Four Types of DNA Used in Genetic Genealogy

AUTOSOMAL DNA (atDNA)

Test offered by: AncestryDNA, MyHeritage, etc.

DNA from autosomal chromosomes (1-22) that is inherited from both parents (50% from Mom, 50% from Dad). All of our grandparents and great-grandparents are represented heavily enough in our DNA that we will "match" all relatives out to 2nd cousins. Beyond that, our inherited DNA may not overlap with cousins.

Why this type of DNA is useful:

- Find family & verify biological ancestor lines
- Very useful to about 5th cousin level, although won't share DNA with all 3rd-5th cousins
- Over 25 million testers to compare against in largest databases
- Learn about inherited countries of origin & ethnicity estimation
- Possible inherited traits/conditions (availability depends on test)

X-DNA

Test offered by: *see note below

DNA found on the X-chromosome (#23). Females inherit XDNA from their mothers and fathers. Males inherit X-DNA from their mothers ONLY.

Why this type of DNA is useful:

- Assists with family history since X-DNA is inherited from some ancestors only.

**Included free in most autosomal DNA tests, although not always reported. (Can upload to GEDmatch to see/compare X-DNA.)*

Y-DNA

Test offered by: FTDNA for males ONLY

DNA found on the male Y-chromosome (the paternal side of chromosome #23 in men). Y-DNA is passed from father to son ONLY.

Why this type of DNA is useful:

- Assists with family history on the patrilineal (direct father to father) line.
- Slow mutation rate allows matches out to 8th cousins and beyond
- Provides ancient patrilineal origin and ancient migrations

MITOCHONDRIAL DNA (mtDNA)

Test offered by: FTDNA for males & females

DNA located in mitochondria passed down from the mother to both male and female children. (Men have mitochondrial DNA, but do not pass it down.)

Why this type of DNA is useful:

- Assists with family history on the matrilineal (direct mother to mother) line
- Very slow mutation rate results in matches outside of genealogical timeframe
- Provides ancient matrilineal origin and ancient migrations

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