Figure 6 and Figure Supp6

Figure 6C (Event frequency)
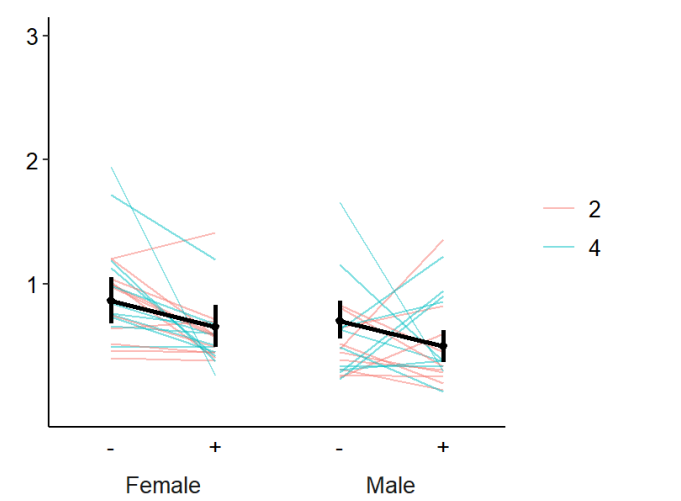


```
Table: ANOVA table before bootstrapping

|            |       F| Df| Df.res| Pr(>F)|
|:-----------|------:|--:|------:|------:|
|(Intercept) | 39.706|  1| 15.422|  0.000|
|p15_cno     |  9.650|  1| 72.731|  0.003|
|sex         |  1.686|  1|  7.481|  0.233|
|f.layer     |  0.668|  1| 70.539|  0.417|


Table: Main effect after bootstrapping

|Parameter | Median|   Mean|   CI| CI_low| CI_high|     pd|  pval|
|:---------|------:|------:|----:|------:|-------:|-----:|-----:|
|M - F     | -0.161| -0.158| 0.95| -0.355|   0.054| 0.937| 0.126|


|Parameter           | Median| Mean|   CI| CI_low| CI_high|     pd|  pval|
|:-------------------|------:|----:|----:|------:|-------:|-----:|-----:|
|f.layer4 - f.layer2 |  0.059| 0.06| 0.95| -0.008|   0.136| 0.958| 0.083|


|Parameter | Median| Mean|   CI| CI_low| CI_high|     pd|  pval|
|:---------|------:|----:|----:|------:|-------:|-----:|-----:|
|neg - CNO |  0.206| 0.21| 0.95|  0.056|   0.388| 0.999| 0.002|
```

Table: Post-hoc comparison with bootstrapping output

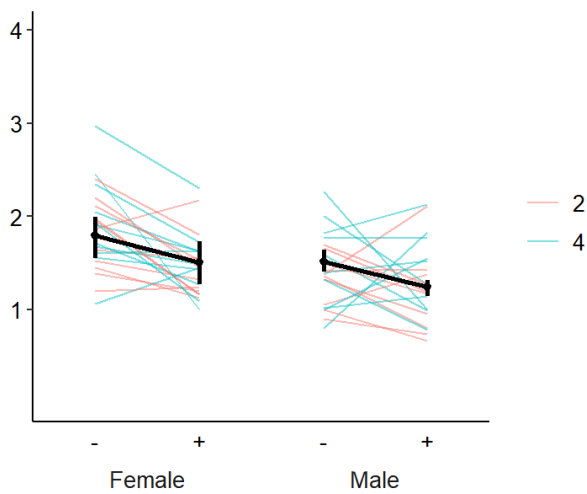|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:-----------------------------|------:|------:|----:|------:|-------:|-----:|-----:|
|neg F f.layer2 - CNO F f.layer2 | 0.206| 0.210| 0.95| 0.056| 0.388| 0.999| 0.002|
|CNO M f.layer2 - neg F f.layer2 | -0.369| -0.368| 0.95| -0.608| -0.120| 0.996| 0.008|
|neg M f.layer2 - CNO M f.layer2 | 0.206| 0.210| 0.95| 0.056| 0.388| 0.999| 0.002|
|CNO F f.layer4 - neg M f.layer2 | 0.011| 0.009| 0.95| -0.313| 0.297| 0.533| 0.933|
|neg F f.layer4 - CNO F f.layer4 | 0.206| 0.210| 0.95| 0.056| 0.388| 0.999| 0.002|
|CNO M f.layer4 - neg F f.layer4 | -0.369| -0.368| 0.95| -0.608| -0.120| 0.996| 0.008|
|neg M f.layer4 - CNO M f.layer4 | 0.206| 0.210| 0.95| 0.056| 0.388| 0.999| 0.002|

