INVESTIGATING YOUR HERITAGE: DNA, DIARIES, DOCUMENTS OR DATABASES?

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What is Genealogy?

- The study of the history of families using historical documents to discover the relationships between people. *Macmillan Dictionary*

- A record or account of the ancestry and descent of a person, family, group, etc. *dictionary.com*
“the use of DNA testing in combination with traditional genealogical and historical records.”

- International Society of Genetic Genealogy: Great resources
22 Pairs Autosomes
1 Pair of Sex Chromosomes
(XX or XY)
1 from each pair from mother
1 from each pair from father
Pictures of Chromosomes
4 Different Types of DNA:

- Y-DNA
- X-DNA
- Autosomal DNA
- Mitochondrial DNA
99.9% ALL HUMAN DNA IS THE SAME
.1% Makes us individuals

DNA
- SAME
- Different
Y-DNA

What are the Y tests measuring?

STR- Short Tandem Repeats

Parts of the DNA that repeat in particular locations.

Adenine, Thymine, Cytosine, and Guanine

TGTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGTTGAC (This is 12 repeats.)
This test looked at 12 locations.  
Compare those results to others to find relationships.

Table 1. Sample Y-DNA STR Results

<table>
<thead>
<tr>
<th>DYS#</th>
<th>393</th>
<th>390</th>
<th>19</th>
<th>301</th>
<th>385a</th>
<th>385b</th>
<th>426</th>
<th>388</th>
<th>439</th>
<th>380-1</th>
<th>392</th>
<th>380-2</th>
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<tr>
<td>Alleles</td>
<td>13</td>
<td>24</td>
<td>14</td>
<td>10</td>
<td>11</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>29</td>
</tr>
</tbody>
</table>

Courtesy: Family Tree DNA
Y-DNA

- Locations have been assigned where there are commonly found repeats. Your results tell how many repeats you have in that area.
- The more locations they test, the more accurate.
- You inherit repeats from your ancestors.
Pedigree Chart

You

Father

Paternal Grandfather

Paternal Grandmother

Mother

Maternal Grandfather

Maternal Grandmother

Paternal Line (Y-DNA Testing)

Maternal Line (mtDNA Testing)
<table>
<thead>
<tr>
<th>Number of matching markers</th>
<th>50% probability that the MRCA was no longer than this number of generations</th>
<th>90% probability that the MRCA was no longer than this number of generations</th>
<th>95% probability that the MRCA was no longer than this number of generations</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 of 10</td>
<td>16.5</td>
<td>56</td>
<td>72</td>
</tr>
<tr>
<td>11 of 12</td>
<td>17</td>
<td>39</td>
<td>47</td>
</tr>
<tr>
<td>12 of 12</td>
<td>7</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>23 of 25</td>
<td>11</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>24 of 25</td>
<td>7</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>25 of 25</td>
<td>3</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>35 of 37</td>
<td>6</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>36 of 37</td>
<td>4</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>37 of 37</td>
<td>2 to 3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>65 of 67</td>
<td>6</td>
<td>12</td>
<td>14</td>
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<tr>
<td>66 of 67</td>
<td>4</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>67 of 67</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>
To see details on this collaborative group, including sources, children and locations, click on the tree icon and pedigree icon associated with each kit, below, or the master tree if there is one for this group. We invite you to join us and share additional information such as children, sources, and locations in order to discover and verify all connections between DNA testing numbers. 

Do you see how these kits connect? Think a better grouping? Additional info on any? Sources? Corrections? Want to add to this group description to make it more informative and useful? Come Discuss on the Smith DNA Guestbook Forum for Smith DNA Group GPR-K-M265-546 or Send Email to Smith admin.

### YDNA Modal Baseline

<table>
<thead>
<tr>
<th>Kit #</th>
<th>Name</th>
<th>Location</th>
<th>Migration</th>
<th>Maple-ISOCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID1</td>
<td>G</td>
<td>Smith</td>
<td>d 1724 New Haven, CT</td>
<td>R-2525</td>
</tr>
<tr>
<td>ID2</td>
<td>G</td>
<td>Smith</td>
<td>d 1724 New Haven, CT</td>
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<td>ID3</td>
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<td>Smith</td>
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<td>R-2525</td>
</tr>
</tbody>
</table>

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*Courtesy of Smith Family DNA Project*
X-DNA

- Not tested as a standalone
- XX Female (X from mother and father)
- XY Male (X from mother, can help exclude what side matches are from?)
mtDNA:

- Mitochondrial DNA (outside the nucleus of the cell).
  - Females and Males inherit.
  - Mother to son or daughter.
  - Males can not pass mtDNA.
  - Slow to change.
  - Can track for thousands of years on maternal lines.
    - Cousins can share the same mitochondrial DNA.
    - Used to help identify remains from Vietnam.
atDNA

- **22 Pairs Autosomal Chromosomes**
  - Males and Females.
  - Inherit half from mother and half from father.
  - Random mixture through recombination.
    - Because the DNA mixes it can not be traced as far back the same way as Y and Mitochondrial.
Courtesy: Wikimedia commons
cM- Centimorgans = unit of **recombinant** frequency which is used to measure **genetic distance**

- Parent/child: 3539-3748 centimorgans (cMs)
- 1st cousins: 548-1034 cMs
- 1st cousins once removed: 248-638 cMs
- 2nd cousins: 101-378 cMs
- 2nd cousins once removed: 43-191 cMs
- 3rd cousins: 43-150 cMs
- 3rd cousins once removed: 11.5-99 cMs
- 4th and more distant cousins: 5-ca 50 cMs
Can autosomal tests help you find ancestors?

