

Extended data

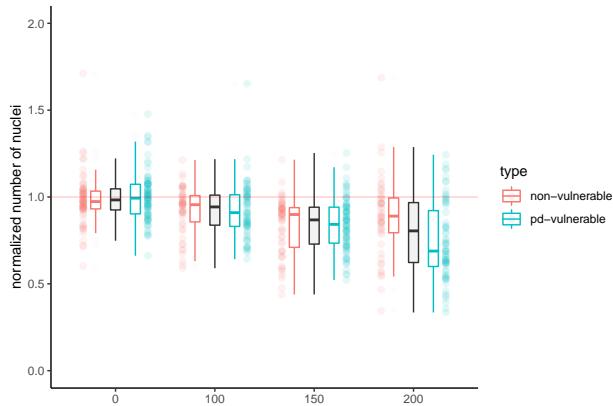
Contents

PD-vulnerable neurons are less resilient to cell stress induced by hydrogen peroxide	2
Figure 2-1	2
Figure 2-2	3
Differential vulnerability of neurons to hydrogen peroxide	4
Figure 3-1	4
No overt difference in mitochondrial ROS production observed between neurons	9
Figure 4-2	9
Figure 4-3	13
PD-vulnerable neurons have large axonal domains, that are globally more complex than PD-resilient neurons	14
Figure 6-1	14
PD-vulnerable neurons have a higher proportion of varicosities that are positive for Syt1	21
Figure 7-1	21

PD-vulnerable neurons are less resilient to cell stress induced by hydrogen peroxide

Figure 2-1

Nuclei (DAPI) count



Kruskal-Wallis

Kruskal-Wallis rank sum test

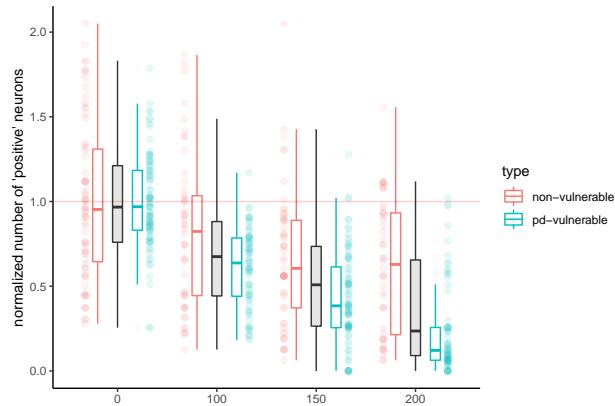
```
data: dapi_normalized by hydrogen_peroxide
Kruskal-Wallis chi-squared = 91.227, df = 3, p-value < 2.2e-16
```

Dunn test

Comparison	Z	P.unadj	P.adj
0 - 100	3.4001879	0.0006734	0.0040404
0 - 150	7.8043915	0.0000000	0.0000000
100 - 150	3.9718484	0.0000713	0.0004279
0 - 200	8.1835348	0.0000000	0.0000000
100 - 200	4.5069337	0.0000066	0.0000395
150 - 200	0.7245953	0.4687004	1.0000000

Neuron count

Figure 2-2



Kruskal-Wallis

Kruskal-Wallis rank sum test

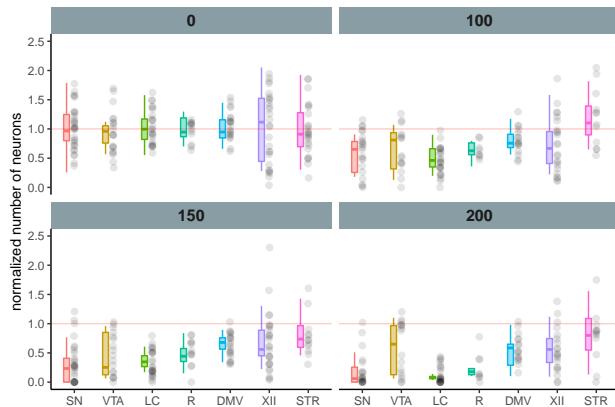
```
data: neuron_normalized by hydrogen_peroxide
Kruskal-Wallis chi-squared = 164.32, df = 3, p-value < 2.2e-16
```

Dunn test

Comparison	Z	P.unadj	P.adj
0 - 100	5.867938	0.0000000	0.0000000
0 - 150	9.779527	0.0000000	0.0000000
100 - 150	3.408957	0.0006521	0.0039127
0 - 200	11.754230	0.0000000	0.0000000
100 - 200	5.563542	0.0000000	0.0000002
150 - 200	2.386850	0.0169934	0.1019605