Figure 6D (Synchrony frequency)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	160.551	1	13.210	0.000
p15_cno	14.910	1	71.970	0.000
sex	3.128	1	7.668	0.117
f.layer	2.152	1	70.064	0.147

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	-0.275	-0.273	0.95	-0.49	-0.053	0.994	0.013

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	0.105	0.104	0.95	0.024	0.175	0.994	0.012

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	0.277	0.282	0.95	0.133	0.459	1	0

Table: Post-hoc comparison with bootstrapping output

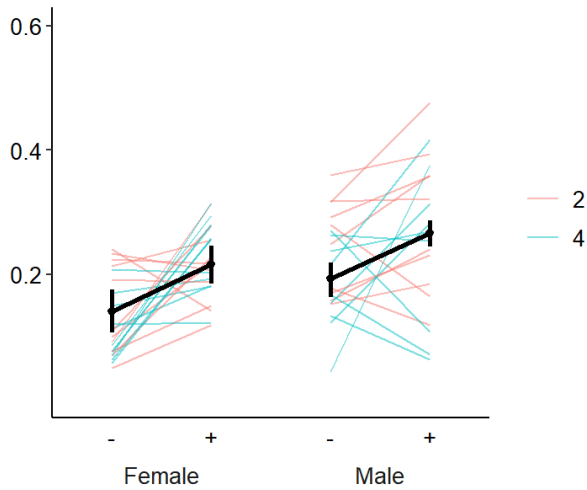|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:------------------------------|------:|------:|----:|------:|-------:|-----:|-----:|
|neg F f.layer2 - CNO F f.layer2 | 0.277| 0.282| 0.95| 0.133| 0.459| 1.000| 0.000|
|CNO M f.layer2 - neg F f.layer2 | -0.561| -0.555| 0.95| -0.811| -0.290| 1.000| 0.000|
|neg M f.layer2 - CNO M f.layer2 | 0.277| 0.282| 0.95| 0.133| 0.459| 1.000| 0.000|
|CNO F f.layer4 - neg M f.layer2 | 0.095| 0.095| 0.95| -0.230| 0.421| 0.724| 0.552|
|neg F f.layer4 - CNO F f.layer4 | 0.277| 0.282| 0.95| 0.133| 0.459| 1.000| 0.000|
|CNO M f.layer4 - neg F f.layer4 | -0.561| -0.555| 0.95| -0.811| -0.290| 1.000| 0.000|
|neg M f.layer4 - CNO M f.layer4 | 0.277| 0.282| 0.95| 0.133| 0.459| 1.000| 0.000|

Figure 6E (Silhouette value)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	143.421	1	24.674	0.000
p15_cno	17.781	1	87.063	0.000
sex	6.063	1	6.666	0.045
f.layer	1.438	1	85.457	0.234

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	0.051	0.051	0.95	0.019	0.083	0.999	0.003

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	-0.02	-0.02	0.95	-0.049	0.008	0.917	0.166

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	-0.074	-0.075	0.95	-0.113	-0.04	1	0

