

# Autosomal DNA: A tool in the Genealogists Toolbox



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*A Member of the*

*Association of Professional Genealogists*

*Salem, Oregon*

## Thanks:

Tim Janzen, MD, Portland, Oregon

Emily Aulicino, Portland, Oregon

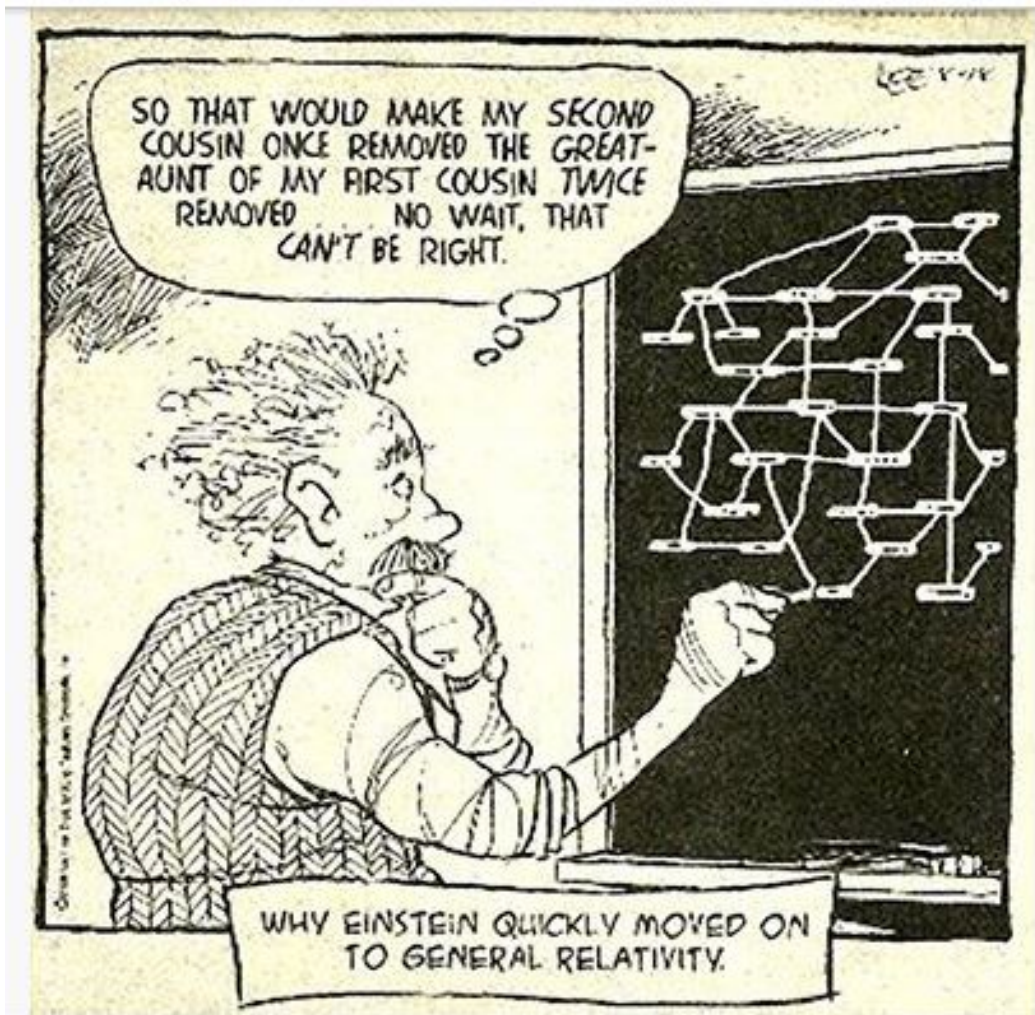
Jim Bartlett, Contributor on Mail list

**Many others who have responded thru the years**

## Disclaimer:

The information shared is from my own experiences, research and training experiences all melded into the point of view shared today, whether written or oral; not representing any official stance. Recommend all information be verified and researched with your own sources for guidance.

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The DNA 'tool' has its own terminology, almost like learning another language. Triangulation is a new set of skills to learn. Anyone can do it but it may take working with it before you feel proficient in analyzing your own autosomal recombinant DNA data puzzle.

# Who should take a DNA test?



**EVERYONE**

*Do you have a brick wall?*

*Would you like to connect with other cousins?*

# Who should NOT take a DNA test?



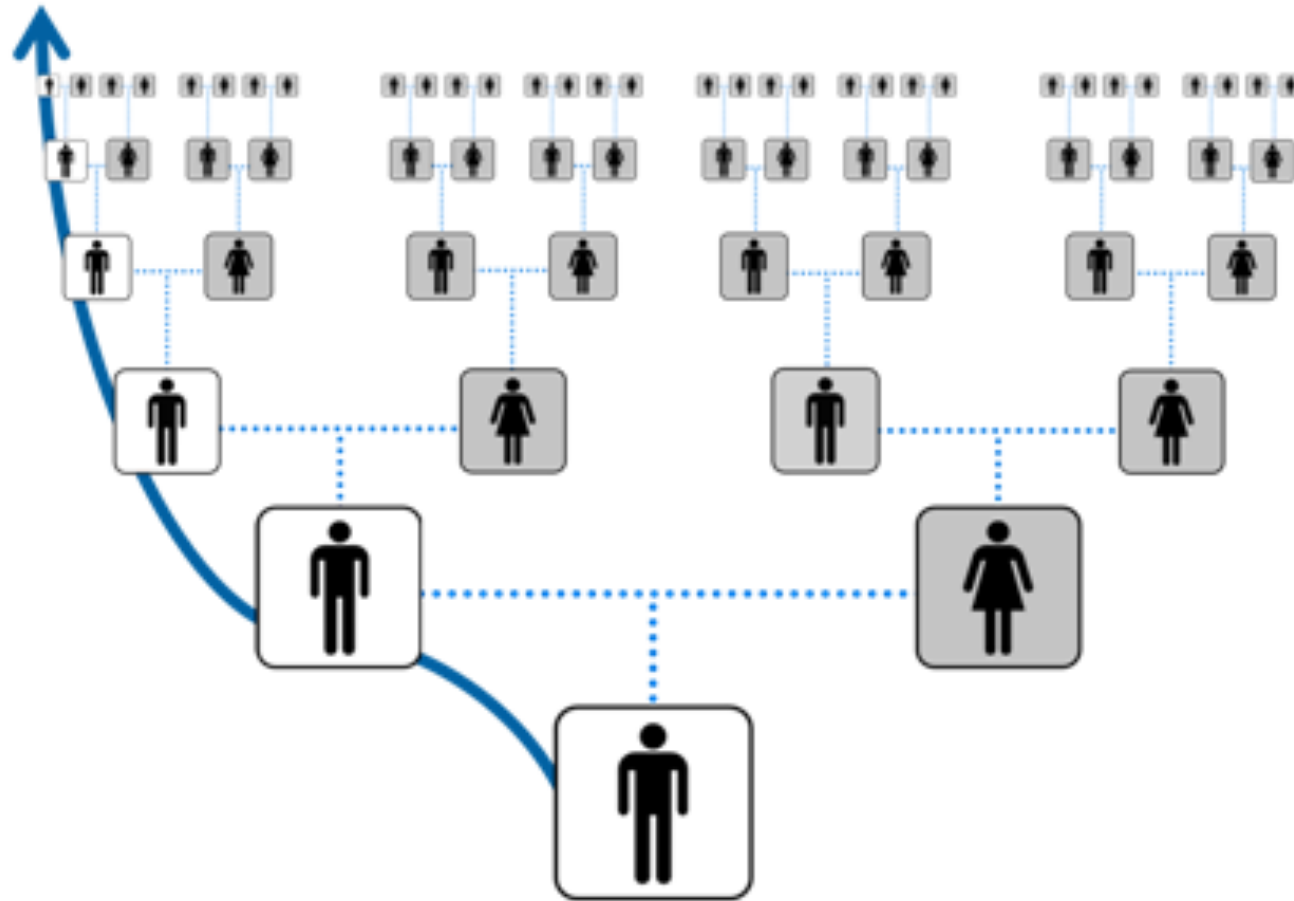
Anyone afraid to learn of indiscretions that may be hidden

*Are you willing to learn the reality that DNA may reveal in a branch of your family?*



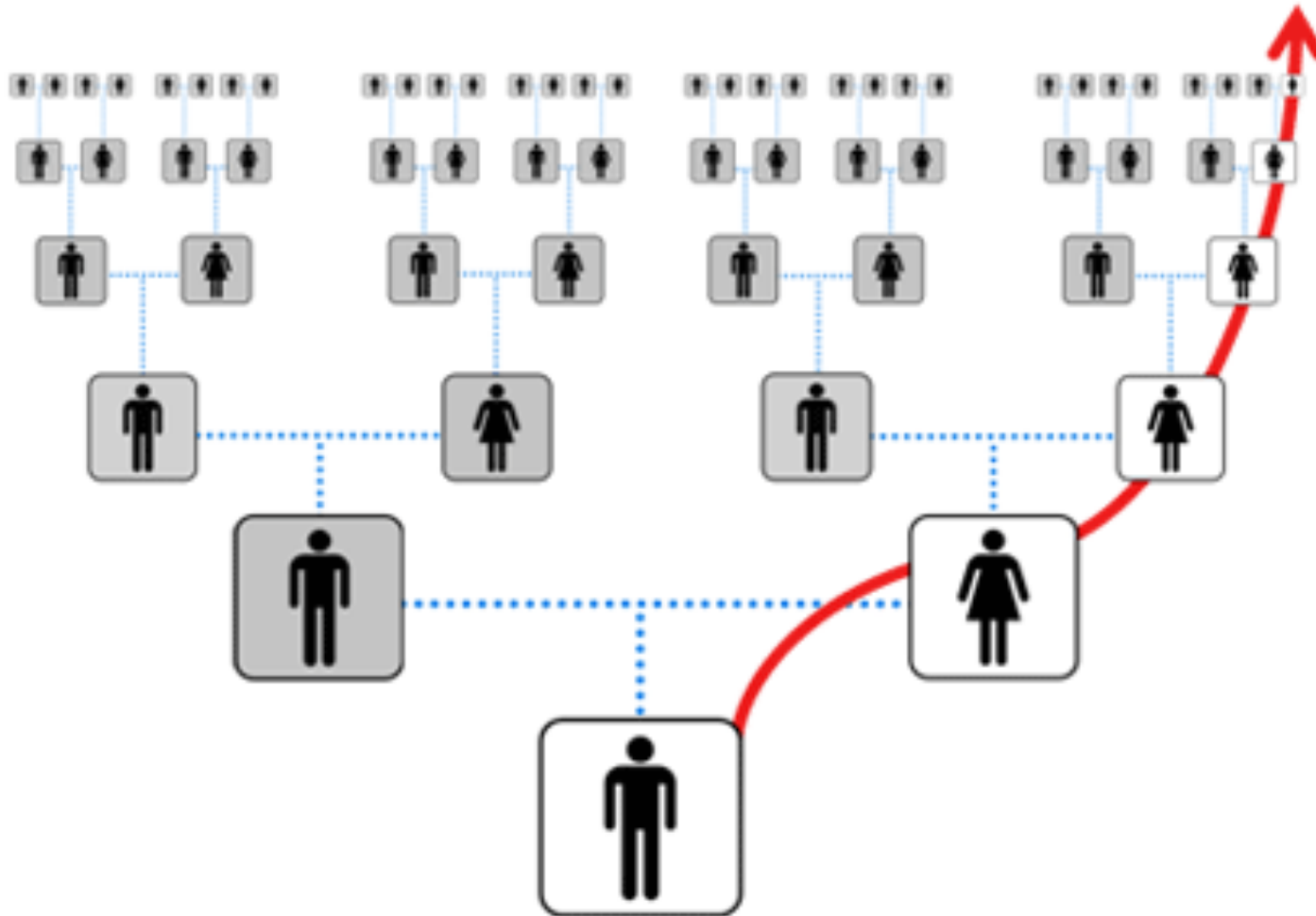
# Major Types of DNA:

