*Generalized Linear Mixed Models.

GENLINMIXED

/DATA_STRUCTURE SUBJECTS=Parent*Genotype*Sample_ID *Brainregion

/FIELDS TARGET=AISlength TRIALS=NONE OFFSET=NONE

/TARGET OPTIONS DISTRIBUTION=NORMAL LINK=LOG

/FIXED EFFECTS=Genotype Brainregion Genotype*Brainregion USE INTERCEPT=True

/RANDOM EFFECTS=Age SUBJECTS=Parent*Sample ID USE INTERCEPT=TRUE

COVARIANCE TYPE=VARIANCE COMPONENTS

/BUILD_OPTIONS TARGET_CATEGORY_ORDER=ASCENDING INPUTS_CATEGORY_ORDER=ASCENDING LCONVERGE=0.0000001 (ABSOLUTE) HCONVERGE=0.0000001 (RELATIVE) MAX_ITERATIONS=100 CONFIDENCE LEVEL=95

DF_METHOD=RESIDUAL COVB=ROBUST SCORING=0 SINGULAR=0.00000001 /EMMEANSTABLES=Genotype*Brainregion COMPARE=Genotype CONTRAST=PAIRWISE /EMMEANS_OPTIONSSCALE=ORIGINAL PADJUST=SEQBONFERRONI.

Generalized Linear Mixed Models

Warnings

glmm: The final Hessian matrix is not positive definite although all convergence criteria are satisfied. The procedure continues despite this warning. Subsequent results produced are based on the last iteration. Validity of the model fit is uncertain.

Case Processing Summary

| | N | Percent |
|----------|-------|---------|
| Included | 11608 | 100.0% |
| Excluded | 0 | 0.0% |
| Total | 11608 | 100.0% |

Model Summary

| Target | | AIS length |
|--------------------------|------------------|------------|
| Probability Distribution | 1 | Normal |
| Link Function | | Log |
| Information Criterion | Akaike Corrected | -10636.723 |
| | Bayesian | -10614.652 |

Information criteria are based on the -2 log likelihood (-10642.725) and are used to compare models. Models with smaller information criterion values fit better.

Coefficients of Determination^a

| Pseudo-R Square Measures | Marginal | .477 |
|--------------------------|-------------|------|
| | Conditional | .489 |

Observation-level variance estimated via delta method

Intraclass Correlation Coefficients^a

| Overall ICCs | Adjusted | .024 |
|--------------|-------------|------|
| | Conditional | .012 |

a. Observation-level variance estimated via delta method.

Data Structure^{a,b}

| | Subj | Target | |
|------------------------|------------|-----------|------------|
| | Parent | Sample_ID | AIS length |
| Data for First Subject | Fmr1/GFP19 | 212 | 31.374 |
| | Fmr1/GFP19 | 212 | 22.746 |
| | Fmr1/GFP19 | 212 | 31.564 |
| | Fmr1/GFP19 | 212 | 25.691 |
| | Fmr1/GFP19 | 212 | 33.093 |
| | Fmr1/GFP19 | 212 | 39.420 |
| | Fmr1/GFP19 | 212 | 15.316 |
| | Fmr1/GFP19 | 212 | 32.724 |
| | Fmr1/GFP19 | 212 | 23.089 |
| | Fmr1/GFP19 | 212 | 30.880 |
| Total Number of Levels | 2 | 12 | |

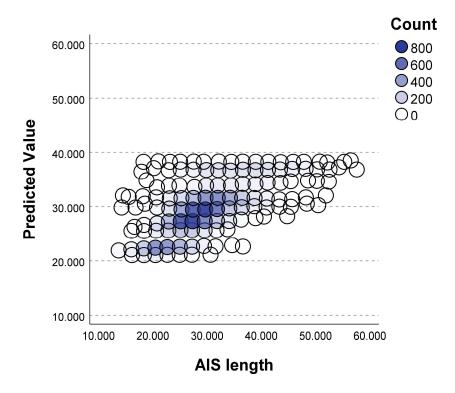
Only the first 10 records are displayed.

a. Target: AIS length

b. Target: AIS length

One or more subject fields were specified but not actually used in the analysis.

Predicted by Observed



Fixed Effects^a

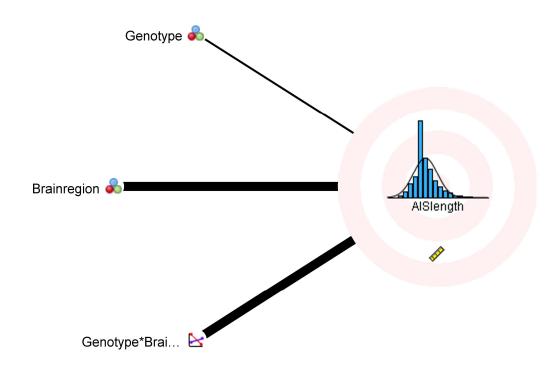
| Source | F | df1 | df2 | Sig. |
|------------------------|----------|-----|-------|-------|
| Corrected Model | 400.539 | 10 | 11586 | <.001 |
| Genotype | 2.513 | 1 | 11586 | .113 |
| Brainregion | 1088.017 | 10 | 11586 | <.001 |
| Genotype * Brainregion | 43.933 | 10 | 11586 | <.001 |

Probability distribution: Normal

Link function: Log

a. Target: AIS length

Fixed Effects



Fixed Coefficients^a

| | | | | | 95% Confide | |
|--|----------------|------------|---------|-------|-------------|-------|
| Model Term | Coefficient | Std. Error | t | Sig. | Lower | Upper |
| Intercept | 3.252 | .0211 | 154.100 | <.001 | 3.211 | 3.293 |
| Genotype=KO | .109 | .0393 | 2.770 | .006 | .032 | .186 |
| Genotype=WT | 0 ^b | | | | | |
| Brainregion=BA | .275 | .0354 | 7.779 | <.001 | .206 | .345 |
| Brainregion=CA1 | .174 | .0269 | 6.458 | <.001 | .121 | .226 |
| Brainregion=CA3 | .369 | .0240 | 15.346 | <.001 | .322 | .416 |
| Brainregion=LA | 152 | .0322 | -4.725 | <.001 | 215 | 089 |
| Brainregion=S1L23 | .126 | .0246 | 5.097 | <.001 | .077 | .174 |
| Brainregion=S1L4 | 120 | .0213 | -5.624 | <.001 | 162 | 078 |
| Brainregion=S1L5 | .108 | .0173 | 6.249 | <.001 | .074 | .142 |
| Brainregion=V1L23 | .059 | .0396 | 1.497 | .134 | 018 | .137 |
| Brainregion=V1L5 | .202 | .0239 | 8.436 | <.001 | .155 | .248 |
| Brainregion=mPFC L23 | .003 | .0135 | .248 | .804 | 023 | .030 |
| Brainregion=mPFC L5 | 0 ^b | | | | | |
| [Genotype=KO]* [Brainregion=BA] | 054 | .0555 | 978 | .328 | 163 | .055 |
| [Genotype=KO]* [Brainregion=CA1] | 109 | .0531 | -2.059 | .039 | 213 | 005 |
| [Genotype=KO]* [Brainregion=CA3] | 120 | .0429 | -2.802 | .005 | 204 | 036 |
| [Genotype=KO]* [Brainregion=LA] | 105 | .0644 | -1.637 | .102 | 232 | .021 |
| [Genotype=KO]* [Brainregion=S1L23] | 103 | .0389 | -2.643 | .008 | 179 | 027 |
| [Genotype=KO]* [Brainregion=S1L4] | 166 | .0235 | -7.060 | <.001 | 212 | 120 |
| [Genotype=KO]* [Brainregion=S1L5] | 029 | .0351 | 820 | .412 | 097 | .040 |
| [Genotype=KO]* [Brainregion=V1L23] | 097 | .0521 | -1.862 | .063 | 199 | .005 |
| [Genotype=KO]* [Brainregion=V1L5] | 097 | .0370 | -2.634 | .008 | 170 | 025 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 065 | .0246 | -2.656 | .008 | 114 | 017 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 ^b | | | | - | |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | | | | | |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | - | • | | | |
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | | | | | |

