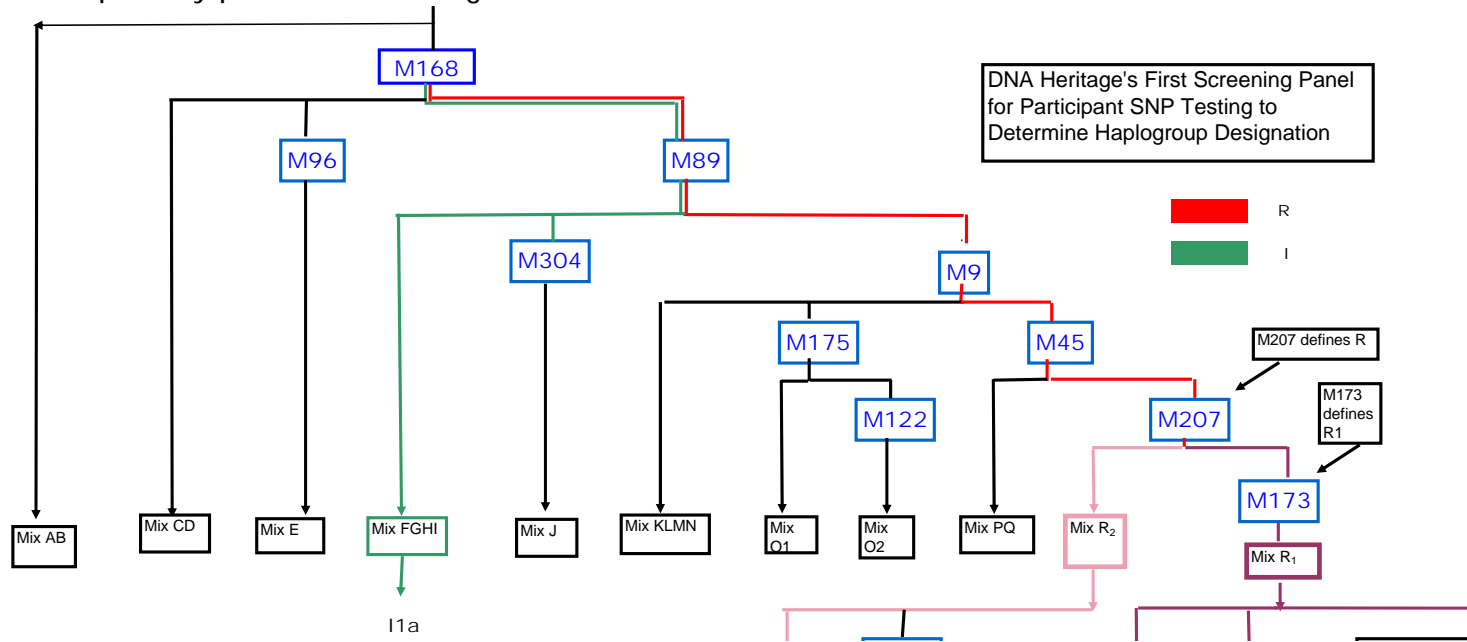


This is the primary panel DNA Heritage tests.

