Weston 5CSRTT ANOVA Listwise

# ANOVA Report (Listwise Deletion, Split-Plot)

In this report, the results for the 5-CSRTT data will be presented. All analyses are 4(Probe Dur) x 3 or 4(age) x 2 (Sex) x 2 (Genotype) x 2 (Site). In these reports, the Type-III sums of squares were used. Incomplete animal session data was eliminated through listwise deletion.

## APP/PS1 Results

### Total Trials Completed

summary(data.app.list.probe$data.app.probe.totaltrial, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 426907 1 2128.19 73 14643.4939  
## Site 43 1 2128.19 73 1.4653  
## Genotype 89 1 2128.19 73 3.0367  
## Gender 46 1 2128.19 73 1.5695  
## Age 10 3 2140.30 219 0.3326  
## Site:Age 44 3 2140.30 219 1.5020  
## Genotype:Age 23 3 2140.30 219 0.7986  
## Gender:Age 42 3 2140.30 219 1.4440  
## ProbeDuration 9 3 960.15 219 0.6756  
## Site:ProbeDuration 7 3 960.15 219 0.5644  
## Genotype:ProbeDuration 4 3 960.15 219 0.3183  
## Gender:ProbeDuration 15 3 960.15 219 1.1228  
## Age:ProbeDuration 18 9 2929.01 657 0.4415  
## Site:Age:ProbeDuration 50 9 2929.01 657 1.2564  
## Genotype:Age:ProbeDuration 31 9 2929.01 657 0.7773  
## Gender:Age:ProbeDuration 36 9 2929.01 657 0.8973  
## Pr(>F)   
## (Intercept) < 2e-16 \*\*\*  
## Site 0.22999   
## Genotype 0.08561 .   
## Gender 0.21428   
## Age 0.80179   
## Site:Age 0.21494   
## Genotype:Age 0.49584   
## Gender:Age 0.23088   
## ProbeDuration 0.56781   
## Site:ProbeDuration 0.63907   
## Genotype:ProbeDuration 0.81215   
## Gender:ProbeDuration 0.34068   
## Age:ProbeDuration 0.91258   
## Site:Age:ProbeDuration 0.25760   
## Genotype:Age:ProbeDuration 0.63756   
## Gender:Age:ProbeDuration 0.52716   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.28308 0.0000e+00  
## Site:Age 0.28308 0.0000e+00  
## Genotype:Age 0.28308 0.0000e+00  
## Gender:Age 0.28308 0.0000e+00  
## ProbeDuration 0.62315 2.4779e-06  
## Site:ProbeDuration 0.62315 2.4779e-06  
## Genotype:ProbeDuration 0.62315 2.4779e-06  
## Gender:ProbeDuration 0.62315 2.4779e-06  
## Age:ProbeDuration 0.00717 0.0000e+00  
## Site:Age:ProbeDuration 0.00717 0.0000e+00  
## Genotype:Age:ProbeDuration 0.00717 0.0000e+00  
## Gender:Age:ProbeDuration 0.00717 0.0000e+00  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])  
## Age 0.61489 0.7001  
## Site:Age 0.61489 0.2272  
## Genotype:Age 0.61489 0.4431  
## Gender:Age 0.61489 0.2399  
## ProbeDuration 0.74270 0.5256  
## Site:ProbeDuration 0.74270 0.5882  
## Genotype:ProbeDuration 0.74270 0.7511  
## Gender:ProbeDuration 0.74270 0.3321  
## Age:ProbeDuration 0.56339 0.8219  
## Site:Age:ProbeDuration 0.56339 0.2819  
## Genotype:Age:ProbeDuration 0.56339 0.5682  
## Gender:Age:ProbeDuration 0.56339 0.4839  
##   
## HF eps Pr(>F[HF])  
## Age 0.6300997 0.7054407  
## Site:Age 0.6300997 0.2269275  
## Genotype:Age 0.6300997 0.4457505  
## Gender:Age 0.6300997 0.2397895  
## ProbeDuration 0.7671545 0.5301737  
## Site:ProbeDuration 0.7671545 0.5937524  
## Genotype:ProbeDuration 0.7671545 0.7579321  
## Gender:ProbeDuration 0.7671545 0.3331873  
## Age:ProbeDuration 0.6104642 0.8359857  
## Site:Age:ProbeDuration 0.6104642 0.2794363  
## Genotype:Age:ProbeDuration 0.6104642 0.5776203  
## Gender:Age:ProbeDuration 0.6104642 0.4899920

### Total Time

summary(data.app.list.probe$data.app.probe.totaltime, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 442600519 1 133809977 73 241.4606  
## Site 22372938 1 133809977 73 12.2056  
## Genotype 26582289 1 133809977 73 14.5020  
## Gender 2933191 1 133809977 73 1.6002  
## Age 1179509 3 87338895 219 0.9859  
## Site:Age 3825694 3 87338895 219 3.1976  
## Genotype:Age 1267009 3 87338895 219 1.0590  
## Gender:Age 1883247 3 87338895 219 1.5741  
## ProbeDuration 2617475 3 28447719 219 6.7167  
## Site:ProbeDuration 143618 3 28447719 219 0.3685  
## Genotype:ProbeDuration 362045 3 28447719 219 0.9290  
## Gender:ProbeDuration 104827 3 28447719 219 0.2690  
## Age:ProbeDuration 980531 9 87791118 657 0.8153  
## Site:Age:ProbeDuration 1332985 9 87791118 657 1.1084  
## Genotype:Age:ProbeDuration 344623 9 87791118 657 0.2866  
## Gender:Age:ProbeDuration 2114554 9 87791118 657 1.7583  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.0008135 \*\*\*  
## Genotype 0.0002892 \*\*\*  
## Gender 0.2098979   
## Age 0.4002646   
## Site:Age 0.0243084 \*   
## Genotype:Age 0.3674112   
## Gender:Age 0.1965673   
## ProbeDuration 0.0002348 \*\*\*  
## Site:ProbeDuration 0.7757822   
## Genotype:ProbeDuration 0.4274897   
## Gender:ProbeDuration 0.8477102   
## Age:ProbeDuration 0.6021728   
## Site:Age:ProbeDuration 0.3542827   
## Genotype:Age:ProbeDuration 0.9784315   
## Gender:Age:ProbeDuration 0.0729621 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.74539 0.000785  
## Site:Age 0.74539 0.000785  
## Genotype:Age 0.74539 0.000785  
## Gender:Age 0.74539 0.000785  
## ProbeDuration 0.86755 0.070048  
## Site:ProbeDuration 0.86755 0.070048  
## Genotype:ProbeDuration 0.86755 0.070048  
## Gender:ProbeDuration 0.86755 0.070048  
## Age:ProbeDuration 0.32843 0.001319  
## Site:Age:ProbeDuration 0.32843 0.001319  
## Genotype:Age:ProbeDuration 0.32843 0.001319  
## Gender:Age:ProbeDuration 0.32843 0.001319  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.83219 0.389572   
## Site:Age 0.83219 0.032643 \*   
## Genotype:Age 0.83219 0.359917   
## Gender:Age 0.83219 0.204097   
## ProbeDuration 0.90667 0.000402 \*\*\*  
## Site:ProbeDuration 0.90667 0.756085   
## Genotype:ProbeDuration 0.90667 0.420445   
## Gender:ProbeDuration 0.90667 0.828762   
## Age:ProbeDuration 0.80790 0.578865   
## Site:Age:ProbeDuration 0.80790 0.356099   
## Genotype:Age:ProbeDuration 0.80790 0.962621   
## Gender:Age:ProbeDuration 0.80790 0.090379 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8640099 0.391819928  
## Site:Age 0.8640099 0.030863346  
## Genotype:Age 0.8640099 0.361533809  
## Gender:Age 0.8640099 0.202708630  
## ProbeDuration 0.9451802 0.000321882  
## Site:ProbeDuration 0.9451802 0.764492124  
## Genotype:ProbeDuration 0.9451802 0.423454693  
## Gender:ProbeDuration 0.9451802 0.836910172  
## Age:ProbeDuration 0.9061863 0.591325185  
## Site:Age:ProbeDuration 0.9061863 0.355319223  
## Genotype:Age:ProbeDuration 0.9061863 0.971846538  
## Gender:Age:ProbeDuration 0.9061863 0.080953804

### Accuracy

summary(data.app.list.probe$data.app.probe.acc, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 1117285 1 10450.8 73 7804.3704  
## Site 631 1 10450.8 73 4.4087  
## Genotype 727 1 10450.8 73 5.0815  
## Gender 177 1 10450.8 73 1.2367  
## Age 183 3 13298.8 219 1.0023  
## Site:Age 1030 3 13298.8 219 5.6518  
## Genotype:Age 56 3 13298.8 219 0.3054  
## Gender:Age 752 3 13298.8 219 4.1289  
## ProbeDuration 5978 3 9900.9 219 44.0765  
## Site:ProbeDuration 71 3 9900.9 219 0.5260  
## Genotype:ProbeDuration 92 3 9900.9 219 0.6812  
## Gender:ProbeDuration 74 3 9900.9 219 0.5482  
## Age:ProbeDuration 449 9 29175.1 657 1.1225  
## Site:Age:ProbeDuration 331 9 29175.1 657 0.8288  
## Genotype:Age:ProbeDuration 635 9 29175.1 657 1.5890  
## Gender:Age:ProbeDuration 196 9 29175.1 657 0.4912  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.039213 \*   
## Genotype 0.027184 \*   
## Gender 0.269762   
## Age 0.392684   
## Site:Age 0.000953 \*\*\*  
## Genotype:Age 0.821457   
## Gender:Age 0.007126 \*\*   
## ProbeDuration < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.664879   
## Genotype:ProbeDuration 0.564403   
## Gender:ProbeDuration 0.649890   
## Age:ProbeDuration 0.344129   
## Site:Age:ProbeDuration 0.589648   
## Genotype:Age:ProbeDuration 0.114617   
## Gender:Age:ProbeDuration 0.880931   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.80757 0.009054  
## Site:Age 0.80757 0.009054  
## Genotype:Age 0.80757 0.009054  
## Gender:Age 0.80757 0.009054  
## ProbeDuration 0.86456 0.063768  
## Site:ProbeDuration 0.86456 0.063768  
## Genotype:ProbeDuration 0.86456 0.063768  
## Gender:ProbeDuration 0.86456 0.063768  
## Age:ProbeDuration 0.43455 0.075334  
## Site:Age:ProbeDuration 0.43455 0.075334  
## Genotype:Age:ProbeDuration 0.43455 0.075334  
## Gender:Age:ProbeDuration 0.43455 0.075334  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.87981 0.385835   
## Site:Age 0.87981 0.001639 \*\*   
## Genotype:Age 0.87981 0.795872   
## Gender:Age 0.87981 0.009939 \*\*   
## ProbeDuration 0.90435 < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.90435 0.646764   
## Genotype:ProbeDuration 0.90435 0.550225   
## Gender:ProbeDuration 0.90435 0.632267   
## Age:ProbeDuration 0.84888 0.346456   
## Site:Age:ProbeDuration 0.84888 0.572570   
## Genotype:Age:ProbeDuration 0.84888 0.128784   
## Gender:Age:ProbeDuration 0.84888 0.855441   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9158414 3.880259e-01  
## Site:Age 0.9158414 1.392730e-03  
## Genotype:Age 0.9158414 8.040087e-01  
## Gender:Age 0.9158414 8.993244e-03  
## ProbeDuration 0.9426401 3.461451e-21  
## Site:ProbeDuration 0.9426401 6.542325e-01  
## Genotype:ProbeDuration 0.9426401 5.560632e-01  
## Gender:ProbeDuration 0.9426401 6.395293e-01  
## Age:ProbeDuration 0.9576895 3.448395e-01  
## Site:Age:ProbeDuration 0.9576895 5.851055e-01  
## Genotype:Age:ProbeDuration 0.9576895 1.183948e-01  
## Gender:Age:ProbeDuration 0.9576895 8.743844e-01

