tool or from 529andYou, but it can also find segments that match two (or more) profiles. This means that “Show possible triangulations” works even for FTDNA data and for GedMatch users who don’t have Tier 1 access, as long as you’ve set up multiple profiles in GedMatch.

If you hover your cursor over the segment map at the top, GMP will tell you the MRCA to which a particular segment is assigned. If you click on the segment, GMP will filter to only those matching segments that can be attributed to that MRCA. Information from this segment map can also be visualized in as a full genome map in the Segment Map tab. MRCAs are assigned in the Relatives tab.

## The Relatives Tab

The Relatives tab compiles information about individual matches. It has four subtabs: About, Family Comparison, DNA Comparison, and Merge. The About subtab contains basic imported data about your match: name, contact information, haplogroups, links to their profiles at the testing companies, and heritage (ethnicity). It also has fields for your research and MRCA notes. The

Family Comparison subtab lists family locations, surnames, ancestors, ancestor details, surnames in common with the profile person, and possible connections. The DNA Comparison tab lists all of the matching segments between that relative and each of your profiles, as well as overlapping segments, in-common-withs (ICWs), and possible triangulated segments. You can also assign a segment to a particular MRCA (or couple) if you have imported a gedcom for the profile person. Gedcoms are imported in the Ancestors tab.

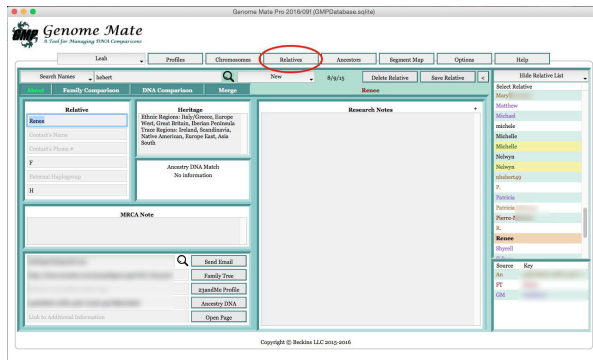


Figure 4. The Relatives tab.

In Figure 2, there were two Harolds in my chromosome browser, one imported from GedMatch (in lilac text) and the other from FTDNA (maroon). They are the same person. The Merge subtab allows me to see the details of the two records side-by-side and easily merge them. All of the identifiers (GedMatch #, FTDNA) will be stored in the merged record. Harold's name will then be shown in black text in the Chromosomes tab.

### The Ancestors Tab

GMP allows you to import a gedcom of direct ancestors for each profile. The names in the list on the left are color-coded by maternal/paternal, and radio buttons at the bottom let you filter by side and even by the ancestors who may have contributed X-chromosomal DNA. Gedcom information allows you to assign MRCA to segments in the Relatives tab. Those assigned segments can then be visualized in the Chromosomes and Segments Map tabs.

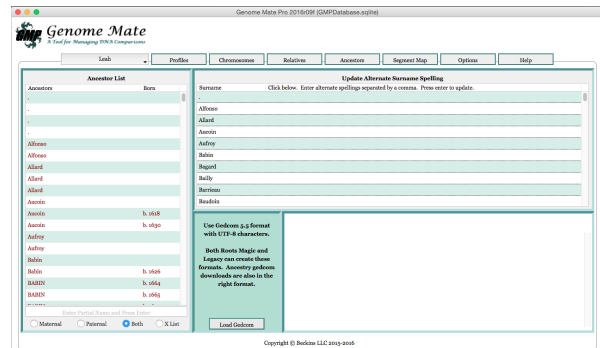


Figure 5. The Ancestors tab.

### The Segment Map Tab

At the top of the Chromosomes tab (Figure 2) is a map for that particular chromosome showing segments that have been assigned to MRCA. The Segment Map tab allows you to view all 23 chromosomes together.