Fixed Coefficients^a

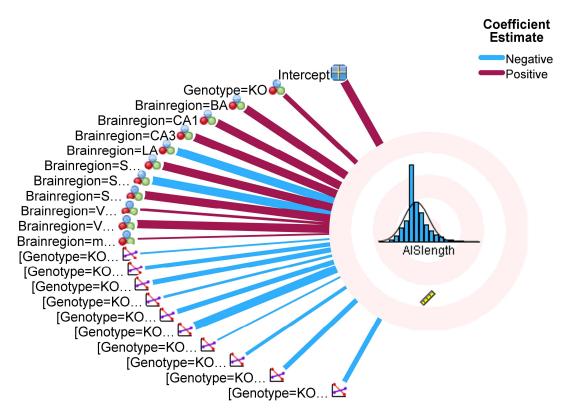
| | | | | | 95% Confide | ence Interval |
|--|----------------|------------|---|------|-------------|---------------|
| Model Term | Coefficient | Std. Error | t | Sig. | Lower | Upper |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | | | | | |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | | | | | |
| [Genotype=WT]* [Brainregion=S1L4] | 0 ^b | | | | | |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | | - | | | |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | | | | | |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | | - | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | - | - | | - | |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | | | | - | |

Probability distribution: Normal Link function: Log

a. Target: AIS length

b. This coefficient is set to zero because it is redundant.

Fixed Coefficients



| | Intercept | Genotype=KO | Genotype=WT | Brainregion=BA |
|--|----------------|----------------|----------------|----------------|
| Intercept | .00045 | 00045 | 0 ^b | 00015 |
| Genotype=KO | 00045 | .00155 | 0 _p | .00015 |
| Genotype=WT | 0 _p | 0 ^b | 0 _p | 0 ^b |
| Brainregion=BA | 00015 | .00015 | 0 _p | .00125 |
| Brainregion=CA1 | 00045 | .00045 | 0 _p | .00031 |
| Brainregion=CA3 | 00042 | .00042 | 0 _p | .00056 |
| Brainregion=LA | .00034 | 00034 | 0 _p | .00016 |
| Brainregion=S1L23 | 00042 | .00042 | 0 _p | 00023 |
| Brainregion=S1L4 | 00026 | .00026 | 0 ^b | .00027 |
| Brainregion=S1L5 | 00030 | .00030 | 0 _p | .00024 |
| Brainregion=V1L23 | 00066 | .00066 | 0 _p | .00025 |
| Brainregion=V1L5 | 00040 | .00040 | 0 _p | -7.30713E-6 |
| Brainregion=mPFC L23 | 00016 | .00016 | 0 ^b | 00019 |
| Brainregion=mPFC L5 | 0 ^b | 0 ^b | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | .00015 | 00154 | 0 ^b | 00125 |
| [Genotype=KO]* [Brainregion=CA1] | .00045 | 00181 | 0 ^b | 00031 |
| [Genotype=KO]* [Brainregion=CA3] | .00042 | 00142 | 0 ^b | 00056 |
| [Genotype=KO]* [Brainregion=LA] | 00034 | 00123 | 0 ^b | 00016 |
| [Genotype=KO]* [Brainregion=S1L23] | .00042 | 00136 | 0 ^b | .00023 |
| [Genotype=KO]* [Brainregion=S1L4] | .00026 | 00025 | 0 ^b | 00027 |
| [Genotype=KO]* [Brainregion=S1L5] | .00030 | 00116 | 0 ^b | 00024 |
| [Genotype=KO]* [Brainregion=V1L23] | .00066 | 00156 | 0 ^b | 00025 |
| [Genotype=KO]* [Brainregion=V1L5] | .00040 | 00122 | 0 ^b | 7.30713E-6 |
| [Genotype=KO]* [Brainregion=mPFC L23] | .00016 | 00059 | 0 ^b | .00019 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | O _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

| | Brainregion=CA | Brainregion=CA | Brainregion=LA | Brainregion=S1 |
|--|----------------|----------------|----------------|----------------|
| Intercept | 00045 | 00042 | .00034 | 00042 |
| Genotype=KO | .00045 | .00042 | 00034 | .00042 |
| Genotype=WT | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Brainregion=BA | .00031 | .00056 | .00016 | 00023 |
| Brainregion=CA1 | .00072 | .00040 | 2.37526E-5 | .00051 |
| Brainregion=CA3 | .00040 | .00058 | 00028 | .00021 |
| Brainregion=LA | 2.37526E-5 | 00028 | .00104 | 00023 |
| Brainregion=S1L23 | .00051 | .00021 | 00023 | .00061 |
| Brainregion=S1L4 | .00036 | .00024 | 00030 | .00022 |
| Brainregion=S1L5 | .00045 | .00027 | -9.63548E-5 | .00031 |
| Brainregion=V1L23 | .00031 | .00077 | 00083 | .00042 |
| Brainregion=V1L5 | .00020 | .00040 | 00046 | .00033 |
| Brainregion=mPFC L23 | .00022 | 1.54806E-5 | 00016 | .00028 |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | 00031 | 00056 | 00016 | .00023 |
| [Genotype=KO]* [Brainregion=CA1] | 00072 | 00040 | -2.37526E-5 | 00051 |
| [Genotype=KO]* [Brainregion=CA3] | 00040 | 00058 | .00028 | 00021 |
| [Genotype=KO]* [Brainregion=LA] | -2.37526E-5 | .00028 | 00104 | .00023 |
| [Genotype=KO]* [Brainregion=S1L23] | 00051 | 00021 | .00023 | 00061 |
| [Genotype=KO]* [Brainregion=S1L4] | 00036 | 00024 | .00030 | 00022 |
| [Genotype=KO]* [Brainregion=S1L5] | 00045 | 00027 | 9.63548E-5 | 00031 |
| [Genotype=KO]* [Brainregion=V1L23] | 00031 | 00077 | .00083 | 00042 |
| [Genotype=KO]* [Brainregion=V1L5] | 00020 | 00040 | .00046 | 00033 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 00022 | -1.54806E-5 | .00016 | 00028 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 _p | 0 ^b |
| [Genotype=WT]* [Brainregion=BA] | 0 _p | 0 _p | 0 _p | 0 ^b |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 _p |

| | Brainregion=S1 L4 | Brainregion=S1 L5 | Brainregion=V1 L23 | Brainregion=V1 L5 |
|--|----------------------|----------------------|-----------------------|----------------------|
| Intercept | 00026 | 00030 | 00066 | 00040 |
| Genotype=KO | .00026 | .00030 | .00066 | .00040 |
| Genotype=WT | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Brainregion=BA | .00027 | .00024 | .00025 | -7.30713E-6 |
| Brainregion=CA1 | .00036 | .00045 | .00031 | .00020 |
| Brainregion=CA3 | .00024 | .00027 | .00077 | .00040 |
| Brainregion=LA | 00030 | -9.63548E-5 | 00083 | 00046 |
| Brainregion=S1L23 | .00022 | .00031 | .00042 | .00033 |
| Brainregion=S1L4 | .00045 | .00031 | .00013 | 2.98127E-5 |
| Brainregion=S1L5 | .00031 | .00030 | .00022 | .00012 |
| Brainregion=V1L23 | .00013 | .00022 | .00157 | .00092 |
| Brainregion=V1L5 | 2.98127E-5 | .00012 | .00092 | .00057 |
| Brainregion=mPFC L23 | .00018 | .00015 | 3.94610E-5 | 5.60892E-5 |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=BA] | 00027 | 00024 | 00025 | 7.30713E-6 |
| [Genotype=KO]* [Brainregion=CA1] | 00036 | 00045 | 00031 | 00020 |
| [Genotype=KO]* [Brainregion=CA3] | 00024 | 00027 | 00077 | 00040 |
| [Genotype=KO]* [Brainregion=LA] | .00030 | 9.63548E-5 | .00083 | .00046 |
| [Genotype=KO]* [Brainregion=S1L23] | 00022 | 00031 | 00042 | 00033 |
| [Genotype=KO]* [Brainregion=S1L4] | 00045 | 00031 | 00013 | -2.98127E-5 |
| [Genotype=KO]* [Brainregion=S1L5] | 00031 | 00030 | 00022 | 00012 |
| [Genotype=KO]* [Brainregion=V1L23] | 00013 | 00022 | 00157 | 00092 |
| [Genotype=KO]* [Brainregion=V1L5] | -2.98127E-5 | 00012 | 00092 | 00057 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 00018 | 00015 | -3.94610E-5 | -5.60892E-5 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 _p | 0 ^b |
| [Genotype=WT]* [Brainregion=BA] | 0 _p | 0 _p | 0 _p | 0 _p |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 _p | 0 _p |