### Omissions

summary(data.app.list.probe$data.app.probe.omission, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 110961 1 42969 73 188.5133  
## Site 616 1 42969 73 1.0471  
## Genotype 1811 1 42969 73 3.0762  
## Gender 721 1 42969 73 1.2242  
## Age 2337 3 32006 219 5.3305  
## Site:Age 2719 3 32006 219 6.2023  
## Genotype:Age 401 3 32006 219 0.9153  
## Gender:Age 1961 3 32006 219 4.4718  
## ProbeDuration 13131 3 14027 219 68.3403  
## Site:ProbeDuration 444 3 14027 219 2.3082  
## Genotype:ProbeDuration 249 3 14027 219 1.2947  
## Gender:ProbeDuration 445 3 14027 219 2.3138  
## Age:ProbeDuration 405 9 44099 657 0.6712  
## Site:Age:ProbeDuration 402 9 44099 657 0.6649  
## Genotype:Age:ProbeDuration 633 9 44099 657 1.0481  
## Gender:Age:ProbeDuration 199 9 44099 657 0.3297  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.3095579   
## Genotype 0.0836426 .   
## Gender 0.2721682   
## Age 0.0014563 \*\*   
## Site:Age 0.0004615 \*\*\*  
## Genotype:Age 0.4342938   
## Gender:Age 0.0045297 \*\*   
## ProbeDuration < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.0774202 .   
## Genotype:ProbeDuration 0.2771089   
## Gender:ProbeDuration 0.0768670 .   
## Age:ProbeDuration 0.7353642   
## Site:Age:ProbeDuration 0.7410189   
## Genotype:Age:ProbeDuration 0.3998063   
## Gender:Age:ProbeDuration 0.9652196   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.77596 0.002718  
## Site:Age 0.77596 0.002718  
## Genotype:Age 0.77596 0.002718  
## Gender:Age 0.77596 0.002718  
## ProbeDuration 0.88183 0.108312  
## Site:ProbeDuration 0.88183 0.108312  
## Genotype:ProbeDuration 0.88183 0.108312  
## Gender:ProbeDuration 0.88183 0.108312  
## Age:ProbeDuration 0.44819 0.106764  
## Site:Age:ProbeDuration 0.44819 0.106764  
## Genotype:Age:ProbeDuration 0.44819 0.106764  
## Gender:Age:ProbeDuration 0.44819 0.106764  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.84252 0.002796 \*\*   
## Site:Age 0.84252 0.001040 \*\*   
## Genotype:Age 0.84252 0.421252   
## Gender:Age 0.84252 0.007446 \*\*   
## ProbeDuration 0.92208 < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.92208 0.082804 .   
## Genotype:ProbeDuration 0.92208 0.277760   
## Gender:ProbeDuration 0.92208 0.082245 .   
## Age:ProbeDuration 0.85866 0.711753   
## Site:Age:ProbeDuration 0.85866 0.717217   
## Genotype:Age:ProbeDuration 0.85866 0.397878   
## Gender:Age:ProbeDuration 0.85866 0.951158   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8752381 2.440539e-03  
## Site:Age 0.8752381 8.783231e-04  
## Genotype:Age 0.8752381 4.241900e-01  
## Gender:Age 0.8752381 6.713219e-03  
## ProbeDuration 0.9620373 3.843814e-30  
## Site:ProbeDuration 0.9620373 7.999783e-02  
## Genotype:ProbeDuration 0.9620373 2.774605e-01  
## Gender:ProbeDuration 0.9620373 7.944192e-02  
## Age:ProbeDuration 0.9700664 7.306437e-01  
## Site:Age:ProbeDuration 0.9700664 7.362631e-01  
## Genotype:Age:ProbeDuration 0.9700664 3.994682e-01  
## Gender:Age:ProbeDuration 0.9700664 9.626519e-01

### Premature Responses

summary(data.app.list.probe$data.app.probe.premature, multivariate=FALSE)

## Warning in summary.Anova.mlm(data.app.list.probe  
## $data.app.probe.premature, : HF eps > 1 treated as 1

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 5034.9 1 2562.1 73 143.4579  
## Site 113.1 1 2562.1 73 3.2221  
## Genotype 72.6 1 2562.1 73 2.0688  
## Gender 1028.8 1 2562.1 73 29.3130  
## Age 60.0 3 2905.9 219 1.5085  
## Site:Age 36.3 3 2905.9 219 0.9127  
## Genotype:Age 38.4 3 2905.9 219 0.9658  
## Gender:Age 127.7 3 2905.9 219 3.2068  
## ProbeDuration 54.4 3 1260.8 219 3.1501  
## Site:ProbeDuration 10.7 3 1260.8 219 0.6203  
## Genotype:ProbeDuration 26.6 3 1260.8 219 1.5422  
## Gender:ProbeDuration 17.9 3 1260.8 219 1.0357  
## Age:ProbeDuration 63.7 9 4351.9 657 1.0682  
## Site:Age:ProbeDuration 35.5 9 4351.9 657 0.5954  
## Genotype:Age:ProbeDuration 68.0 9 4351.9 657 1.1404  
## Gender:Age:ProbeDuration 46.8 9 4351.9 657 0.7850  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.07679 .   
## Genotype 0.15461   
## Gender 7.51e-07 \*\*\*  
## Age 0.21323   
## Site:Age 0.43560   
## Genotype:Age 0.40970   
## Gender:Age 0.02402 \*   
## ProbeDuration 0.02587 \*   
## Site:ProbeDuration 0.60252   
## Genotype:ProbeDuration 0.20451   
## Gender:ProbeDuration 0.37763   
## Age:ProbeDuration 0.38423   
## Site:Age:ProbeDuration 0.80137   
## Genotype:Age:ProbeDuration 0.33151   
## Gender:Age:ProbeDuration 0.63041   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.67622 0.00004  
## Site:Age 0.67622 0.00004  
## Genotype:Age 0.67622 0.00004  
## Gender:Age 0.67622 0.00004  
## ProbeDuration 0.94680 0.56092  
## Site:ProbeDuration 0.94680 0.56092  
## Genotype:ProbeDuration 0.94680 0.56092  
## Gender:ProbeDuration 0.94680 0.56092  
## Age:ProbeDuration 0.32440 0.00107  
## Site:Age:ProbeDuration 0.32440 0.00107  
## Genotype:Age:ProbeDuration 0.32440 0.00107  
## Gender:Age:ProbeDuration 0.32440 0.00107  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.80726 0.22041   
## Site:Age 0.80726 0.41909   
## Genotype:Age 0.80726 0.39610   
## Gender:Age 0.80726 0.03376 \*  
## ProbeDuration 0.96537 0.02744 \*  
## Site:ProbeDuration 0.96537 0.59696   
## Genotype:ProbeDuration 0.96537 0.20598   
## Gender:ProbeDuration 0.96537 0.37608   
## Age:ProbeDuration 0.81390 0.38305   
## Site:Age:ProbeDuration 0.81390 0.76742   
## Genotype:Age:ProbeDuration 0.81390 0.33548   
## Gender:Age:ProbeDuration 0.81390 0.60553   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8369505 0.21937293  
## Site:Age 0.8369505 0.42192287  
## Genotype:Age 0.8369505 0.39845891  
## Gender:Age 0.8369505 0.03203232  
## ProbeDuration 1.0095162 0.02587237  
## Site:ProbeDuration 1.0095162 0.60252378  
## Genotype:ProbeDuration 1.0095162 0.20450621  
## Gender:ProbeDuration 1.0095162 0.37763170  
## Age:ProbeDuration 0.9136904 0.38386524  
## Site:Age:ProbeDuration 0.9136904 0.78656878  
## Genotype:Age:ProbeDuration 0.9136904 0.33345589  
## Gender:Age:ProbeDuration 0.9136904 0.61941730

### Perseverative Errors

summary(data.app.list.probe$data.app.probe.persev, multivariate=FALSE)

## Warning in summary.Anova.mlm(data.app.list.probe$data.app.probe.persev, :  
## HF eps > 1 treated as 1

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 14386.9 1 11916.3 73 88.1351  
## Site 419.0 1 11916.3 73 2.5667  
## Genotype 816.9 1 11916.3 73 5.0043  
## Gender 344.2 1 11916.3 73 2.1087  
## Age 462.3 3 8251.1 219 4.0902  
## Site:Age 33.0 3 8251.1 219 0.2921  
## Genotype:Age 364.2 3 8251.1 219 3.2217  
## Gender:Age 401.1 3 8251.1 219 3.5488  
## ProbeDuration 133.4 3 4873.5 219 1.9989  
## Site:ProbeDuration 105.8 3 4873.5 219 1.5848  
## Genotype:ProbeDuration 80.3 3 4873.5 219 1.2027  
## Gender:ProbeDuration 50.0 3 4873.5 219 0.7493  
## Age:ProbeDuration 190.5 9 11751.3 657 1.1836  
## Site:Age:ProbeDuration 182.0 9 11751.3 657 1.1309  
## Genotype:Age:ProbeDuration 181.6 9 11751.3 657 1.1281  
## Gender:Age:ProbeDuration 52.0 9 11751.3 657 0.3232  
## Pr(>F)   
## (Intercept) 3.499e-14 \*\*\*  
## Site 0.11346   
## Genotype 0.02834 \*   
## Gender 0.15075   
## Age 0.00750 \*\*   
## Site:Age 0.83106   
## Genotype:Age 0.02355 \*   
## Gender:Age 0.01532 \*   
## ProbeDuration 0.11510   
## Site:ProbeDuration 0.19396   
## Genotype:ProbeDuration 0.30966   
## Gender:ProbeDuration 0.52379   
## Age:ProbeDuration 0.30246   
## Site:Age:ProbeDuration 0.33819   
## Genotype:Age:ProbeDuration 0.34015   
## Gender:Age:ProbeDuration 0.96747   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.93099 0.40043  
## Site:Age 0.93099 0.40043  
## Genotype:Age 0.93099 0.40043  
## Gender:Age 0.93099 0.40043  
## ProbeDuration 0.98392 0.94843  
## Site:ProbeDuration 0.98392 0.94843  
## Genotype:ProbeDuration 0.98392 0.94843  
## Gender:ProbeDuration 0.98392 0.94843  
## Age:ProbeDuration 0.42340 0.05523  
## Site:Age:ProbeDuration 0.42340 0.05523  
## Genotype:Age:ProbeDuration 0.42340 0.05523  
## Gender:Age:ProbeDuration 0.42340 0.05523  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.95269 0.008529 \*\*  
## Site:Age 0.95269 0.821597   
## Genotype:Age 0.95269 0.025616 \*   
## Gender:Age 0.95269 0.016938 \*   
## ProbeDuration 0.98889 0.115842   
## Site:ProbeDuration 0.98889 0.194486   
## Genotype:ProbeDuration 0.98889 0.309583   
## Gender:ProbeDuration 0.98889 0.522427   
## Age:ProbeDuration 0.84601 0.308017   
## Site:Age:ProbeDuration 0.84601 0.341023   
## Genotype:Age:ProbeDuration 0.84601 0.342827   
## Gender:Age:ProbeDuration 0.84601 0.952436   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9955903 0.007590002  
## Site:Age 0.9955903 0.830208926  
## Genotype:Age 0.9955903 0.023735455  
## Gender:Age 0.9955903 0.015461559  
## ProbeDuration 1.0353783 0.115095417  
## Site:ProbeDuration 1.0353783 0.193964564  
## Genotype:ProbeDuration 1.0353783 0.309660399  
## Gender:ProbeDuration 1.0353783 0.523789804  
## Age:ProbeDuration 0.9540656 0.304146900  
## Site:Age:ProbeDuration 0.9540656 0.339094934  
## Genotype:Age:ProbeDuration 0.9540656 0.341008296  
## Gender:Age:ProbeDuration 0.9540656 0.963605059

