

Step Up: Take Your Genetic Genealogy to the Next Level

Resources

- VCGS – www.venturacogensoc.org
- ISOGG – isogg.org & isogg.org/wiki
- The Family Tree Guide to DNA Testing and Genetic Genealogy by Blaine T. Bettinger
 - <https://thegeneticgenealogist.com/>
- Genetic Genealogy: The Basics and Beyond by Emily D. Aulicino
 - <http://genealem-geneticgenealogy.blogspot.com/>
- Genetic Genealogy Standards – <http://www.geneticgenealogystandards.com/>
- GedMatch – <https://www.gedmatch.com/login1.php>

Terms & Acronyms

cM	centiMorgan
IBD	Identical by Descent
IBS	Identical by State (aka Identical by Chance)
HID	Half-Identical
FID	Fully-Identical
MRC	Most Recent Common Ancestor

Shared cM by Relationship Charts:

- https://isogg.org/wiki/Autosomal_DNA_statistics

Shared cM Project:

- https://thegeneticgenealogist.com/wp-content/uploads/2017/08/Shared_cM_Project_2017.pdf

Chromosome Mapper by Kitty Cooper

- <http://blog.kittycooper.com/tools/my-graphing-or-mapping-tools/chromosome-mapper/>

Visual Phasing Links & Resources

- https://isogg.org/wiki/Visual_phasing
- <https://isogg.org/wiki/Phasing>
- <https://thegeneticgenealogist.com/2016/11/21/visual-phasing-an-example-part-1-of-5/>
- <https://thegeneticgenealogist.com/2016/11/22/visual-phasing-an-example-part-2-of-5/>
- <https://thegeneticgenealogist.com/2016/11/25/visual-phasing-an-example-part-3-of-5/>
- <https://thegeneticgenealogist.com/2016/11/26/visual-phasing-an-example-part-4-of-5/>
- <https://thegeneticgenealogist.com/2016/11/27/visual-phasing-an-example-part-5-of-5/>
- <http://www.genealogyjunkie.net/blog/obtaining-fir-boundaries-on-gedmatch-using-the-little-tick-marks>
- <http://www.genealogyjunkie.net/blog/obtaining-fir-boundaries-on-gedmatch-using-phased-and-my-evil-twin-phased-kits>
- <https://www.facebook.com/groups/visualphasing>

X-Inheritance Charts

- <https://thegeneticgenealogist.com/2008/12/21/unlocking-the-genealogical-secrets-of-the-x-chromosome/>
- <https://thegeneticgenealogist.com/2009/01/12/more-x-chromosome-charts/>

Step Up: Take Your Genetic Genealogy to the Next Level

Likelihood of IBD/IBS

Shared Segment	% IBD	% IBS
10 cM	99	1
9 cM	80	20
8 cM	50	50
7 cM	30	70
6 cM	20	80
5 cM	5	95

Likelihood of Sharing DNA

Relationship	Chance of Sharing	Chance of Not Sharing
1st Cousin	100	0
2nd Cousin	100	0
3rd Cousin	97	3
4th Cousin	70	30
5th Cousin	30	70
6th Cousin	10	90

Likelihood of IBD/IBS

Percent Shared	cM Shared	Relationship
100%	3400	Identical twins
50%	3400	Parent/Child
50%*	2550	Full Siblings
25%	1700	Grandparent/Grandchild; Aunt-Uncle/Niece-Nephew; Half-Siblings
25%*	1593	Double First Cousins
12.5%	850	First Cousins

** alternate calculation method available*

Develop and Test a Match Relationship Hypothesis

- Is the segment size above your threshold, e.g. 10 cM?
- Is the shared cM value consistent with the hypothesized relationship?
- Have you checked both matches' trees to determine whether the two share any other ancestors?
- Do your other matches "in common" support the hypothesis or refute it?
- What are the sizes of the segments shared with these other matches?
- Do any of the other matches form a Triangulated Group with the target match?
- Do you share a match on the X-chromosome?
- If so, does the X inheritance pattern support the hypothesis or refute it?
- Do you share any FID segments? What do they tell you?