| | Brainregion=mP FC L23 | Brainregion=mP FC L5 | [Genotype=KO]* [Brainregion=BA] | |
|--|--------------------------|-------------------------|--|----------------|
| Intercept | 00016 | 0 ^b | .00015 | .00045 |
| Genotype=KO | .00016 | 0 ^b | 00154 | 00181 |
| Genotype=WT | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Brainregion=BA | 00019 | 0 _p | 00125 | 00031 |
| Brainregion=CA1 | .00022 | 0 _p | 00031 | 00072 |
| Brainregion=CA3 | 1.54806E-5 | 0 _p | 00056 | 00040 |
| Brainregion=LA | 00016 | 0 _p | 00016 | -2.37526E-5 |
| Brainregion=S1L23 | .00028 | 0 _p | .00023 | 00051 |
| Brainregion=S1L4 | .00018 | 0 _p | 00027 | 00036 |
| Brainregion=S1L5 | .00015 | 0 _p | 00024 | 00045 |
| Brainregion=V1L23 | 3.94610E-5 | 0 _p | 00025 | 00031 |
| Brainregion=V1L5 | 5.60892E-5 | 0 _p | 7.30713E-6 | 00020 |
| Brainregion=mPFC L23 | .00018 | 0 _p | .00019 | 00022 |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | .00019 | 0 ^b | .00308 | .00204 |
| [Genotype=KO]* [Brainregion=CA1] | 00022 | 0 ^b | .00204 | .00282 |
| [Genotype=KO]* [Brainregion=CA3] | -1.54806E-5 | 0 ^b | .00184 | .00201 |
| [Genotype=KO]* [Brainregion=LA] | .00016 | 0 ^b | .00217 | .00240 |
| [Genotype=KO]* [Brainregion=S1L23] | 00028 | 0 ^b | .00090 | .00176 |
| [Genotype=KO]* [Brainregion=S1L4] | 00018 | 0 _p | .00022 | .00026 |
| [Genotype=KO]* [Brainregion=S1L5] | 00015 | 0 ^b | .00143 | .00151 |
| [Genotype=KO]* [Brainregion=V1L23] | -3.94610E-5 | 0 ^b | .00139 | .00123 |
| [Genotype=KO]* [Brainregion=V1L5] | -5.60892E-5 | 0 ^b | .00109 | .00128 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 00018 | 0 _p | .00039 | .00102 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 _p | 0 _p | 0 _p | 0 _p |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 _p | 0 _p |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 _p |

| | [Genotype=KO]* | [Genotype=KO]* | [Genotype=KO]* | [Genotype=KO]* |
|--|--------------------|------------------|-------------------------|------------------------|
| | [Brainregion=CA 3] | [Brainregion=LA] | [Brainregion=S1 L23] | [Brainregion=S1 L4] |
| Intercept | .00042 | 00034 | .00042 | .00026 |
| Genotype=KO | 00142 | 00123 | 00136 | 00025 |
| Genotype=WT | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| Brainregion=BA | 00056 | 00016 | .00023 | 00027 |
| Brainregion=CA1 | 00040 | -2.37526E-5 | 00051 | 00036 |
| Brainregion=CA3 | 00058 | .00028 | 00021 | 00024 |
| Brainregion=LA | .00028 | 00104 | .00023 | .00030 |
| Brainregion=S1L23 | 00021 | .00023 | 00061 | 00022 |
| Brainregion=S1L4 | 00024 | .00030 | 00022 | 00045 |
| Brainregion=S1L5 | 00027 | 9.63548E-5 | 00031 | 00031 |
| Brainregion=V1L23 | 00077 | .00083 | 00042 | 00013 |
| Brainregion=V1L5 | 00040 | .00046 | 00033 | -2.98127E-5 |
| Brainregion=mPFC L23 | -1.54806E-5 | .00016 | 00028 | 00018 |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=BA] | .00184 | .00217 | .00090 | .00022 |
| [Genotype=KO]* [Brainregion=CA1] | .00201 | .00240 | .00176 | .00026 |
| [Genotype=KO]* [Brainregion=CA3] | .00184 | .00152 | .00115 | .00017 |
| [Genotype=KO]* [Brainregion=LA] | .00152 | .00415 | .00109 | 00038 |
| [Genotype=KO]* [Brainregion=S1L23] | .00115 | .00109 | .00151 | .00024 |
| [Genotype=KO]* [Brainregion=S1L4] | .00017 | 00038 | .00024 | .00055 |
| [Genotype=KO]* [Brainregion=S1L5] | .00108 | .00095 | .00099 | .00022 |
| [Genotype=KO]* [Brainregion=V1L23] | .00135 | .00034 | .00111 | 6.72428E-5 |
| [Genotype=KO]* [Brainregion=V1L5] | .00118 | .00099 | .00095 | -4.06261E-5 |
| [Genotype=KO]* [Brainregion=mPFC L23] | .00067 | .00087 | .00066 | .00015 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 _p | 0 _p |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 _p | 0 _p |

| | [Genotype=KO]* [Brainregion=S1 L5] | [Genotype=KO]* [Brainregion=V1 L23] | [Genotype=KO]* [Brainregion=V1 L5] | [Genotype=KO]* [Brainregion=m PFC L23] |
|--|--|---|--|--|
| Intercept | .00030 | .00066 | .00040 | .00016 |
| Genotype=KO | 00116 | 00156 | 00122 | 00059 |
| Genotype=WT | 0 ^b | 0 ^b | 0 _p | 0 ^b |
| Brainregion=BA | 00024 | 00025 | 7.30713E-6 | .00019 |
| Brainregion=CA1 | 00045 | 00031 | 00020 | 00022 |
| Brainregion=CA3 | 00027 | 00077 | 00040 | -1.54806E-5 |
| Brainregion=LA | 9.63548E-5 | .00083 | .00046 | .00016 |
| Brainregion=S1L23 | 00031 | 00042 | 00033 | 00028 |
| Brainregion=S1L4 | 00031 | 00013 | -2.98127E-5 | 00018 |
| Brainregion=S1L5 | 00030 | 00022 | 00012 | 00015 |
| Brainregion=V1L23 | 00022 | 00157 | 00092 | -3.94610E-5 |
| Brainregion=V1L5 | 00012 | 00092 | 00057 | -5.60892E-5 |
| Brainregion=mPFC L23 | 00015 | -3.94610E-5 | -5.60892E-5 | 00018 |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | .00143 | .00139 | .00109 | .00039 |
| [Genotype=KO]* [Brainregion=CA1] | .00151 | .00123 | .00128 | .00102 |
| [Genotype=KO]* [Brainregion=CA3] | .00108 | .00135 | .00118 | .00067 |
| [Genotype=KO]* [Brainregion=LA] | .00095 | .00034 | .00099 | .00087 |
| [Genotype=KO]* [Brainregion=S1L23] | .00099 | .00111 | .00095 | .00066 |
| [Genotype=KO]* [Brainregion=S1L4] | .00022 | 6.72428E-5 | -4.06261E-5 | .00015 |
| [Genotype=KO]* [Brainregion=S1L5] | .00123 | .00088 | .00073 | .00048 |
| [Genotype=KO]* [Brainregion=V1L23] | .00088 | .00271 | .00171 | .00020 |
| [Genotype=KO]* [Brainregion=V1L5] | .00073 | .00171 | .00137 | .00047 |
| [Genotype=KO]* [Brainregion=mPFC L23] | .00048 | .00020 | .00047 | .00061 |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 _p | 0 _p | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 _p |