### Correct Response Latency

summary(data.app.list.probe$data.app.probe.corrlat, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 247.148 1 12.6674 73 1424.2733  
## Site 0.833 1 12.6674 73 4.8014  
## Genotype 0.001 1 12.6674 73 0.0061  
## Gender 0.884 1 12.6674 73 5.0930  
## Age 0.346 3 11.0473 219 2.2870  
## Site:Age 1.090 3 11.0473 219 7.2051  
## Genotype:Age 0.354 3 11.0473 219 2.3397  
## Gender:Age 0.236 3 11.0473 219 1.5607  
## ProbeDuration 0.308 3 5.0582 219 4.4404  
## Site:ProbeDuration 0.008 3 5.0582 219 0.1090  
## Genotype:ProbeDuration 0.006 3 5.0582 219 0.0898  
## Gender:ProbeDuration 0.143 3 5.0582 219 2.0632  
## Age:ProbeDuration 0.149 9 15.6717 657 0.6953  
## Site:Age:ProbeDuration 0.065 9 15.6717 657 0.3023  
## Genotype:Age:ProbeDuration 0.154 9 15.6717 657 0.7173  
## Gender:Age:ProbeDuration 0.123 9 15.6717 657 0.5739  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.0316283 \*   
## Genotype 0.9381650   
## Gender 0.0270160 \*   
## Age 0.0795627 .   
## Site:Age 0.0001238 \*\*\*  
## Genotype:Age 0.0743336 .   
## Gender:Age 0.1998650   
## ProbeDuration 0.0047218 \*\*   
## Site:ProbeDuration 0.9547520   
## Genotype:ProbeDuration 0.9656008   
## Gender:ProbeDuration 0.1060293   
## Age:ProbeDuration 0.7134971   
## Site:Age:ProbeDuration 0.9740676   
## Genotype:Age:ProbeDuration 0.6933530   
## Gender:Age:ProbeDuration 0.8190143   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.48908 7.5852e-10  
## Site:Age 0.48908 7.5852e-10  
## Genotype:Age 0.48908 7.5852e-10  
## Gender:Age 0.48908 7.5852e-10  
## ProbeDuration 0.50013 1.6136e-09  
## Site:ProbeDuration 0.50013 1.6136e-09  
## Genotype:ProbeDuration 0.50013 1.6136e-09  
## Gender:ProbeDuration 0.50013 1.6136e-09  
## Age:ProbeDuration 0.06136 0.0000e+00  
## Site:Age:ProbeDuration 0.06136 0.0000e+00  
## Genotype:Age:ProbeDuration 0.06136 0.0000e+00  
## Gender:Age:ProbeDuration 0.06136 0.0000e+00  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.66108 0.105682   
## Site:Age 0.66108 0.001075 \*\*  
## Genotype:Age 0.66108 0.100445   
## Gender:Age 0.66108 0.213661   
## ProbeDuration 0.73724 0.010745 \*   
## Site:ProbeDuration 0.73724 0.913747   
## Genotype:ProbeDuration 0.73724 0.929641   
## Gender:ProbeDuration 0.73724 0.125196   
## Age:ProbeDuration 0.56927 0.630759   
## Site:Age:ProbeDuration 0.56927 0.914879   
## Genotype:Age:ProbeDuration 0.56927 0.614133   
## Gender:Age:ProbeDuration 0.56927 0.724173   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.6794660 0.1040937076  
## Site:Age 0.6794660 0.0009552397  
## Genotype:Age 0.6794660 0.0988404595  
## Gender:Age 0.6794660 0.2130429843  
## ProbeDuration 0.7612703 0.0099619011  
## Site:ProbeDuration 0.7612703 0.9188070363  
## Genotype:ProbeDuration 0.7612703 0.9341957302  
## Gender:ProbeDuration 0.7612703 0.1233391594  
## Age:ProbeDuration 0.6173547 0.6424097405  
## Site:Age:ProbeDuration 0.6173547 0.9259324108  
## Genotype:Age:ProbeDuration 0.6173547 0.6252520301  
## Gender:Age:ProbeDuration 0.6173547 0.7380517242

### Reward Collection Latency

summary(data.app.list.probe$data.app.probe.rewardlat, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F Pr(>F)  
## (Intercept) 449.76 1 705.6 73 46.5302 2.23e-09  
## Site 18.46 1 705.6 73 1.9093 0.17126  
## Genotype 16.30 1 705.6 73 1.6863 0.19818  
## Gender 0.14 1 705.6 73 0.0149 0.90312  
## Age 35.52 3 2007.8 219 1.2914 0.27824  
## Site:Age 47.28 3 2007.8 219 1.7191 0.16398  
## Genotype:Age 13.27 3 2007.8 219 0.4827 0.69468  
## Gender:Age 51.25 3 2007.8 219 1.8633 0.13672  
## ProbeDuration 48.17 3 1774.1 219 1.9819 0.11761  
## Site:ProbeDuration 53.68 3 1774.1 219 2.2090 0.08796  
## Genotype:ProbeDuration 22.78 3 1774.1 219 0.9375 0.42335  
## Gender:ProbeDuration 46.70 3 1774.1 219 1.9215 0.12699  
## Age:ProbeDuration 94.44 9 5525.9 657 1.2476 0.26276  
## Site:Age:ProbeDuration 85.42 9 5525.9 657 1.1285 0.33989  
## Genotype:Age:ProbeDuration 12.14 9 5525.9 657 0.1603 0.99751  
## Gender:Age:ProbeDuration 103.51 9 5525.9 657 1.3674 0.19918  
##   
## (Intercept) \*\*\*  
## Site   
## Genotype   
## Gender   
## Age   
## Site:Age   
## Genotype:Age   
## Gender:Age   
## ProbeDuration   
## Site:ProbeDuration .   
## Genotype:ProbeDuration   
## Gender:ProbeDuration   
## Age:ProbeDuration   
## Site:Age:ProbeDuration   
## Genotype:Age:ProbeDuration   
## Gender:Age:ProbeDuration   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.193783 1.0113e-23  
## Site:Age 0.193783 1.0113e-23  
## Genotype:Age 0.193783 1.0113e-23  
## Gender:Age 0.193783 1.0113e-23  
## ProbeDuration 0.177658 4.8640e-25  
## Site:ProbeDuration 0.177658 4.8640e-25  
## Genotype:ProbeDuration 0.177658 4.8640e-25  
## Gender:ProbeDuration 0.177658 4.8640e-25  
## Age:ProbeDuration 0.000001 0.0000e+00  
## Site:Age:ProbeDuration 0.000001 0.0000e+00  
## Genotype:Age:ProbeDuration 0.000001 0.0000e+00  
## Gender:Age:ProbeDuration 0.000001 0.0000e+00  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])  
## Age 0.59579 0.2765  
## Site:Age 0.59579 0.1865  
## Genotype:Age 0.59579 0.5970  
## Gender:Age 0.59579 0.1635  
## ProbeDuration 0.58904 0.1473  
## Site:ProbeDuration 0.58904 0.1202  
## Genotype:ProbeDuration 0.58904 0.3843  
## Gender:ProbeDuration 0.58904 0.1555  
## Age:ProbeDuration 0.26346 0.2925  
## Site:Age:ProbeDuration 0.26346 0.3322  
## Genotype:Age:ProbeDuration 0.26346 0.8846  
## Gender:Age:ProbeDuration 0.26346 0.2572  
##   
## HF eps Pr(>F[HF])  
## Age 0.6097511 0.2768862  
## Site:Age 0.6097511 0.1857890  
## Genotype:Age 0.6097511 0.6013229  
## Gender:Age 0.6097511 0.1625940  
## ProbeDuration 0.6025592 0.1462992  
## Site:ProbeDuration 0.6025592 0.1189769  
## Genotype:ProbeDuration 0.6025592 0.3861273  
## Gender:ProbeDuration 0.6025592 0.1545961  
## Age:ProbeDuration 0.2728922 0.2928023  
## Site:Age:ProbeDuration 0.2728922 0.3332257  
## Genotype:Age:ProbeDuration 0.2728922 0.8908520  
## Gender:Age:ProbeDuration 0.2728922 0.2568781

## 5xFAD Results

### Total Trials Completed

summary(data.5x.list.probe$data.5x.probe.totaltrial, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 541641 1 3468.5 72 11243.6540  
## Site 1 1 3468.5 72 0.0107  
## Genotype 0 1 3468.5 72 0.0027  
## Gender 241 1 3468.5 72 5.0025  
## Age 28 2 3788.5 144 0.5411  
## Site:Age 231 2 3788.5 144 4.3866  
## Genotype:Age 87 2 3788.5 144 1.6621  
## Gender:Age 74 2 3788.5 144 1.3976  
## ProbeDuration 41 3 1959.5 216 1.5158  
## Site:ProbeDuration 46 3 1959.5 216 1.7080  
## Genotype:ProbeDuration 31 3 1959.5 216 1.1467  
## Gender:ProbeDuration 23 3 1959.5 216 0.8610  
## Age:ProbeDuration 31 6 3921.2 432 0.5707  
## Site:Age:ProbeDuration 69 6 3921.2 432 1.2733  
## Genotype:Age:ProbeDuration 65 6 3921.2 432 1.1963  
## Gender:Age:ProbeDuration 65 6 3921.2 432 1.1888  
## Pr(>F)   
## (Intercept) < 2e-16 \*\*\*  
## Site 0.91778   
## Genotype 0.95883   
## Gender 0.02841 \*   
## Age 0.58330   
## Site:Age 0.01415 \*   
## Genotype:Age 0.19336   
## Gender:Age 0.25051   
## ProbeDuration 0.21136   
## Site:ProbeDuration 0.16632   
## Genotype:ProbeDuration 0.33119   
## Gender:ProbeDuration 0.46212   
## Age:ProbeDuration 0.75373   
## Site:Age:ProbeDuration 0.26825   
## Genotype:Age:ProbeDuration 0.30703   
## Gender:Age:ProbeDuration 0.31104   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.97098 0.35156  
## Site:Age 0.97098 0.35156  
## Genotype:Age 0.97098 0.35156  
## Gender:Age 0.97098 0.35156  
## ProbeDuration 0.84058 0.03115  
## Site:ProbeDuration 0.84058 0.03115  
## Genotype:ProbeDuration 0.84058 0.03115  
## Gender:ProbeDuration 0.84058 0.03115  
## Age:ProbeDuration 0.70377 0.22117  
## Site:Age:ProbeDuration 0.70377 0.22117  
## Genotype:Age:ProbeDuration 0.70377 0.22117  
## Gender:Age:ProbeDuration 0.70377 0.22117  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.97180 0.5783   
## Site:Age 0.97180 0.0150 \*  
## Genotype:Age 0.97180 0.1942   
## Gender:Age 0.97180 0.2506   
## ProbeDuration 0.89644 0.2154   
## Site:ProbeDuration 0.89644 0.1722   
## Genotype:ProbeDuration 0.89644 0.3290   
## Gender:ProbeDuration 0.89644 0.4522   
## Age:ProbeDuration 0.89333 0.7344   
## Site:Age:ProbeDuration 0.89333 0.2725   
## Genotype:Age:ProbeDuration 0.89333 0.3093   
## Gender:Age:ProbeDuration 0.89333 0.3131   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9983589 0.58301379  
## Site:Age 0.9983589 0.01419684  
## Genotype:Age 0.9983589 0.19341505  
## Gender:Age 0.9983589 0.25051918  
## ProbeDuration 0.9345333 0.21395349  
## Site:ProbeDuration 0.9345333 0.17001415  
## Genotype:ProbeDuration 0.9345333 0.32986863  
## Gender:ProbeDuration 0.9345333 0.45601563  
## Age:ProbeDuration 0.9735873 0.74915432  
## Site:Age:ProbeDuration 0.9735873 0.26930866  
## Genotype:Age:ProbeDuration 0.9735873 0.30762063  
## Gender:Age:ProbeDuration 0.9735873 0.31158076

### Total Time

summary(data.5x.list.probe$data.5x.probe.totaltime, multivariate=FALSE)

