**SUPPLEMENTAL TABLES**

**TABLE A.** Statistical significance for the total Y DNA recovery in the sperm fractions comparison of the SX and DE for each laboratory (alpha = 0.05). Data in Figures 1 and 2.

|  |  |  |  |
| --- | --- | --- | --- |
| Mixture | Lab | Significance(Y/N) | P stat (one) |
| A | **2** | **N (large variances)** | **0.106** |
| **3** | **Y** | **0.011** |
| B | **2** | **Y** | **<0.001** |
| **3** | **N** | **0.080** |
| C | **2** | **Y** | **0.001** |
| **3** | **N** | **0.055** |
| D | **2** | **Y** | **0.035** |
| **3** | **N** | **0.233** |
| E | **1** | **Y** | **<0.001** |
| **2** | **Y** | **0.002** |
| **3** | **Y** | **<0.001** |
| F | **1** | **Y** | **0.006** |
| **2** | **Y** | **0.038** |
| **3** | **Y** | **0.009** |
| G | **1** | **Y** | **0.018** |
| **2** | **N** | **0.275** |
| **3** | **N** | **0.082** |
| H | **1** | **N** | **0.087** |
| **2** | **N** | **0.133** |
| **3** | **Y** | **0.038** |

**TABLE B.** Fold differences in total Y DNA (SX/DE) in the sperm fractions and lab averages. Data in Figures 1 and 2.

|  |  |  |  |
| --- | --- | --- | --- |
| Mixture | Lab | Fold Difference | Average |
| **A** | **1** | **N/A** | **5.9** |
| **2** | **6.1** |
| **3** | **5.8** |
| **B** | **1** | **N/A** | **2.5** |
| **2** | **2.7** |
| **3** | **2.2** |
| **C** | **1** | **N/A** | **3.0** |
| **2** | **3.5** |
| **3** | **2.5** |
| **D** | **1** | **N/A** | **1.5** |
| **2** | **1.6** |
| **3** | **1.4** |
| **E** | **1** | **3.8** | **5.0** |
| **2** | **9.4** |
| **3** | **1.8** |
| **F** | **1** | **2.9** | **2.8** |
| **2** | **3.8** |
| **3** | **1.8** |
| **G** | **1** | **5.5** | **4.1** |
| **2** | **5.5** |
| **3** | **1.3** |
| **H** | **1** | **7.2** | **12.6** |
| **2** | **23.0** |
| **3** | **7.7** |

**TABLE C.** Fold difference in S/Y ratios (DE/SX) in the sperm fractions and lab averages. Data in Figure 3.

|  |  |  |  |
| --- | --- | --- | --- |
| Mixture | Lab | Fold Difference | Average |
| **A** | **1** | **N/A** | **7.2** |
| **2** | **9.3** |
| **3** | **5.1** |
| **B** | **1** | **N/A** | **13.9** |
| **2** | **19.4** |
| **3** | **8.5** |
| **C** | **1** | **N/A** | **6.6** |
| **2** | **6.4** |
| **3** | **6.7** |
| **D** | **1** | **N/A** | **5.4** |
| **2** | **4.5** |
| **3** | **6.2** |
| **E** | **1** | **4.2** | **10.1** |
| **2** | **17.8** |
| **3** | **8.5** |
| **F** | **1** | **4.8** | **15.2** |
| **2** | **29.2** |
| **3** | **11.5** |
| **G** | **1** | **4.8** | **9.0** |
| **2** | **11.0** |
| **3** | **11.1** |
| **H** | **1** | **5.6** | **182.6** |
| **2** | **15.9** |
| **3** | **526.4** |

**Table D.** Statistical significance for the average percent female carryover in the sperm fractions comparison of the SX and DE for each laboratory (alpha = 0.05). Data in Figure 5.