Table: Post-hoc comparison with bootstrapping output

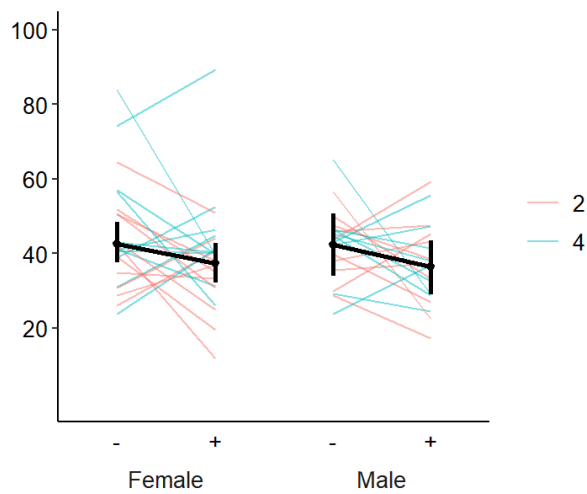|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:-----------------------------|------:|------:|----:|------:|-------:|----:|-----:|
|neg F f.layer2 - CNO F f.layer2 | -0.074| -0.075| 0.95| -0.113| -0.040| 1.00| 0.000|
|CNO M f.layer2 - neg F f.layer2 | 0.126| 0.126| 0.95| 0.078| 0.175| 1.00| 0.000|
|neg M f.layer2 - CNO M f.layer2 | -0.074| -0.075| 0.95| -0.113| -0.040| 1.00| 0.000|
|CNO F f.layer4 - neg M f.layer2 | 0.002| 0.004| 0.95| -0.061| 0.079| 0.52| 0.961|
|neg F f.layer4 - CNO F f.layer4 | -0.074| -0.075| 0.95| -0.113| -0.040| 1.00| 0.000|
|CNO M f.layer4 - neg F f.layer4 | 0.126| 0.126| 0.95| 0.078| 0.175| 1.00| 0.000|
|neg M f.layer4 - CNO M f.layer4 | -0.074| -0.075| 0.95| -0.113| -0.040| 1.00| 0.000|

Figure 6F (Single-cluster (%))

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	90.346	1	13.287	0.000
p15_cno	4.413	1	70.536	0.039
sex	0.009	1	7.618	0.927
f.layer	1.622	1	68.956	0.207

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	-0.241	-0.298	0.95	-9.757	9.161	0.523	0.953

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	3.102	3.294	0.95	-2.238	9.913	0.855	0.291

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	5.15	5.243	0.95	1.43	9.429	0.997	0.007

Table: Post-hoc comparison with bootstrapping output

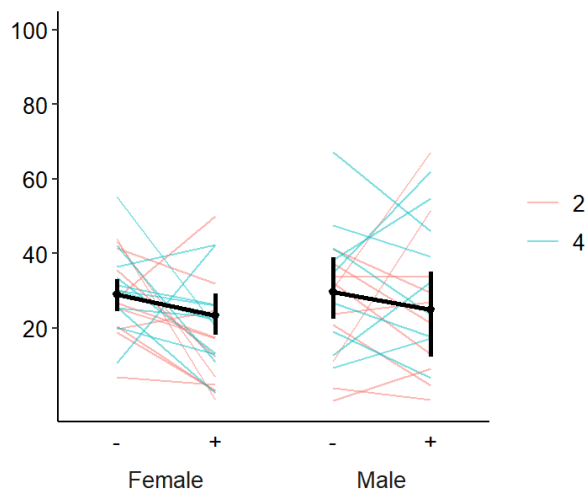|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:------------------------------|------:|------:|----:|------:|-------:|-----:|-----:|
|neg F f.layer2 - CNO F f.layer2 | 5.150| 5.243| 0.95| 1.430| 9.429| 0.997| 0.007|
|CNO M f.layer2 - neg F f.layer2 | -5.420| -5.540| 0.95| -15.916| 4.053| 0.858| 0.284|
|neg M f.layer2 - CNO M f.layer2 | 5.150| 5.243| 0.95| 1.430| 9.429| 0.997| 0.007|
|CNO F f.layer4 - neg M f.layer2 | -1.819| -1.651| 0.95| -11.504| 9.129| 0.648| 0.705|
|neg F f.layer4 - CNO F f.layer4 | 5.150| 5.243| 0.95| 1.430| 9.429| 0.997| 0.007|
|CNO M f.layer4 - neg F f.layer4 | -5.420| -5.540| 0.95| -15.916| 4.053| 0.858| 0.284|
|neg M f.layer4 - CNO M f.layer4 | 5.150| 5.243| 0.95| 1.430| 9.429| 0.997| 0.007|

