DNA Painter Basics: Strategies to Enhance Your Genealogical Research
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- What is DNA Painter?
    - A site that provides tools that allow you to visualize your genealogy, particularly with autosomal DNA
    - Founded and created by Jonny Perl, launched in 2018, won the grand prize in the DNA Innovation contest at Rootstech 2018 in Salt Lake City
- Certain tools are free, some have limited use with a free account, full access with a subscription
- There are three main categories of tools at DNA Painter: Ancestral Trees, Tools and WATO, and Chromosome Maps
- Ancestral Trees
    - Start from scratch or upload a GEDCOM file
    - Check tree completeness
    - Visualize your genealogical AND genetic trees
    - With an uploaded GEDCOM file, you can see pedigree collapse!
    - Color coding, notes, search terms, add dimensions, genetic pathways
- Tools and WATO
    - Shared cM tool
        - The Shared cM Projects has become a staple in genetic genealogy
        - In collaboration with Dr. Blaine Bettinger, crowdsourcing for cM amounts and corresponding relationships
        - Ranges, averages, histograms based on submissions
        - Relationship probabilities from Dr. Leah Larkin (The DNA Geek)
        - Be mindful of effects of endogamy and pedigree collapse
    - WATO (What Are the Odds)
        - A TOOL that allows you to map out possible relationships for how an individual is related based on different cM amounts that descend from a most recent common ancestor (MRCA)
            - Shows most likely hypothesis
        - New version allows uploading a GEDCOM file
        - Be careful of endogamy and pedigree collapse, but can be helpful for 2nd-3rd cousin relationships and closer
    - Advanced tools: Shared cM Investigator, segment generators, cluster auto painter

- Chromosome Maps
  - Painting chromosomes with DNA matches to determine which ancestors passed on various segments of DNA
  - Copy & paste directly from DNA site or from exported DNA file to paint matches
  - Chromosome mapping can benefit organization of known matches and assist with analysis and integration of new ones
- Educational opportunities to learn more about DNA Painter
  - Great help and FAQ section on the site
  - Webinars
  - DNA Painter User Group on Facebook
  - Practice!

Ancestral Trees
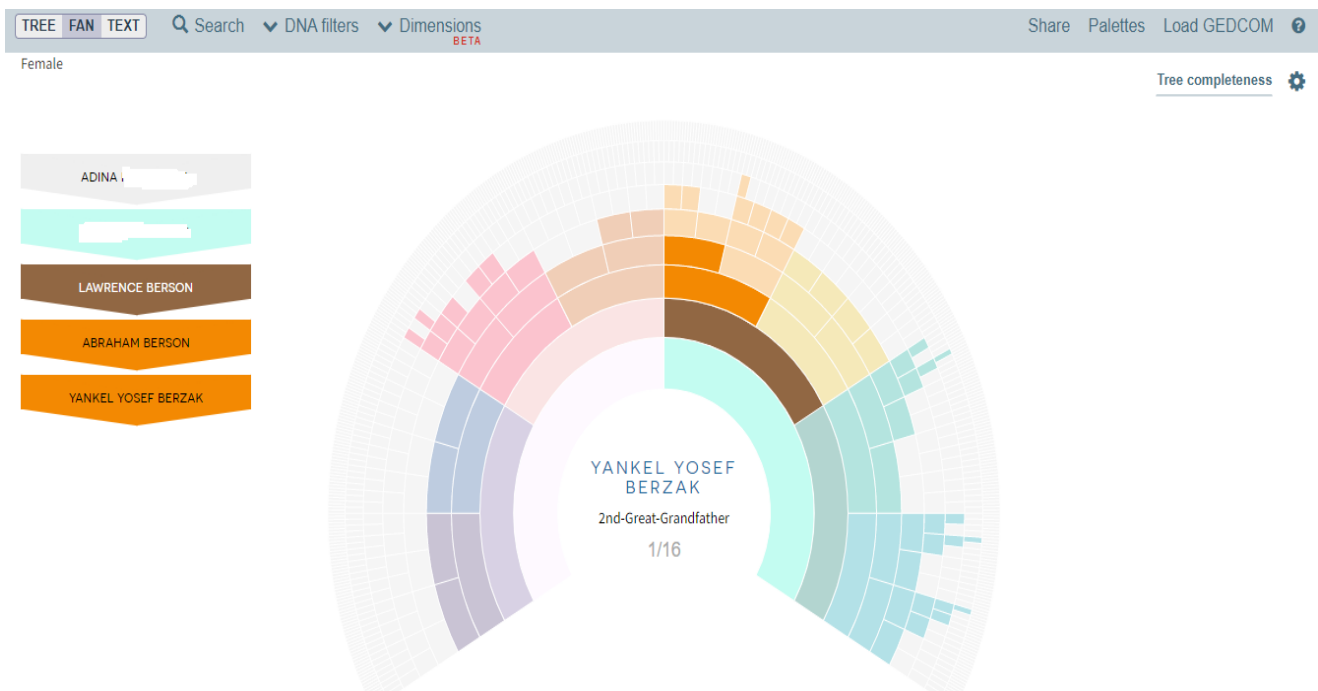
Generation	Ancestors identified	Tree completeness at this level
Parents	2 of 2	100%
Grandparents	4 of 4	100%
Great-Grandparents	8 of 8	100%
2nd-Great-Grandparents	16 of 16	100%
3rd-Great-Grandparents	17 of 32	53%
4th-Great-Grandparents	16 of 64	25%
5th-Great-Grandparents	9 of 128	7.03%
6th-Great-Grandparents	3 of 256	1.17%