*Y Chromosome - found only in males, passed from father to son line*



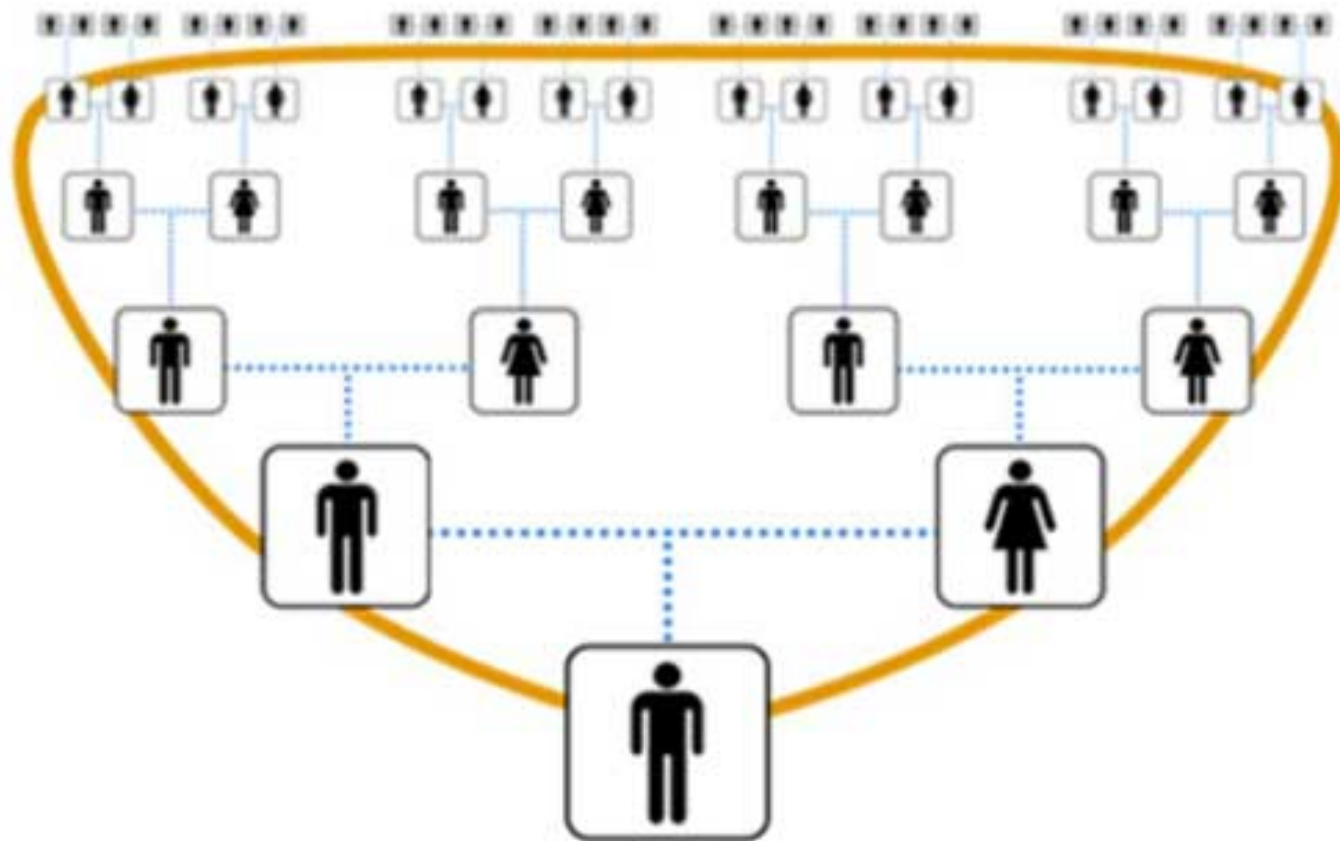
# Major Types of DNA:

*Mitochondrial DNA - everyone inherits this from their mother*



# Major Types of DNA:

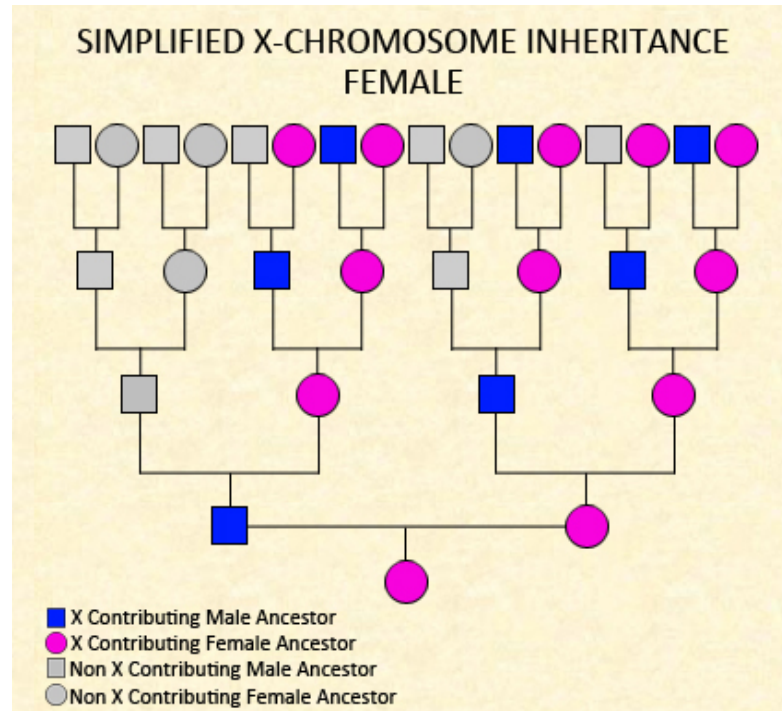
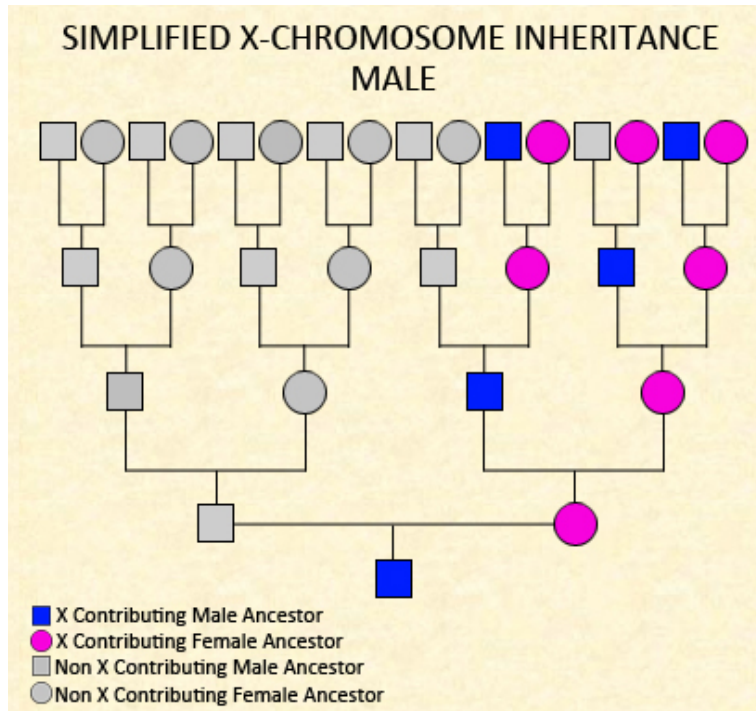
*Autosomal DNA - Chromosomes 1-22; each parent contributes one half of the DNA to their children*





# Major Types of DNA:

*X Chromosome - 2 in females and 1 in males; sons receive one chromosome from their mother and daughters receive one chromosome from each parent*



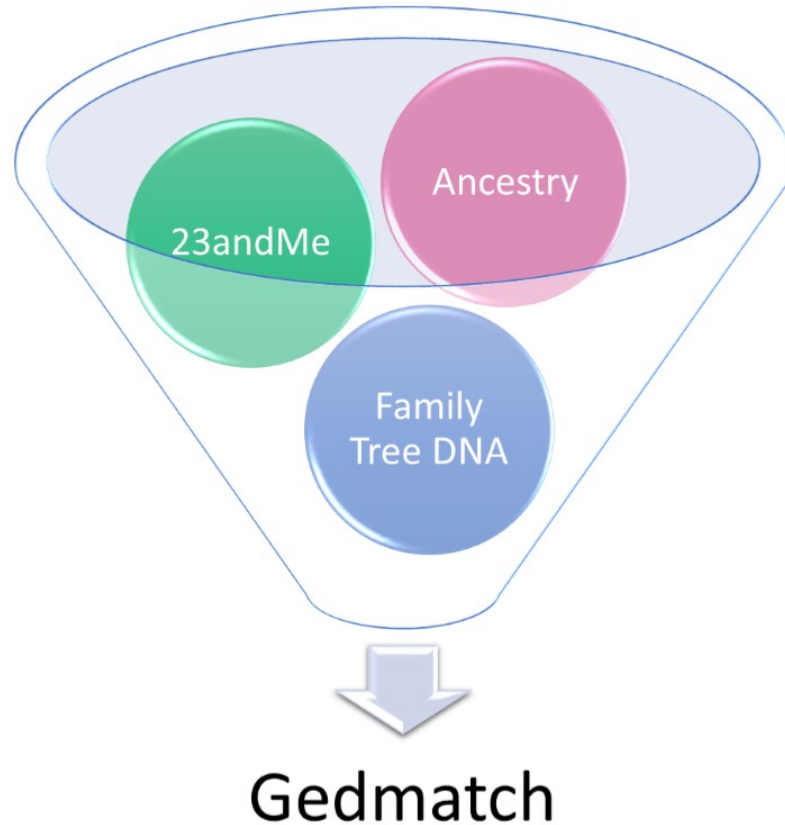
# Testing Companies:

*Family Tree DNA - performs all 3 DNA tests (at-DNA, mt-DNA, Y-DNA); match list is easiest to analyze; has a basic chromosome browser*

*23andMe - autosomal test; tedious complexities to sharing; has the best chromosome browser*

*Ancestry - autosomal tests; does not provide a Chromosome Browser*

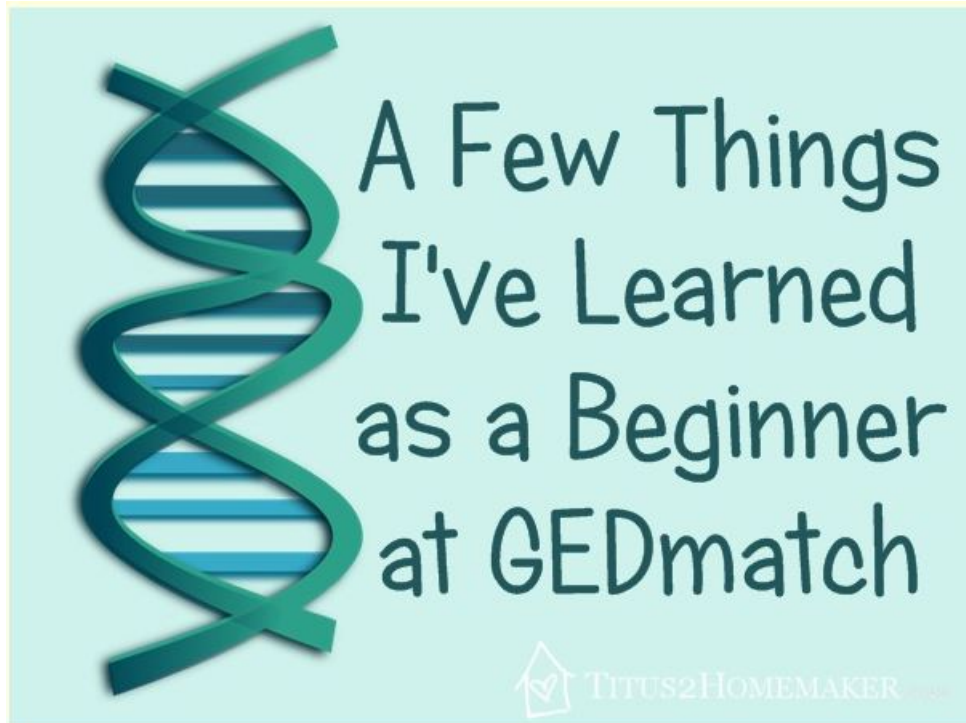
# Three companies perform the autosomal test. Maximize the testing by uploading to Gedmatch



There are essentially four 'ponds' to go fishing for matches to your DNA.