|  |  |  |  |
| --- | --- | --- | --- |
| Mixture | Lab | Significance(Y/N) | P stat (one) |
| A | **2** | **Y** | **0.009** |
| **3** | **N** | **0.106** |
| B | **2** | **Y** | **0.033** |
| **3** | **Y** | **0.008** |
| C | **2** | **N** | **0.058** |
| **3** | **N** | **0.098** |
| D | **2** | **Y** | **0.002** |
| **3** | **Y** | **0.002** |
| E | **1** | **Y** | **0.049** |
| **2** | **Y** | **0.025** |
| **3** | **N** | **0.203** |
| F | **1** | **Y** | **0.048** |
| **2** | **Y** | **0.004** |
| **3** | **N** | **0.104** |
| G | **1** | **N** | **0.059** |
| **2** | **N** | **0.067** |
| **3** | **N** | **0.104** |
| H | **1** | **Y** | **0.003** |
| **2** | **Y** | **<0.001** |
| **3** | **N** | **0.104** |

**Table E.** Fold Differences for higher DE Female Carryover (DE/SX) in the sperm fractions and lab averages. Data in Figure 5.

|  |  |  |  |
| --- | --- | --- | --- |
| Mixture | Lab | DE Fold Higher | Average |
| **A** | **1** | **N/A** | **57.9\*** |
| **2** | **2.9** |
| **3** | **112.9\*** |
| **B** | **1** | **N/A** | **10.2** |
| **2** | **9.8** |
| **3** | **10.6** |
| **C** | **1** | **N/A** | **4.2** |
| **2** | **2.7** |
| **3** | **5.7** |
| **D** | **1** | **N/A** | **5.3** |
| **2** | **4.1** |
| **3** | **6.6** |
| **E** | **1** | **1.5** | **3.3** |
| **2** | **1.9** |
| **3** | **6.5** |
| **F** | **1** | **2.0** | **5.0** |
| **2** | **6.3** |
| **3** | **6.8** |
| **G** | **1** | **1.6** | **3.5** |
| **2** | **1.8** |
| **3** | **7.0** |
| **H** | **1** | **1.5** | **2.8** |
| **2** | **2.1** |
| **3** | **4.9** |

\*A mixture not included as Lab 3 had an outlier

**Table F.** Percentage of unshared male alleles detected in the sperm fractions and fold differences (SX/DE). Data in Figure 6.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mixture | Lab | SX-S | DE-S | Fold Difference |
| **A** | **1** | **100.0** | **N/A** |  |
| **2** | **100.0** | **93.8** | **1.1** |
| **3** | **100.0** | **100.0** |  |
| **B** | **1** | **100.0** | **N/A** |  |
| **2** | **100.0** | **3.1** | **32.0** |
| **3** | **100.0** | **100.0** |  |
| **C** | **1** | **100.0** | **N/A** |  |
| **2** | **96.9** | **53.1** | **1.8** |
| **3** | **100.0** | **100.0** |  |
| **D** | **1** | **100.0** | **N/A** |  |
| **2** | **100.0** | **71.9** | **1.4** |
| **3** | **100.0** | **100.0** |  |
| **E** | **1** | **100.0** | **100.0** |  |
| **2** | **100.0** | **25.0** | **4.0** |
| **3** | **100.0** | **75.0** | **1.3** |
| **F** | **1** | **100.0** | **100.0** |  |
| **2** | **96.9** | **15.6** | **6.2** |
| **3** | **100.0** | **81.3** | **1.2** |
| **G** | **1** | **96.8** | **54.8** | **1.8** |
| **2** | **43.8** | **3.1** | **14.0** |
| **3** | **93.8** | **15.6** | **6.0** |
| **H** | **1** | **58.1** | **3.2** | **18.0** |
| **2** | **100.0** | **0.0** |  |
| **3** | **56.3** | **15.6** | **3.6** |