| | [Genotype=KO]* [Brainregion=m PFC L5] | [Genotype=WT]* [Brainregion=BA | [Genotype=WT]* [Brainregion=CA 1] | |
|--|---|-----------------------------------|---|----------------|
| Intercept | 0 ^b | 0 ^b | 0 _p | 0 _p |
| Genotype=KO | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Genotype=WT | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=BA | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=CA1 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=CA3 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=LA | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=S1L23 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Brainregion=S1L4 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=S1L5 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=V1L23 | 0 _p | 0 _p | 0 _p | 0 _p |
| Brainregion=V1L5 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=mPFC L23 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=CA3] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=LA] | 0 _p | O _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=S1L23] | 0 _p | 0 _p | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=S1L4] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=S1L5] | 0 ^b | 0 _p | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=V1L23] | 0 _p | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=V1L5] | 0 _p | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=mPFC L23] | 0 _p | 0 _p | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

| | [Genotype=WT]* [Brainregion=LA] | [Genotype=WT]* [Brainregion=S1 L23] | [Genotype=WT]* [Brainregion=S1 L4] | |
|--|--|---|--|----------------|
| Intercept | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Genotype=KO | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Genotype=WT | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=BA | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| Brainregion=CA1 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=CA3 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Brainregion=LA | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Brainregion=S1L23 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Brainregion=S1L4 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=S1L5 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=V1L23 | O _p | 0 _p | 0 _p | 0 _p |
| Brainregion=V1L5 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=mPFC L23 | 0 ^b | 0 _p | 0 _p | 0 _p |
| Brainregion=mPFC L5 | 0 ^b | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=LA] | 0 _p | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=S1L23] | 0 _p | 0 ^b | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=S1L4] | 0 _p | 0 ^b | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=S1L5] | 0 ^b | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=V1L23] | 0 ^b | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=V1L5] | 0 _p | 0 ^b | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=CA1] | 0 ^b | 0 _p | 0 ^b | 0 ^b |

| | [Brainregion=V1 L23] | [Brainregion=V1 L5] | PFC L23] | [Brainregion=m PFC L5] |
|--|-------------------------|------------------------|----------------|---------------------------|
| Intercept | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Genotype=KO | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Genotype=WT | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=BA | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Brainregion=CA1 | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Brainregion=CA3 | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| Brainregion=LA | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| Brainregion=S1L23 | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| Brainregion=S1L4 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=S1L5 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=V1L23 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Brainregion=V1L5 | 0 ^b | 0 _p | 0 ^b | 0 _p |
| Brainregion=mPFC L23 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| Brainregion=mPFC L5 | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=CA1] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=LA] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=S1L23] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=S1L4] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=S1L5] | 0 _p | 0 _p | 0 _p | 0 _p |
| [Genotype=KO]* [Brainregion=V1L23] | 0 _p | 0 _p | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=V1L5] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=KO]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=KO]* [Brainregion=mPFC L5] | 0 _p | 0 _p | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=BA] | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=CA1] | 0 _p | 0 _p | 0 _p | 0 ^b |

| | Intercept | Genotype=KO | Genotype=WT | Brainregion=BA |
|--|----------------|----------------|----------------|----------------|
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=LA] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 _p | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 _p | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

| | Brainregion=CA | Brainregion=CA | Brainregion=LA | Brainregion=S1 L23 |
|---------------------------------------|----------------|----------------|----------------|-----------------------|
| [Genotype=WT]* [Brainregion=CA3] | 0 _p | 0 ^b | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 _p | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 _p | 0 ^b | 0 ^b |

| | Brainregion=S1 | Brainregion=S1 L5 | Brainregion=V1 L23 | Brainregion=V1 L5 |
|---|----------------|----------------------|-----------------------|----------------------|
| [Genotype=WT]* [Brainregion=CA3] | 0 _p | 0 _p | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | Op | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 _p | 0 ^b | 0 ^b | 0 ^b |

| | Brainregion=mP FC L23 | Brainregion=mP FC L5 | | [Genotype=KO]* [Brainregion=CA 1] |
|---------------------------------------|--------------------------|-------------------------|----------------|---|
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 _p | 0 _p | 0 _p | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

| | | [Genotype=KO]* [Brainregion=LA] | | |
|---------------------------------------|----------------|--|----------------|----------------|
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=LA] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 _p | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | Op | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | Op |

| | [Genotype=KO]* [Brainregion=S1 L5] | [Genotype=KO]* [Brainregion=V1 L23] | [Genotype=KO]* [Brainregion=V1 L5] | [Genotype=KO]* [Brainregion=m PFC L23] |
|--|--|---|--|--|
| [Genotype=WT]* [Brainregion=CA3] | Op | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | Op | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | Op | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | Op | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | Op | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 _p | 0 ^b | 0 ^b |

| | [Genotype=KO]* [Brainregion=m PFC L5] | [Genotype=WT]* [Brainregion=BA | | |
|--|---|-----------------------------------|----------------|----------------|
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

| | | [Genotype=WT]* [Brainregion=S1 L23] | | |
|---------------------------------------|----------------|---|----------------|----------------|
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | 0 _p | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

| | | [Genotype=WT]* [Brainregion=V1 L5] | | [Genotype=WT]* [Brainregion=m PFC L5] |
|--|----------------|--|----------------|---|
| [Genotype=WT]* [Brainregion=CA3] | 0 ^b | 0 ^b | 0 ^b | 0 _p |
| [Genotype=WT]* [Brainregion=LA] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L23] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L4] | 0 ^b | Op | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=S1L5] | 0 ^b | Op | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L23] | 0 ^b | Op | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=V1L5] | 0 ^b | 0 _p | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L23] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |
| [Genotype=WT]* [Brainregion=mPFC L5] | 0 ^b | 0 ^b | 0 ^b | 0 ^b |

Probability distribution: Normal

Link function: Log
a. Target: AIS length

b. One or both coefficients are redundant.

| | Intercept | Genotype=KO | Genotype=WT | Brainregion=BA |
|--|-----------|-------------|-------------|----------------|
| Intercept | 1.000 | 537 | b | 200 |
| Genotype=KO | 537 | 1.000 | , b | .107 |
| Genotype=WT | ,b | , b | , b | , b |
| Brainregion=BA | 200 | .107 | , b | 1.000 |
| Brainregion=CA1 | 794 | .426 | , b | .328 |
| Brainregion=CA3 | 825 | .443 | , b | .656 |
| Brainregion=LA | .495 | 266 | , b | .139 |
| Brainregion=S1L23 | 811 | .435 | , b | 260 |
| Brainregion=S1L4 | 578 | .310 | b | .359 |
| Brainregion=S1L5 | 812 | .436 | b | .396 |
| Brainregion=V1L23 | 784 | .421 | b | .175 |
| Brainregion=V1L5 | 790 | .424 | , b | 009 |
| Brainregion=mPFC L23 | 558 | .299 | , b | 402 |
| Brainregion=mPFC L5 | ,b | , b | , b | , b |
| [Genotype=KO]* [Brainregion=BA] | .127 | 706 | b | 638 |
| [Genotype=KO]* [Brainregion=CA1] | .402 | 866 | , | 166 |
| [Genotype=KO]* [Brainregion=CA3] | .463 | 841 | b | 368 |
| [Genotype=KO]* [Brainregion=LA] | 247 | 485 | b | 069 |
| [Genotype=KO]* [Brainregion=S1L23] | .514 | 893 | , | .165 |
| [Genotype=KO]* [Brainregion=S1L4] | .524 | 274 | , b | 326 |
| [Genotype=KO]* [Brainregion=S1L5] | .402 | 842 | b | 196 |
| [Genotype=KO]* [Brainregion=V1L23] | .597 | 763 | b | 133 |
| [Genotype=KO]* [Brainregion=V1L5] | .510 | 840 | b | .006 |
| [Genotype=KO]* [Brainregion=mPFC L23] | .306 | 614 | b | .221 |
| [Genotype=KO]* [Brainregion=mPFC L5] | , b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b | | , b | b |
| [Genotype=WT]* [Brainregion=CA1] | | b | , b | b |