Figure 6G (Non-cluster (%))

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	28.387	1	18.455	0.000
p15_cno	3.565	1	72.234	0.063
sex	0.164	1	7.065	0.698
f.layer	3.660	1	69.970	0.060

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	0.96	0.91	0.95	-9.878	9.66	0.595	0.811

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	5.894	6.076	0.95	0.435	12.651	0.984	0.032

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	5.409	5.376	0.95	-2.273	12.723	0.914	0.173

Table: Post-hoc comparison with bootstrapping output

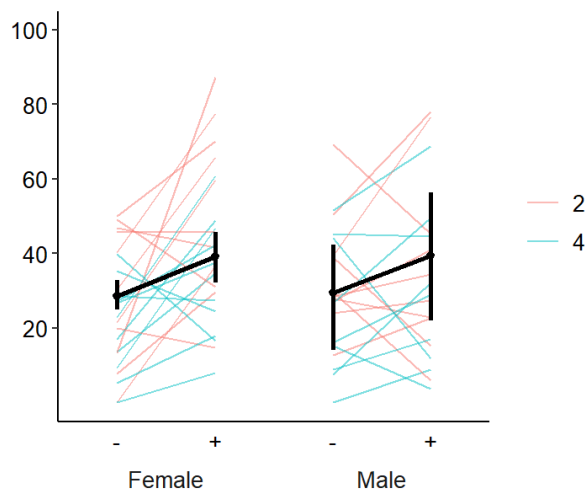|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:------------------------------|------:|------:|----:|------:|-------:|-----:|-----:|
|neg F f.layer2 - CNO F f.layer2| 5.409| 5.376| 0.95| -2.273| 12.723| 0.914| 0.173|
|CNO M f.layer2 - neg F f.layer2| -3.726| -4.466| 0.95|-20.340| 7.973| 0.735| 0.530|
|neg M f.layer2 - CNO M f.layer2| 5.409| 5.376| 0.95| -2.273| 12.723| 0.914| 0.173|
|CNO F f.layer4 - neg M f.layer2| -0.038| -0.210| 0.95|-12.146| 10.743| 0.504| 0.993|
|neg F f.layer4 - CNO F f.layer4| 5.409| 5.376| 0.95| -2.273| 12.723| 0.914| 0.173|
|CNO M f.layer4 - neg F f.layer4| -3.726| -4.466| 0.95|-20.340| 7.973| 0.735| 0.530|
|neg M f.layer4 - CNO M f.layer4| 5.409| 5.376| 0.95| -2.273| 12.723| 0.914| 0.173|

Figure 6H (Multiple-cluster (%))

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	59.946	1	13.597	0.000
p15_cno	8.275	1	72.117	0.005
sex	0.002	1	7.705	0.969
f.layer	6.075	1	70.179	0.016

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	0.759	0.299	0.95	-14.288	15.945	0.548	0.903

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	-9.421	-9.348	0.95	-17.528	-0.66	0.981	0.037

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	-10.699	-10.581	0.95	-18.847	-1.905	0.993	0.015

