

Figure 5-Supplement 2d

Reliability - V1 control

```
# Random intercept for single neurons,  
# random intercept for experiments, nested within series  
lmer.5_S2d = lmer(rel ~ bottom_quartile + (1 | uid) + (1 | sid/eid),  
                data = tb2d %>% drop_na(rel))
```

```
display(lmer.5_S2d)
```

```
## lmer(formula = rel ~ bottom_quartile + (1 | uid) + (1 | sid/eid),  
##   data = tb2d %>% drop_na(rel))  
##           coef.est coef.se  
## (Intercept)    0.01    0.00  
## bottom_quartile 0.00    0.00  
##  
## Error terms:  
## Groups   Name          Std.Dev.  
## uid      (Intercept) 0.01  
## eid:sid  (Intercept) 0.00  
## sid      (Intercept) 0.01  
## Residual                0.00  
## ---  
## number of obs: 216, groups: uid, 57; eid:sid, 22; sid, 10  
## AIC = -1585.5, DIC = -1644.2  
## deviance = -1620.8
```

```
anova(lmer.5_S2d)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method  
##           Sum Sq   Mean Sq NumDF  DenDF F value Pr(>F)  
## bottom_quartile 9.7367e-06 9.7367e-06    1 149.91 0.6627 0.4169
```

Top quartile: reliability of 0.0059

Bottom quartile: reliability of 0.0055

n = 57 neurons from 6 mice

Figure 5-Supplement 2e

Signal-to-noise ratio - V1 control

```
# Random intercept for single neurons,  
# random intercept for experiments  
lmer.5_S2e = lmer(snr ~ bottom_quartile + (1 | uid) + (1 | eid),  
                 data = tb2e %>% drop_na(snr))  
  
display(lmer.5_S2e)  
  
## lmer(formula = snr ~ bottom_quartile + (1 | uid) + (1 | eid),  
##      data = tb2e %>% drop_na(snr))  
##              coef.est coef.se  
## (Intercept)    0.26    0.03  
## bottom_quartile -0.01    0.01  
##  
## Error terms:  
## Groups   Name      Std.Dev.  
## uid      (Intercept) 0.09  
## eid      (Intercept) 0.10  
## Residual                0.05  
## ---  
## number of obs: 216, groups: uid, 57; eid, 22  
## AIC = -458.3, DIC = -495.5  
## deviance = -481.9  
  
anova(lmer.5_S2e)  
  
## Type III Analysis of Variance Table with Satterthwaite's method  
##              Sum Sq  Mean Sq NumDF  DenDF F value Pr(>F)  
## bottom_quartile 0.0048253 0.0048253    1 141.67  1.8069  0.181  
  
Top quartile: SNR of 0.26  
Bottom quartile: SNR of 0.25  
n = 57 neurons from 6 mice
```

Figure 5-Supplement 2f

Reliability - V1 suppressed

```
# Random intercept for single neurons,  
# random intercept for experiments, nested within series  
lmer.5_S2f = lmer(rel ~ bottom_quartile + (1 | uid) + (1 | sid/eid),  
                data = tb2f %>% drop_na(rel))  
  
display(lmer.5_S2f)
```

```
## lmer(formula = rel ~ bottom_quartile + (1 | uid) + (1 | sid/eid),  
##      data = tb2f %>% drop_na(rel))  
##              coef.est coef.se  
## (Intercept)    0.01    0.00  
## bottom_quartile 0.00    0.00  
##  
## Error terms:  
## Groups   Name          Std.Dev.  
## uid      (Intercept) 0.01  
## eid:sid (Intercept) 0.00  
## sid      (Intercept) 0.01  
## Residual                0.00  
## ---  
## number of obs: 220, groups: uid, 57; eid:sid, 22; sid, 10  
## AIC = -1591.8, DIC = -1650.3  
## deviance = -1627.1
```

```
anova(lmer.5_S2f)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method  
##              Sum Sq   Mean Sq NumDF  DenDF F value Pr(>F)  
## bottom_quartile 7.9436e-07 7.9436e-07    1 152.97 0.0479 0.827
```

Top quartile: reliability of 0.0057
Bottom quartile: reliability of 0.0056
n = 57 neurons from 6 mice

Figure 5-Supplement 2g

Signal-to-noise ratio - V1 suppressed

```
# Random intercept for single neurons,  
# random intercept for experiments, nested within series  
lmer.5_S2g = lmer(snr ~ bottom_quartile + (1 | uid) + (1 | sid/eid),  
                 data = tb2g %>% drop_na(snr))
```

```
display(lmer.5_S2g)
```

```
## lmer(formula = snr ~ bottom_quartile + (1 | uid) + (1 | sid/eid),  
##      data = tb2g %>% drop_na(snr))  
##              coef.est coef.se  
## (Intercept)    0.29    0.02  
## bottom_quartile 0.01    0.01  
##  
## Error terms:  
## Groups   Name          Std.Dev.  
## uid      (Intercept) 0.09  
## eid:sid (Intercept) 0.07  
## sid      (Intercept) 0.01  
## Residual                0.07  
## ---  
## number of obs: 220, groups: uid, 57; eid:sid, 22; sid, 10  
## AIC = -388.6, DIC = -427.4  
## deviance = -414.0
```

```
anova(lmer.5_S2g)
```

```
## Type III Analysis of Variance Table with Satterthwaite's method  
##              Sum Sq  Mean Sq NumDF  DenDF F value Pr(>F)  
## bottom_quartile 0.0024859 0.0024859    1 148.82  0.5438  0.462
```

Top quartile: SNR of 0.29

Bottom quartile: SNR of 0.29

n = 57 neurons from 6 mice