## Warning in summary.Anova.mlm(data.5x.list.probe$data.5x.probe.totaltime, :  
## HF eps > 1 treated as 1

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 833410278 1 173842932 72 345.1710  
## Site 66859 1 173842932 72 0.0277  
## Genotype 3123652 1 173842932 72 1.2937  
## Gender 7120742 1 173842932 72 2.9492  
## Age 9839294 2 108486053 144 6.5301  
## Site:Age 4423870 2 108486053 144 2.9360  
## Genotype:Age 7647966 2 108486053 144 5.0758  
## Gender:Age 1814005 2 108486053 144 1.2039  
## ProbeDuration 4965880 3 46459337 216 7.6958  
## Site:ProbeDuration 335665 3 46459337 216 0.5202  
## Genotype:ProbeDuration 338109 3 46459337 216 0.5240  
## Gender:ProbeDuration 11525 3 46459337 216 0.0179  
## Age:ProbeDuration 601633 6 81529792 432 0.5313  
## Site:Age:ProbeDuration 1605082 6 81529792 432 1.4175  
## Genotype:Age:ProbeDuration 965852 6 81529792 432 0.8530  
## Gender:Age:ProbeDuration 812503 6 81529792 432 0.7175  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.868304   
## Genotype 0.259136   
## Gender 0.090220 .   
## Age 0.001929 \*\*   
## Site:Age 0.056261 .   
## Genotype:Age 0.007410 \*\*   
## Gender:Age 0.303018   
## ProbeDuration 6.569e-05 \*\*\*  
## Site:ProbeDuration 0.668822   
## Genotype:ProbeDuration 0.666241   
## Gender:ProbeDuration 0.996743   
## Age:ProbeDuration 0.784543   
## Site:Age:ProbeDuration 0.206233   
## Genotype:Age:ProbeDuration 0.529638   
## Gender:Age:ProbeDuration 0.635655   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.91653 0.04530  
## Site:Age 0.91653 0.04530  
## Genotype:Age 0.91653 0.04530  
## Gender:Age 0.91653 0.04530  
## ProbeDuration 0.96318 0.75327  
## Site:ProbeDuration 0.96318 0.75327  
## Genotype:ProbeDuration 0.96318 0.75327  
## Gender:ProbeDuration 0.96318 0.75327  
## Age:ProbeDuration 0.61595 0.02755  
## Site:Age:ProbeDuration 0.61595 0.02755  
## Genotype:Age:ProbeDuration 0.61595 0.02755  
## Gender:Age:ProbeDuration 0.61595 0.02755  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.92296 0.002575 \*\*   
## Site:Age 0.92296 0.060725 .   
## Genotype:Age 0.92296 0.009055 \*\*   
## Gender:Age 0.92296 0.300934   
## ProbeDuration 0.97452 7.834e-05 \*\*\*  
## Site:ProbeDuration 0.97452 0.664140   
## Genotype:ProbeDuration 0.97452 0.661579   
## Gender:ProbeDuration 0.97452 0.996300   
## Age:ProbeDuration 0.88346 0.762874   
## Site:Age:ProbeDuration 0.88346 0.213811   
## Genotype:Age:ProbeDuration 0.88346 0.518312   
## Gender:Age:ProbeDuration 0.88346 0.618581   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9461438 2.360314e-03  
## Site:Age 0.9461438 5.934718e-02  
## Genotype:Age 0.9461438 8.524334e-03  
## Gender:Age 0.9461438 3.016083e-01  
## ProbeDuration 1.0202272 6.569192e-05  
## Site:ProbeDuration 1.0202272 6.688219e-01  
## Genotype:ProbeDuration 1.0202272 6.662408e-01  
## Gender:ProbeDuration 1.0202272 9.967430e-01  
## Age:ProbeDuration 0.9619160 7.777869e-01  
## Site:Age:ProbeDuration 0.9619160 2.086872e-01  
## Genotype:Age:ProbeDuration 0.9619160 5.260815e-01  
## Gender:Age:ProbeDuration 0.9619160 6.302819e-01

### Accuracy

summary(data.5x.list.probe$data.5x.probe.acc, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 1321768 1 21648 72 4396.2064  
## Site 1906 1 21648 72 6.3398  
## Genotype 3839 1 21648 72 12.7670  
## Gender 987 1 21648 72 3.2815  
## Age 7 2 16226 144 0.0295  
## Site:Age 1303 2 16226 144 5.7830  
## Genotype:Age 1043 2 16226 144 4.6292  
## Gender:Age 122 2 16226 144 0.5427  
## ProbeDuration 13844 3 12166 216 81.9306  
## Site:ProbeDuration 342 3 12166 216 2.0218  
## Genotype:ProbeDuration 188 3 12166 216 1.1147  
## Gender:ProbeDuration 246 3 12166 216 1.4530  
## Age:ProbeDuration 135 6 18903 432 0.5124  
## Site:Age:ProbeDuration 54 6 18903 432 0.2062  
## Genotype:Age:ProbeDuration 309 6 18903 432 1.1765  
## Gender:Age:ProbeDuration 141 6 18903 432 0.5379  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.0140305 \*   
## Genotype 0.0006341 \*\*\*  
## Gender 0.0742338 .   
## Age 0.9709813   
## Site:Age 0.0038391 \*\*   
## Genotype:Age 0.0112606 \*   
## Gender:Age 0.5823840   
## ProbeDuration < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.1118267   
## Genotype:ProbeDuration 0.3440088   
## Gender:ProbeDuration 0.2283918   
## Age:ProbeDuration 0.7990572   
## Site:Age:ProbeDuration 0.9747937   
## Genotype:Age:ProbeDuration 0.3176684   
## Gender:Age:ProbeDuration 0.7794040   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.73597 0.000019  
## Site:Age 0.73597 0.000019  
## Genotype:Age 0.73597 0.000019  
## Gender:Age 0.73597 0.000019  
## ProbeDuration 0.79475 0.006180  
## Site:ProbeDuration 0.79475 0.006180  
## Genotype:ProbeDuration 0.79475 0.006180  
## Gender:ProbeDuration 0.79475 0.006180  
## Age:ProbeDuration 0.68522 0.154104  
## Site:Age:ProbeDuration 0.68522 0.154104  
## Genotype:Age:ProbeDuration 0.68522 0.154104  
## Gender:Age:ProbeDuration 0.68522 0.154104  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.79112 0.945648   
## Site:Age 0.79112 0.007434 \*\*   
## Genotype:Age 0.79112 0.018048 \*   
## Gender:Age 0.79112 0.541770   
## ProbeDuration 0.85864 < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.85864 0.121717   
## Genotype:ProbeDuration 0.85864 0.339760   
## Gender:ProbeDuration 0.85864 0.232789   
## Age:ProbeDuration 0.89619 0.779836   
## Site:Age:ProbeDuration 0.89619 0.966328   
## Genotype:Age:ProbeDuration 0.89619 0.319325   
## Gender:Age:ProbeDuration 0.89619 0.760295   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8059276 9.480461e-01  
## Site:Age 0.8059276 7.092675e-03  
## Genotype:Age 0.8059276 1.745308e-02  
## Gender:Age 0.8059276 5.449677e-01  
## ProbeDuration 0.8932654 6.280902e-32  
## Site:ProbeDuration 0.8932654 1.192277e-01  
## Genotype:ProbeDuration 0.8932654 3.409440e-01  
## Gender:ProbeDuration 0.8932654 2.317704e-01  
## Age:ProbeDuration 0.9769691 7.949996e-01  
## Site:Age:ProbeDuration 0.9769691 9.731316e-01  
## Genotype:Age:ProbeDuration 0.9769691 3.180633e-01  
## Gender:Age:ProbeDuration 0.9769691 7.753604e-01

### Omissions

summary(data.5x.list.probe$data.5x.probe.omission, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 204367 1 43584 72 337.6123  
## Site 196 1 43584 72 0.3237  
## Genotype 2075 1 43584 72 3.4281  
## Gender 527 1 43584 72 0.8709  
## Age 2267 2 27730 144 5.8868  
## Site:Age 2889 2 27730 144 7.5015  
## Genotype:Age 947 2 27730 144 2.4585  
## Gender:Age 615 2 27730 144 1.5970  
## ProbeDuration 17282 3 21867 216 56.9009  
## Site:ProbeDuration 39 3 21867 216 0.1290  
## Genotype:ProbeDuration 602 3 21867 216 1.9814  
## Gender:ProbeDuration 55 3 21867 216 0.1804  
## Age:ProbeDuration 677 6 36973 432 1.3176  
## Site:Age:ProbeDuration 296 6 36973 432 0.5767  
## Genotype:Age:ProbeDuration 829 6 36973 432 1.6141  
## Gender:Age:ProbeDuration 241 6 36973 432 0.4691  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.571141   
## Genotype 0.068198 .   
## Gender 0.353834   
## Age 0.003488 \*\*   
## Site:Age 0.000796 \*\*\*  
## Genotype:Age 0.089146 .   
## Gender:Age 0.206069   
## ProbeDuration < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.942811   
## Genotype:ProbeDuration 0.117727   
## Gender:ProbeDuration 0.909645   
## Age:ProbeDuration 0.247774   
## Site:Age:ProbeDuration 0.748977   
## Genotype:Age:ProbeDuration 0.141505   
## Gender:Age:ProbeDuration 0.831281   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.95669 0.207680  
## Site:Age 0.95669 0.207680  
## Genotype:Age 0.95669 0.207680  
## Gender:Age 0.95669 0.207680  
## ProbeDuration 0.72665 0.000406  
## Site:ProbeDuration 0.72665 0.000406  
## Genotype:ProbeDuration 0.72665 0.000406  
## Gender:ProbeDuration 0.72665 0.000406  
## Age:ProbeDuration 0.62098 0.031850  
## Site:Age:ProbeDuration 0.62098 0.031850  
## Genotype:Age:ProbeDuration 0.62098 0.031850  
## Gender:Age:ProbeDuration 0.62098 0.031850  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.95849 0.0039892 \*\*   
## Site:Age 0.95849 0.0009604 \*\*\*  
## Genotype:Age 0.95849 0.0916258 .   
## Gender:Age 0.95849 0.2071062   
## ProbeDuration 0.83685 < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.83685 0.9180702   
## Genotype:ProbeDuration 0.83685 0.1290544   
## Gender:ProbeDuration 0.83685 0.8795334   
## Age:ProbeDuration 0.87604 0.2538081   
## Site:Age:ProbeDuration 0.87604 0.7264117   
## Genotype:Age:ProbeDuration 0.87604 0.1517341   
## Gender:Age:ProbeDuration 0.87604 0.8081828   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9841139 3.671592e-03  
## Site:Age 0.9841139 8.552601e-04  
## Genotype:Age 0.9841139 9.008799e-02  
## Gender:Age 0.9841139 2.064726e-01  
## ProbeDuration 0.8695355 6.168435e-24  
## Site:ProbeDuration 0.8695355 9.238333e-01  
## Genotype:ProbeDuration 0.8695355 1.267185e-01  
## Gender:ProbeDuration 0.8695355 8.863787e-01  
## Age:ProbeDuration 0.9531560 2.500623e-01  
## Site:Age:ProbeDuration 0.9531560 7.408079e-01  
## Genotype:Age:ProbeDuration 0.9531560 1.452807e-01  
## Gender:Age:ProbeDuration 0.9531560 8.230024e-01