Table: Post-hoc comparison with bootstrapping output

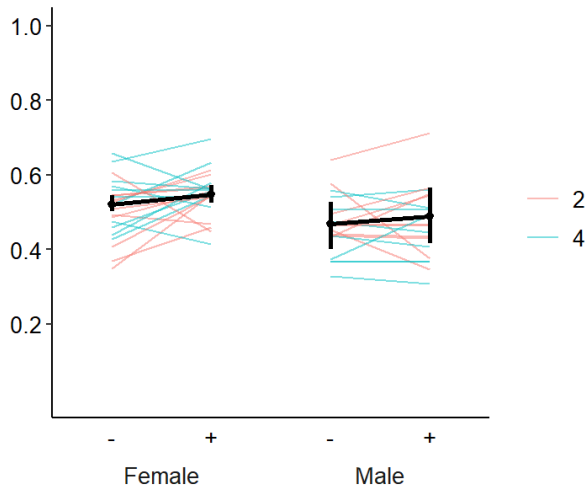|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:-------------------------------|-------:|-------:|----:|-------:|-------:|-----:|-----:|
|neg F f.layer2 - CNO F f.layer2 | -10.699| -10.581| 0.95| -18.847| -1.905| 0.993| 0.015|
|CNO M f.layer2 - neg F f.layer2 | 10.337| 10.880| 0.95| -6.613| 32.694| 0.863| 0.274|
|neg M f.layer2 - CNO M f.layer2 | -10.699| -10.581| 0.95| -18.847| -1.905| 0.993| 0.015|
|CNO F f.layer4 - neg M f.layer2 | 0.692| 0.933| 0.95| -14.606| 16.813| 0.548| 0.904|
|neg F f.layer4 - CNO F f.layer4 | -10.699| -10.581| 0.95| -18.847| -1.905| 0.993| 0.015|
|CNO M f.layer4 - neg F f.layer4 | 10.337| 10.880| 0.95| -6.613| 32.694| 0.863| 0.274|
|neg M f.layer4 - CNO M f.layer4 | -10.699| -10.581| 0.95| -18.847| -1.905| 0.993| 0.015|

Figure supp6G Pearson Correlation- all pairs)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	355.965	1	11.742	0.000
p15_cno	3.151	1	83.366	0.080
sex	0.150	1	9.633	0.707
f.layer	3.828	1	82.356	0.054
sex:f.layer	9.648	1	82.700	0.003

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	-0.055	-0.057	0.95	-0.13	0.016	0.931	0.137

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	-0.011	-0.011	0.95	-0.043	0.022	0.756	0.489

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	-0.025	-0.025	0.95	-0.048	0.001	0.972	0.057

Table: Post-hoc comparison with bootstrapping output

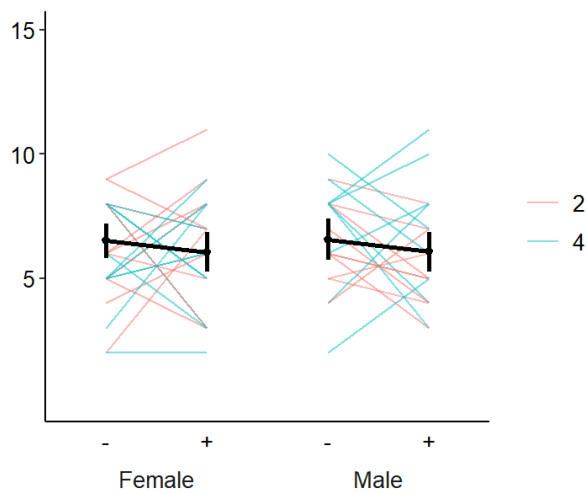|Parameter | Median| Mean| CI| CI_low| CI_high| pd| pval|
|:----------------------------------|------:|------:|----:|------:|-------:|-----:|-----:|
|neg F f.layer2 - CNO F f.layer2 | -0.025| -0.025| 0.95| -0.048| 0.001| 0.972| 0.057|
|CNO M f.layer2 - neg F f.layer2 | 0.013| 0.015| 0.95| -0.073| 0.126| 0.606| 0.788|
|neg M f.layer2 - CNO M f.layer2 | -0.025| -0.025| 0.95| -0.048| 0.001| 0.972| 0.057|
|CNO F f.layer4 - neg M f.layer2 | 0.069| 0.071| 0.95| -0.012| 0.155| 0.962| 0.075|
|neg F f.layer4 - CNO F f.layer4 | -0.025| -0.025| 0.95| -0.048| 0.001| 0.972| 0.057|
|CNO M f.layer4 - neg F f.layer4 | -0.080| -0.079| 0.95| -0.176| 0.017| 0.956| 0.088|
|neg M f.layer4 - CNO M f.layer4 | -0.025| -0.025| 0.95| -0.048| 0.001| 0.972| 0.057|

