The Future of Genetic Genealogy

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Now that genetic genealogy has become firmly entrenched in the genealogical community, even attracting those with no interest in our hobby, there is still plenty of opportunity for genetic genealogists.

Those major areas of interest include:

- Finding your exact position on the Y chromosome tree[1] using Next Gen Sequencing[2]
- Combining Y-DNA (or mtDNA) with autosomal testing results in an attempt to triangulate to find your closest cousins.
- Using X-DNA matching to refine close relationships and the challenges the X chromosome presents[3]

The current debate is how to achieve higher resolution and closer autosomal matches than can be provided by current chip technology[4].

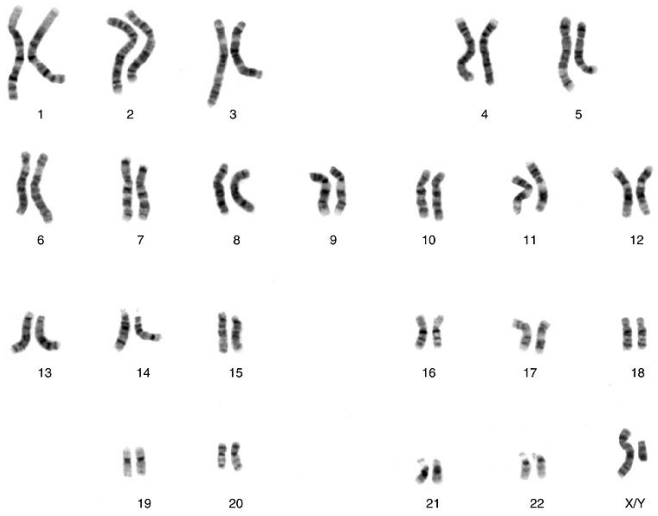
A few examples from this presentation will attempt to address those questions.

[1]Y Chromosome Tree – the hierarchy of Y-DNA SNPs, or single nucleotide polymorphism, that shows the various haplogroups and subclades of those groups.
http://genome.cshlp.org/content/12/2/339.long

[2]Next Generation Sequencing – using advanced technology to sequence parallel DNA fragments to produce larger quantities of data more efficiently and accurately.

http://www.nature.com/jid/journal/v133/n8/full/jid2013248a.html

http://www.ebi.ac.uk/training/online/course/ebi-next-generation-sequencing-practical-course/what-you-will-learn/what-next-generation-dna-



[3]Men have one X chromosome they get from their mothers, containing both recombined and non-recombined X-DNA. Women have two X chromosomes; one they get intact from their fathers, and one they get from their mothers containing both recombined and non-recombined X-DNA, making tracing the pattern of inheritance a challenge.

http://ghr.nlm.nih.gov/chromosome/X

http://genealem-geneticgenealogy.blogspot.co.uk/2014/01/x-chromosome-matchingat-f-amily-tree.html

[4]Chip technology – autosomal matching tests use "chips" or biometric devices that allow the analysis of hundreds of thousands of SNPs at one time.

http://www.genomeweb.com/arrays/citing-throughput-advantages-ftdna-joins-23andme-moving-new-24-sample-illumina-c