### Premature Responses

summary(data.5x.list.probe$data.5x.probe.premature, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 19770.2 1 7782.3 72 182.9094  
## Site 39.2 1 7782.3 72 0.3628  
## Genotype 46.7 1 7782.3 72 0.4324  
## Gender 1765.5 1 7782.3 72 16.3343  
## Age 98.8 2 8535.8 144 0.8335  
## Site:Age 227.7 2 8535.8 144 1.9203  
## Genotype:Age 64.8 2 8535.8 144 0.5470  
## Gender:Age 18.1 2 8535.8 144 0.1526  
## ProbeDuration 165.4 3 3612.4 216 3.2972  
## Site:ProbeDuration 9.2 3 3612.4 216 0.1826  
## Genotype:ProbeDuration 13.9 3 3612.4 216 0.2763  
## Gender:ProbeDuration 22.4 3 3612.4 216 0.4474  
## Age:ProbeDuration 157.9 6 6920.5 432 1.6433  
## Site:Age:ProbeDuration 140.8 6 6920.5 432 1.4644  
## Genotype:Age:ProbeDuration 58.3 6 6920.5 432 0.6068  
## Gender:Age:ProbeDuration 51.4 6 6920.5 432 0.5346  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.5488318   
## Genotype 0.5129013   
## Gender 0.0001314 \*\*\*  
## Age 0.4366018   
## Site:Age 0.1502981   
## Genotype:Age 0.5798888   
## Gender:Age 0.8586007   
## ProbeDuration 0.0213538 \*   
## Site:ProbeDuration 0.9081655   
## Genotype:ProbeDuration 0.8424936   
## Gender:ProbeDuration 0.7193676   
## Age:ProbeDuration 0.1336120   
## Site:Age:ProbeDuration 0.1888427   
## Genotype:Age:ProbeDuration 0.7249825   
## Gender:Age:ProbeDuration 0.7819719   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.95127 0.169723  
## Site:Age 0.95127 0.169723  
## Genotype:Age 0.95127 0.169723  
## Gender:Age 0.95127 0.169723  
## ProbeDuration 0.79048 0.005269  
## Site:ProbeDuration 0.79048 0.005269  
## Genotype:ProbeDuration 0.79048 0.005269  
## Gender:ProbeDuration 0.79048 0.005269  
## Age:ProbeDuration 0.51033 0.000604  
## Site:Age:ProbeDuration 0.51033 0.000604  
## Genotype:Age:ProbeDuration 0.51033 0.000604  
## Gender:Age:ProbeDuration 0.51033 0.000604  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.95353 0.4318   
## Site:Age 0.95353 0.1525   
## Genotype:Age 0.95353 0.5717   
## Gender:Age 0.95353 0.8490   
## ProbeDuration 0.85827 0.0278 \*  
## Site:ProbeDuration 0.85827 0.8824   
## Genotype:ProbeDuration 0.85827 0.8124   
## Gender:ProbeDuration 0.85827 0.6896   
## Age:ProbeDuration 0.83838 0.1473   
## Site:Age:ProbeDuration 0.83838 0.2004   
## Genotype:Age:ProbeDuration 0.83838 0.6958   
## Gender:Age:ProbeDuration 0.83838 0.7511   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9788122 0.43444460  
## Site:Age 0.9788122 0.15130098  
## Genotype:Age 0.9788122 0.57618111  
## Gender:Age 0.9788122 0.85430217  
## ProbeDuration 0.8928615 0.02605986  
## Site:ProbeDuration 0.8928615 0.88939292  
## Genotype:ProbeDuration 0.8928615 0.82035292  
## Gender:ProbeDuration 0.8928615 0.69734943  
## Age:ProbeDuration 0.9088937 0.14115456  
## Site:Age:ProbeDuration 0.9088937 0.19526759  
## Genotype:Age:ProbeDuration 0.9088937 0.70915497  
## Gender:Age:ProbeDuration 0.9088937 0.76531007

### Perseverative Errors

summary(data.5x.list.probe$data.5x.probe.persev, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 2979.41 1 5131.8 72 41.8014  
## Site 545.11 1 5131.8 72 7.6479  
## Genotype 1172.45 1 5131.8 72 16.4496  
## Gender 181.08 1 5131.8 72 2.5405  
## Age 51.86 2 3439.0 144 1.0858  
## Site:Age 12.33 2 3439.0 144 0.2582  
## Genotype:Age 363.99 2 3439.0 144 7.6207  
## Gender:Age 206.23 2 3439.0 144 4.3176  
## ProbeDuration 182.27 3 3462.7 216 3.7900  
## Site:ProbeDuration 8.38 3 3462.7 216 0.1743  
## Genotype:ProbeDuration 63.67 3 3462.7 216 1.3239  
## Gender:ProbeDuration 35.35 3 3462.7 216 0.7350  
## Age:ProbeDuration 19.18 6 5121.4 432 0.2696  
## Site:Age:ProbeDuration 48.29 6 5121.4 432 0.6789  
## Genotype:Age:ProbeDuration 18.93 6 5121.4 432 0.2661  
## Gender:Age:ProbeDuration 111.11 6 5121.4 432 1.5621  
## Pr(>F)   
## (Intercept) 1.053e-08 \*\*\*  
## Site 0.0072156 \*\*   
## Genotype 0.0001251 \*\*\*  
## Gender 0.1153400   
## Age 0.3403815   
## Site:Age 0.7728346   
## Genotype:Age 0.0007146 \*\*\*  
## Gender:Age 0.0150992 \*   
## ProbeDuration 0.0111648 \*   
## Site:ProbeDuration 0.9137083   
## Genotype:ProbeDuration 0.2674810   
## Gender:ProbeDuration 0.5321953   
## Age:ProbeDuration 0.9509730   
## Site:Age:ProbeDuration 0.6667814   
## Genotype:Age:ProbeDuration 0.9525035   
## Gender:Age:ProbeDuration 0.1566129   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.79975 0.000359  
## Site:Age 0.79975 0.000359  
## Genotype:Age 0.79975 0.000359  
## Gender:Age 0.79975 0.000359  
## ProbeDuration 0.84883 0.040862  
## Site:ProbeDuration 0.84883 0.040862  
## Genotype:ProbeDuration 0.84883 0.040862  
## Gender:ProbeDuration 0.84883 0.040862  
## Age:ProbeDuration 0.42328 0.000007  
## Site:Age:ProbeDuration 0.42328 0.000007  
## Genotype:Age:ProbeDuration 0.42328 0.000007  
## Gender:Age:ProbeDuration 0.42328 0.000007  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.83316 0.331515   
## Site:Age 0.83316 0.732117   
## Genotype:Age 0.83316 0.001546 \*\*  
## Gender:Age 0.83316 0.021140 \*   
## ProbeDuration 0.89442 0.014370 \*   
## Site:ProbeDuration 0.89442 0.895699   
## Genotype:ProbeDuration 0.89442 0.268818   
## Gender:ProbeDuration 0.89442 0.518150   
## Age:ProbeDuration 0.78448 0.921503   
## Site:Age:ProbeDuration 0.78448 0.630792   
## Genotype:Age:ProbeDuration 0.78448 0.923462   
## Gender:Age:ProbeDuration 0.78448 0.174163   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8505292 0.332573941  
## Site:Age 0.8505292 0.736796206  
## Genotype:Age 0.8505292 0.001426673  
## Gender:Age 0.8505292 0.020411464  
## ProbeDuration 0.9323258 0.013123164  
## Site:ProbeDuration 0.9323258 0.902609429  
## Genotype:ProbeDuration 0.9323258 0.268395107  
## Gender:ProbeDuration 0.9323258 0.523368813  
## Age:ProbeDuration 0.8460537 0.931530112  
## Site:Age:ProbeDuration 0.8460537 0.641916891  
## Genotype:Age:ProbeDuration 0.8460537 0.933362379  
## Gender:Age:ProbeDuration 0.8460537 0.168959318

### Correct Response Latency

summary(data.5x.list.probe$data.5x.probe.corrlat, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 293.960 1 8.5525 72 2474.7304  
## Site 0.855 1 8.5525 72 7.1983  
## Genotype 1.468 1 8.5525 72 12.3560  
## Gender 0.000 1 8.5525 72 0.0007  
## Age 0.091 2 7.7630 144 0.8413  
## Site:Age 0.180 2 7.7630 144 1.6715  
## Genotype:Age 0.067 2 7.7630 144 0.6239  
## Gender:Age 0.184 2 7.7630 144 1.7025  
## ProbeDuration 0.543 3 7.4208 216 5.2639  
## Site:ProbeDuration 0.235 3 7.4208 216 2.2832  
## Genotype:ProbeDuration 0.099 3 7.4208 216 0.9569  
## Gender:ProbeDuration 0.028 3 7.4208 216 0.2695  
## Age:ProbeDuration 0.275 6 13.7120 432 1.4439  
## Site:Age:ProbeDuration 0.129 6 13.7120 432 0.6779  
## Genotype:Age:ProbeDuration 0.460 6 13.7120 432 2.4133  
## Gender:Age:ProbeDuration 0.133 6 13.7120 432 0.6962  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.0090464 \*\*   
## Genotype 0.0007645 \*\*\*  
## Gender 0.9785391   
## Age 0.4332526   
## Site:Age 0.1915944   
## Genotype:Age 0.5373098   
## Gender:Age 0.1858756   
## ProbeDuration 0.0015953 \*\*   
## Site:ProbeDuration 0.0799960 .   
## Genotype:ProbeDuration 0.4139845   
## Gender:ProbeDuration 0.8473303   
## Age:ProbeDuration 0.1962833   
## Site:Age:ProbeDuration 0.6676255   
## Genotype:Age:ProbeDuration 0.0263798 \*   
## Gender:Age:ProbeDuration 0.6528221   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.84215 2.246e-03  
## Site:Age 0.84215 2.246e-03  
## Genotype:Age 0.84215 2.246e-03  
## Gender:Age 0.84215 2.246e-03  
## ProbeDuration 0.55166 6.000e-08  
## Site:ProbeDuration 0.55166 6.000e-08  
## Genotype:ProbeDuration 0.55166 6.000e-08  
## Gender:ProbeDuration 0.55166 6.000e-08  
## Age:ProbeDuration 0.15567 0.000e+00  
## Site:Age:ProbeDuration 0.15567 0.000e+00  
## Genotype:Age:ProbeDuration 0.15567 0.000e+00  
## Gender:Age:ProbeDuration 0.15567 0.000e+00  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.86367 0.41867   
## Site:Age 0.86367 0.19568   
## Genotype:Age 0.86367 0.51484   
## Gender:Age 0.86367 0.19031   
## ProbeDuration 0.74482 0.00451 \*\*  
## Site:ProbeDuration 0.74482 0.09904 .   
## Genotype:ProbeDuration 0.74482 0.39437   
## Gender:ProbeDuration 0.74482 0.78801   
## Age:ProbeDuration 0.58748 0.22513   
## Site:Age:ProbeDuration 0.58748 0.58952   
## Genotype:Age:ProbeDuration 0.58748 0.05719 .   
## Gender:Age:ProbeDuration 0.58748 0.57751   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8829627 0.420879565  
## Site:Age 0.8829627 0.195138381  
## Genotype:Age 0.8829627 0.518220533  
## Gender:Age 0.8829627 0.189717938  
## ProbeDuration 0.7697934 0.004071523  
## Site:ProbeDuration 0.7697934 0.097004395  
## Genotype:ProbeDuration 0.7697934 0.396651655  
## Gender:ProbeDuration 0.7697934 0.794969119  
## Age:ProbeDuration 0.6214293 0.222764599  
## Site:Age:ProbeDuration 0.6214293 0.597618350  
## Genotype:Age:ProbeDuration 0.6214293 0.053602794  
## Gender:Age:ProbeDuration 0.6214293 0.585307121