Gedmatch allows people who have tested at any of the three companies, to compare their data for triangulation.

# Maximize the testing by uploading to Gedmatch

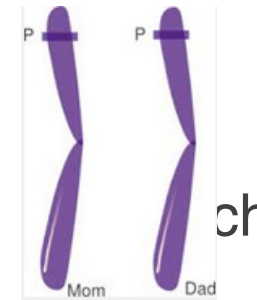


One human body needs only be represented by one test at Gedmatch; if you tested at Ancestry, Family Tree DNA and 23andMe, you only need one of those tests to appear on Gedmatch.

If in doubt I recommend people upload the Ancestry test to Gedmatch.

As a general guideline, discard matches of less than 5 cM; they are predominately IBS and unless they follow a pattern in a family, they are too small to be useful for triangulation; some people discard matches of less than 7 cM

# Autosomal DNA Terms




- ▶ Allele – each chromosome has two allele's, one from parent
- ▶ Half-identical region (HIR) – a region of the chromosome, similar to an address on a specific allele
- ▶ Centimorgan (cM) – unit of measure of genetic recombination frequency
- ▶ Identical by Descent (IBD) – a segment of DNA found to be identical in two people who are related to one another due to the fact that this segment was passed down to both of them from a common ancestor.
- ▶ Identical by State (IBS) – a region of the genome where two people by coincidence share a matching base pair
- ▶ MRCA – Most Recent Common Ancestor shared by matches

# Most Recent Common Ancestral Couple



## MRCA – Most Recent Common Ancestral Couple

+

<b>Anton Pfau Sr.</b>	
b. 25 Oct 1879	
at <del>Pankota</del> , Arad, Hungary	
d. 14 Aug 1974	
at Salem, Marion County, OR	
m. 25 Jan 1906	
at Portland, Multnomah County, OR	
<b>+Eva Julia Plennert</b>	
b. 4 Oct 1888	
at <del>Neupana</del> , Arad, Hungary	
d. 20 Jul 1936	
at Gervais, Marion County, OR	


<b>Helen Jean Pfau</b>		
b. 2 Mar 1915	at North Howell, Marion County, OR	
d. 27 Feb 2004	at Fredericksburg, Fredericksburg County, VA	
m. 22 Jun 1939	at Salem, Marion County, OR	
<b>+Leonard Edmond "Dutch" Holland</b>		
b. 30 Oct 1914	at Orange, Orange County, CA	
d. 14 Apr 1989	at Glen Burnie, Anne Arundel County, MD	

Siblings

<b>Ann Ruth Pfau</b>		
b. 2 Feb 1917	at North Howell, Marion County, OR	
d. 25 Aug 2009	at Salem, Marion County, OR	
m. 4 Oct 1933	at Vancouver, Clark County, WA	
<b>+Peter Crist Sproed</b>		
b. 25 Dec 1910	at Oxford, Isanti County, MN	
d. 16 Mar 1988	at Eugene, Lane County, OR	

<b>Janice Lynn Holland</b>	
b. 6 Jul 1940	at Torrance, Los Angeles County, CA
d. 6 Jun 1995	at Orange County, CA

1st Cousins

<b>Robert Sproed</b>		
b. Still Living	at	
d.	at	

# Autosomal DNA is a snapshot of your ancestors

- ▶ Each individual is the reflection of the randomly recombined DNA of their parents. Each parent has the randomly recombined DNA of their ancestors.
- ▶ Each sibling in a family is a unique reflection of their ancestors.

# Autosomal DNA is a snapshot of your ancestors

Your ancestral segment



Your match's ancestral segment



The IBD shared segment



Your ancestral segment



Your match's ancestral segment



The IBD shared segment



The significance is the overlapping segments were inherited from a specific ancestor that you share.



# Autosomal DNA is a snapshot of your ancestors

My grandmother Pfau is no longer living to test but my father's DNA reveals that he inherited the segment on Chromosome 2 so I know she had that.

Name	Name	Chrom	Start	End	cM
Banat Cousin	*D Uncle T Pfau	2	107789242	122549787	12.9
Banat Cousin	*D Uncle P Pfau	2	107789242	122549787	12.9
Banat Cousin	D Grandmother Pfau	2	106137951	121763213	13.4
Banat Cousin	*D Father Sproed	2	106137951	121763213	13.4
Banat Cousin	*D Sister Sproed	2	107973532	122478319	12.6
Banat Cousin	*D Brother Sproed	2	107973532	122478319	12.6
Banat Cousin	Denise Sproed	2	107790422	113657201	4.2
Banat Cousin	*D Son Robbie Merritt	2	106056062	113709815	6.2
Banat Cousin	*D Uncle P Pfau	6	34211932	42270553	11.3
Banat Cousin	*D Uncle T Pfau	6	34211932	42270553	11.3
Banat Cousin	*D Cousin D Schmidt	6	100425752	151971942	52.8
Banat Cousin	*D Cousin D Schmidt	9	135822398	138086988	11.4
Banat Cousin	*D Uncle P Pfau	19	15646525	52147155	35.5
Banat Cousin	*D Uncle T Pfau	19	38721347	52172700	17.7

Minimum threshold size to be included in total = 700 SNPs  
 Mismatch-bunching Limit = 350 SNPs  
 Minimum segment cM to be included in total = 2.0 cM

Chr	Start Location	End Location	Centimorgans (cM)	SNPs
2	107,790,422	113,657,201	4.2	1,019
3	66,085,161	69,162,625	3.6	706
13	90,664,762	93,452,147	3.6	703
18	34,406,666	38,079,976	2.8	740

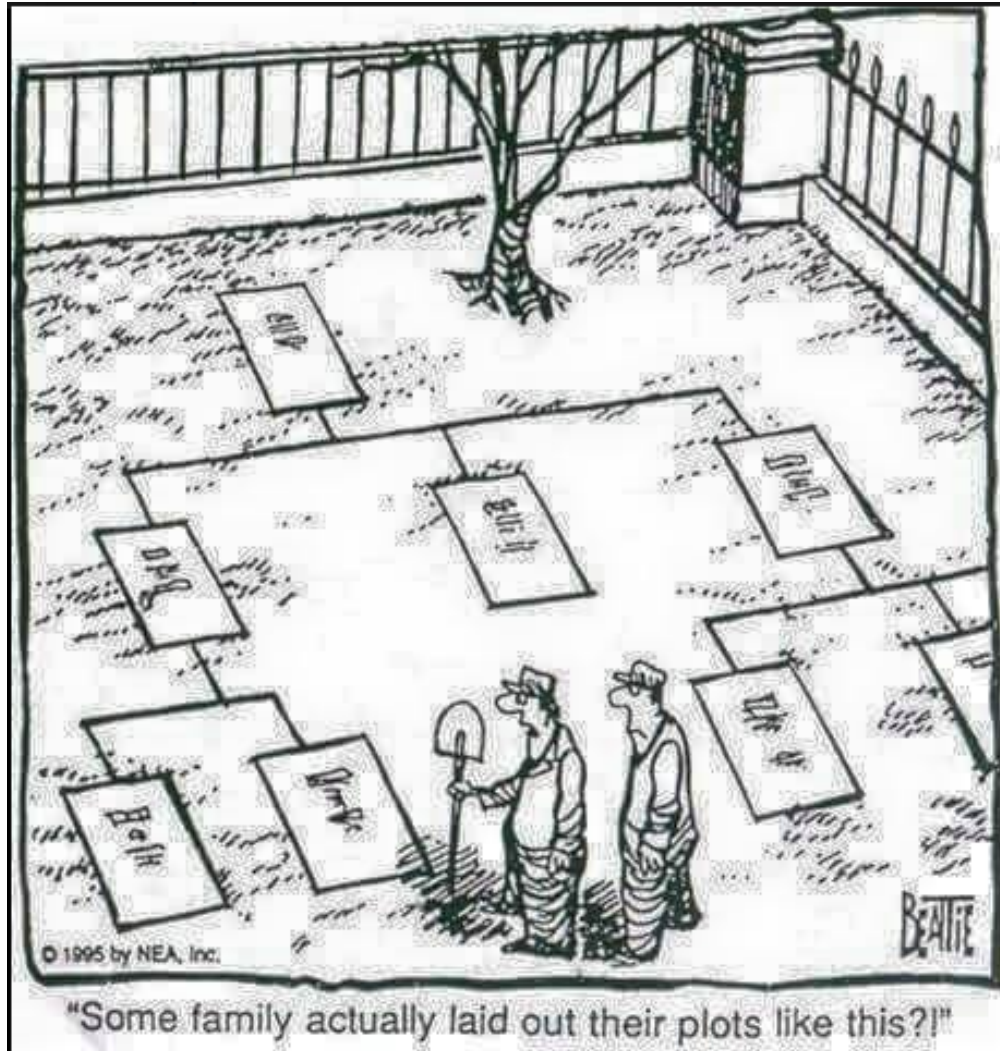
Largest segment = 4.2 cM  
 Total of segments > 2 cM = 14.2 cM

The 3D Chromosome Browser showed my son had a segment on 2 but my name didn't appear so I did a one to one compare and lower the threshold to 2 cm. Now I see that it is listed as only 4.2 cM but high SNP's so I add that line in yellow.