**Table G.** Percentage of the male component in the STR profile from the sperm fractions using STRmix and fold differences (SX/DE). Data in Figure 10.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mixture | Lab | SX-S | DE-S | Fold Difference |
| **A** | **1** | **83.0** | **N/A** |  |
| **2** | **71.8** | **5.1** | **14.0** |
| **3** | **86.1** | **38.6** | **2.2** |
| **B** | **1** | **34.4** | **N/A** |  |
| **2** | **20.1** | **3.1** | **6.4** |
| **3** | **55.7** | **19.7** | **2.8** |
| **C** | **1** | **35.4** | **N/A** |  |
| **2** | **7.0** | **3.3** | **2.2** |
| **3** | **44.0** | **16.2** | **2.7** |
| **D** | **1** | **43.1** | **N/A** |  |
| **2** | **13.2** | **2.8** | **4.7** |
| **3** | **44.9** | **8.2** | **5.5** |
| **E** | **1** | **48.4** | **16.9** | **2.9** |
| **2** | **27.9** | **0.9** | **30.4** |
| **3** | **48.8** | **4.4** | **11.0** |
| **F** | **1** | **44.3** | **11.2** | **4.0** |
| **2** | **14.0** | **1.8** | **7.7** |
| **3** | **33.9** | **4.2** | **8.1** |
| **G** | **1** | **14.6** | **3.6** | **4.0** |
| **2** | **1.5** | **0.5** | **2.7** |
| **3** | **9.7** | **0.4** | **23.7** |
| **H** | **1** | **3.9** | **1.4** | **2.8** |
| **2** | **12.7** | **0.3** | **36.4** |
| **3** | **3.9** | **0.7** | **5.7** |

**Table H.** Likelihood ratios using STRmix and fold differences (SX/DE). Data in Figure 11.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mixture | Lab | SX-S | DE-S | Fold Difference |
| **A** | **1** | **3.84E+27** | **N/A** |  |
| **2** | **9.38E+26** | **1.37E+23** | **6.85E+03** |
| **3** | **8.44E+26** | **8.48E+26** | **0.04** |
| **B** | **1** | **2.19E+27** | **N/A** |  |
| **2** | **4.59E+26** | **9.60E+02** | **4.78E+23\*** |
| **3** | **8.66E+26** | **3.24E+24** | **2.67E+02** |
| **C** | **1** | **2.58E+27** | **N/A** |  |
| **2** | **6.68E+23** | **7.43E+13** | **8.98E+09** |
| **3** | **8.64E+26** | **2.01E+24** | **4.30E+02** |
| **D** | **1** | **9.70E+26** | **N/A** |  |
| **2** | **1.14E+25** | **1.76E+15** | **6.44E+09** |
| **3** | **8.80E+26** | **1.42E+23** | **6.18E+03** |
| **E** | **1** | **3.33E+27** | **2.74E+25** | **1.21E+02** |
| **2** | **5.16E+24** | **7.85E+03** | **6.58E+20** |
| **3** | **6.27E+25** | **1.60E+08** | **3.92E+17** |
| **F** | **1** | **3.39E+27** | **3.43E+24** | **9.89E+02** |
| **2** | **4.20E+21** | **4.82E+05** | **8.72E+15** |
| **3** | **3.84E+26** | **1.02E+12** | **3.76E+14** |
| **G** | **1** | **5.56E+23** | **1.36E+07** | **4.08E+16** |
| **2** | **5.52E+05** | **1.40E+01** | **3.95E+04** |
| **3** | **8.33E+12** | **8.31E-01** | **1.00E+13** |
| **H** | **1** | **1.79E+08** | **4.23E+00** | **4.23E+07** |
| **2** | **6.00E+23** | **1.04E+00** | **5.80E+23** |
| **3** | **1.90E+01** | **2.94E+01** | **1.55** |

\*One outlier for Lab 2 mixture B gave a difference of 1023

Highlighted shows Lab 3 had fairly comparable results for SX and DE for mixtures A and H.