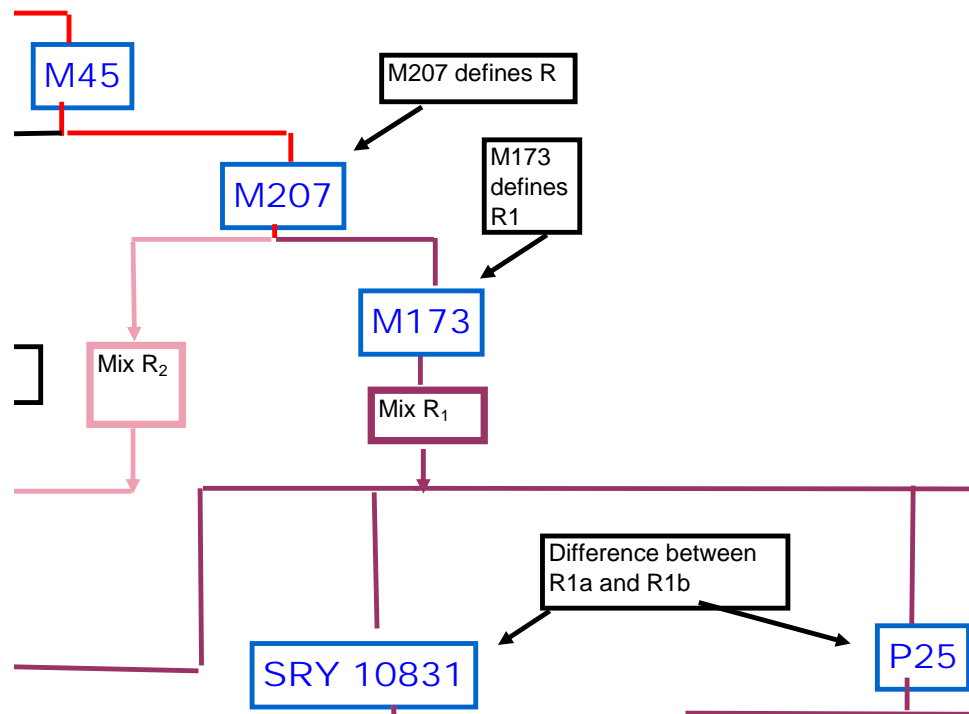


This first figure shows the method DNA Heritage uses to determine Haplogroup. They use 2 panels of DNA markers. What you see here is the first panel, used to determine the main Haplogroup designation, A, B, C, D, E, F, H, I, J, K, L, M, N, O, P, Q and R. The second panels are specific to the main designation, and used to determine sub groups.

When your sample is received, one part of it is used for this panel. The marker M168 is first tested. If it shows no change, then the sample is determined to be either Haplogroup A or B. If a change is shown, then markers M96 and M89 are tested. If no change shown in either of these markers, then participant is of either C or D Haplogroups. If M96 has a change, then sample is E Haplogroup. A change noted at M89 requires more markers to be tested. This is where we split the I Haplogroup from the R. M9 and M304 are both tested. If neither shows a change, then sample is of Haplogroup F, G, H, or I. If a change occurs at M304, then have J Haplogroup. If the change occurs at M9 then further markers must be tested. This way, we work our way down the DNA Haplogroup tree to get a specific main Haplogroup. M45 and M175 are then tested. If, no changes show at either, then we have Haplogroups K, L, M, N. If M175 shows a change then a further test at M122 is required to determine which of the O groups the sample is in. If M45 is the marker showing the change, two more markers are checked. A positive at M207 gives us the R group; a negative puts the sample in P and Q. In R, R1 is defined at M173.

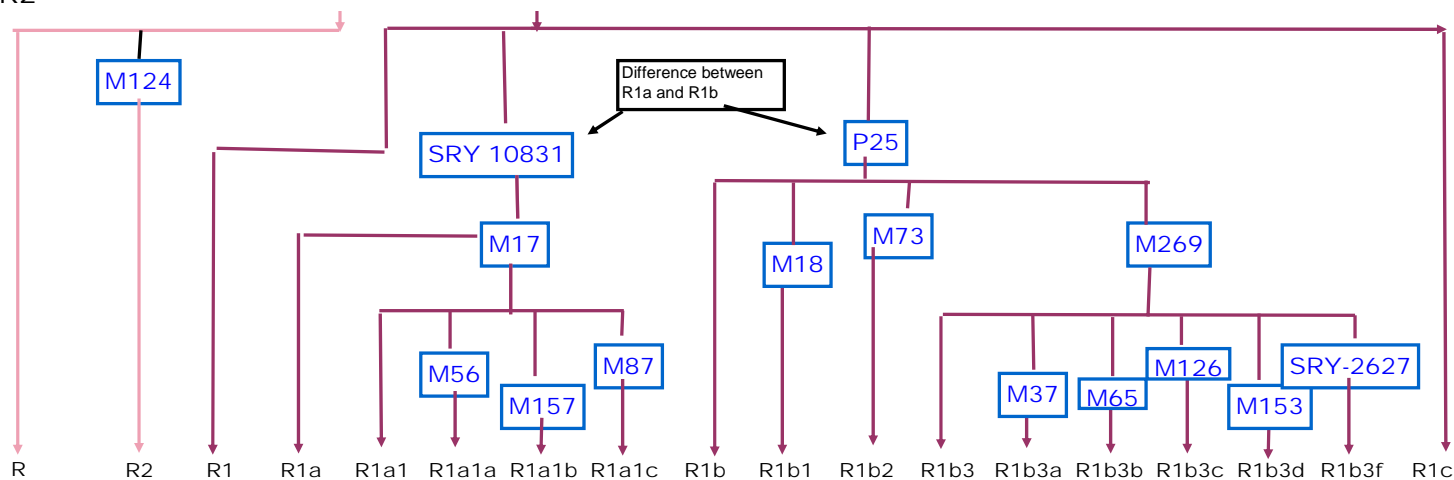
As we noted, there are two parts to SNP testing. We have described the first part; determine the main Haplogroup designation. This allows us to determine which markers to test in the second panel. These are markers specific to the main group. They allow us to refine the size of the population that this sample, and this participant, comes from. This is what we call their "deep ancestry".