Figure supp6H (Subnetwork number)

Table: ANOVA table before bootstrapping

	Sum Sq	Df	F value	Pr(>F)
(Intercept)	818.636	1	163.908	0.000
p15_cno	4.999	1	1.001	0.320
sex	9.850	1	1.972	0.164
f.layer	5.853	1	1.172	0.282
sex:f.layer	19.893	1	3.983	0.049
Residuals	449.504	90	NA	NA

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	0.025	0.023	0.95	-0.893	0.915	0.519	0.962

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	0.277	0.278	0.95	-0.628	1.187	0.72	0.559

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	0.469	0.465	0.95	-0.422	1.359	0.844	0.311

Table: Post-hoc comparison with bootstrapping output

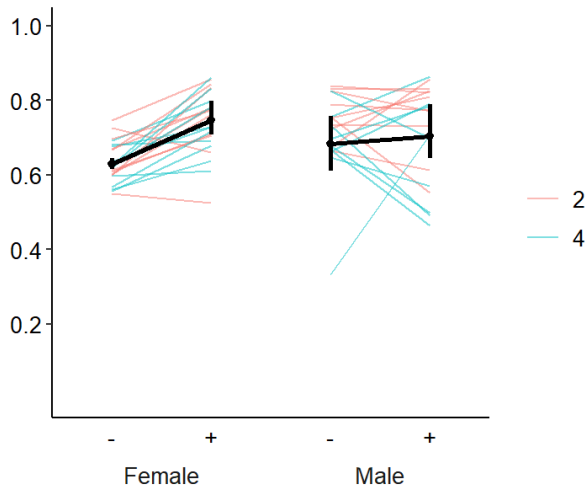| Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg F f.layer2 - CNO F f.layer2	0.469	0.465	0.95	-0.422	1.359	0.844	0.311
CNO M f.layer2 - neg F f.layer2	-1.379	-1.376	0.95	-2.764	0.005	0.975	0.051
neg M f.layer2 - CNO M f.layer2	0.469	0.465	0.95	-0.422	1.359	0.844	0.311
CNO F f.layer4 - neg M f.layer2	-0.210	-0.211	0.95	-1.724	1.364	0.609	0.782
neg F f.layer4 - CNO F f.layer4	0.469	0.465	0.95	-0.422	1.359	0.844	0.311
CNO M f.layer4 - neg F f.layer4	0.485	0.491	0.95	-1.068	2.059	0.730	0.541
neg M f.layer4 - CNO M f.layer4	0.469	0.465	0.95	-0.422	1.359	0.844	0.311

Figure supp6I (tCC - in the same subnetwork)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	551.493	1	18.001	0.000
p15_cno	20.641	1	84.341	0.000
sex	0.045	1	16.358	0.835
f.layer	1.231	1	81.627	0.270
sex:f.layer	2.953	1	82.214	0.089
p15_cno:sex	7.543	1	82.796	0.007

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	0.006	0.009	0.95	-0.084	0.086	0.559	0.883

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	-0.061	-0.061	0.95	-0.093	-0.026	1	0

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	-0.065	-0.068	0.95	-0.125	-0.028	1	0