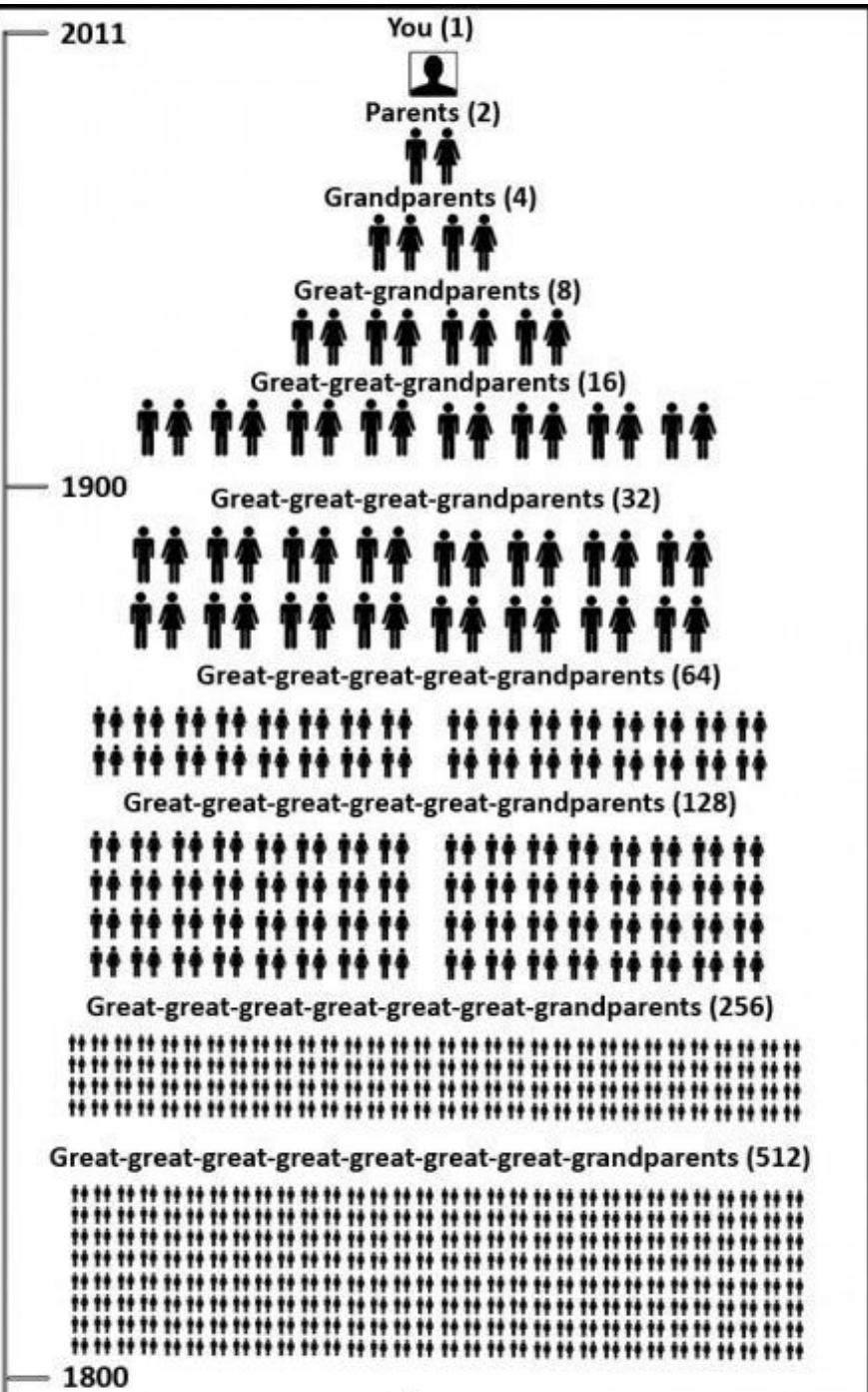
# Odds of Matching a Relative in an Autosomal Database

- ▶ 1<sup>st</sup> cousin or closer: 100%
- ▶ 2<sup>nd</sup> cousin: >99%
- ▶ 3<sup>rd</sup> cousin: about 90%
- ▶ 4<sup>th</sup> cousin: >50%
- ▶ 5<sup>th</sup> cousin: >10%
- ▶ 6<sup>th</sup> cousin: 0-2%

# What will not come with your DNA results?

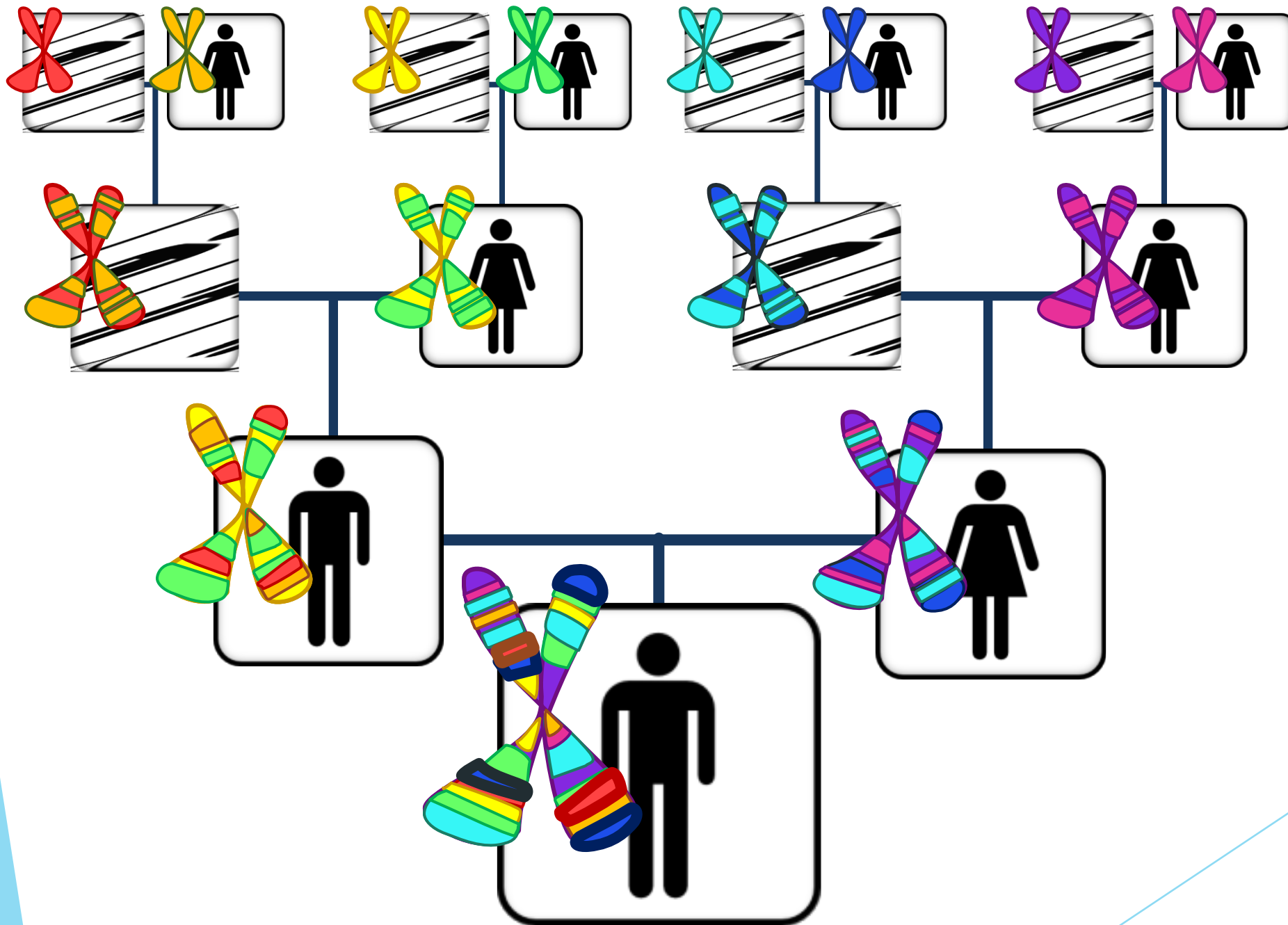


Charts telling you how you are related do **not** come with the results as a package.

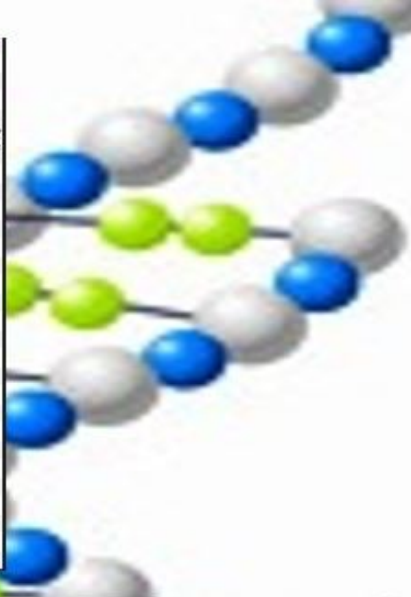
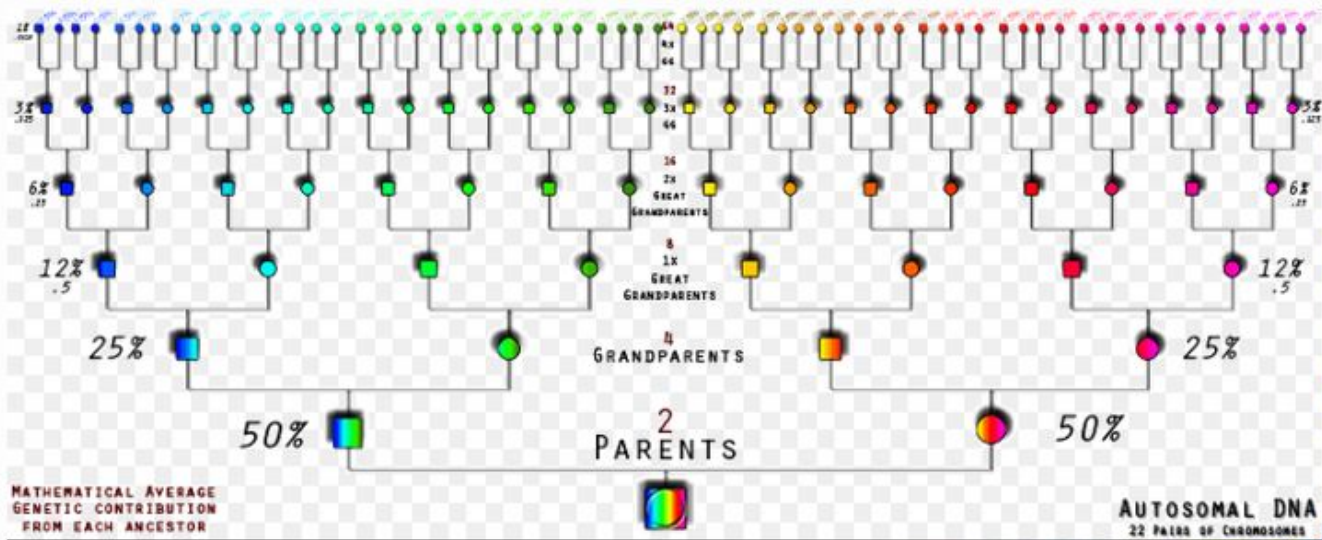


Who might you match?

