UPDATE – DNA FOR AGS

By Louise Rosett, AGS Member

"You Have Grandma's Eyes"

Are you tall like your Grandfather? Do you have your Grandmother's curly hair? Have you ever wondered how much DNA you have inherited from each of your grandparents? There is a way to find out. The technique is called **Visual Phasing** which allows you to analyze the segments on each of your chromosomes and assign them to one of your four grandparents. To get started you need to have a group of at least three siblings. Their DNA must be on *www.gedmatch.com.* You will also need the DNA of several first or second cousins from the paternal and maternal sides of your family.

As in all other aspects of using DNA, you need to educate yourself on Visual Phasing. One place to start is on the ISOGG Wiki at *https://isogg.org/wiki/Visual_phasing*. There you will find links to articles about Visual Phasing. There is also a Facebook page called Visual Phasing Working Group at *https://www.facebook.com/groups/visualphasing*. You can read the posts and also pose questions you have about the methodology. Under the "More" category on the Facebook Dashboard, scroll down to "Files" where you will find many articles and examples. Don't forget to check YouTube. Andrew Lee of Family History Fanatics has a four-part series on Visual Phasing at *https://www.youtube.com/watch?v=fHZGdifd4KY.* In addition, he has another two-part series on Visual Phasing with Segment Data. Find this at *https://www.youtube.com/watch?v=MgZAcELjwPU*.

Some people phase manually, but there are two spreadsheets which will automate part of the procedure. You will still have to do the segment analysis and assignment yourself. Steven Fox's spreadsheet is referenced frequently on the Facebook page. Unfortunately, after Gedmatch changed some of their algorithms, his worksheet is not working. He is currently updating the worksheet and will announce when it is ready on Facebook. The old version required a full Excel program, not the version in Office 365. Although Microsoft has created an Excel version for Mac computers, Steven Fox's spreadsheet could not work on the Mac Excel program. It remains to be seen if his revised version will work on Macs.

The segment data phasing spreadsheet by Andrew Lee is a viable alternative. It uses Google Sheets and will work on any computer platform. That is what I have been using as I begin my adventure into Visual Segment Phasing.

The basic steps are to do a One to One Comparison of each pair of siblings on Gedmatch. The parameters to use are making the minimum segment cM size 3. Check the box at the bottom of the page to Prevent Hard Breaks. This will give you all the half identical regions (HIR). Copy this table and paste it in to Andy Lee's sheet called "Segments" starting with column B. Column A is where you will note the ID's of the siblings in this comparison. In Column G you will enter "Half." Then go back to Gedmatch and check the box "show only Full Match segments (FIR.)" Again, copy the table and paste it to the "Segments" sheet. Label Column A and G. This time column G will be filled in with the word "Full." Continue until you have done the one to one comparison for all the siblings. Then you will sort all the segment data by chromosome number and start position.

Now the fun begins. Make a duplicate of the appropriate sheet labeled "3-Chr". "4-Chr" or "5-Chr" depending on how many siblings are in your group. On the top of the sheet is a box labelled Chromosome. Enter the number of the chromosome you are analyzing. All the appropriate information will populate your sheet. Most people recommend starting with a higher number chromosome since higher ones are shorter and there will be fewer recombination points. You will label column Q with an "r" for where you think a recombination occurred. This is where judgement and knowledge comes into play. I am still working on this step and I have received help from the members of the Facebook group. I trust this will become easier as I gain more experience.

So why do all of this? One reason is to satisfy your curiosity about whether you inherited more DNA from your maternal (or paternal) grandmother or grandfather. Another reason is that once you have plotted all the segments, you will have the ability to assign a new, unknown match to the proper branch of your tree. This will narrow down where you have to look for a common ancestor.