Table: Post-hoc comparison with bootstrapping output

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg F f.layer2 - CNO F f.layer2	-0.117	-0.118	0.95	-0.160	-0.082	1.000	0.000
CNO M f.layer2 - neg F f.layer2	0.110	0.110	0.95	0.040	0.179	1.000	0.000
neg M f.layer2 - CNO M f.layer2	-0.010	-0.017	0.95	-0.128	0.053	0.632	0.736
CNO F f.layer4 - neg M f.layer2	-0.003	-0.002	0.95	-0.097	0.127	0.517	0.967
neg F f.layer4 - CNO F f.layer4	-0.117	-0.118	0.95	-0.160	-0.082	1.000	0.000
CNO M f.layer4 - neg F f.layer4	0.042	0.043	0.95	-0.044	0.146	0.837	0.325
neg M f.layer4 - CNO M f.layer4	-0.010	-0.017	0.95	-0.128	0.053	0.632	0.736

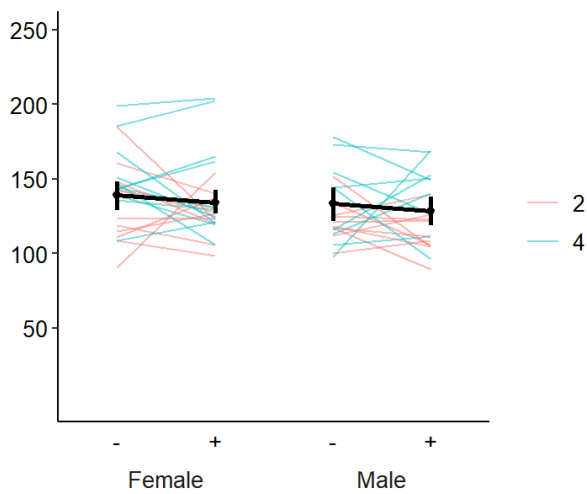Figure supp6J (Pairwise distances between neurons)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	466.209	1	16.346	0.000
p15_cno	1.469	1	70.445	0.230
sex	0.710	1	6.988	0.427
f.layer	22.449	1	68.718	0.000

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	-5.801	-5.747	0.95	-18.319	7.952	0.829	0.342

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	20.577	20.683	0.95	13.904	27.8	1	0

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	5.058	4.998	0.95	-2.181	11.877	0.917	0.167

Table: Post-hoc comparison with bootstrapping output

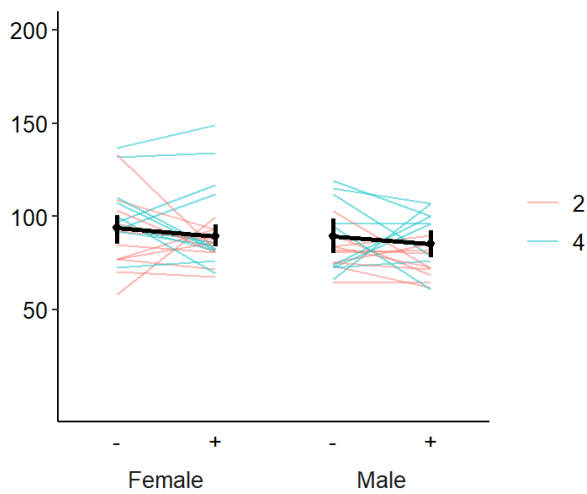| Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg F f.layer2 - CNO F f.layer2	5.058	4.998	0.95	-2.181	11.877	0.917	0.167
CNO M f.layer2 - neg F f.layer2	-10.895	-10.745	0.95	-25.164	4.375	0.927	0.145
neg M f.layer2 - CNO M f.layer2	5.058	4.998	0.95	-2.181	11.877	0.917	0.167
CNO F f.layer4 - neg M f.layer2	21.337	21.432	0.95	4.689	37.919	0.992	0.016
neg F f.layer4 - CNO F f.layer4	5.058	4.998	0.95	-2.181	11.877	0.917	0.167
CNO M f.layer4 - neg F f.layer4	-10.895	-10.745	0.95	-25.164	4.375	0.927	0.145
neg M f.layer4 - CNO M f.layer4	5.058	4.998	0.95	-2.181	11.877	0.917	0.167