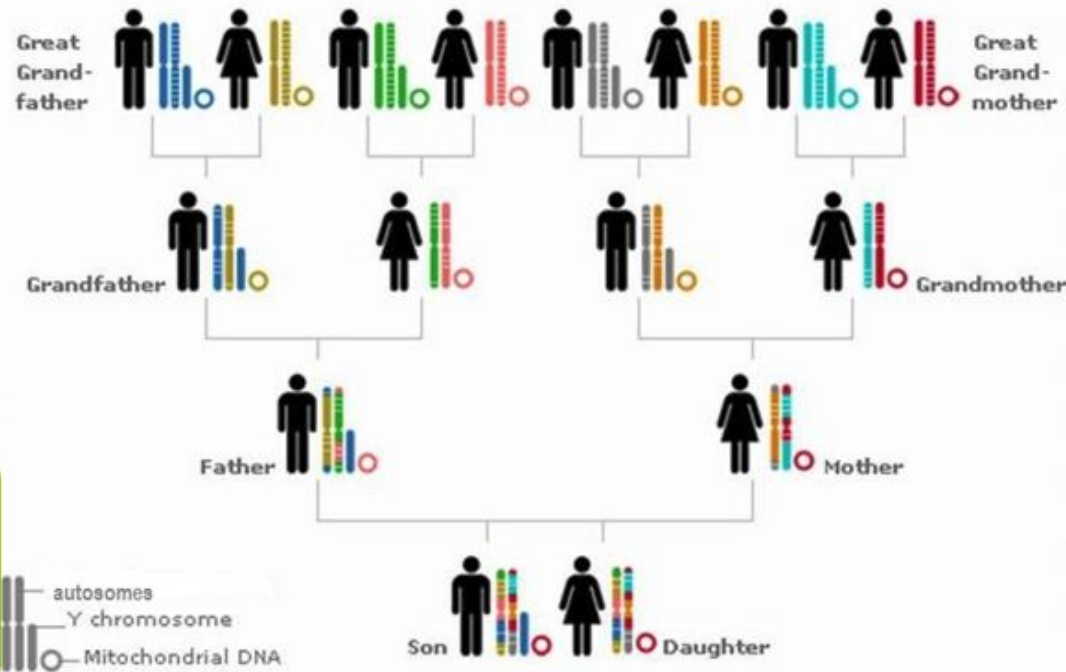
Where did this DNA  
come from back in  
time?



Graphic borrowed from Tim Janzen



As you move forward in time less and less DNA inherited is passed from the most distant ancestors



# atDNA Testing

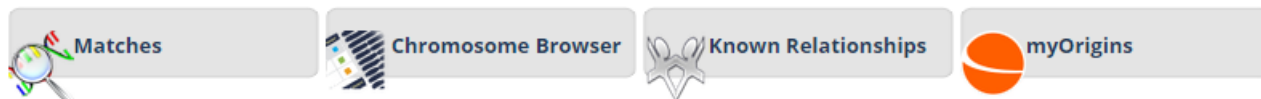
# What does it look like?

## Family Tree DNA

### Family Tree

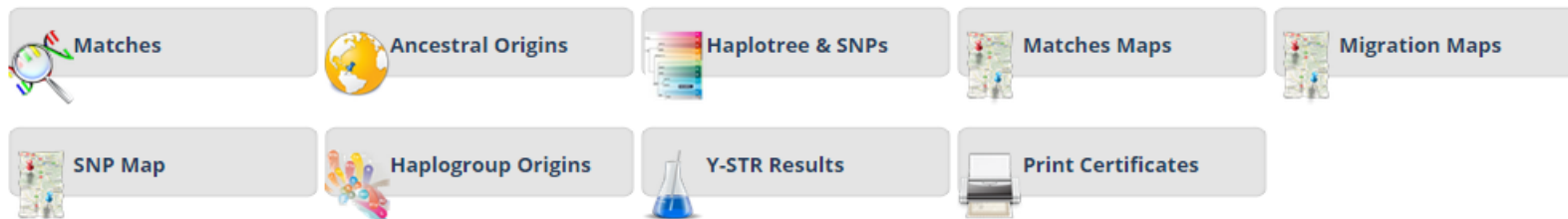


### Family Finder Results Completed: 11/21/2012



[Matrix](#) | [Advanced Matches](#) | [Download Raw Data](#) | [Learn More](#)






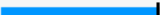





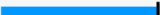





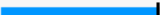





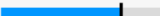
### Y-DNA Results Completed: 12/4/2012 [Upgrade](#)



[Download SNPs as CSV](#) | [Advanced Matches](#) | [Learn More](#)

# What does it look like?

## Family Tree DNA

Relations: <a href="#">Show All Matches</a>		Sort By: <a href="#">Relationship Range</a>	Name:	Ancestral Surnames: <a href="#">Apply</a>	
Show Full View	Match Date	Relationship Range ↑	Known Relationship	Shared cM	Ancestral Surnames
 Denise A Sproed    	3/14/2013		Daughter	 3382.06	Bernardin / Burger / Essig / Gemeinhardt...
 D Sister Sproed    	9/25/2013		Daughter	 3380.21	Bernardin / Burger / Essig / Gemeinhardt...
 D Brother Sproed    	1/14/2014		Son	 3384.02	Bernardin / Burger / Essig / Gemeinhardt...
 D Uncle P Pfau    	8/30/2013		Uncle	 1785.19	Bernardin / Essig / Gvasnitska / Pfau...



# What does it look like?

## 23andMe

List View

Map View

Surname View

search matches

Show: both sides

Sort: relationship

25 per page

1 - 25 of 1168



D Uncle Sproed  
Male

You

Sparnberg & Issigau, Germany Pankota & 3 more  
Sproed Burger Pfau 22 more I2 R1b1b2a1a

UPDATE YOUR PROFILE



Niece  
23.5% shared, 45 segments

United States Oregon, Missouri, Minnesota, S...  
Northern Europe Adams Agee Anderson 96 more  
H2a1

Sharing Genomes  
Send a Message  
View Family Tree



Great Niece  
8.98% shared, 29 segments

United States Maternal  
Oregon, Iowa, Indiana, Illinois, ... Paternal  
Oregon, California, Iowa, Minne... Maternal Lines Adams  
Agee 117 more H2a1

Owned Profile



2nd Cousin  
6.55% shared, 15 segments

United States H13a2

Public Match  
Send a Message



2nd Cousin  
3.19% shared, 12 segments

A surname list includes Snyder Montelius 19 more  
H13a1a

Sharing Genomes  
Send a Message



2nd Cousin, Once Removed  
0.71% shared, 3 segments

United States Northern Europe HV6 I1\*

Public Match  
Send a Message


# What does it look like?

## Ancestry


Sort by: Relationship | Date < 1 of 90 >

Filters HINTS NEW STARRED SEARCH MATCHES

### 2ND COUSIN


★  Possible range: 2nd - 3rd cousins ?  
Confidence: Extremely High ██████████  
Last logged in Feb 11, 2015

No family tree VIEW MATCH

★  Possible range: 2nd - 3rd cousins ?  
Confidence: Extremely High ██████████  
Last logged in Aug 14, 2014

301 people VIEW MATCH

### 3RD COUSIN

★  Possible range: 3rd - 4th cousins ?  
Confidence: Extremely High ██████████  
Last logged in Sep 21, 2014

852 people VIEW MATCH

# What does it look like?

## Gedmatch

Kit Nbr	Type	List	Select	Sex	Haplogroup		Autosomal				X-DNA			Name		
					Mt	Y	Details	Total cM	largest cM	Gen	Details	Total cM	largest cM			
▼ ▲					▼ ▲	▼ ▲		▼	▼	▼ ▲		▼	▼	▼ ▲		
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	F	H2a1d		<a href="#">A</a>	3586.7	281.5	1	<a href="#">X</a>	196	196	Denise A Sproed	de	
M	V3	<a href="#">L</a>	<input type="checkbox"/>	F	H2a1d		<a href="#">A</a>	3575.5	263.7	1	<a href="#">X</a>	186.7	136.7	*D Sister Sproed	de	
AI	F2	<a href="#">L</a>	<input type="checkbox"/>	M	H2a1d	R-M269	<a href="#">A</a>	3584.7	224.2	1	<a href="#">X</a>	0	0	*D Brother Sproed	de	
M	V4	<a href="#">L</a>	<input type="checkbox"/>	M	I2	R-M269	<a href="#">A</a>	2522.6	167.2	1.3	<a href="#">X</a>	116.5	74.6	*D Uncle Sproed	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M	I2	I-M223	<a href="#">A</a>	1957.8	111.3	1.4	<a href="#">X</a>	8.4	8.4	*D Uncle P Pfau	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M	H2a1d	R1b1a2	<a href="#">A</a>	1792.8	137.3	1.5	<a href="#">X</a>	9.4	9.4	*D Son Robbie Merritt	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M	I2		<a href="#">A</a>	1643.6	111.3	1.6	<a href="#">X</a>	32.9	17.2	*D Uncle T Pfau	de	
M	V4	<a href="#">L</a>	<input type="checkbox"/>	F	H2a1d		<a href="#">A</a>	1445.7	127.5	1.7	<a href="#">X</a>	0	0	*D Dau S Merritt	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M			<a href="#">A</a>	914.4	61.3	2	<a href="#">X</a>	0	0	*D Cousin R Horton	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M			<a href="#">A</a>	750.4	75.8	2.1	<a href="#">X</a>	0	0	*D Cousin DG Sproed	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	F			<a href="#">A</a>	505.8	59.6	2.4	<a href="#">X</a>	5.4	5.4	*D Cousin C Horton	de	
F	F2	<a href="#">L</a>	<input type="checkbox"/>	F	H		<a href="#">A</a>	224.9	35.1	3	<a href="#">X</a>	0	0	Re	Bl	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M			<a href="#">A</a>	211.6	34.5	3	<a href="#">X</a>	0	0	*D Cousin WD Woodard	de	
F:	F2	<a href="#">L</a>	<input type="checkbox"/>	M			<a href="#">A</a>	98.3	44.1	3.6	<a href="#">X</a>	0	0	*D Cousin WJ Miller	de	

The one to many list – of your closest 1,500 matches

# Now we have data – what does it tell us?



Imagine your ancestors were sitting at the table and each was willing to contribute 'pieces' to your puzzle – those pieces do not come with pedigree charts attached. Instead they match other cousins who have research on their families. By collaborating you put the puzzle together.

## Case study on how we might determine a relationship

The hypothesis was that my gr-grandmother, Mary Schmidt Pfau Hack Woelke, was related to the families in North Howell, enumerated in the 1910 census near her home. The lowest one on the census page was her brother. The one in the middle was unknown but in working with a descendant of that family, he confirmed that his ancestors also emigrated from Pankota, Arad, Hungary.