Shared cM Tool

The Shared cM Project 4.0 tool v4

Read more about the tool and this update

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Blaine T. Bettinger
www.thegeneticgenealogist.com
More about this project
CC 4.0 Attribution License
Interactive version v4 by Jonny Perl at DNA Painter
Click here to contribute data to the shared cM project
Last updated 26th March 2020

Important
- For relationships more distant than Half 2C, the averages were determined only for relationships in which DNA was shared.
- The more distant a relationship, the more likely it is that you won't share DNA at all (read more)
- These statistics do not cater for pedigree collapse or endogamy

Other versions

Beta with updated probabilities
With editable boxes
Shared cM 3.0 (2017) version

Filter

Enter the total number of cM for your match here:

465   reset

or enter %

Then any relationships that fit will stand out below

Click here for a shareable link to the cM amount above

Most distant common ancestors
Assuming no pedigree collapse or endogamy, and that you're related in just one way, the **furthest** back you might need to go to find common ancestors for a match of 465cM is **2nd-Great-Grandparent** level or generation 5 on your pedigree chart.
The connection may be closer. Also, depending on your family, this match could be a close younger generation relative, such as the descendant of your sibling.

Relationship probabilities (based on stats from The DNA Geek)
New: View these relationships in a tree

|	
88%	Great-Great-Aunt / Uncle
	Half Great-Aunt / Uncle Half 1C 1C1R
	Half Great-Niece / Nephew
	Great-Great-Niece / Nephew
9%	Half GG-Niece / Nephew †
	Half GG-Aunt / Uncle † 2C Half 1C1R 1C2R
3%	Great-Grandparent † Great-Grandchild †
	Half Aunt / Uncle † Half Niece / Nephew †
	Great-Aunt / Uncle 1C Great-Niece / Nephew

† this relationship has a positive probability for 465cM in thednageek's table of probabilities, but falls outside the bounds of the recorded cM range (99th percentile)

How to read this chart

Relationship
Average
Range
(low to high;
99th percentile)