• If others have their tree loaded, it can help you confirm common ancestors.
• Find cousins or other relatives.
• Adoptees are using it to find parents.
• Donor children finding other siblings and relatives.
Shared cM = 116.4
2nd cousins: 101-378 cMs
2nd cousins once removed: 43-191 cMs
3rd cousins: 43-ca 150 cMs
Unknown Common Ancestor
Match on the X Chromosome

We can’t be related on Father’s Paternal line because he inherited his Y from his Father. Could be Father’s Maternal line.

Could be from Mother’s Maternal line or Mother’s Paternal Line (Her father inherited an X that he could have passed on.)

Have my mother tested to narrow it down

Compare trees-possible unknown ancestor
Mary Bausback's DNA Matches

Parent/Child

Martha Crowder
Shared DNA: 3,458 cM across 28 segments

Parent/Child
306 People
Common ancestor
Add to group

Close Family

Close Family–1st Cousin
Shared DNA: 1,922 cM across 31 segments

Close Family–1st Cousin
1,412 People
Common ancestor
Add to group

Amanda Crowder
Shared DNA: 1,476 cM across 31 segments

Close Family–1st Cousin
306 People
Common ancestor
Add to group
<table>
<thead>
<tr>
<th>Name</th>
<th>Match Date</th>
<th>Relationship Range</th>
<th>Shared cM</th>
<th>Longest Block</th>
<th>X-Match</th>
<th>Linked Relationship</th>
<th>Ancestral Surnames</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martha Crowder</td>
<td>07/08/2015</td>
<td>Mother/Daughter</td>
<td>3,383</td>
<td>267</td>
<td>X-Match</td>
<td></td>
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<tr>
<td>Jen Daugherty</td>
<td>07/08/2015</td>
<td>Full Sister</td>
<td>2,701</td>
<td>205</td>
<td>X-Match</td>
<td></td>
<td>Adkins (Kentucky) / Bausback (Germany/Indiana) / Boone (North Carolina)</td>
</tr>
</tbody>
</table>
ONE DOES NOT SIMPLY
SWITCH GEARS
Researching

Why the Census is so Important
- Every 10 years since 1790 (Constitution)
- Early Censuses have limited information
  - Not all include all of the information listed here
- Identifies Head of Household/Family Members
- Property Ownership
- Could they read or write?
- Helps identify parents and siblings when there are no other records
- Military Service

1890 Census burned
- Very limited information left from it

Due to privacy-Only Censuses up to 1940 are available
Researching

- County Courthouses
  - Register of Deeds
    - Land Records
    - Birth Records
    - Marriage Records

- North Carolina
  - Government and Heritage Library: Genealogy Collection
  - State Archives
    - Land Records
    - Birth Records
    - Marriage Records
Where to find these Records?

- National Archives
  - Census
  - Military Records/Pension Records
  - Federal Records “Doing Business”
  - Historical Documents

- Remember:
  - No central place to search all records.
  - Every state is different.
Online Research

- **Ancestry.com** (Free at many public libraries)
  - Census Records
  - Death Records (Certificates) for some states
  - City Directories
  - Birth Indexes
  - International Records
Online Research

- **Heritage Quest (FREE @ the Library)**
  - Freedman’s Bank Records
  - Genealogy Titles
  - Census
  - Revolutionary War Pension Applications

- **Discover Freedman (Freedman’s Bureau)**
  - [http://www.discoverfreedmen.org/](http://www.discoverfreedmen.org/)
  - Index of Bureau of Refugees, Freedmen, and Abandoned Lands
Online Research

- **Family Search**
  - [www.familysearch.org](http://www.familysearch.org)
    - Census records (limited)
    - Family Trees
    - Court Records (wills, probate, land)
    - International Records
    - Catalog of records/books at Library in Salt Lake City, Utah

- **Cyndi’s List**
    - Comprehensive index of genealogy sites
Online Research

- Rootsweb
  - [www.rootsweb.com](http://www.rootsweb.com)
    - Family Trees
    - Message Boards
- Find-a-Grave
  - [http://www.findagrave.com/](http://www.findagrave.com/)
- Ellis Island (Immigration Records)
  - [http://ellisisland.org/](http://ellisisland.org/)
Archives

- Personal papers in Archives, Libraries, Historical Societies
  - Genealogies
  - Diaries
  - Club Records (Women’s Organizations)
  - Ledgers (Frederick Douglass US Civil War Colored Troops Pension Ledgers)
  - See presentation in The Scholarship “Discovering The Hidden Women In Your Family History” by Diane Richard
Questions??