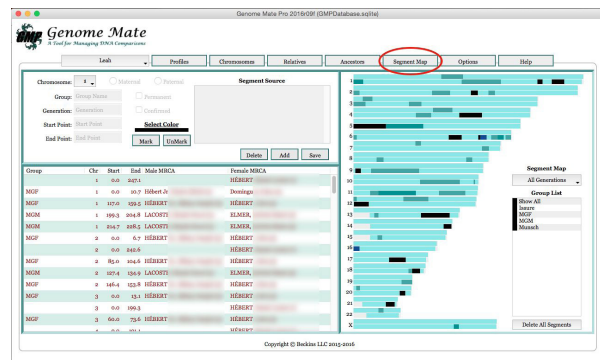


Figure 6. The Segment Map tab.

### The Options Tab

The Options tab has a suite of settings to let you customize GMP to your preferences, including setting a threshold segment size for imports and for the chromosome browser display. (This is where I set "Privatize Display for Sharing".) There is also a customizable email template that can auto-fill the match's name and GedMatch number.

## Drawbacks

The many advantages of GMP should be apparent in the sections above. The biggest drawback is speed; some data imports can take hours, and the program often lags when switching between tabs. GMP also has a few minor inconveniences. Setting up the profiles correctly can also be frustrating, because a new user may not realize the profile information was incorrect until after the import fails.

Finally, caution must be used with the “Show Possible Triangulations” feature because it does not impose a minimum cM threshold. Thus, it can sometimes indicate a triangulation when two profile people overlap on that segment by only a few cM. Users from endogamous background should be especially alert.

## Summary

GMP is unequalled in the ease with which a genetic genealogist can manage the complex data associated with DNA matches. The elegant design allows various activities to be separated logically into different tabs while synchronizing information among them. Additionally, GMP is free (although I encourage users to donate if they find it useful). GMP is not for the novice genetic genealogist, but it will prove invaluable to those who are serious about working with segment data.

## Conflicts of Interest

The author was part of an early alpha testing group for GMP but has no financial or personal ties to the developer, Becky Mason Walker, or to Jim Sipe, who wrote the User Guide. She is the Editor of the *Journal of Genetic Genealogy*; this manuscript was handled by another member of the Advisory Board. She declares no conflicts of interest.

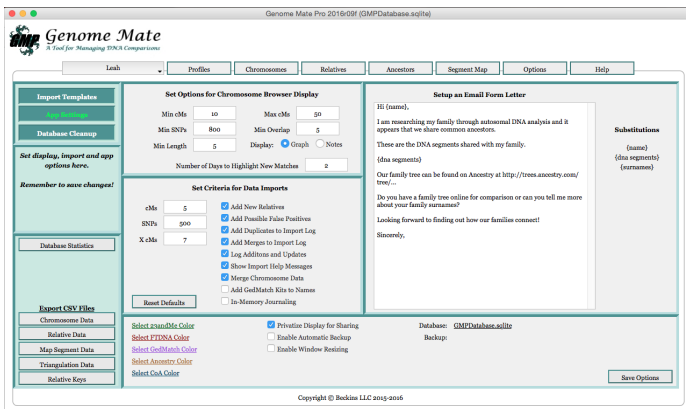


Figure 7. The Options tab.

## The Help Tab

The Help tab provides a basic overview for getting started on the right, links to useful resources in the middle, and a list of the most common problems in the “Developer’s Comments” on the left.

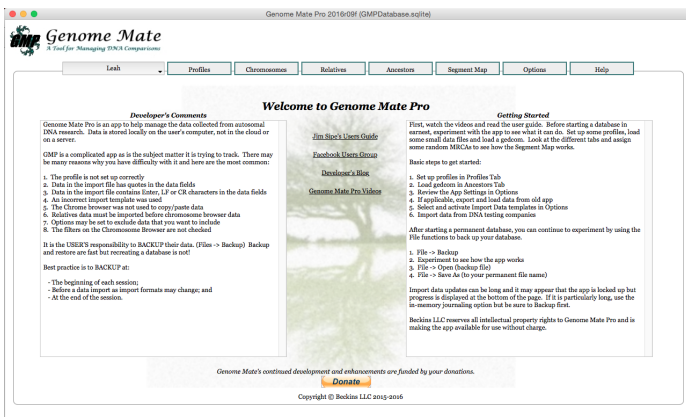


Figure 8. The Help tab.