Submissions for the relationship "1C1R"   X
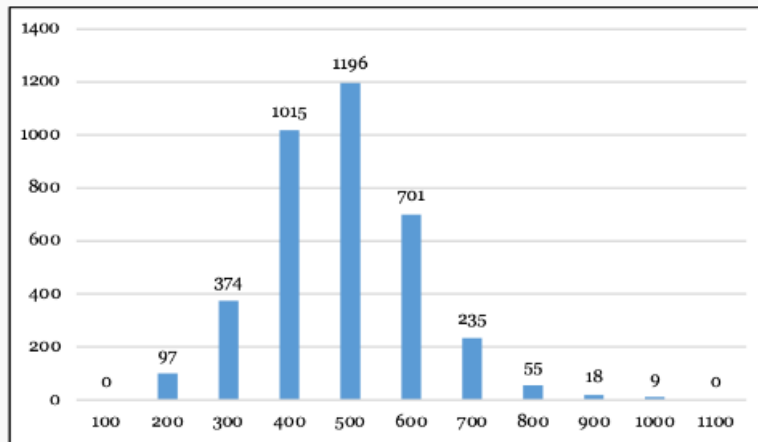
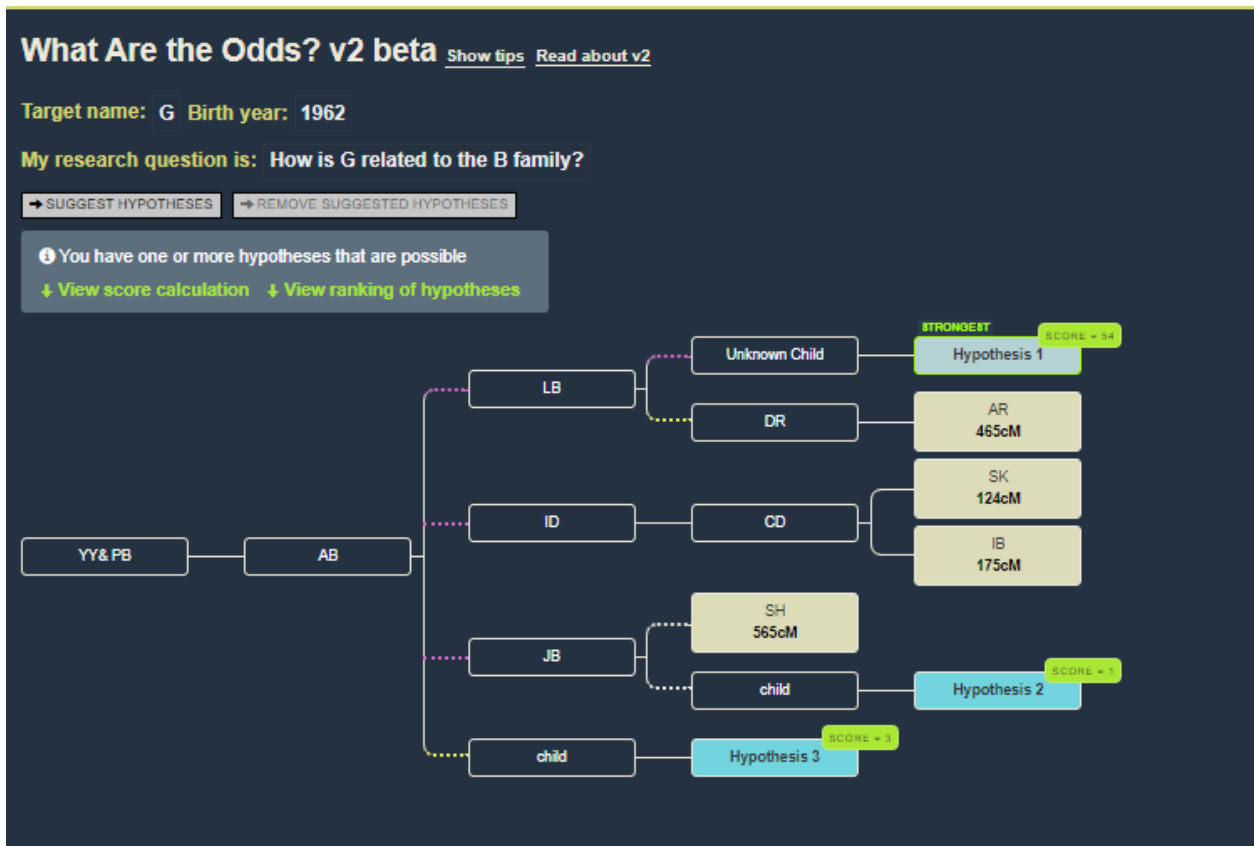The amount you entered was **465cM**

How to read this histogram

This summarizes the submissions for the relationship "1C1R" ⬀ relationship terminology tips

The numbers along the bottom are "bins," ranges of total shared cM

The number at the top of each blue bar is the total number of data entries for each interval or "bin"

The number for a bin represents the LARGEST number for that bin. So "500" means that the bin comprises data entries from 401 to 500.

What Are The Odds Tool (WATO)

Chromosome Mapping