STATE Oregon  
 COUNTY Harmon  
 TOWNSHIP OR OTHER DIVISION OF COUNTY \_\_\_\_\_

DEPARTMENT OF COMMERCE AND LABOR - BUREAU OF THE CENSUS  
 THIRTEENTH CENSUS OF THE UNITED STATES: 1910 - POPULATION

SUPERVISOR'S DISTRICT No. 1  
 ENUMERATION DISTRICT No. 211  
 SHEET No. 3 B

Howell  
 NAME OF INCORPORATED PLACE

ENUMERATED BY ME ON THE 21st DAY OF April 1910. Thomas Leonard Clark ENUMERATOR

LINE NO.	NAME	RELATION	PERSONAL DESCRIPTION	NATIVITY			LANGUAGE	OCCUPATION		EDUCATION		MARRIAGE	
				Place of Birth of this Person	Place of Birth of Father of this Person	Place of Birth of Mother of this Person		Whether able to read English or other language	Trade or profession of person or occupation	Whether in school	Whether ever in school	Whether ever married	Whether ever divorced
1	2	3	4	5	6	7	8	9	10	11	12	13	14
38 38	Hill C	Grandfather	M 78 2 J	Oregon	Oregon	Oregon							
39 39	Leguine, Mary L	Head	W 31 11 6	Oregon	Can French	Can French	English	None	General Farm Exp	24 24	24 24	1	1
40 40	Ross M	Wife	F 28 11 6	Oregon	Massachusetts	Massachusetts	English	None	General Farm Exp	24 24	24 24	1	1
41 41	Hilda	Daughter	F 11 5 J	Oregon	Oregon	Oregon				24 24	24 24		
42 42	Edwan	Son	M 11 3 J	Oregon	Oregon	Oregon							
43 43	Wallace	Son	M 11 2 J	Oregon	Oregon	Oregon							
44 44	Karlhael	Daughter	F 11 12 J	Oregon	Oregon	Oregon							
45 45	Krakon, Krumm R	Head	M 55 11 26	Indiana	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
46 46	Krumm M	Wife	F 52 11 26	Indiana	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
47 47	Wolke, Antone	Head	M 49 11 0	Wisconsin	Wisconsin	Wisconsin	English	Farmer	General Farm Exp	24 24	24 24	1	1
48 48	Mary	Wife	F 45 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
49 49	Joseph	Son	M 21 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
50 50	August	Son	M 18 11 0	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
51 51	John	Son	M 14 11 0	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
52 52	Hak Anna	Daughter	F 11 11 J	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
53 53	Carlfort, Joseph A	Head	M 50 11 30	Indiana	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
54 54	Elizabeth	Wife	F 45 11 30	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
55 55	Edwin M	Son	M 22 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
56 56	Donald H	Son	M 5 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
42 42	Schmidt, Anton	Head	M 52 11 27	Wisconsin	Wisconsin	Wisconsin	German	Farmer	General Farm Exp	24 24	24 24	1	1
43 43	Margdalene	Wife	F 51 11 27	Wisconsin	Wisconsin	Wisconsin	German	None	General Farm Exp	24 24	24 24	1	1
44 44	Hose	Son	M 23 11 0	Wisconsin	Wisconsin	Wisconsin	German	None	General Farm Exp	24 24	24 24	1	1
45 45	Witmar, Ernest C	Head	M 38 11 4	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
46 46	Anna	Wife	F 37 11 4	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
47 47	Baughman, Winford	Head	M 32 11 3	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
48 48	Johna	Wife	F 29 11 3	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
49 49	Helena L	Son	M 2 11 0	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
50 50	Marlin H	Son	M 1 11 0	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
51 51	Angus	Son	M 6 11 0	Oregon	Oregon	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
52 52	William, Curtis E	Head	M 42 11 14	Indiana	North Carolina	Indiana	English	None	General Farm Exp	24 24	24 24	1	1
53 53	Katie	Wife	F 38 11 14	Oregon	Maine	Virginia	English	None	General Farm Exp	24 24	24 24	1	1
54 54	George	Son	M 12 11 0	Oregon	Indiana	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
55 55	George	Son	M 5 11 0	Oregon	Indiana	Oregon	English	None	General Farm Exp	24 24	24 24	1	1
43 43	Dwain, Nathan A	Head	M 36 11 9	Ohio	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
44 44	Anna R	Wife	F 35 11 9	Ohio	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
45 45	Katie	Daughter	F 11 9 J	Ohio	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
46 46	Roy F	Son	M 5 11 0	Washington	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
47 47	George W	Head	M 23 11 0	Oregon	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
48 48	Mary	Wife	F 43 11 0	Ohio	Virginia	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
49 49	Katie O	Son	M 2 11 0	Indiana	Pennsylvania	Indiana	English	None	General Farm Exp	24 24	24 24	1	1
50 50	Nagley	Son	M 2 11 0	Ohio	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
51 51	Charles J	Son	M 18 11 0	Ohio	Ohio	Ohio	English	None	General Farm Exp	24 24	24 24	1	1
42 42	Edward, Peter	Head	M 53 11 20	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
43 43	Anna	Wife	F 51 11 20	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
44 44	John	Son	M 13 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
45 45	Peter	Son	M 11 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
46 46	Joseph	Son	M 11 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1
47 47	August	Son	M 11 11 0	Wisconsin	Wisconsin	Wisconsin	English	None	General Farm Exp	24 24	24 24	1	1

# DNA Testing of Descendants and uploaded to Gedmatch

## Analyze Your Data

### DNA raw data

- 'One-to-many' matches
- 'One-to-one' compare
- X 'One-to-one'
- Admixture (heritage)
- Admixture/Oracle with Population Search
- Phasing
- People who match one or both of 2 kits **Updated**
- Predict Eye Color
- Are your parents related?
- **3D Chromosome Browser**
- Archaic DNA matches
- DNA File Diagnostic Utility  
Analyze DNA file upload for potential problems.

Enter between 3 and 10 Kit numbers

Enter first kit number:

Enter second kit number:

Enter third kit number:

Enter additional kit number:  
(Optional)

Enter additional kit number:  
(Optional)

Enter additional kit number:  
(Optional)

Enter additional kit number:  
(Optional)

Enter additional kit number:  
(Optional)

Enter additional kit number:  
(Optional)

Enter additional kit number:  
(Optional)

Enter cM threshold:  
(Also sets SNP threshold = 100 x cM threshold.  
Default = 5cM / 500 SNPs, minimum = 3cM)

Click here to display your results:

# DNA Testing of Descendants and uploaded to Gedmatch

Name	Name	Chron	Start	End	cM
*D Cousin D Schmidt	*D Uncle Sproed	2	194678939	202110777	5.5
*D Cousin D Schmidt	*D Father Sproed	14	95597354	100284746	12.1
*D Cousin D Schmidt	*D Uncle T Pfau	14	95597354	100553382	13.3
*D Cousin D Schmidt	*D Uncle T Pfau	15	30096476	31731603	5.3
*D Cousin D Schmidt	*D Uncle P Pfau	15	31069965	32853544	5.5

The hypothesis is supported – the pink shaded match on Chromosome 2 shows that Ann Pfau had a segment there that her brothers do not, as well as the one on Chromosome 14. She may not have had the one on Chromosome 15.



# DNA Testing of Descendants and uploaded to Gedmatch

The three Sproed siblings have no shared cM – the segments have diminished as they descended generationally.

Name	F3
*D Cousin D Schmidt	-
*D Uncle T Pfau	18.6
*D Uncle P Pfau	5.5
*D Father Sproed	12.1
Denise A Sproed	None
*D Brother Sproed	None
*D Sister Sproed	None
*D Uncle Sproed	5.5

The total shared cM helps guide where you look in your pedigree chart for the Most Recent Common Ancestor (MRCA). Uncle T has the strongest cM of 18.6 while his brother retained 5.5 cM. The sister had to have more than 12.1 as that is what one of her sons retained but most likely she had 17.6 cM or more because her two sons inherited different segments.

# Knowing where to look in your pedigree

Range of 86-216 cM with an average of 151 cM indicates a shared gr-grandfather (2 <sup>nd</sup> cousins)	Range of 16-111 cM with an average of 63 cM indicates a shared gr-gr-grandfather (3 <sup>rd</sup> cousins)	Range of 5-54 cM with an average of 27 cM indicates a shared gr-gr-gr-grandfather (4 <sup>th</sup> cousins)	
8 ancestors	16 ancestors	32 ancestors	64 ancestors





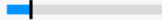
The cM ranges referenced in the top boxes are the Total cM shared between two DNA tested relatives. The intent is to guide one to which generation to be looking at for the shared ancestors. If in doubt move back another generation.

Once the distance is past 4<sup>th</sup> cousins, the cM diminishes less predictably so you need to look anywhere between 5<sup>th</sup>-8<sup>th</sup> generations back.

# Looking for others to collaborate with

Review your match list for those that appear 'new' each month. On FTDNA the data can be sorted by Match Date. This match is to another researcher whose family came from 'Romania'. We now are looking closer at the Schmidt branches as the likely family we share as that was the maiden name of her ancestor.

Other clues are in the DNA that can be explored.

Show Full View	Match Date	Relationship Range ↑	Known Relationship	Shared cM	Ancestral Surnames
	8/7/2015	2nd Cousin - 4th Cousin		 47.03	Bersh (Ukraine) / Buchler (Czech Republic)...

The SHOW FULL VIEW is a toggle option to drop down a menu below the name and provide a way to automatically add to the Chromosome Browser, 5 kits at a time. The Green shaded tree icon reveals if they have a tree loaded to the FTDNA website.

# Looking for others to collaborate with

When you look at a match in Full View you can follow three steps to review for DNA clues:

1. Click on Compare in Chromosome Browser for the person you begin with
2. Click on the Common Matches or intersecting arrows to get a list of the matches you share in common with this match profile
3. In the list that opens add 4 more of them to Compare in the Chromosome Browser – look above the list and select the COMPARE arrow

Show Simple View

Match Date Relationship Range Known Relationship Shared cM Ancestral Surnames

8/7/2015 2nd Cousin - 4th Cousin 47.03 Bersh (Ukraine) / Buchler (Czech Republic)...

Common Matches Tests Taken: N/A + Compare In Chromosome Browser Longest Block: 29.00 Y: N/A | mt: N/A

8/7/2015 2nd Cousin - 4th Cousin 47.03 Bersh (Ukraine) / Buchler (Czech Republic)...

In Common With Not In Common With Added to Compare Feature Longest Block: 29.00 Y: N/A | mt: N/A

Compare in Chromosome Browser [Clear](#)

Sh:  [D Uncle P Pfau \[x\]](#) [Robert M. Bau](#) [Ani](#) [Susa](#)

compare

# Looking for others to collaborate with

In the Chromosome Browser look for which profiles share the same HIR



Remember that the person you started from (Uncle T Pfau) is the underlying 'blanket' that these matches appear against. His brother, Uncle P Pfau has magenta lines as they closely related. Look at 19 – That is where SM and Robert M B share an ancestor with these brothers.