Differential vulnerability of neurons to hydrogen peroxide

Figure 3-1



Kruskal-Wallis and Dunn test for each concentration

0 micromolar

Kruskal-Wallis rank sum test

```
data: neuron_normalized by neuron
Kruskal-Wallis chi-squared = 0.43515, df = 6, p-value = 0.9985
```

Comparison	Z	P.unadj	P.adj
DMV - LC	0.0460099	0.9633024	1
DMV - R	-0.0170668	0.9863833	1
LC - R	-0.0570271	0.9545236	1
DMV - SN	0.0596846	0.9524069	1
LC - SN	0.0120472	0.9903880	1
R - SN	0.0686879	0.9452381	1
DMV - STR	0.3880572	0.6979737	1
LC - STR	0.3587423	0.7197879	1
R - STR	0.3499389	0.7263845	1
SN - STR	0.3661004	0.7142902	1
DMV - VTA	0.3929825	0.6943324	1
LC - VTA	0.3644469	0.7155243	1
R - VTA	0.3573996	0.7207927	1
SN - VTA	0.3708062	0.7107819	1
STR - VTA	0.0223996	0.9821292	1
DMV - XII	0.3419833	0.7323635	1
LC - XII	0.3099783	0.7565775	1
R - XII	0.3087642	0.7575009	1
SN - XII	0.3153817	0.7524719	1
STR - XII	-0.0591645	0.9528211	1
VTA - XII	-0.0792485	0.9368350	1

100 micromolar

Kruskal-Wallis rank sum test

```
data: neuron_normalized by neuron
Kruskal-Wallis chi-squared = 27.496, df = 6, p-value = 0.0001169
```

Comparison	Z	P.unadj	P.adj
DMV - LC	3.0576763	0.0022306	0.0468427
DMV - R	1.3473497	0.1778676	1.0000000
LC - R	-0.9882252	0.3230424	1.0000000
DMV - SN	2.1096460	0.0348889	0.7326661
LC - SN	-0.9597891	0.3371614	1.0000000
R - SN	0.2807619	0.7788930	1.0000000
DMV - STR	-1.8377294	0.0661023	1.0000000
LC - STR	-4.7762384	0.0000018	0.0000375
R - STR	-2.8157629	0.0048662	0.1021893
SN - STR	-3.8739054	0.0001071	0.0022492
DMV - VTA	1.1366643	0.2556787	1.0000000
LC - VTA	-1.7571423	0.0788936	1.0000000
R - VTA	-0.3995113	0.6895165	1.0000000
SN - VTA	-0.8624297	0.3884511	1.0000000
STR - VTA	2.8668055	0.0041464	0.0870739
DMV - XII	1.2946210	0.1954510	1.0000000
LC - XII	-1.9376752	0.0526629	1.0000000
R - XII	-0.3945921	0.6931439	1.0000000
SN - XII	-0.9231033	0.3559534	1.0000000
STR - XII	3.1542542	0.0016091	0.0337909
VTA - XII	0.0389910	0.9688976	1.0000000

150 micromolar

Kruskal-Wallis rank sum test

```
data: neuron_normalized by neuron
Kruskal-Wallis chi-squared = 43.006, df = 6, p-value = 1.163e-07
```

Comparison	Z	P.unadj	P.adj
DMV - LC	3.4092318	0.0006515	0.0136807
DMV - R	1.8603390	0.0628376	1.0000000
LC - R	-0.9981418	0.3182106	1.0000000
DMV - SN	4.5926293	0.0000044	0.0000919
LC - SN	1.1229937	0.2614402	1.0000000
R - SN	1.9281774	0.0538331	1.0000000
DMV - STR	-0.9114641	0.3620509	1.0000000
LC - STR	-3.8608477	0.0001130	0.0023729
R - STR	-2.4791760	0.0131686	0.2765412
SN - STR	-4.8615781	0.0000012	0.0000245
DMV - VTA	2.0924238	0.0364006	0.7644130
LC - VTA	-1.0786649	0.2807371	1.0000000