Figure supp6K (Distance of neuron to subnetwork centroid)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	348.265	1	14.635	0.000
p15_cno	2.172	1	69.781	0.145
sex	0.679	1	7.212	0.436
f.layer	19.340	1	68.293	0.000

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	-4.436	-4.448	0.95	-14.116	6.988	0.821	0.357

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	13.743	13.744	0.95	8.797	18.647	1	0

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	4.445	4.342	0.95	-0.946	9.066	0.95	0.1

Table: Post-hoc comparison with bootstrapping output

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg F f.layer2 - CNO F f.layer2	4.445	4.342	0.95	-0.946	9.066	0.950	0.100
CNO M f.layer2 - neg F f.layer2	-8.915	-8.790	0.95	-19.595	3.231	0.943	0.113
neg M f.layer2 - CNO M f.layer2	4.445	4.342	0.95	-0.946	9.066	0.950	0.100
CNO F f.layer4 - neg M f.layer2	13.743	13.850	0.95	-0.136	27.210	0.974	0.053
neg F f.layer4 - CNO F f.layer4	4.445	4.342	0.95	-0.946	9.066	0.950	0.100
CNO M f.layer4 - neg F f.layer4	-8.915	-8.790	0.95	-19.595	3.231	0.943	0.113
neg M f.layer4 - CNO M f.layer4	4.445	4.342	0.95	-0.946	9.066	0.950	0.100

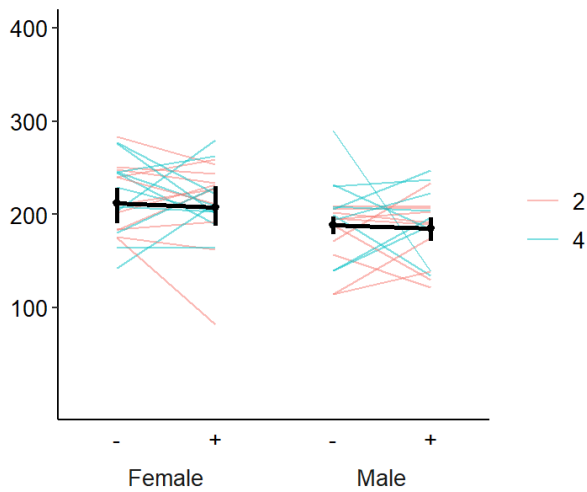Figure supp6L (Pairwise distances between subnetwork centroids)

Table: ANOVA table before bootstrapping

	F	Df	Df.res	Pr(>F)
(Intercept)	386.429	1	15.486	0.000
p15_cno	0.106	1	71.161	0.746
sex	2.936	1	7.356	0.128
f.layer	0.741	1	69.294	0.392

Table: Main effect after bootstrapping

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
M - F	-23.21	-23.037	0.95	-42.09	-3.86	0.987	0.025

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
f.layer4 - f.layer2	5.732	5.438	0.95	-8.422	17.502	0.796	0.407

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg - CNO	4.205	4.324	0.95	-14.32	23.983	0.667	0.667

Table: Post-hoc comparison with bootstrapping output

Parameter	Median	Mean	CI	CI_low	CI_high	pd	pval
neg F f.layer2 - CNO F f.layer2	4.205	4.324	0.95	-14.320	23.983	0.667	0.667
CNO M f.layer2 - neg F f.layer2	-27.203	-27.361	0.95	-55.142	-1.229	0.980	0.039
neg M f.layer2 - CNO M f.layer2	4.205	4.324	0.95	-14.320	23.983	0.667	0.667
CNO F f.layer4 - neg M f.layer2	24.719	24.151	0.95	-11.090	55.414	0.923	0.155
neg F f.layer4 - CNO F f.layer4	4.205	4.324	0.95	-14.320	23.983	0.667	0.667
CNO M f.layer4 - neg F f.layer4	-27.203	-27.361	0.95	-55.142	-1.229	0.980	0.039
neg M f.layer4 - CNO M f.layer4	4.205	4.324	0.95	-14.320	23.983	0.667	0.667