# Autosomal DNA is a snapshot of your ancestors

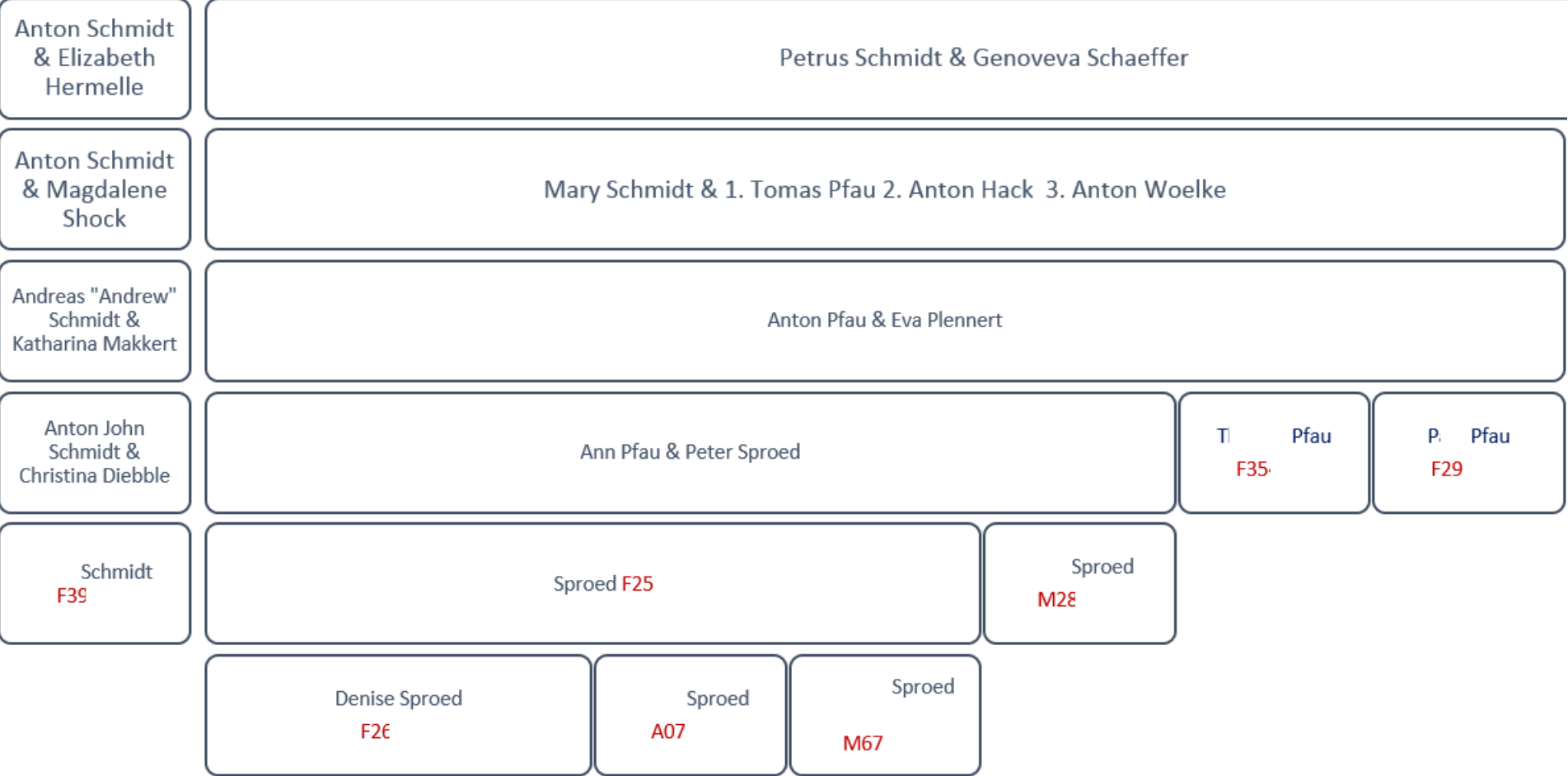
**CHROMOSOME 19**  
**8 matching segments**  
**Longest is 46.42 cM, Graph = 125 KBP/pixel**

MATCH NAME	START	END	cM	SNPS	EMAIL	ICW	SEGMENTS
P Pfau	211912	3318745	8.82	969	denisesproed@gmail.com		8.82
Sproed	211912	38701232	46.42	7799	denisesproed@gmail.com		46.42
Danielle	2988787	39224676	39.39	7130	denisesproed@gmail.com		39.39
D Sproed	11270684	38701232	23.47	4576	denisesproed@gmail.com		23.47
P Pfau	38702129	59123099	41.96	5752	denisesproed@gmail.com		41.96
Lawki...	48870277	52637477	8.09	1053			8.09
Robert M. Bau	59428132	63156396	9.21	1255			9.21
S Mt	59428132	63156396	9.21	1255			9.21

The significance is the overlapping segments were inherited from a specific ancestor that you share.

This is the Autosomal Segment Analyzer tool at [www.DNAGEDCOM.com](http://www.DNAGEDCOM.com)

# Unknown Schmidt

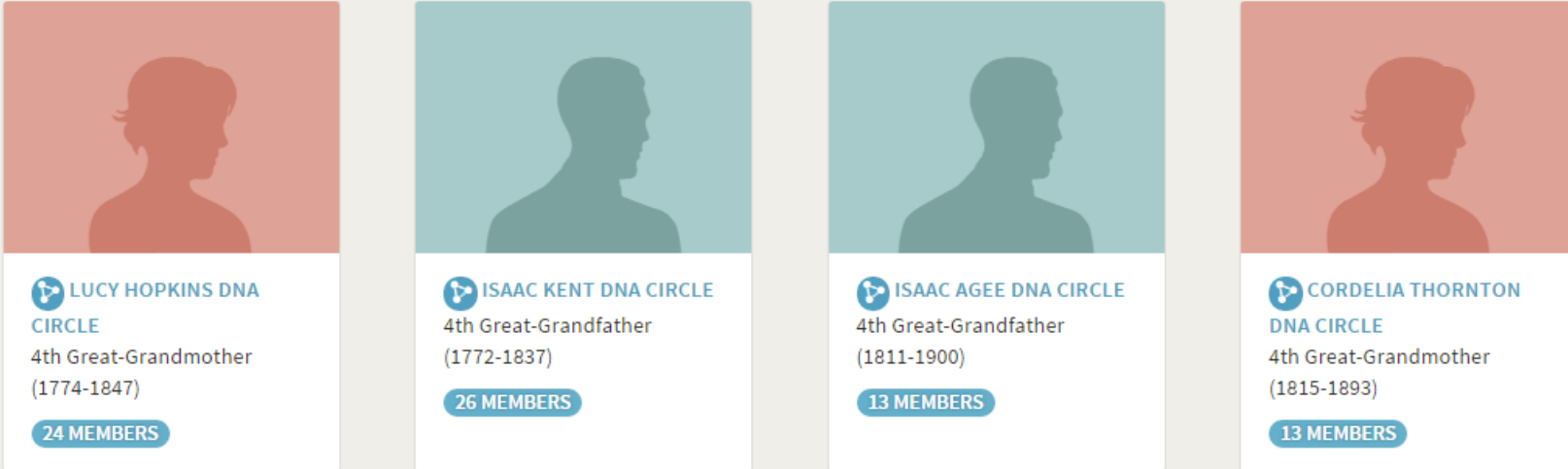


A MRCA chart helps us track the known lines of descendency

# Ancestry – DNA Circles are similar to MRCA charts

DNA CIRCLES **BETA**

These are people who are already in your family tree (Sproed 2013 Jan)



The screenshot displays four DNA circles, each with a silhouette icon and a member count badge. The circles are arranged horizontally. The first circle is for Lucy Hopkins, a 4th Great-Grandmother (1774-1847) with 24 members. The second is for Isaac Kent, a 4th Great-Grandfather (1772-1837) with 26 members. The third is for Isaac Agee, a 4th Great-Grandfather (1811-1900) with 13 members. The fourth is for Cordelia Thornton, a 4th Great-Grandmother (1815-1893) with 13 members.

Name	Relationship	Birth-Death	Members
LUCY HOPKINS DNA CIRCLE	4th Great-Grandmother	(1774-1847)	24 MEMBERS
ISAAC KENT DNA CIRCLE	4th Great-Grandfather	(1772-1837)	26 MEMBERS
ISAAC AGEE DNA CIRCLE	4th Great-Grandfather	(1811-1900)	13 MEMBERS
CORDELIA THORNTON DNA CIRCLE	4th Great-Grandmother	(1815-1893)	13 MEMBERS

A MRCA chart helps us track the known lines of descendency



# Ancestry – Shaky Leaf clues to

3RD COUSIN



M.C.

Possible range: 3rd - 4th cousins <sup>?</sup>

Confidence: Extremely High

Last logged in Sep 21, 2014

852 people

VIEW MATCH

According to your family trees, it looks like you have a shared ancestor. Review the info below to confirm the relationship. You can take this opportunity to [get in touch](#), share stories and photos, or just say hello.



## Shared Ancestor Hint



Johann Theodor Rudolf Spröd  
2nd Great-Grandfather

&



Augusta Sidonie Korb  
2nd Great-Grandmother



Hermann Fredrick Sproed  
Great-Grandfather



Fredrick Christian "Fritz" Sproed  
Great-Grand uncle



Peter Crist Sproed  
Grandfather



Agnes Lorraine Sproed  
1st Cousin (2x removed)



Robert Sproed  
Father



Private  
2nd Cousin (1x removed)



D Sproed  
Self



M.C.  
3rd Cousin

# A different example

Begin with the match list – take the strongest match and compare in one to one compare.

A909 [redacted] F2 L [redacted] M [redacted] | | A | 22.2 | 10.9 | 4.7 | | X | 0 | 0 | Carl S [redacted]

## GEDmatch.Com DNA one-to-one Comparison Entry Form

This utility allows you to make detailed comparisons of 2 DNA kits. Results may be based on either default thresholds, or thresholds that you provide. Estimates of 'generations' are provided as a relative means of comparison, and should not be taken too literally, especially for more than a couple of generations back.

Kit Number 1:

Kit Number 2:

Show graphic bar for each Chromosome?  Yes  No

For compressed graphic, enter width in pixels (leave blank for expanded graphic, default=1000)

SNP count minimum threshold to be considered a matching segment (Leave blank for default value = 700)

Minimum segment cM size to be included in total: (Leave blank for default value = 7)

Size (in SNPs) of Mismatch Evaluation window. (Leave blank for default = SNP threshold)

Size (in SNPs) of Mismatch-Bunching limit. (Leave blank for default mismatch eval window / 2)

## GEDmatch.Com Autosomal Comparison

Comparing Kit F354 [redacted] (\* [redacted] Pfau) and A909 [redacted] (Carl Sch [redacted])

Minimum threshold size to be included in total = 700 SNPs  
Mismatch-bunching Limit = 350 SNPs  
Minimum segment cM to be included in total = 5.0 cM

Chr	Start Location	End Location	Centimorgans (cM)	SNPs
1	63,133,809	75,487,142	10.9	2,807
2	227,720,427	231,123,257	5.6	842
20	6,915,818	9,269,190	5.7	700

Largest segment = 10.9 cM  
Total of segments > 5 cM = 22.2 cM

## The other brother shares one segment

Chr	Start Location	End Location	Centimorgans (cM)	SNPs
1	63,133,809	75,487,142	10.9	2,832

Largest segment = 10.9 cM  
Total of segments > 5 cM = 10.9 cM



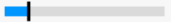


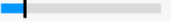


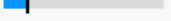


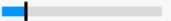


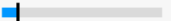
# Another Example

Working with Adoptee's helps you hone your skills

Name	Name	Chro	Start	End	cM
Adoptee L	*D Uncle CD Max Atterbury	2	221132083	235555467	23.6
Adoptee L	*D Uncle CD Max Atterbury	5	126729521	141573812	11.5
Adoptee L	*D Sister Sproed	5	126729521	141604530	11.6
Adoptee L	*D Mother Sproed	5	126863762	141467714	11.1
Adoptee L	*D Cousin DP Mathews	8	281111155	31171560	5.1
Adoptee L	*D Cousin DP Mathews	9	12911644	16234120	6.9
Adoptee L	*D Uncle JNL Maxfield Parrish	9	12914111	16234120	6.9
Adoptee L	*D Cousin DP Mathews	9	106913052	113466466	9.1
Adoptee L	*D Cousin DP Mathews	9	137043873	140145149	8.4
Adoptee L	*D Cousin DG Matthews	11	70291411	106101634	31
Adoptee L	*D Cousin DP Mathews	11	70293824	115690130	42.1
Adoptee L	*D Cousin DG Matthews	19	55828656	58901412	12.9
Adoptee L	*D Uncle JNL Maxfield Parrish	22	18016351	22069533	8.7

# Another Example

Working with Adoptee's helps you hone your skills

 D Cousin DP Mathews	6/25/2015	2nd Cousin - 4th Cousin		 87.51	Chester / Childs / Mathews / Mathis / Mathews...
 D Cousin DG Mathews	6/25/2015	2nd Cousin - 4th Cousin		 79.44	Chester / Childs / Mathis / Mathews / Schrader...
 D Uncle CD Max Atterbury	6/25/2015	2nd Cousin - 4th Cousin		 84.49	
 D Sister Sproed	6/25/2015	4th Cousin - Remote Cousin		 41.00	Adams / Chester / Mathis / Mathews / Schrader...
 D Mother Sproed	6/25/2015	5th Cousin - Remote Cousin		 26.43	Adams / Chester / Mathis / Mathews / Schrader...