Comparison	Z	P.unadj	P.adj
R - VTA	0.0290625	0.9768148	1.0000000
SN - VTA	-2.1280995	0.0333288	0.6999055
STR - VTA	2.7134661	0.0066583	0.1398251
DMV - XII	0.5206388	0.6026184	1.0000000
LC - XII	-3.0994014	0.0019391	0.0407215
R - XII	-1.5027565	0.1329018	1.0000000
SN - XII	-4.3683599	0.0000125	0.0002629
STR - XII	1.3973720	0.1623017	1.0000000
VTA - XII	-1.7165660	0.0860585	1.0000000

200 micromolar

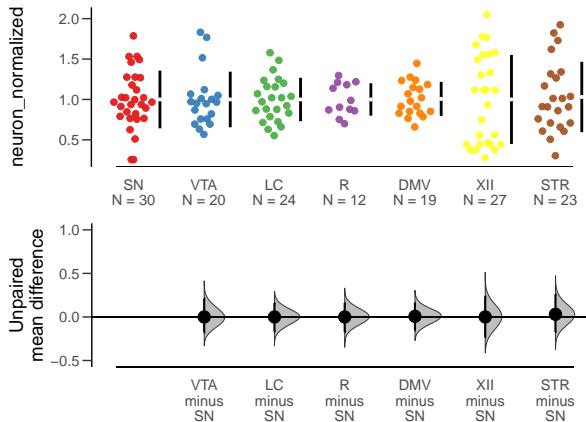
Kruskal-Wallis rank sum test

```
data: neuron_normalized by neuron
Kruskal-Wallis chi-squared = 55.538, df = 6, p-value = 3.608e-10
```

Comparison	Z	P.unadj	P.adj
DMV - LC	4.6306976	0.0000036	0.0000765
DMV - R	1.7772743	0.0755231	1.0000000
LC - R	-1.7758038	0.0757653	1.0000000
DMV - SN	3.6600377	0.0002522	0.0052957
LC - SN	-0.8816647	0.3779581	1.0000000
R - SN	1.0949050	0.2735583	1.0000000
DMV - STR	-0.9378490	0.3483220	1.0000000
LC - STR	-5.2402220	0.0000002	0.0000034
R - STR	-2.4707312	0.0134837	0.2831579
SN - STR	-4.3427853	0.0000141	0.0002954
DMV - VTA	0.2734029	0.7845435	1.0000000
LC - VTA	-4.3311997	0.0000148	0.0003114
R - VTA	-1.5540418	0.1201745	1.0000000
SN - VTA	-3.3718458	0.0007467	0.0156799
STR - VTA	1.1909709	0.2336650	1.0000000
DMV - XII	-0.0642890	0.9487401	1.0000000
LC - XII	-5.0075611	0.0000006	0.0000116
R - XII	-1.8911995	0.0585977	1.0000000
SN - XII	-3.9502450	0.0000781	0.0016395
STR - XII	0.9217728	0.3566471	1.0000000
VTA - XII	-0.3524809	0.7244776	1.0000000

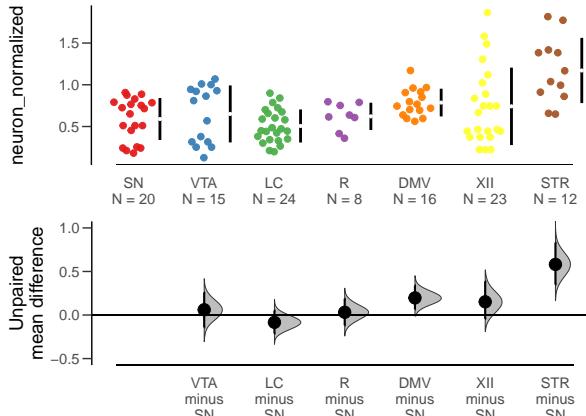
Estimation statistics

0 micromolar



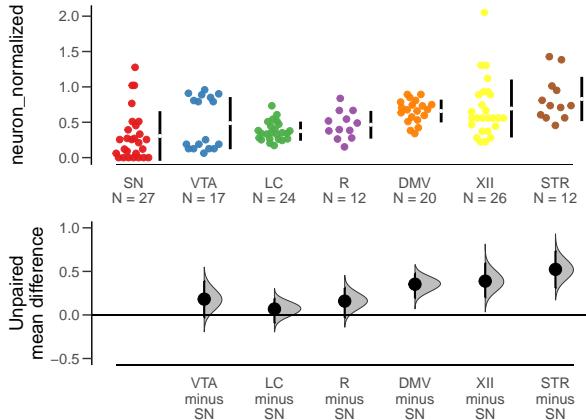
control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	0.000	-0.179	0.212
SN	LC	0.000	-0.168	0.160
SN	R	0.000	-0.175	0.160
SN	DMV	0.007	-0.155	0.160
SN	XII	0.000	-0.237	0.238
SN	STR	0.030	-0.174	0.259