| | Brainregion=CA | Brainregion=CA | Brainregion=LA | Brainregion=S1 L23 |
|--|----------------|----------------|----------------|-----------------------|
| Intercept | 794 | 825 | .495 | 811 |
| Genotype=KO | .426 | .443 | 266 | .435 |
| Genotype=WT | b | , b | b | b |
| Brainregion=BA | .328 | .656 | .139 | 260 |
| Brainregion=CA1 | 1.000 | .613 | .027 | .777 |
| Brainregion=CA3 | .613 | 1.000 | 363 | .362 |
| Brainregion=LA | .027 | 363 | 1.000 | 292 |
| Brainregion=S1L23 | .777 | .362 | 292 | 1.000 |
| Brainregion=S1L4 | .636 | .477 | 431 | .414 |
| Brainregion=S1L5 | .957 | .659 | 173 | .716 |
| Brainregion=V1L23 | .290 | .805 | 648 | .434 |
| Brainregion=V1L5 | .315 | .700 | 604 | .566 |
| Brainregion=mPFC L23 | .600 | .048 | 373 | .827 |
| Brainregion=mPFC L5 | , b | b | b | b |
| [Genotype=KO]* [Brainregion=BA] | 209 | 419 | 088 | .166 |
| [Genotype=KO]* [Brainregion=CA1] | 506 | 310 | 014 | 393 |
| [Genotype=KO]* [Brainregion=CA3] | 344 | 561 | .204 | 203 |
| [Genotype=KO]* [Brainregion=LA] | 014 | .181 | 500 | .146 |
| [Genotype=KO]* [Brainregion=S1L23] | 493 | 230 | .185 | 634 |
| [Genotype=KO]* [Brainregion=S1L4] | 577 | 433 | .391 | 376 |
| [Genotype=KO]* [Brainregion=S1L5] | 473 | 326 | .085 | 354 |
| [Genotype=KO]* [Brainregion=V1L23] | 221 | 613 | .493 | 331 |
| [Genotype=KO]* [Brainregion=V1L5] | 203 | 452 | .390 | 366 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 330 | 026 | .204 | 454 |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b | b | b | b |
| [Genotype=WT]* [Brainregion=CA1] | b | b | b | |

| | Brainregion=S1 L4 | Brainregion=S1 L5 | Brainregion=V1 L23 | Brainregion=V1 L5 |
|--|----------------------|----------------------|-----------------------|----------------------|
| Intercept | 578 | 812 | 784 | 790 |
| Genotype=KO | .310 | .436 | .421 | .424 |
| Genotype=WT | b | b | , b | , b |
| Brainregion=BA | .359 | .396 | .175 | 009 |
| Brainregion=CA1 | .636 | .957 | .290 | .315 |
| Brainregion=CA3 | .477 | .659 | .805 | .700 |
| Brainregion=LA | 431 | 173 | 648 | 604 |
| Brainregion=S1L23 | .414 | .716 | .434 | .566 |
| Brainregion=S1L4 | 1.000 | .827 | .152 | .058 |
| Brainregion=S1L5 | .827 | 1.000 | .315 | .293 |
| Brainregion=V1L23 | .152 | .315 | 1.000 | .972 |
| Brainregion=V1L5 | .058 | .293 | .972 | 1.000 |
| Brainregion=mPFC L23 | .642 | .651 | .074 | .174 |
| Brainregion=mPFC L5 | , b | , b | . b | , b |
| [Genotype=KO]* [Brainregion=BA] | 229 | 252 | 111 | .006 |
| [Genotype=KO]* [Brainregion=CA1] | 322 | 485 | 147 | 159 |
| [Genotype=KO]* [Brainregion=CA3] | 268 | 370 | 452 | 393 |
| [Genotype=KO]* [Brainregion=LA] | .215 | .086 | .324 | .302 |
| [Genotype=KO]* [Brainregion=S1L23] | 263 | 454 | 275 | 359 |
| [Genotype=KO]* [Brainregion=S1L4] | 907 | 750 | 138 | 053 |
| [Genotype=KO]* [Brainregion=S1L5] | 409 | 495 | 156 | 145 |
| [Genotype=KO]* [Brainregion=V1L23] | 116 | 239 | 761 | 740 |
| [Genotype=KO]* [Brainregion=V1L5] | 038 | 190 | 628 | 646 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 352 | 357 | 040 | 095 |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b . | , b | b | b |
| [Genotype=WT]* [Brainregion=CA1] | b . | b | b | b |

| | Brainregion=mP FC L23 | Brainregion=mP FC L5 | [Genotype=KO]* [Brainregion=BA] | [Genotype=KO]* [Brainregion=CA 1] |
|--|--------------------------|-------------------------|--|---|
| Intercept | 558 | b | .127 | .402 |
| Genotype=KO | .299 | b . | 706 | 866 |
| Genotype=WT | b . | b . | b | b |
| Brainregion=BA | 402 | b . | 638 | 166 |
| Brainregion=CA1 | .600 | b . | 209 | 506 |
| Brainregion=CA3 | .048 | b | 419 | 310 |
| Brainregion=LA | 373 | b | 088 | 014 |
| Brainregion=S1L23 | .827 | b | .166 | 393 |
| Brainregion=S1L4 | .642 | , b | 229 | 322 |
| Brainregion=S1L5 | .651 | , b | 252 | 485 |
| Brainregion=V1L23 | .074 | b | 111 | 147 |
| Brainregion=V1L5 | .174 | , b | .006 | 159 |
| Brainregion=mPFC L23 | 1.000 | b | .257 | 304 |
| Brainregion=mPFC L5 | b . | b | b | b |
| [Genotype=KO]* [Brainregion=BA] | .257 | b | 1.000 | .690 |
| [Genotype=KO]* [Brainregion=CA1] | 304 | b | .690 | 1.000 |
| [Genotype=KO]* [Brainregion=CA3] | 027 | b | .772 | .881 |
| [Genotype=KO]* [Brainregion=LA] | .186 | b | .608 | .700 |
| [Genotype=KO]* [Brainregion=S1L23] | 524 | b | .417 | .853 |
| [Genotype=KO]* [Brainregion=S1L4] | 582 | , b | .166 | .208 |
| [Genotype=KO]* [Brainregion=S1L5] | 322 | b | .735 | .812 |
| [Genotype=KO]* [Brainregion=V1L23] | 056 | , b | .481 | .445 |
| [Genotype=KO]* [Brainregion=V1L5] | 112 | b | .529 | .653 |
| [Genotype=KO]* [Brainregion=mPFC L23] | 549 | b | .288 | .782 |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b . | b | b | , b |
| [Genotype=WT]* [Brainregion=CA1] | b . | b | b | b |

| | [Genotype=KO]* [Brainregion=CA | | [Genotype=KO]* [Brainregion=S1 L23] | [Genotype=KO]* [Brainregion=S1 L4] |
|--|-----------------------------------|-------|---|--|
| Intercept | .463 | 247 | .514 | .524 |
| Genotype=KO | 841 | 485 | 893 | 274 |
| Genotype=WT | b . | b | b | b |
| Brainregion=BA | 368 | 069 | .165 | 326 |
| Brainregion=CA1 | 344 | 014 | 493 | 577 |
| Brainregion=CA3 | 561 | .181 | 230 | 433 |
| Brainregion=LA | .204 | 500 | .185 | .391 |
| Brainregion=S1L23 | 203 | .146 | 634 | 376 |
| Brainregion=S1L4 | 268 | .215 | 263 | 907 |
| Brainregion=S1L5 | 370 | .086 | 454 | 750 |
| Brainregion=V1L23 | 452 | .324 | 275 | 138 |
| Brainregion=V1L5 | 393 | .302 | 359 | 053 |
| Brainregion=mPFC L23 | 027 | .186 | 524 | 582 |
| Brainregion=mPFC L5 | b . | b | b | b . |
| [Genotype=KO]* [Brainregion=BA] | .772 | .608 | .417 | .166 |
| [Genotype=KO]* [Brainregion=CA1] | .881 | .700 | .853 | .208 |
| [Genotype=KO]* [Brainregion=CA3] | 1.000 | .550 | .689 | .165 |
| [Genotype=KO]* [Brainregion=LA] | .550 | 1.000 | .438 | 250 |
| [Genotype=KO]* [Brainregion=S1L23] | .689 | .438 | 1.000 | .264 |
| [Genotype=KO]* [Brainregion=S1L4] | .165 | 250 | .264 | 1.000 |
| [Genotype=KO]* [Brainregion=S1L5] | .722 | .423 | .729 | .262 |
| [Genotype=KO]* [Brainregion=V1L23] | .606 | .101 | .548 | .055 |
| [Genotype=KO]* [Brainregion=V1L5] | .747 | .417 | .664 | 047 |
| [Genotype=KO]* [Brainregion=mPFC L23] | .632 | .550 | .694 | .264 |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b | , b | b | , b |
| [Genotype=WT]* [Brainregion=CA1] | b | b | b | b |