# Additional Resources for learning

The articles by Steve P. Morse about DNA – [From DNA to Genetic Genealogy](#) and [Genealogy Beyond the Y-Chromosome](#) are the best basics to learn about the topic. A book, Genetic Genealogy, expands on the basics; available on Emily's blog page <http://genealem-geneticgenealogy.blogspot.com/>

Make an ahnentafel (a text format for a pedigree) to share with matches.

Websites: Gedmatch [www.Gedmatch.com](http://www.Gedmatch.com)  
DNAGedcom [www.dnagedcom.com](http://www.dnagedcom.com)

[A Beginner's Guide to Genetic Genealogy](#) by Kelly Wheaton

An article about how the [X Chromosome patterns](#)  
<http://linearboretum.blogspot.ca/2012/11/phasing-x-chromosome.html>

Some other sites that are helpful to genetic genealogy are:

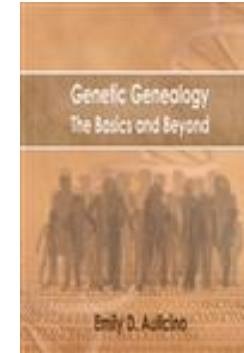
<http://dna-explained.com/>  
<http://www.yourgeneticgenealogist.com/>  
<http://www.thegeneticgenealogist.com/>  
<http://throughthetreesblog.tumblr.com/>

Family Tree DNA Webinars: <https://www.familytreedna.com/learn/ftdna/webinars/>

A software link to Genome Mate Pro: <https://www.genomemate.org/>

A video provides a general overview – [Autosomal DNA: A step by step approach](#) at <https://www.youtube.com/watch?t=1055&v=Jtpe6u2J5ps>

Medical Information – High Level Screening: <https://www.promethease.com>



# Ahnentafel vs Pedigree Chart

## Ahnentafel of Ann Ruth Pfau

--- 1st Generation ---

1. Ann Ruth<sup>1</sup> Pfau was born on 2 Feb 1917 at North Howell, Marion County, Oregon. She married Peter Crist Sproed, son of Hermann Fredrick Sproed and Louisa ~~Doodle~~ Burger, on 4 Oct 1933 at Vancouver, Clark County, Washington. She died in Salem, Marion County, Oregon, on 25 Aug 2009, at the age of 92.

--- 2nd Generation ---

2. Anton<sup>2</sup> Pfau Sr was born on 25 Oct 1879 at Pankota, Arad, Hungary. He married Eva Julia ~~Plennert~~, daughter of Christian ~~Plennert~~ and Julianna "Anna" Schmidt, on 25 Jan 1906 at Portland, Multnomah County, Oregon. He married Mae Lilly Johns in 1940 at Marion County, Oregon. He married Bessie ~~Granlet Haselton~~, on 6 Feb 1953 at Salem, Marion County, Oregon. He died in Salem, Marion County, Oregon, on 14 Aug 1974, at the age of 94.

3. Eva Julia<sup>2</sup> ~~Plennert~~ was born on 4 Oct 1888 at Neupanat, Arad, Hungary. She married Anton Pfau Sr., son of Tomas Pfau and Maria "Mary" Schmidt, on 25 Jan 1906 at Portland, Multnomah County, Oregon. She died in Gervais, Marion County, Oregon, on 20 Jul 1936, at the age of 47.

--- 3rd Generation ---

4. Tomas<sup>3</sup> Pfau was born in Jun 1850 at Pankota, Arad, Hungary. He married Maria "Mary" Schmidt, daughter of Petrus Schmidt and ~~Genoveva~~ Schaeffer, at Hungary. He died in Pankota, Arad, Hungary, in 1892.

5. Maria "Mary"<sup>3</sup> Schmidt was born on 20 Aug 1858 at Pankota, Arad, Hungary. She married Tomas Pfau, son of Antonius "Antal" Pfau and Anna ~~Gvasnitska~~, at Hungary. She married Anton Hack circa 1893. She married Anton John ~~Wozka~~, on 22 Jun 1909 at Marion County, Oregon. She died in Gervais, Marion County, Oregon, on 26 Feb 1929, at the age of 70.

6. Christian<sup>3</sup> ~~Plennert~~ was born between 1863 and 1864 at Hungary. He married Julianna "Anna" Schmidt, daughter of Andreas Schmidt and ~~Katherina~~ ~~Nozak~~, on 31 Jan 1887 at Neupanat, Arad, Hungary. He died in Neupanat, Arad, Hungary, on 18 Feb 1904.

7. Julianna "Anna"<sup>3</sup> Schmidt was born on 12 Sep 1870 at Neupanat, Arad, Hungary. She married Christian ~~Plennert~~, son of Ignatz ~~Plennert~~ and Eva ~~Leptich~~, on 31 Jan 1887 at Neupanat, Arad, Hungary. She married William John Frederick Becker on 17 Jul 1905 at Portland, Multnomah County, Oregon. She died in Portland, Multnomah County, Oregon, on 30 Oct 1955, at the age of 85.

--- 4th Generation ---

8. Antonius "Antal"<sup>4</sup> Pfau was born in Dec 1822 at Pankota, Arad, Hungary. He married Anna ~~Gvasnitska~~, on 8 Nov 1840 at Pankota, Arad, Hungary. He died in Pankota, Arad, Hungary.

9. Anna<sup>4</sup> ~~Gvasnitska~~ was born in 1820 at Hungary. She married Antonius "Antal" Pfau, son of Johannes Pfau and Magdalena ~~Bernardin~~, on 8 Nov 1840 at Pankota, Arad, Hungary.

10. Petrus<sup>4</sup> Schmidt was born at Hungary. He married ~~Genoveva~~ Schaeffer on 20 Feb 1851 at Pankota, Arad, Hungary.

11. Genoveva<sup>4</sup> Schaeffer was born at Hungary. She married Petrus Schmidt on 20 Feb 1851 at Pankota, Arad, Hungary.

12. Ignatz<sup>4</sup> ~~Plennert~~ was born circa 1840 at Hungary. He married Eva ~~Leptich~~ circa 1860 at Hungary. He married ~~Katherina~~ ~~Nozak~~ on 13 May 1877 at Neupanat, Arad, Hungary.

13. Eva<sup>4</sup> ~~Leptich~~ was born circa 1840 at Hungary. She married Ignatz ~~Plennert~~ circa 1860 at Hungary.

14. Andreas<sup>4</sup> Schmidt was born on 16 Feb 1837 at Arad, Hungary. He married ~~Katherina~~ ~~Nozak~~ on 27 Jan 1863 at Neupanat, Arad, Hungary. He died in Neupanat, Arad, Hungary, on 28 Sep 1873, at the age of 36.

15. ~~Katherina~~ ~~Nozak~~ was born on 22 Jan 1843 at Neupanat, Arad, Hungary. She married Andreas Schmidt, son of Josef Schmidt and Elisabeth ~~Essig~~, on 27 Jan 1863 at Neupanat, Arad, Hungary. She married Ignatz ~~Plennert~~ on 13 May 1877 at Neupanat, Arad, Hungary. She died in Neupanat, Arad, Hungary, on 8 Jan 1901, at the age of 57.

--- 5th Generation ---

16. Johannes<sup>5</sup> Pfau was born in 1800 at Hungary. He married Magdalena ~~Bernardin~~, on 20 Jan 1820 at Pankota, Arad, Hungary. He died in Pankota, Arad, Hungary, on 18 Sep 1838.

17. Magdalena<sup>5</sup> ~~Bernardin~~ was born in 1800 at Hungary. She married Johannes Pfau on 20 Jan 1820 at Pankota, Arad, Hungary.

28. Josef<sup>5</sup> Schmidt married Elisabeth ~~Essig~~.

29. Elisabeth<sup>5</sup> ~~Essig~~ married Josef Schmidt.

## Pedigree - Chart# 1

Chart of Ann Ruth Pfau

### 4. Tomas Pfau

b. Jun 1850  
at Pankota, Arad, Hungary  
m.  
at Hungary  
d. 1892  
at Pankota, Arad, Hungary

### 2. Anton Pfau Sr.

b. 25 Oct 1879  
at Pankota, Arad, Hungary  
m. 25 Jan 1906  
at Portland, Multnomah County, OR  
d. 14 Aug 1974  
at Salem, Marion County, OR

### 5. Maria "Mary" Schmidt

b. 20 Aug 1858  
at Pankota, Arad, Hungary  
d. 26 Feb 1929  
at Gervais, Marion County, OR

### 1. Ann Ruth Pfau

b. 2 Feb 1917  
at North Howell, Marion County, OR  
m. 4 Oct 1933  
at Vancouver, Clark County, WA  
d. 25 Aug 2009  
at Salem, Marion County, OR

### sp. Peter Crist Sproed

b. 25 Dec 1910  
at Oxford, Isanti County, MN  
d. 16 Mar 1988  
at Eugene, Lane County, OR

### 6. Christian Plennert

b. bt 1863-1864  
at Hungary  
m. 31 Jan 1887  
at Neupanat, Arad, Hungary  
d. 18 Feb 1904  
at Neupanat, Arad, Hungary

### 3. Eva Julia Plennert

b. 4 Oct 1888  
at Neupanat, Arad, Hungary  
d. 20 Jul 1936  
at Gervais, Marion County, OR

### 7. Julianna "Anna" Schmidt

b. 12 Sep 1870  
at Neupanat, Arad, Hungary  
d. 30 Oct 1955  
at Portland, Multnomah County, OR

### 16. Johannes Pfau

b. 1800 , d. 18 Sep 1838

### 8. Antonius "Antal" Pfau

b. Dec 1822 , d.

### 17. Magdalena Bernardin

b. 1800

### 9. Anna Gvasnitska

b. 1820

### 10. Petrus Schmidt

b.

### 11. Genoveva Schaeffer

b.

### 12. Ignatz Plennert

b. c 1840

### 13. Eva Leptich

b. c 1840

### 28. Josef Schmidt

b.

### 14. Andreas Schmidt

b. 16 Feb 1837 , d. 26 Sep 1873

### 29. Elisabeth Essig

b.

### 15. Katherina Nozak

b. 22 Jan 1843 , d. 8 Jan 1901

# Writing Queries

- ▶ Subject: Begin with the company where you found their match
- ▶ Include details about Kit or Name you matched
- ▶ Attach an ahnentafel or include a link to your online pedigree
- ▶ Make your emails individual or to a limited group who triangulate at a specific Chromosome HIR (address)

Subject Examples:

FTDNA Match D Uncle P Pfau to M Mouse

Gedmatch F123456 D Uncle P Pfau to M123456 M Mouse

# Additional Links

**Comparing the Major DNA Testing Companies** by Dr. Tim Janzen presented at the Genealogical Forum of Oregon 15 Mar 2015 May be downloaded from <http://tinyurl.com/mpktlje>

**Chromosome Mapping and Autosomal DNA Analysis** by Dr. Tim Janzen presented at the African American Society of Northern California 11 Apr 2015 May be downloaded from <http://tinyurl.com/n74oovt>