100 micromolar



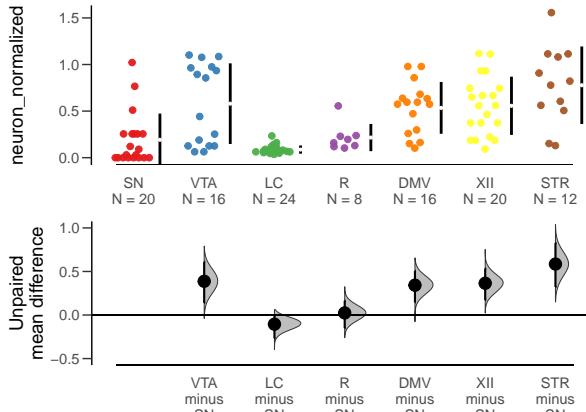
control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	0.061	-0.142	0.260
SN	LC	-0.084	-0.213	0.052
SN	R	0.031	-0.119	0.187
SN	DMV	0.197	0.066	0.340
SN	XII	0.152	-0.044	0.388
SN	STR	0.581	0.350	0.831

150 micromolar



control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	0.182	-0.031	0.390
SN	LC	0.068	-0.092	0.188
SN	R	0.159	-0.032	0.311
SN	DMV	0.353	0.192	0.478
SN	XII	0.388	0.200	0.595
SN	STR	0.523	0.308	0.734

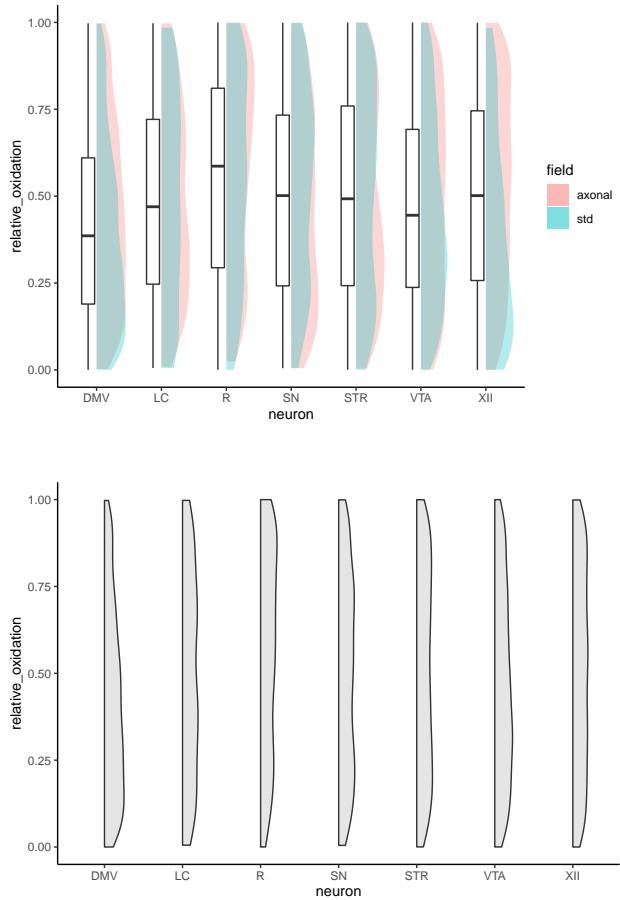
200 micromolar



control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	0.387	0.139	0.611
SN	LC	-0.105	-0.268	-0.011
SN	R	0.024	-0.151	0.163
SN	DMV	0.342	0.146	0.507
SN	XII	0.365	0.170	0.534
SN	STR	0.585	0.322	0.827