| | [Genotype=KO]* [Brainregion=S1 L5] | [Genotype=KO]* [Brainregion=V1 L23] | [Genotype=KO]* [Brainregion=V1 L5] | [Genotype=KO]* [Brainregion=m PFC L23] |
|--|--|---|--|--|
| Intercept | .402 | .597 | .510 | .306 |
| Genotype=KO | 842 | 763 | 840 | 614 |
| Genotype=WT | b . | b . | b | b |
| Brainregion=BA | 196 | 133 | .006 | .221 |
| Brainregion=CA1 | 473 | 221 | 203 | 330 |
| Brainregion=CA3 | 326 | 613 | 452 | 026 |
| Brainregion=LA | .085 | .493 | .390 | .204 |
| Brainregion=S1L23 | 354 | 331 | 366 | 454 |
| Brainregion=S1L4 | 409 | 116 | 038 | 352 |
| Brainregion=S1L5 | 495 | 239 | 190 | 357 |
| Brainregion=V1L23 | 156 | 761 | 628 | 040 |
| Brainregion=V1L5 | 145 | 740 | 646 | 095 |
| Brainregion=mPFC L23 | 322 | 056 | 112 | 549 |
| Brainregion=mPFC L5 | , b | , b | , b | , b |
| [Genotype=KO]* [Brainregion=BA] | .735 | .481 | .529 | .288 |
| [Genotype=KO]* [Brainregion=CA1] | .812 | .445 | .653 | .782 |
| [Genotype=KO]* [Brainregion=CA3] | .722 | .606 | .747 | .632 |
| [Genotype=KO]* [Brainregion=LA] | .423 | .101 | .417 | .550 |
| [Genotype=KO]* [Brainregion=S1L23] | .729 | .548 | .664 | .694 |
| [Genotype=KO]* [Brainregion=S1L4] | .262 | .055 | 047 | .264 |
| [Genotype=KO]* [Brainregion=S1L5] | 1.000 | .480 | .565 | .552 |
| [Genotype=KO]* [Brainregion=V1L23] | .480 | 1.000 | .889 | .158 |
| [Genotype=KO]* [Brainregion=V1L5] | .565 | .889 | 1.000 | .516 |
| [Genotype=KO]* [Brainregion=mPFC L23] | .552 | .158 | .516 | 1.000 |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b | b | b | b |
| [Genotype=WT]* [Brainregion=CA1] | b | b | b | b |

| | [Genotype=KO]* [Brainregion=m PFC L5] | [Brainregion=BA | [Brainregion=CA 1] | 3] |
|--|---|-----------------|-----------------------|--------|
| Intercept | b | b | b | b |
| Genotype=KO | b | b . | b | b |
| Genotype=WT | b | b . | b | , b |
| Brainregion=BA | b | b . | b | , b |
| Brainregion=CA1 | b | b . | , b | b |
| Brainregion=CA3 | b | b . | b | b |
| Brainregion=LA | b | b | , b | b |
| Brainregion=S1L23 | b | , b | , b | , b |
| Brainregion=S1L4 | b . | , b | . b | , b |
| Brainregion=S1L5 | b . | , b | , b | , b |
| Brainregion=V1L23 | b . | , b | . b | , b |
| Brainregion=V1L5 | b . | b . | b | , b |
| Brainregion=mPFC L23 | b | b . | b | , b |
| Brainregion=mPFC L5 | b | b . | b | , b |
| [Genotype=KO]* [Brainregion=BA] | b | b | b | b |
| [Genotype=KO]* [Brainregion=CA1] | b . | b | b | |
| [Genotype=KO]* [Brainregion=CA3] | b | b | b | b |
| [Genotype=KO]* [Brainregion=LA] | b . | b | b | b |
| [Genotype=KO]* [Brainregion=S1L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=S1L4] | b | , b | b | b · |
| [Genotype=KO]* [Brainregion=S1L5] | , b | , b | b | b |
| [Genotype=KO]* [Brainregion=V1L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=V1L5] | b | b | b | b |
| [Genotype=KO]* [Brainregion=mPFC L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b | b | b | b |
| [Genotype=WT]* [Brainregion=CA1] | b | b | b | , b |

| | [Brainregion=LA | [Genotype=WT]* [Brainregion=S1 L23] | [Brainregion=S1 L4] | [Brainregion=S1 L5] |
|--|-----------------|---|------------------------|------------------------|
| Intercept | b | b | b | b |
| Genotype=KO | b | b | b | b |
| Genotype=WT | b | , b | b | , b |
| Brainregion=BA | b | b . | b | , b |
| Brainregion=CA1 | b | b . | b | , b |
| Brainregion=CA3 | b | b . | , b | b . |
| Brainregion=LA | b | b . | b | b |
| Brainregion=S1L23 | b | b . | b | b |
| Brainregion=S1L4 | b | b . | , b | b |
| Brainregion=S1L5 | , b | b | b | b |
| Brainregion=V1L23 | , b | , b | b | b |
| Brainregion=V1L5 | b . | , b | . b | , b |
| Brainregion=mPFC L23 | b | , b | . b | , b |
| Brainregion=mPFC L5 | b . | , b | . b | , b |
| [Genotype=KO]* [Brainregion=BA] | b . | b | b | b . |
| [Genotype=KO]* [Brainregion=CA1] | b . | b | b | b |
| [Genotype=KO]* [Brainregion=CA3] | b | b | b | b |
| [Genotype=KO]* [Brainregion=LA] | b . | b | b | b |
| [Genotype=KO]* [Brainregion=S1L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=S1L4] | b | b | b | |
| [Genotype=KO]* [Brainregion=S1L5] | b | b | b | b |
| [Genotype=KO]* [Brainregion=V1L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=V1L5] | b | b | , b | b |
| [Genotype=KO]* [Brainregion=mPFC L23] | b | b | .b | b |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b . | b | b | b |
| [Genotype=WT]* [Brainregion=CA1] | b | b | b | , b |

| | [Genotype=WT]* [Brainregion=V1 L23] | [Brainregion=V1 L5] | [Genotype=WT]* [Brainregion=m PFC L23] | [Genotype=WT]* [Brainregion=m PFC L5] |
|--|---|------------------------|--|---|
| Intercept | b | b . | b | b |
| Genotype=KO | b | b | b | b |
| Genotype=WT | b | b . | b | b · |
| Brainregion=BA | b | b | b | b . |
| Brainregion=CA1 | b . | , b | , b | b . |
| Brainregion=CA3 | b . | , b | , b | b . |
| Brainregion=LA | b | , b | , b | , b |
| Brainregion=S1L23 | b | , b | , b | , b |
| Brainregion=S1L4 | b | , b | , b | b . |
| Brainregion=S1L5 | b | , b | b . | , b |
| Brainregion=V1L23 | b | , b | , b | b . |
| Brainregion=V1L5 | b | , b | , b | , b |
| Brainregion=mPFC L23 | b | , b | , b | , b |
| Brainregion=mPFC L5 | , b | , b | , b | , b |
| [Genotype=KO]* [Brainregion=BA] | b . | b . | b | b |
| [Genotype=KO]* [Brainregion=CA1] | b . | b | b | b |
| [Genotype=KO]* [Brainregion=CA3] | b | b | b | b · |
| [Genotype=KO]* [Brainregion=LA] | b | b | b | b |
| [Genotype=KO]* [Brainregion=S1L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=S1L4] | b | b | b | b |
| [Genotype=KO]* [Brainregion=S1L5] | , b | b | b | ,b |
| [Genotype=KO]* [Brainregion=V1L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=V1L5] | b . | b | b | b |
| [Genotype=KO]* [Brainregion=mPFC L23] | b | b | b | b |
| [Genotype=KO]* [Brainregion=mPFC L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=BA] | b | b | b | b |
| [Genotype=WT]* [Brainregion=CA1] | b | b | b | b |