### Reward Collection Latency

summary(data.5x.list.probe$data.5x.probe.rewardlat, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 629.47 1 144.19 72 314.3148  
## Site 1.57 1 144.19 72 0.7853  
## Genotype 73.36 1 144.19 72 36.6335  
## Gender 2.46 1 144.19 72 1.2261  
## Age 21.53 2 183.60 144 8.4418  
## Site:Age 6.59 2 183.60 144 2.5855  
## Genotype:Age 24.38 2 183.60 144 9.5618  
## Gender:Age 0.73 2 183.60 144 0.2877  
## ProbeDuration 0.67 3 166.25 216 0.2892  
## Site:ProbeDuration 2.46 3 166.25 216 1.0656  
## Genotype:ProbeDuration 0.07 3 166.25 216 0.0314  
## Gender:ProbeDuration 0.20 3 166.25 216 0.0854  
## Age:ProbeDuration 2.14 6 298.85 432 0.5165  
## Site:Age:ProbeDuration 1.06 6 298.85 432 0.2557  
## Genotype:Age:ProbeDuration 3.16 6 298.85 432 0.7605  
## Gender:Age:ProbeDuration 2.00 6 298.85 432 0.4816  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.3784890   
## Genotype 5.837e-08 \*\*\*  
## Gender 0.2718475   
## Age 0.0003414 \*\*\*  
## Site:Age 0.0788529 .   
## Genotype:Age 0.0001262 \*\*\*  
## Gender:Age 0.7504484   
## ProbeDuration 0.8331617   
## Site:ProbeDuration 0.3645768   
## Genotype:ProbeDuration 0.9925032   
## Gender:ProbeDuration 0.9679527   
## Age:ProbeDuration 0.7959419   
## Site:Age:ProbeDuration 0.9568957   
## Genotype:Age:ProbeDuration 0.6013542   
## Gender:Age:ProbeDuration 0.8220898   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.75370 0.0000437  
## Site:Age 0.75370 0.0000437  
## Genotype:Age 0.75370 0.0000437  
## Gender:Age 0.75370 0.0000437  
## ProbeDuration 0.78504 0.0042886  
## Site:ProbeDuration 0.78504 0.0042886  
## Genotype:ProbeDuration 0.78504 0.0042886  
## Gender:ProbeDuration 0.78504 0.0042886  
## Age:ProbeDuration 0.21281 0.0000000  
## Site:Age:ProbeDuration 0.21281 0.0000000  
## Genotype:Age:ProbeDuration 0.21281 0.0000000  
## Gender:Age:ProbeDuration 0.21281 0.0000000  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.80237 0.0009708 \*\*\*  
## Site:Age 0.80237 0.0912800 .   
## Genotype:Age 0.80237 0.0004284 \*\*\*  
## Gender:Age 0.80237 0.7015128   
## ProbeDuration 0.87847 0.8075081   
## Site:ProbeDuration 0.87847 0.3596006   
## Genotype:ProbeDuration 0.87847 0.9875207   
## Gender:ProbeDuration 0.87847 0.9551867   
## Age:ProbeDuration 0.67218 0.7251847   
## Site:Age:ProbeDuration 0.67218 0.9073126   
## Genotype:Age:ProbeDuration 0.67218 0.5527312   
## Gender:Age:ProbeDuration 0.67218 0.7507482   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8178562 0.0008942140  
## Site:Age 0.8178562 0.0902538753  
## Genotype:Age 0.8178562 0.0003891696  
## Gender:Age 0.8178562 0.7058207012  
## ProbeDuration 0.9149019 0.8156881922  
## Site:ProbeDuration 0.9149019 0.3612187522  
## Genotype:ProbeDuration 0.9149019 0.9892958634  
## Gender:ProbeDuration 0.9149019 0.9594984078  
## Age:ProbeDuration 0.7170555 0.7368660350  
## Site:Age:ProbeDuration 0.7170555 0.9168336653  
## Genotype:Age:ProbeDuration 0.7170555 0.5605294623  
## Gender:Age:ProbeDuration 0.7170555 0.7626585176

## 3xTG Results

### Total Trials Completed

summary(data.3x.list.probe$data.3x.probe.totaltrial, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 569254 1 7906.7 71 5111.7743  
## Site 786 1 7906.7 71 7.0544  
## Genotype 133 1 7906.7 71 1.1964  
## Gender 236 1 7906.7 71 2.1226  
## Age 41 2 10257.8 142 0.2862  
## Site:Age 834 2 10257.8 142 5.7717  
## Genotype:Age 328 2 10257.8 142 2.2673  
## Gender:Age 619 2 10257.8 142 4.2811  
## ProbeDuration 55 3 2492.1 213 1.5647  
## Site:ProbeDuration 9 3 2492.1 213 0.2681  
## Genotype:ProbeDuration 73 3 2492.1 213 2.0736  
## Gender:ProbeDuration 24 3 2492.1 213 0.6794  
## Age:ProbeDuration 54 6 4144.4 426 0.9279  
## Site:Age:ProbeDuration 41 6 4144.4 426 0.6980  
## Genotype:Age:ProbeDuration 42 6 4144.4 426 0.7175  
## Gender:Age:ProbeDuration 54 6 4144.4 426 0.9195  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.009757 \*\*   
## Genotype 0.277743   
## Gender 0.149548   
## Age 0.751511   
## Site:Age 0.003891 \*\*   
## Genotype:Age 0.107330   
## Gender:Age 0.015654 \*   
## ProbeDuration 0.198962   
## Site:ProbeDuration 0.848318   
## Genotype:ProbeDuration 0.104718   
## Gender:ProbeDuration 0.565503   
## Age:ProbeDuration 0.474562   
## Site:Age:ProbeDuration 0.651356   
## Genotype:Age:ProbeDuration 0.635674   
## Gender:Age:ProbeDuration 0.480546   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.48889 0.000000  
## Site:Age 0.48889 0.000000  
## Genotype:Age 0.48889 0.000000  
## Gender:Age 0.48889 0.000000  
## ProbeDuration 0.85201 0.048209  
## Site:ProbeDuration 0.85201 0.048209  
## Genotype:ProbeDuration 0.85201 0.048209  
## Gender:ProbeDuration 0.85201 0.048209  
## Age:ProbeDuration 0.13783 0.000000  
## Site:Age:ProbeDuration 0.13783 0.000000  
## Genotype:Age:ProbeDuration 0.13783 0.000000  
## Gender:Age:ProbeDuration 0.13783 0.000000  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.66177 0.65869   
## Site:Age 0.66177 0.01132 \*  
## Genotype:Age 0.66177 0.12754   
## Gender:Age 0.66177 0.03068 \*  
## ProbeDuration 0.90568 0.20317   
## Site:ProbeDuration 0.90568 0.82917   
## Genotype:ProbeDuration 0.90568 0.11131   
## Gender:ProbeDuration 0.90568 0.55149   
## Age:ProbeDuration 0.62872 0.44408   
## Site:Age:ProbeDuration 0.62872 0.58572   
## Genotype:Age:ProbeDuration 0.62872 0.57274   
## Gender:Age:ProbeDuration 0.62872 0.44876   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.6694812 0.66134260  
## Site:Age 0.6694812 0.01105096  
## Genotype:Age 0.6694812 0.12707765  
## Gender:Age 0.6694812 0.03020956  
## ProbeDuration 0.9452130 0.20141761  
## Site:ProbeDuration 0.9452130 0.83753629  
## Genotype:ProbeDuration 0.9452130 0.10849924  
## Gender:ProbeDuration 0.9452130 0.55752241  
## Age:ProbeDuration 0.6683927 0.44822380  
## Site:Age:ProbeDuration 0.6683927 0.59422609  
## Genotype:Age:ProbeDuration 0.6683927 0.58089538  
## Gender:Age:ProbeDuration 0.6683927 0.45306453

### Total Time

summary(data.3x.list.probe$data.3x.probe.totaltime, multivariate=FALSE)

## Warning in summary.Anova.mlm(data.3x.list.probe$data.3x.probe.totaltime, :  
## HF eps > 1 treated as 1

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 726033644 1 127332020 71 404.8345  
## Site 792359 1 127332020 71 0.4418  
## Genotype 2859695 1 127332020 71 1.5946  
## Gender 936220 1 127332020 71 0.5220  
## Age 11398229 2 109968978 142 7.3591  
## Site:Age 9650547 2 109968978 142 6.2307  
## Genotype:Age 3058417 2 109968978 142 1.9746  
## Gender:Age 3780449 2 109968978 142 2.4408  
## ProbeDuration 10894996 3 39881649 213 19.3960  
## Site:ProbeDuration 565146 3 39881649 213 1.0061  
## Genotype:ProbeDuration 888813 3 39881649 213 1.5823  
## Gender:ProbeDuration 103817 3 39881649 213 0.1848  
## Age:ProbeDuration 1251748 6 72639975 426 1.2235  
## Site:Age:ProbeDuration 961199 6 72639975 426 0.9395  
## Genotype:Age:ProbeDuration 911719 6 72639975 426 0.8911  
## Gender:Age:ProbeDuration 862364 6 72639975 426 0.8429  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.5083999   
## Genotype 0.2108076   
## Gender 0.4723487   
## Age 0.0009099 \*\*\*  
## Site:Age 0.0025482 \*\*   
## Genotype:Age 0.1426065   
## Gender:Age 0.0907380 .   
## ProbeDuration 3.713e-11 \*\*\*  
## Site:ProbeDuration 0.3909844   
## Genotype:ProbeDuration 0.1946492   
## Gender:ProbeDuration 0.9066428   
## Age:ProbeDuration 0.2929148   
## Site:Age:ProbeDuration 0.4663321   
## Genotype:Age:ProbeDuration 0.5011969   
## Gender:Age:ProbeDuration 0.5372724   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.95617 0.20831  
## Site:Age 0.95617 0.20831  
## Genotype:Age 0.95617 0.20831  
## Gender:Age 0.95617 0.20831  
## ProbeDuration 0.85995 0.06181  
## Site:ProbeDuration 0.85995 0.06181  
## Genotype:ProbeDuration 0.85995 0.06181  
## Gender:ProbeDuration 0.85995 0.06181  
## Age:ProbeDuration 0.78215 0.65991  
## Site:Age:ProbeDuration 0.78215 0.65991  
## Genotype:Age:ProbeDuration 0.78215 0.65991  
## Gender:Age:ProbeDuration 0.78215 0.65991  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.95801 0.001095 \*\*   
## Site:Age 0.95801 0.002952 \*\*   
## Genotype:Age 0.95801 0.144695   
## Gender:Age 0.95801 0.093245 .   
## ProbeDuration 0.91798 2.004e-10 \*\*\*  
## Site:ProbeDuration 0.91798 0.386536   
## Genotype:ProbeDuration 0.91798 0.198452   
## Gender:ProbeDuration 0.91798 0.892539   
## Age:ProbeDuration 0.92491 0.295055   
## Site:Age:ProbeDuration 0.92491 0.461666   
## Genotype:Age:ProbeDuration 0.92491 0.495151   
## Gender:Age:ProbeDuration 0.92491 0.529844   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9839718 9.764057e-04  
## Site:Age 0.9839718 2.695461e-03  
## Genotype:Age 0.9839718 1.434036e-01  
## Gender:Age 0.9839718 9.168815e-02  
## ProbeDuration 0.9587073 8.673944e-11  
## Site:ProbeDuration 0.9587073 3.888156e-01  
## Genotype:ProbeDuration 0.9587073 1.965722e-01  
## Gender:ProbeDuration 0.9587073 8.998211e-01  
## Age:ProbeDuration 1.0123704 2.929148e-01  
## Site:Age:ProbeDuration 1.0123704 4.663321e-01  
## Genotype:Age:ProbeDuration 1.0123704 5.011969e-01  
## Gender:Age:ProbeDuration 1.0123704 5.372724e-01