No overt difference in mitochondrial ROS production observed between neurons

Figure 4-2



Kruskal-Wallis

Kruskal-Wallis rank sum test

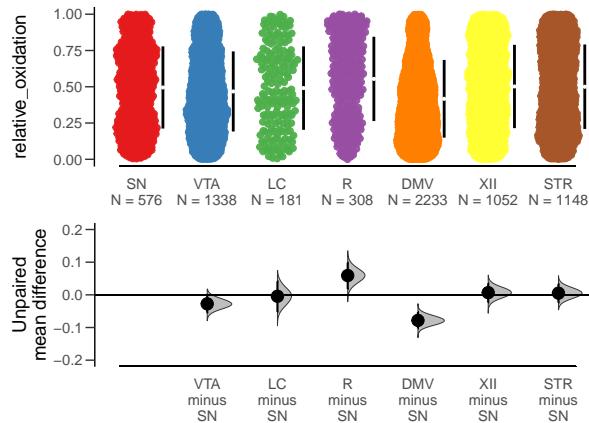
```
data: relative_oxidation by neuron
Kruskal-Wallis chi-squared = 133.58, df = 6, p-value < 2.2e-16
```

Dunn

Comparison	Z	P.unadj	P.adj
DMV - LC	-3.3231328	0.0008901	0.0186926
DMV - R	-7.8362467	0.0000000	0.0000000
LC - R	-2.3435415	0.0191016	0.4011343
DMV - SN	-5.8719183	0.0000000	0.0000001
LC - SN	-0.2064038	0.8364755	1.0000000
R - SN	2.8602152	0.0042335	0.0889043
DMV - STR	-7.9501041	0.0000000	0.0000000

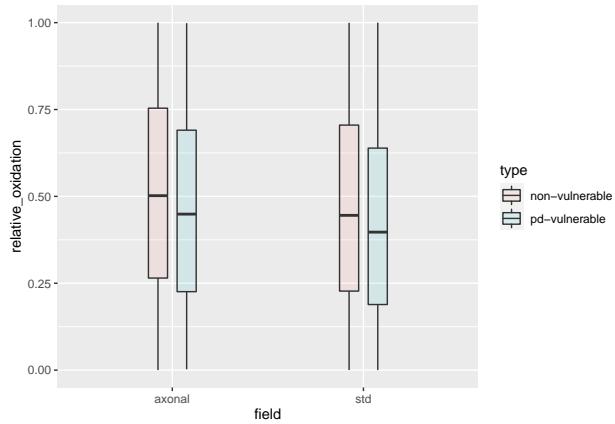
Comparison	Z	P.unadj	P.adj
LC - STR	-0.3988749	0.6899854	1.0000000
R - STR	2.9232967	0.0034635	0.0727327
SN - STR	-0.2802927	0.7792529	1.0000000
DMV - VTA	-5.1989318	0.0000002	0.0000042
LC - VTA	0.9733339	0.3303874	1.0000000
R - VTA	4.6926942	0.0000027	0.0000566
SN - VTA	1.8997528	0.0574656	1.0000000
STR - VTA	2.7090509	0.0067476	0.1416996
DMV - XII	-7.9440379	0.0000000	0.0000000
LC - XII	-0.5001405	0.6169762	1.0000000
R - XII	2.7666535	0.0056635	0.1189333
SN - XII	-0.4371405	0.6620094	1.0000000
STR - XII	-0.1955555	0.8449581	1.0000000
VTA - XII	-2.8474318	0.0044074	0.0925544

Estimation statistics



control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	-0.028	-0.055	0.001
SN	LC	-0.004	-0.052	0.041
SN	R	0.059	0.018	0.099
SN	DMV	-0.078	-0.103	-0.052
SN	XII	0.007	-0.023	0.035
SN	STR	0.005	-0.024	0.033

Comparing axonal vs std (note - very small effect - significant)



Welch Two Sample t-test - Axonal only

Welch Two Sample t-test

```

data: relative_oxidation by type
t = 4.0736, df = 3485, p-value = 4.732e-05
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 0.01993059 0.05691848
sample estimates:
mean in group non-vulnerable mean in group pd-vulnerable
      0.5063470                 0.4679225
  
```

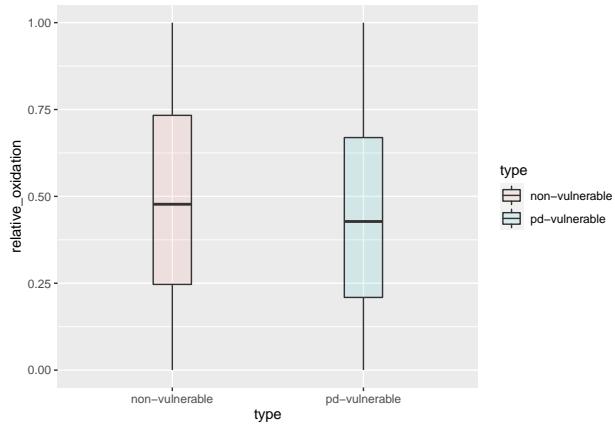
Welch Two Sample t-test - STD only

Welch Two Sample t-test

```

data: relative_oxidation by type
t = 4.0736, df = 3485, p-value = 4.732e-05
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 0.01993059 0.05691848
sample estimates:
mean in group non-vulnerable mean in group pd-vulnerable
      0.5063470                 0.4679225
  