| | Intercept | Genotype=KO | Genotype=WT | Brainregion=BA |
|---|-----------|-------------|-------------|----------------|
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=CA3] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | | | |
| [Genotype=WT]* [Brainregion=S1L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* [Brainregion=S1L4] | b | b | b | b |
| | | | | |
| [Genotype=WT]* [Brainregion=S1L5] | b | b | b | b |
| | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L23] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | b | b | b | b |
| [Genotype=WT]* [Brainregion=mPFC L5] | b | b | b | b |

| | Brainregion=CA | Brainregion=CA | | Brainregion=S1 |
|--------------------------------------|----------------|----------------|----------------|----------------|
| | 1 | 3 | Brainregion=LA | L23 |
| [Genotype=WT]* [Brainregion=CA3] | b | b | b | b |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | | | |
| [Genotype=WT]* [Brainregion=S1L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* | b | | , b | b |
| [Brainregion=S1L4] | | | | |
| [Genotype=WT]* [Brainregion=S1L5] | b | b | , b | b |
| [Genotype=WT]* | b | b | , b | b |
| [Brainregion=V1L23] | | · | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=mPFC L23] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L5] | b | b | b | b |

| | Brainregion=S1 L4 | Brainregion=S1 L5 | Brainregion=V1 L23 | Brainregion=V1 L5 |
|---------------------------------------|----------------------|----------------------|-----------------------|----------------------|
| [Genotype=WT]* [Brainregion=CA3] | b | b | b | b |
| [Genotype=WT]* [Brainregion=LA] | b | b | b | b |
| [Genotype=WT]* [Brainregion=S1L23] | b | b | b | b |
| [Genotype=WT]* [Brainregion=S1L4] | b | b | , b | b |
| [Genotype=WT]* [Brainregion=S1L5] | b | b | , b | b |
| [Genotype=WT]* [Brainregion=V1L23] | b | b | b | b |
| [Genotype=WT]* [Brainregion=V1L5] | b | b | b | b |
| [Genotype=WT]* [Brainregion=mPFC L23] | b | b | b | b |
| [Genotype=WT]* [Brainregion=mPFC L5] | b | b | b | b |

| | Brainregion=mP FC L23 | Brainregion=mP FC L5 | | [Genotype=KO]* [Brainregion=CA 1] |
|--|--------------------------|-------------------------|---|---|
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=CA3] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | | | |
| [Genotype=WT]* [Brainregion=S1L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* [Brainregion=S1L4] | , b | b | b | b |
| [Genotype=WT]* | b . | b | b | b |
| [Brainregion=S1L5] | | | | |
| [Genotype=WT]* | b . | b | b | b |
| [Brainregion=V1L23] | | | | |
| [Genotype=WT]* | b . | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | b | b | b | b |
| [Genotype=WT]* [Brainregion=mPFC L5] | b . | b | b | b |

| | | [Genotype=KO]* [Brainregion=LA] | | |
|---------------------------------------|---|--|---|---|
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=CA3] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | · | · | |
| [Genotype=WT]* [Brainregion=S1L23] | b | b | b | b |
| | | · | · | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L4] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L5] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L23] | | | | |
| [Genotype=WT]* | b | | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* [Brainregion=mPFC L5] | b | | b | b |

| | [Genotype=KO]* [Brainregion=S1 L5] | [Genotype=KO]* [Brainregion=V1 L23] | [Genotype=KO]* [Brainregion=V1 L5] | |
|---------------------------------------|--|---|--|----|
| [Genotype=WT]* | b | b | .b | b |
| [Brainregion=CA3] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | | | |
| [Genotype=WT]* [Brainregion=S1L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* [Brainregion=S1L4] | b | b | , b | .b |
| [Genotype=WT]* [Brainregion=S1L5] | , b | b | , b | .b |
| [Genotype=WT]* [Brainregion=V1L23] | , b | b | , b | .b |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | b . | b | b | b |
| [Genotype=WT]* [Brainregion=mPFC L5] | b | b | b | b |
| | | | | |

| | [Genotype=KO]* [Brainregion=m PFC L5] | [Genotype=WT]* [Brainregion=BA | | [Genotype=WT]* [Brainregion=CA 3] |
|---------------------------------------|---|-----------------------------------|---|---|
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=CA3] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L23] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L4] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L5] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L23] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* [Brainregion=mPFC L5] | b | b | b | b |
| | | | | |

| | | [Genotype=WT]* [Brainregion=S1 L23] | | |
|---------------------------------------|-----|---|-----|----|
| [Genotype=WT]* | , b | b | | b |
| [Brainregion=CA3] | | | b | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=LA] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L23] | | | | |
| [Genotype=WT]* [Brainregion=S1L4] | , b | b | , b | .b |
| [Genotype=WT]* [Brainregion=S1L5] | b . | b | b | .b |
| [Genotype=WT]* [Brainregion=V1L23] | b . | b | b | .b |
| [Genotype=WT]* | b . | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* [Brainregion=mPFC L23] | b | b | b | b |
| | | | | |
| [Genotype=WT]* | b . | b | b | b |
| [Brainregion=mPFC L5] | | | | |

| | | [Genotype=WT]* [Brainregion=V1 L5] | | [Genotype=WT]* [Brainregion=m PFC L5] |
|------------------------|---|--|---|---|
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=CA3] | | | | |
| [Genotype=WT]* | b | b | b | , |
| [Brainregion=LA] | | | | b |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L23] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L4] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=S1L5] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L23] | | | | |
| [Genotype=WT]* | b | b | b | b |
| [Brainregion=V1L5] | | | | |
| [Genotype=WT]* | b | b | b | |
| [Brainregion=mPFC L23] | | | | b |
| [Genotype=WT]* | b | b | b | |
| [Brainregion=mPFC L5] | | | | b |

Probability distribution: Normal

Link function: Log

a. Target: AIS length

b. One or both coefficients are redundant.

Random Effect Covariances

Random Effect Block 1

| Random Effect Block | Intercept | Age=P27 | Age=P28 |
|---------------------|-----------|---------|---------|
| Intercept | .000 | .000 | .000 |
| Age=P27 | .000 | .000 | .000 |
| Age=P28 | .000 | .000 | .000 |

Covariance Structure: Variance components Subject Specification: Parent * Sample_ID

Covariance Parameters

Covariance Parameters Summary

| Covariance Parameters | Residual Effect | 1 |
|-----------------------|-----------------|----------------|
| | Random Effects | 2 |
| Design Matrix Columns | Fixed Effects | 36 |
| | Random Effects | 3 ^a |
| Common Subjects | | 12 |

Common subjects are based on the subject specifications for the residual and random effects and are used to chunk the data for better performance.

a. This is the number of columns per common subject.

Residual Effect

| | | | | | 95% Confidence Interval | |
|-----------------|----------|------------|--------|-------|-------------------------|--------|
| Residual Effect | Estimate | Std. Error | Z | Sig. | Lower | Upper |
| Variance | 18.925 | .249 | 76.079 | <.001 | 18.444 | 19.419 |

Covariance Structure: Scaled Identity

Subject Specification: (None)

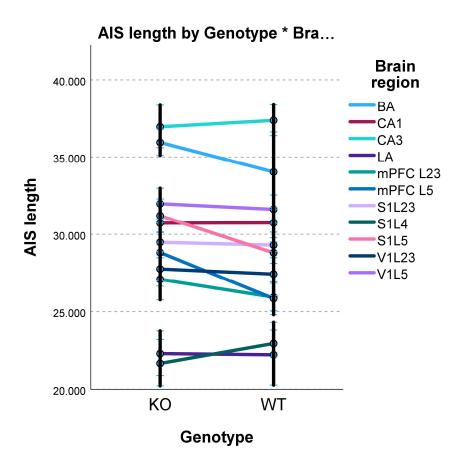
Random Effect

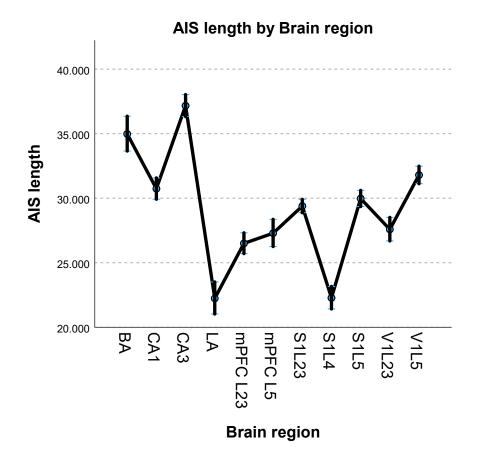
| | | | | | 95% Confidence Interval | |
|--------------------------|-----------------------|------------|-------|------|-------------------------|-------|
| Random Effect Covariance | Estimate | Std. Error | Z | Sig. | Lower | Upper |
| Var(Intercept) | .000 | .000 | 1.808 | .071 | .000 | .001 |
| Var(Age) | 8.469E-5 ^a | | | | | |

Covariance Structure: Variance components Subject Specification: Parent * Sample_ID

a. This parameter is redundant.