### Accuracy

summary(data.3x.list.probe$data.3x.probe.acc, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 1447330 1 16878 71 6088.4697  
## Site 4 1 16878 71 0.0163  
## Genotype 5844 1 16878 71 24.5845  
## Gender 21 1 16878 71 0.0892  
## Age 361 2 12176 142 2.1047  
## Site:Age 885 2 12176 142 5.1628  
## Genotype:Age 50 2 12176 142 0.2923  
## Gender:Age 96 2 12176 142 0.5622  
## ProbeDuration 17916 3 12264 213 103.7186  
## Site:ProbeDuration 88 3 12264 213 0.5099  
## Genotype:ProbeDuration 1243 3 12264 213 7.1930  
## Gender:ProbeDuration 191 3 12264 213 1.1083  
## Age:ProbeDuration 101 6 20234 426 0.3550  
## Site:Age:ProbeDuration 238 6 20234 426 0.8361  
## Genotype:Age:ProbeDuration 121 6 20234 426 0.4244  
## Gender:Age:ProbeDuration 290 6 20234 426 1.0168  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.8988255   
## Genotype 4.675e-06 \*\*\*  
## Gender 0.7660300   
## Age 0.1256674   
## Site:Age 0.0068485 \*\*   
## Genotype:Age 0.7470072   
## Gender:Age 0.5712204   
## ProbeDuration < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.6758460   
## Genotype:ProbeDuration 0.0001273 \*\*\*  
## Gender:ProbeDuration 0.3466734   
## Age:ProbeDuration 0.9068863   
## Site:Age:ProbeDuration 0.5424246   
## Genotype:Age:ProbeDuration 0.8627299   
## Gender:Age:ProbeDuration 0.4136185   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.92056 0.055177  
## Site:Age 0.92056 0.055177  
## Genotype:Age 0.92056 0.055177  
## Gender:Age 0.92056 0.055177  
## ProbeDuration 0.67331 0.000044  
## Site:ProbeDuration 0.67331 0.000044  
## Genotype:ProbeDuration 0.67331 0.000044  
## Gender:ProbeDuration 0.67331 0.000044  
## Age:ProbeDuration 0.40730 0.000004  
## Site:Age:ProbeDuration 0.40730 0.000004  
## Genotype:Age:ProbeDuration 0.40730 0.000004  
## Gender:Age:ProbeDuration 0.40730 0.000004  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.92640 0.1296740   
## Site:Age 0.92640 0.0083341 \*\*   
## Genotype:Age 0.92640 0.7302291   
## Gender:Age 0.92640 0.5582925   
## ProbeDuration 0.81959 < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.81959 0.6393621   
## Genotype:ProbeDuration 0.81959 0.0003989 \*\*\*  
## Gender:ProbeDuration 0.81959 0.3406856   
## Age:ProbeDuration 0.76105 0.8637703   
## Site:Age:ProbeDuration 0.76105 0.5159103   
## Genotype:Age:ProbeDuration 0.76105 0.8153941   
## Gender:Age:ProbeDuration 0.76105 0.4041396   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9501617 1.283759e-01  
## Site:Age 0.9501617 7.821922e-03  
## Genotype:Age 0.9501617 7.358112e-01  
## Gender:Age 0.9501617 5.625697e-01  
## ProbeDuration 0.8512198 1.182077e-35  
## Site:ProbeDuration 0.8512198 6.463006e-01  
## Genotype:ProbeDuration 0.8512198 3.262914e-04  
## Gender:ProbeDuration 0.8512198 3.419357e-01  
## Age:ProbeDuration 0.8197952 8.762255e-01  
## Site:Age:ProbeDuration 0.8197952 5.230964e-01  
## Genotype:Age:ProbeDuration 0.8197952 8.287320e-01  
## Gender:Age:ProbeDuration 0.8197952 4.068867e-01

### Omissions

summary(data.3x.list.probe$data.3x.probe.omission, multivariate=FALSE)

## Warning in summary.Anova.mlm(data.3x.list.probe$data.3x.probe.omission, :  
## HF eps > 1 treated as 1

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 224929 1 37961 71 420.6925  
## Site 3465 1 37961 71 6.4798  
## Genotype 1573 1 37961 71 2.9426  
## Gender 24 1 37961 71 0.0455  
## Age 3877 2 24794 142 11.1013  
## Site:Age 1032 2 24794 142 2.9564  
## Genotype:Age 52 2 24794 142 0.1491  
## Gender:Age 256 2 24794 142 0.7339  
## ProbeDuration 30114 3 20847 213 102.5583  
## Site:ProbeDuration 161 3 20847 213 0.5477  
## Genotype:ProbeDuration 895 3 20847 213 3.0491  
## Gender:ProbeDuration 64 3 20847 213 0.2186  
## Age:ProbeDuration 309 6 30674 426 0.7151  
## Site:Age:ProbeDuration 294 6 30674 426 0.6811  
## Genotype:Age:ProbeDuration 475 6 30674 426 1.0988  
## Gender:Age:ProbeDuration 433 6 30674 426 1.0034  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.01308 \*   
## Genotype 0.09064 .   
## Gender 0.83162   
## Age 3.315e-05 \*\*\*  
## Site:Age 0.05521 .   
## Genotype:Age 0.86158   
## Gender:Age 0.48186   
## ProbeDuration < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.65022   
## Genotype:ProbeDuration 0.02959 \*   
## Gender:ProbeDuration 0.88339   
## Age:ProbeDuration 0.63763   
## Site:Age:ProbeDuration 0.66500   
## Genotype:Age:ProbeDuration 0.36217   
## Gender:Age:ProbeDuration 0.42250   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.98754 0.64473  
## Site:Age 0.98754 0.64473  
## Genotype:Age 0.98754 0.64473  
## Gender:Age 0.98754 0.64473  
## ProbeDuration 0.75413 0.00144  
## Site:ProbeDuration 0.75413 0.00144  
## Genotype:ProbeDuration 0.75413 0.00144  
## Gender:ProbeDuration 0.75413 0.00144  
## Age:ProbeDuration 0.67759 0.14226  
## Site:Age:ProbeDuration 0.67759 0.14226  
## Genotype:Age:ProbeDuration 0.67759 0.14226  
## Gender:Age:ProbeDuration 0.67759 0.14226  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.98769 3.631e-05 \*\*\*  
## Site:Age 0.98769 0.0559 .   
## Genotype:Age 0.98769 0.8591   
## Gender:Age 0.98769 0.4803   
## ProbeDuration 0.86033 < 2.2e-16 \*\*\*  
## Site:ProbeDuration 0.86033 0.6239   
## Genotype:ProbeDuration 0.86033 0.0370 \*   
## Gender:ProbeDuration 0.86033 0.8559   
## Age:ProbeDuration 0.89355 0.6220   
## Site:Age:ProbeDuration 0.89355 0.6483   
## Genotype:Age:ProbeDuration 0.89355 0.3614   
## Gender:Age:ProbeDuration 0.89355 0.4183   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 1.0157787 3.314997e-05  
## Site:Age 1.0157787 5.521418e-02  
## Genotype:Age 1.0157787 8.615828e-01  
## Gender:Age 1.0157787 4.818644e-01  
## ProbeDuration 0.8956115 4.234993e-37  
## Site:ProbeDuration 0.8956115 6.308879e-01  
## Genotype:ProbeDuration 0.8956115 3.496569e-02  
## Gender:ProbeDuration 0.8956115 8.635054e-01  
## Age:ProbeDuration 0.9750737 6.341150e-01  
## Site:Age:ProbeDuration 0.9750737 6.612343e-01  
## Genotype:Age:ProbeDuration 0.9750737 3.620337e-01  
## Gender:Age:ProbeDuration 0.9750737 4.215761e-01

### Premature Responses

summary(data.3x.list.probe$data.3x.probe.premature, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F Pr(>F)  
## (Intercept) 4642.9 1 4530.9 71 72.7564 1.742e-12  
## Site 2.1 1 4530.9 71 0.0332 0.8559  
## Genotype 7.3 1 4530.9 71 0.1140 0.7366  
## Gender 53.5 1 4530.9 71 0.8386 0.3629  
## Age 11.3 2 2526.8 142 0.3188 0.7275  
## Site:Age 28.1 2 2526.8 142 0.7885 0.4565  
## Genotype:Age 58.1 2 2526.8 142 1.6324 0.1991  
## Gender:Age 53.6 2 2526.8 142 1.5070 0.2251  
## ProbeDuration 99.8 3 2770.8 213 2.5583 0.0561  
## Site:ProbeDuration 30.6 3 2770.8 213 0.7854 0.5033  
## Genotype:ProbeDuration 13.3 3 2770.8 213 0.3409 0.7958  
## Gender:ProbeDuration 5.5 3 2770.8 213 0.1408 0.9354  
## Age:ProbeDuration 20.3 6 4469.0 426 0.3220 0.9255  
## Site:Age:ProbeDuration 58.8 6 4469.0 426 0.9340 0.4702  
## Genotype:Age:ProbeDuration 23.3 6 4469.0 426 0.3707 0.8975  
## Gender:Age:ProbeDuration 51.4 6 4469.0 426 0.8171 0.5570  
##   
## (Intercept) \*\*\*  
## Site   
## Genotype   
## Gender   
## Age   
## Site:Age   
## Genotype:Age   
## Gender:Age   
## ProbeDuration .   
## Site:ProbeDuration   
## Genotype:ProbeDuration   
## Gender:ProbeDuration   
## Age:ProbeDuration   
## Site:Age:ProbeDuration   
## Genotype:Age:ProbeDuration   
## Gender:Age:ProbeDuration   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.90393 0.0291544  
## Site:Age 0.90393 0.0291544  
## Genotype:Age 0.90393 0.0291544  
## Gender:Age 0.90393 0.0291544  
## ProbeDuration 0.80120 0.0085996  
## Site:ProbeDuration 0.80120 0.0085996  
## Genotype:ProbeDuration 0.80120 0.0085996  
## Gender:ProbeDuration 0.80120 0.0085996  
## Age:ProbeDuration 0.46113 0.0000760  
## Site:Age:ProbeDuration 0.46113 0.0000760  
## Genotype:Age:ProbeDuration 0.46113 0.0000760  
## Gender:Age:ProbeDuration 0.46113 0.0000760  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.91235 0.70757   
## Site:Age 0.91235 0.44625   
## Genotype:Age 0.91235 0.20150   
## Gender:Age 0.91235 0.22640   
## ProbeDuration 0.87117 0.06467 .  
## Site:ProbeDuration 0.87117 0.48788   
## Genotype:ProbeDuration 0.87117 0.76789   
## Gender:ProbeDuration 0.87117 0.91560   
## Age:ProbeDuration 0.82075 0.89736   
## Site:Age:ProbeDuration 0.82075 0.45792   
## Genotype:Age:ProbeDuration 0.82075 0.86606   
## Gender:Age:ProbeDuration 0.82075 0.53648   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.9351486 0.71296444  
## Site:Age 0.9351486 0.44901856  
## Genotype:Age 0.9351486 0.20090014  
## Gender:Age 0.9351486 0.22609671  
## ProbeDuration 0.9074524 0.06212876  
## Site:ProbeDuration 0.9074524 0.49243615  
## Genotype:ProbeDuration 0.9074524 0.77622908  
## Gender:ProbeDuration 0.9074524 0.92178882  
## Age:ProbeDuration 0.8892937 0.90931628  
## Site:Age:ProbeDuration 0.8892937 0.46295521  
## Genotype:Age:ProbeDuration 0.8892937 0.87926010  
## Gender:Age:ProbeDuration 0.8892937 0.54478953

### Perseverative Errors

summary(data.3x.list.probe$data.3x.probe.persev, multivariate=FALSE)

## Warning in summary.Anova.mlm(data.3x.list.probe$data.3x.probe.persev,  
## multivariate = FALSE): HF eps > 1 treated as 1