```

Comparing vulnerable vs non-vulnerable - significant by very small effect size



Welch Two Sample t-test

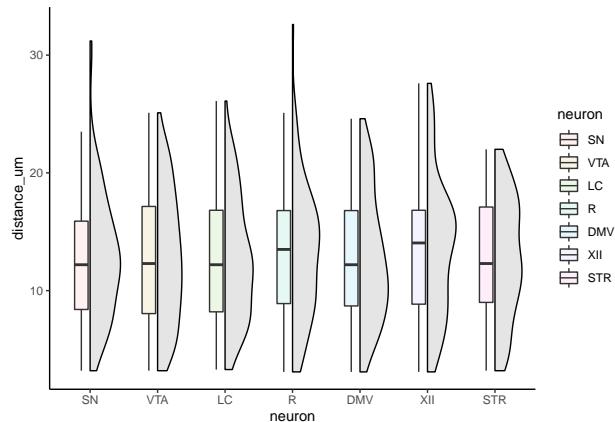
Welch Two Sample t-test

```

data: relative_oxidation by type
t = 6.016, df = 6820.1, p-value = 1.881e-09
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 0.02759581 0.05427272
sample estimates:
mean in group non-vulnerable mean in group pd-vulnerable
      0.4884508                  0.4475166
  
```

Intermitochondrial distance (roGFP)

Figure 4-3



Kruskal-Wallis

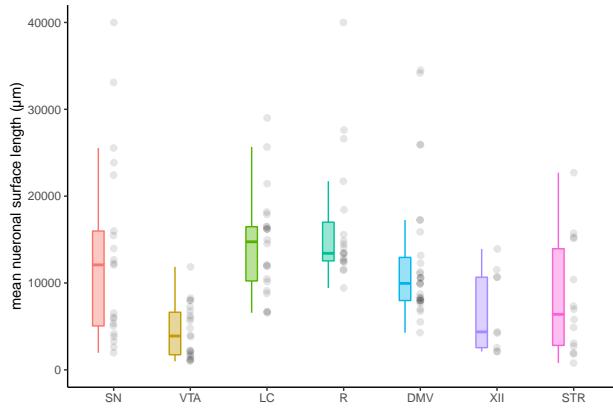
Kruskal-Wallis rank sum test

```
data: distance_um by neuron
Kruskal-Wallis chi-squared = 1.4927, df = 6, p-value = 0.96
```

Estimation statistics — not applicable

PD-vulnerable neurons have large axonal domains, that are globally more complex than PD-resilient neurons

Figure 6-1



Kruskal-Wallis

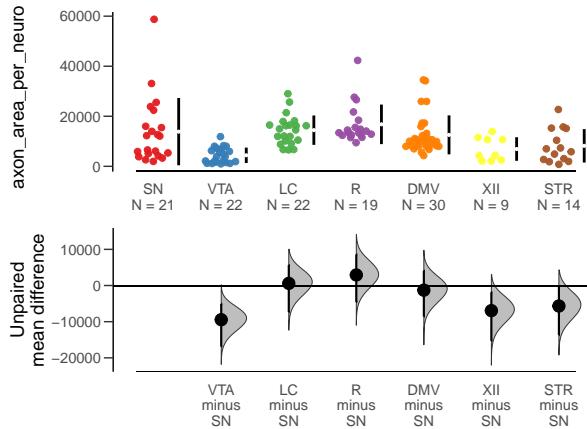
Kruskal-Wallis rank sum test

```
data: axon_area_per_neuron by neuron
Kruskal-Wallis chi-squared = 49.602, df = 6, p-value = 5.649e-09
```