As we are concerned with our R group results, Marker M173 is the decider for which track an R main Haplogroup sample is on.  
 Fig. R1



These 2 diagrams trace the route that DNA Heritage uses to determine haplo groups and subgroups.

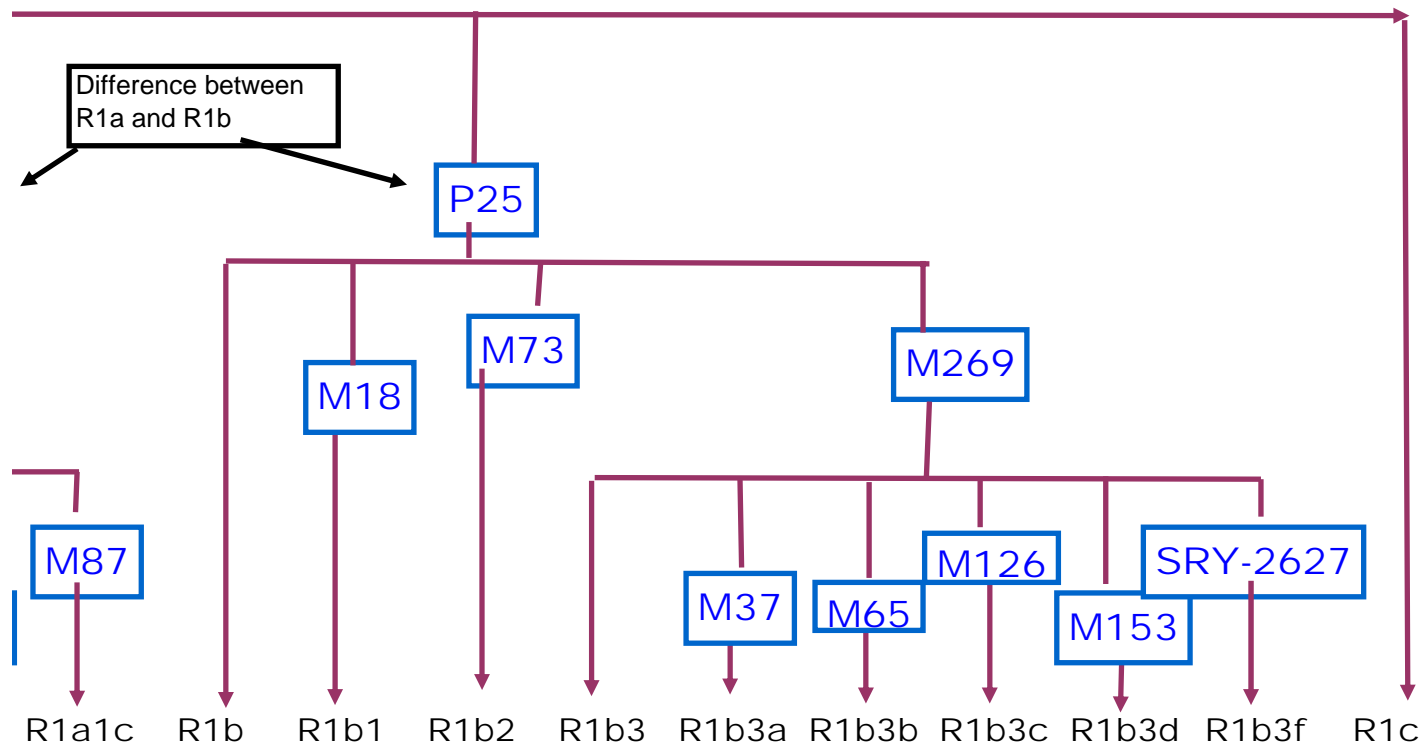
Fig. R2



## Second Panel Tests - R Group

Our current R Haplogroup SNP results, as of July 20, 2007, are E1, and D3. They represent a StARdevant and a SturDIvant variant respectively. The split between their populations occurred at the test for P25 and SRY10831. E1 was positive at SRY10831 and D3 was positive at P25. Below is the P25 track. D3 also tested positive at M269. This results in D3 being placed in the R1b3 subgroup. Negative results at M37, M65, M126, M153 and SRY-2627 leave it in that population.

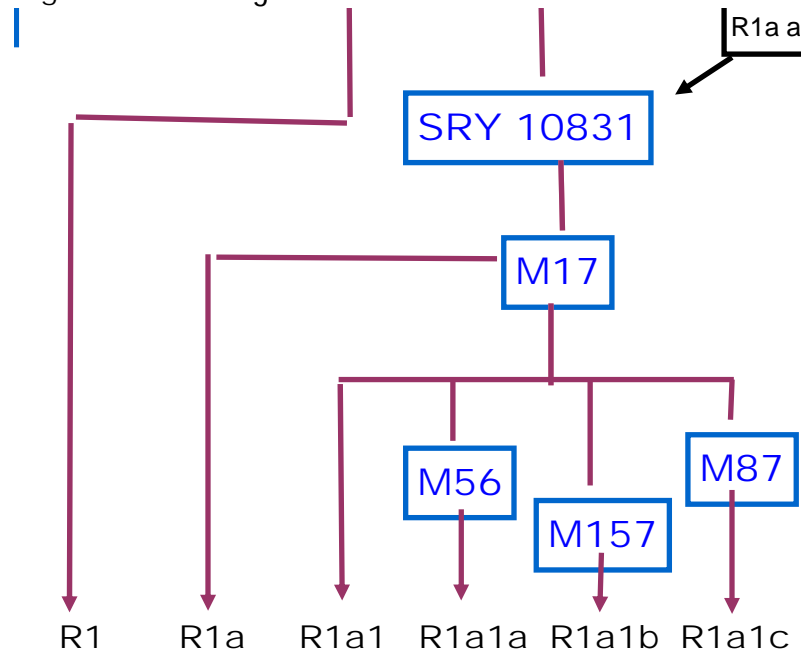
Fig. R1b - Tracing D3



Notice the refinement of population is expressed as a progression of letters and numbers. R → R1 → R1b → R1b3. This is determined by positive results at M207 → M173 → P25 → M269. The population D3 represents could not be further refined with the a, b, c, d designations because of negative results at that designation's markers.

Now, on this page, we can follow E1's track to his R1a1 designation. A positive result at SRY10831, puts him in the R1a subgroup. This is seen in Fig. R1. A positive result at M17, shown below, refines the population to R1a1. As in D3's results, E1 had negative results on additional markers tested which left him in the R1a1 population.

Fig. R1a - Tracing E1



We still need a result from the other spelling with a R group designation. The TE spelling, descendants of Samuel SturTEvant of 1640 Plymouth MA., has a predicted value of R1b. A SNP test will refine it further; perhaps to the R1b3 of the descendants of John SturD|vant of 1650 Virginia. Or is it the R1a of E1? Or, some other distinct R1, a or b, subgroup? This document is a how\_to for DNA Heritage's Haplogroup designations for the R groups. See discussion at [Genetic Project Blog](#) for why we are doing these tests and how these results help solve the puzzles.