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 10605.2 1 13865.7 71 54.3047  
## Site 2261.9 1 13865.7 71 11.5822  
## Genotype 956.3 1 13865.7 71 4.8969  
## Gender 460.4 1 13865.7 71 2.3575  
## Age 221.2 2 9943.7 142 1.5792  
## Site:Age 1092.9 2 9943.7 142 7.8036  
## Genotype:Age 216.8 2 9943.7 142 1.5478  
## Gender:Age 77.6 2 9943.7 142 0.5540  
## ProbeDuration 674.8 3 4013.4 213 11.9384  
## Site:ProbeDuration 72.3 3 4013.4 213 1.2795  
## Genotype:ProbeDuration 151.6 3 4013.4 213 2.6816  
## Gender:ProbeDuration 7.1 3 4013.4 213 0.1255  
## Age:ProbeDuration 106.1 6 8612.5 426 0.8747  
## Site:Age:ProbeDuration 182.9 6 8612.5 426 1.5081  
## Genotype:Age:ProbeDuration 131.0 6 8612.5 426 1.0803  
## Gender:Age:ProbeDuration 91.0 6 8612.5 426 0.7499  
## Pr(>F)   
## (Intercept) 2.459e-10 \*\*\*  
## Site 0.001098 \*\*   
## Genotype 0.030121 \*   
## Gender 0.129128   
## Age 0.209733   
## Site:Age 0.000609 \*\*\*  
## Genotype:Age 0.216272   
## Gender:Age 0.575886   
## ProbeDuration 2.950e-07 \*\*\*  
## Site:ProbeDuration 0.282335   
## Genotype:ProbeDuration 0.047802 \*   
## Gender:ProbeDuration 0.944956   
## Age:ProbeDuration 0.513333   
## Site:Age:ProbeDuration 0.173808   
## Genotype:Age:ProbeDuration 0.373387   
## Gender:Age:ProbeDuration 0.609750   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.97824 0.46306  
## Site:Age 0.97824 0.46306  
## Genotype:Age 0.97824 0.46306  
## Gender:Age 0.97824 0.46306  
## ProbeDuration 0.93079 0.41588  
## Site:ProbeDuration 0.93079 0.41588  
## Genotype:ProbeDuration 0.93079 0.41588  
## Gender:ProbeDuration 0.93079 0.41588  
## Age:ProbeDuration 0.48435 0.00023  
## Site:Age:ProbeDuration 0.48435 0.00023  
## Genotype:Age:ProbeDuration 0.48435 0.00023  
## Gender:Age:ProbeDuration 0.48435 0.00023  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.97871 0.2102377   
## Site:Age 0.97871 0.0006739 \*\*\*  
## Genotype:Age 0.97871 0.2167115   
## Gender:Age 0.97871 0.5721979   
## ProbeDuration 0.95103 5.297e-07 \*\*\*  
## Site:ProbeDuration 0.95103 0.2826486   
## Genotype:ProbeDuration 0.95103 0.0507525 .   
## Gender:ProbeDuration 0.95103 0.9386436   
## Age:ProbeDuration 0.81438 0.4961974   
## Site:Age:ProbeDuration 0.81438 0.1879655   
## Genotype:Age:ProbeDuration 0.81438 0.3705419   
## Gender:Age:ProbeDuration 0.81438 0.5836867   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 1.0061453 2.097335e-01  
## Site:Age 1.0061453 6.089561e-04  
## Genotype:Age 1.0061453 2.162724e-01  
## Gender:Age 1.0061453 5.758863e-01  
## ProbeDuration 0.9950186 3.131032e-07  
## Site:ProbeDuration 0.9950186 2.823716e-01  
## Genotype:ProbeDuration 0.9950186 4.809366e-02  
## Gender:ProbeDuration 0.9950186 9.443471e-01  
## Age:ProbeDuration 0.8818455 5.028380e-01  
## Site:Age:ProbeDuration 0.8818455 1.826995e-01  
## Genotype:Age:ProbeDuration 0.8818455 3.718019e-01  
## Gender:Age:ProbeDuration 0.8818455 5.937245e-01

### Correct Response Latency

summary(data.3x.list.probe$data.3x.probe.corrlat, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 358.80 1 13.3568 69 1853.5050  
## Site 2.60 1 13.3568 69 13.4189  
## Genotype 5.97 1 13.3568 69 30.8512  
## Gender 1.45 1 13.3568 69 7.4848  
## Age 1.17 2 9.8823 138 8.1379  
## Site:Age 0.97 2 9.8823 138 6.7379  
## Genotype:Age 0.02 2 9.8823 138 0.1081  
## Gender:Age 0.04 2 9.8823 138 0.3014  
## ProbeDuration 0.63 3 6.0484 207 7.1415  
## Site:ProbeDuration 0.50 3 6.0484 207 5.7155  
## Genotype:ProbeDuration 0.01 3 6.0484 207 0.1271  
## Gender:ProbeDuration 0.05 3 6.0484 207 0.5723  
## Age:ProbeDuration 0.09 6 12.5484 414 0.4892  
## Site:Age:ProbeDuration 0.15 6 12.5484 414 0.8098  
## Genotype:Age:ProbeDuration 0.11 6 12.5484 414 0.5800  
## Gender:Age:ProbeDuration 0.15 6 12.5484 414 0.8285  
## Pr(>F)   
## (Intercept) < 2.2e-16 \*\*\*  
## Site 0.0004844 \*\*\*  
## Genotype 4.851e-07 \*\*\*  
## Gender 0.0079037 \*\*   
## Age 0.0004562 \*\*\*  
## Site:Age 0.0016143 \*\*   
## Genotype:Age 0.8975728   
## Gender:Age 0.7402607   
## ProbeDuration 0.0001379 \*\*\*  
## Site:ProbeDuration 0.0008901 \*\*\*  
## Genotype:ProbeDuration 0.9439550   
## Gender:ProbeDuration 0.6338598   
## Age:ProbeDuration 0.8164534   
## Site:Age:ProbeDuration 0.5626619   
## Genotype:Age:ProbeDuration 0.7463303   
## Gender:Age:ProbeDuration 0.5483049   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 0.81868 0.00111145  
## Site:Age 0.81868 0.00111145  
## Genotype:Age 0.81868 0.00111145  
## Gender:Age 0.81868 0.00111145  
## ProbeDuration 0.59550 0.00000144  
## Site:ProbeDuration 0.59550 0.00000144  
## Genotype:ProbeDuration 0.59550 0.00000144  
## Gender:ProbeDuration 0.59550 0.00000144  
## Age:ProbeDuration 0.27907 0.00000000  
## Site:Age:ProbeDuration 0.27907 0.00000000  
## Genotype:Age:ProbeDuration 0.27907 0.00000000  
## Gender:Age:ProbeDuration 0.27907 0.00000000  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])   
## Age 0.84651 0.0009868 \*\*\*  
## Site:Age 0.84651 0.0029424 \*\*   
## Genotype:Age 0.84651 0.8660354   
## Gender:Age 0.84651 0.7035668   
## ProbeDuration 0.74763 0.0006707 \*\*\*  
## Site:ProbeDuration 0.74763 0.0028345 \*\*   
## Genotype:ProbeDuration 0.74763 0.9012663   
## Gender:ProbeDuration 0.74763 0.5847521   
## Age:ProbeDuration 0.66561 0.7433694   
## Site:Age:ProbeDuration 0.66561 0.5195860   
## Genotype:Age:ProbeDuration 0.66561 0.6770956   
## Gender:Age:ProbeDuration 0.66561 0.5078170   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## HF eps Pr(>F[HF])  
## Age 0.8655234 0.0008966599  
## Site:Age 0.8655234 0.0027310135  
## Genotype:Age 0.8655234 0.8704808861  
## Gender:Age 0.8655234 0.7085044534  
## ProbeDuration 0.7739636 0.0005681790  
## Site:ProbeDuration 0.7739636 0.0025100656  
## Genotype:ProbeDuration 0.7739636 0.9070672695  
## Gender:ProbeDuration 0.7739636 0.5905630212  
## Age:ProbeDuration 0.7116152 0.7556529516  
## Site:Age:ProbeDuration 0.7116152 0.5265900615  
## Genotype:Age:ProbeDuration 0.7116152 0.6884512082  
## Gender:Age:ProbeDuration 0.7116152 0.5144199281

### Reward Collection Latency

summary(data.3x.list.probe$data.3x.probe.rewardlat, multivariate=FALSE)

##   
## Univariate Type III Repeated-Measures ANOVA Assuming Sphericity  
##   
## SS num Df Error SS den Df F  
## (Intercept) 232266324 1 1.4541e+10 71 1.1341  
## Site 234861691 1 1.4541e+10 71 1.1468  
## Genotype 233786424 1 1.4541e+10 71 1.1415  
## Gender 258994220 1 1.4541e+10 71 1.2646  
## Age 463207464 2 2.9082e+10 142 1.1309  
## Site:Age 469807148 2 2.9082e+10 142 1.1470  
## Genotype:Age 467680466 2 2.9082e+10 142 1.1418  
## Gender:Age 517921606 2 2.9082e+10 142 1.2645  
## ProbeDuration 9372569 3 5.8807e+08 213 1.1316  
## Site:ProbeDuration 9507016 3 5.8807e+08 213 1.1478  
## Genotype:ProbeDuration 9467410 3 5.8807e+08 213 1.1430  
## Gender:ProbeDuration 10470646 3 5.8807e+08 213 1.2642  
## Age:ProbeDuration 18731339 6 1.1761e+09 426 1.1307  
## Site:Age:ProbeDuration 19005839 6 1.1761e+09 426 1.1473  
## Genotype:Age:ProbeDuration 18918057 6 1.1761e+09 426 1.1420  
## Gender:Age:ProbeDuration 20954668 6 1.1761e+09 426 1.2650  
## Pr(>F)  
## (Intercept) 0.2905  
## Site 0.2878  
## Genotype 0.2889  
## Gender 0.2646  
## Age 0.3256  
## Site:Age 0.3205  
## Genotype:Age 0.3222  
## Gender:Age 0.2856  
## ProbeDuration 0.3372  
## Site:ProbeDuration 0.3308  
## Genotype:ProbeDuration 0.3327  
## Gender:ProbeDuration 0.2876  
## Age:ProbeDuration 0.3434  
## Site:Age:ProbeDuration 0.3339  
## Genotype:Age:ProbeDuration 0.3369  
## Gender:Age:ProbeDuration 0.2723  
##   
##   
## Mauchly Tests for Sphericity  
##   
## Test statistic p-value  
## Age 9.8236e-09 5.3645e-281  
## Site:Age 9.8236e-09 5.3645e-281  
## Genotype:Age 9.8236e-09 5.3645e-281  
## Gender:Age 9.8236e-09 5.3645e-281  
## ProbeDuration 1.0000e-13 0.0000e+00  
## Site:ProbeDuration 1.0000e-13 0.0000e+00  
## Genotype:ProbeDuration 1.0000e-13 0.0000e+00  
## Gender:ProbeDuration 1.0000e-13 0.0000e+00  
## Age:ProbeDuration 0.0000e+00 0.0000e+00  
## Site:Age:ProbeDuration 0.0000e+00 0.0000e+00  
## Genotype:Age:ProbeDuration 0.0000e+00 0.0000e+00  
## Gender:Age:ProbeDuration 0.0000e+00 0.0000e+00  
##   
##   
## Greenhouse-Geisser and Huynh-Feldt Corrections  
## for Departure from Sphericity  
##   
## GG eps Pr(>F[GG])  
## Age 0.50000 0.2912  
## Site:Age 0.50000 0.2878  
## Genotype:Age 0.50000 0.2889  
## Gender:Age 0.50000 0.2646  
## ProbeDuration 0.33333 0.2910  
## Site:ProbeDuration 0.33333 0.2876  
## Genotype:ProbeDuration 0.33333 0.2886  
## Gender:ProbeDuration 0.33333 0.2647  
## Age:ProbeDuration 0.16667 0.2912  
## Site:Age:ProbeDuration 0.16667 0.2877  
## Genotype:Age:ProbeDuration 0.16667 0.2888  
## Gender:Age:ProbeDuration 0.16667 0.2645  
##   
## HF eps Pr(>F[HF])  
## Age 0.5000000 0.2911926  
## Site:Age 0.5000000 0.2878081  
## Genotype:Age 0.5000000 0.2888932  
## Gender:Age 0.5000000 0.2645973  
## ProbeDuration 0.3333334 0.2910406  
## Site:ProbeDuration 0.3333334 0.2876334  
## Genotype:ProbeDuration 0.3333334 0.2886318  
## Gender:ProbeDuration 0.3333334 0.2646506  
## Age:ProbeDuration 0.1666667 0.2912196  
## Site:Age:ProbeDuration 0.1666667 0.2877392  
## Genotype:Age:ProbeDuration 0.1666667 0.2888463  
## Gender:Age:ProbeDuration 0.1666667 0.2645022