Estimated Marginal Means for Top Significant Fixed Effects





Estimated Means: Grand Mean Estimates^a

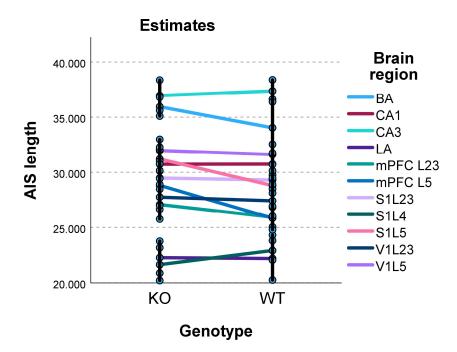
| | | 95% Confidence Interval | | |
|--------|------------|-------------------------|--------|--|
| Mean | Std. Error | Lower | Upper | |
| 28.741 | .207 | 28.338 | 29.150 | |

a. Target: AIS length

Estimated Means: Genotype * Brain region

Estimates

| | | | | 95% Confidence Interval | |
|----------|--------------|--------|------------|-------------------------|--------|
| Genotype | Brain region | Mean | Std. Error | Lower | Upper |
| КО | BA | 35.945 | .436 | 35.100 | 36.811 |
| | CA1 | 30.729 | .676 | 29.431 | 32.083 |
| | CA3 | 36.959 | .703 | 35.607 | 38.363 |
| | LA | 22.274 | .734 | 20.881 | 23.759 |
| | S1L23 | 29.481 | .319 | 28.861 | 30.114 |
| | S1L4 | 21.646 | .753 | 20.219 | 23.174 |
| | S1L5 | 31.201 | .543 | 30.153 | 32.284 |
| | V1L23 | 27.749 | .574 | 26.647 | 28.897 |
| | V1L5 | 31.978 | .507 | 30.999 | 32.988 |
| | mPFC L23 | 27.082 | .692 | 25.759 | 28.472 |
| | mPFC L5 | 28.813 | .956 | 27.000 | 30.749 |
| WT | BA | 34.037 | 1.274 | 31.629 | 36.628 |
| | CA1 | 30.743 | .503 | 29.773 | 31.745 |
| | CA3 | 37.376 | .510 | 36.389 | 38.389 |
| | LA | 22.197 | 1.030 | 20.267 | 24.310 |
| | S1L23 | 29.299 | .424 | 28.480 | 30.142 |
| | S1L4 | 22.920 | .447 | 22.060 | 23.813 |
| | S1L5 | 28.798 | .354 | 28.112 | 29.501 |
| | V1L23 | 27.421 | .728 | 26.030 | 28.885 |
| | V1L5 | 31.613 | .469 | 30.707 | 32.546 |
| | mPFC L23 | 25.928 | .456 | 25.048 | 26.838 |
| | mPFC L5 | 25.841 | .545 | 24.794 | 26.932 |



Pairwise Contrasts

| Brain region | Genotype Pairwise Contrasts | Contrast Estimate | Std. Error | t | df |
|--------------|--------------------------------|----------------------|------------|--------|-------|
| BA | KO - WT | 1.908 | 1.347 | 1.417 | 11586 |
| | WT - KO | -1.908 | 1.347 | -1.417 | 11586 |
| CA1 | KO - WT | 015 | .843 | 018 | 11586 |
| | WT - KO | .015 | .843 | .018 | 11586 |
| CA3 | KO - WT | 416 | .868 | 480 | 11586 |
| | WT - KO | .416 | .868 | .480 | 11586 |
| LA | KO - WT | .077 | 1.264 | .061 | 11586 |
| | WT - KO | 077 | 1.264 | 061 | 11586 |
| S1L23 | KO - WT | .182 | .531 | .342 | 11586 |
| | WT - KO | 182 | .531 | 342 | 11586 |
| S1L4 | KO - WT | -1.274 | .876 | -1.454 | 11586 |
| | WT - KO | 1.274 | .876 | 1.454 | 11586 |
| S1L5 | KO - WT | 2.403 | .649 | 3.703 | 11586 |
| | WT - KO | -2.403 | .649 | -3.703 | 11586 |
| V1L23 | KO - WT | .329 | .927 | .354 | 11586 |
| | WT - KO | 329 | .927 | 354 | 11586 |
| V1L5 | KO - WT | .365 | .691 | .528 | 11586 |
| | WT - KO | 365 | .691 | 528 | 11586 |
| mPFC L23 | KO - WT | 1.154 | .829 | 1.393 | 11586 |
| | WT - KO | -1.154 | .829 | -1.393 | 11586 |
| mPFC L5 | KO - WT | 2.973 | 1.100 | 2.702 | 11586 |
| | WT - KO | -2.973 | 1.100 | -2.702 | 11586 |

Pairwise Contrasts

| | Genotype Pairwise | | 95% Confidence Interval | |
|--------------|-------------------|-----------|-------------------------|--------|
| Brain region | Contrasts | Adj. Sig. | Lower | Upper |
| ВА | KO - WT | .156 | 731 | 4.548 |
| | WT - KO | .156 | -4.548 | .731 |
| CA1 | KO - WT | .986 | -1.667 | 1.637 |
| | WT - KO | .986 | -1.637 | 1.667 |
| CA3 | KO - WT | .632 | -2.119 | 1.286 |
| | WT - KO | .632 | -1.286 | 2.119 |
| LA | KO - WT | .952 | -2.402 | 2.555 |
| | WT - KO | .952 | -2.555 | 2.402 |
| S1L23 | KO - WT | .732 | 859 | 1.222 |
| | WT - KO | .732 | -1.222 | .859 |
| S1L4 | KO - WT | .146 | -2.990 | .443 |
| | WT - KO | .146 | 443 | 2.990 |
| S1L5 | KO - WT | .000 | 1.131 | 3.675 |
| | WT - KO | .000 | -3.675 | -1.131 |
| V1L23 | KO - WT | .723 | -1.488 | 2.145 |
| | WT - KO | .723 | -2.145 | 1.488 |
| V1L5 | KO - WT | .597 | 989 | 1.719 |
| | WT - KO | .597 | -1.719 | .989 |
| mPFC L23 | KO - WT | .164 | 470 | 2.779 |
| | WT - KO | .164 | -2.779 | .470 |
| mPFC L5 | KO - WT | .007 | .816 | 5.129 |
| | WT - KO | .007 | -5.129 | 816 |

The sequential Bonferroni adjusted significance level is .05. Confidence interval bounds are approximate.

Pairwise Contrasts

Target: AIS length



BAK CA1KO \3KO .AKO PFC L! S1L23KO .4 S1L5KO 23 V1L5KO BAV CA1WT \3WT .AWT \PFC L S1L23WT .4 S1L5WT !3 V1L5WT



Brain region

The sequential Bonferroni adjusted significance level is .05. Confidence interval bounds are approximate.

Overall Test Results

| Brain region | F | df1 | df2 | Sig. |
|--------------|--------|-----|-------|-------|
| ВА | 2.009 | 1 | 11586 | .156 |
| CA1 | .000 | 1 | 11586 | .986 |
| CA3 | .230 | 1 | 11586 | .632 |
| LA | .004 | 1 | 11586 | .952 |
| S1L23 | .117 | 1 | 11586 | .732 |
| S1L4 | 2.115 | 1 | 11586 | .146 |
| S1L5 | 13.715 | 1 | 11586 | <.001 |
| V1L23 | .126 | 1 | 11586 | .723 |
| V1L5 | .279 | 1 | 11586 | .597 |
| mPFC L23 | 1.939 | 1 | 11586 | .164 |
| mPFC L5 | 7.300 | 1 | 11586 | .007 |