Dunn

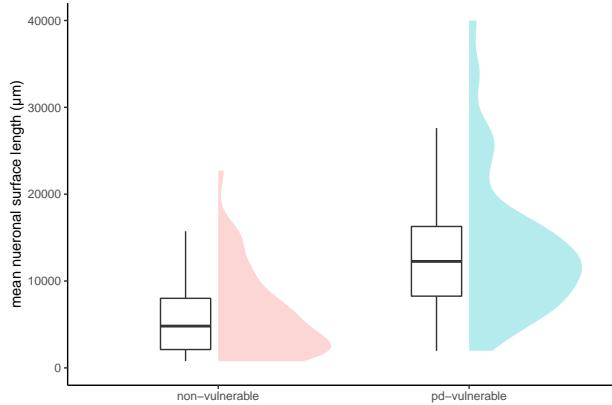
Comparison	Z	P.unadj	P.adj
DMV - LC	-1.4910572	0.1359465	1.0000000
DMV - R	-2.1697753	0.0300239	0.6305013
LC - R	-0.6949384	0.4870939	1.0000000
DMV - SN	0.3799178	0.7040065	1.0000000
LC - SN	1.7261794	0.0843151	1.0000000
R - SN	2.3506380	0.0187413	0.3935664
DMV - STR	1.8240271	0.0681480	1.0000000
LC - STR	2.9510478	0.0031670	0.0665066
R - STR	3.4823377	0.0004971	0.0104382
SN - STR	1.3978009	0.1621729	1.0000000
DMV - VTA	4.2860413	0.0000182	0.0003820
LC - VTA	5.3781860	0.0000001	0.0000016
R - VTA	5.8726242	0.0000000	0.0000001
SN - VTA	3.5891017	0.0003318	0.0069682
STR - VTA	1.7920665	0.0731223	1.0000000
DMV - XII	1.8995788	0.0574884	1.0000000
LC - XII	2.8822979	0.0039479	0.0829051
R - XII	3.3562827	0.0007900	0.0165895
SN - XII	1.5407671	0.1233735	1.0000000
STR - XII	0.3079467	0.7581229	1.0000000
VTA - XII	-1.2158840	0.2240291	1.0000000

Estimation statistics



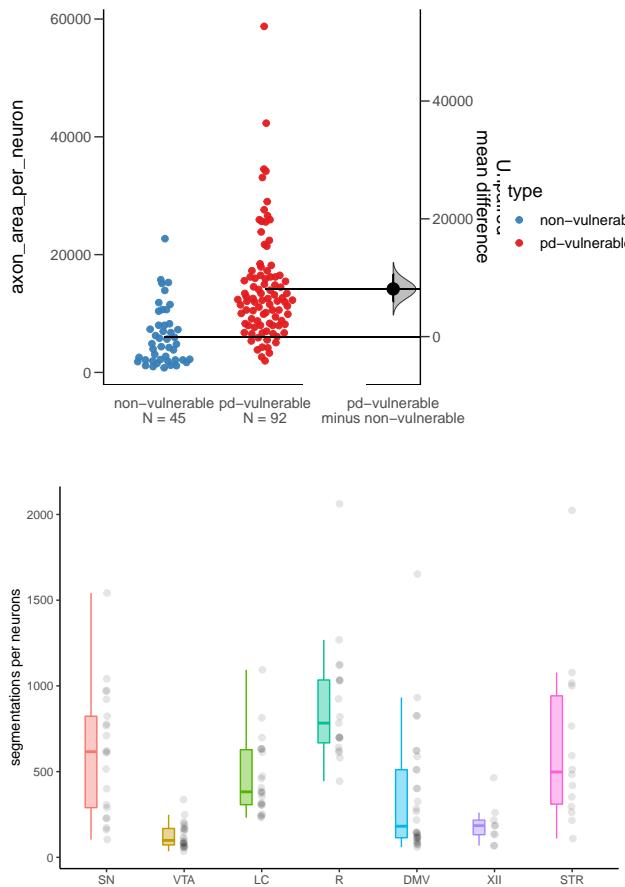
control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	-9453.439	-16873.614	-5078.015
SN	LC	594.818	-7337.320	5639.899
SN	R	2921.211	-4572.159	8595.133
SN	DMV	-1285.267	-8569.333	4096.503
SN	XII	-6943.180	-15300.619	-1848.567
SN	STR	-5664.433	-13692.202	-190.316

PD-vulnerable vs PD-resilient



Wilcoxon rank sum test with continuity correction

```
data: data$axon_area_per_neuron by data$type
W = 723, p-value = 6.78e-10
alternative hypothesis: true location shift is not equal to 0
```



Kruskal-Wallis

Kruskal-Wallis rank sum test

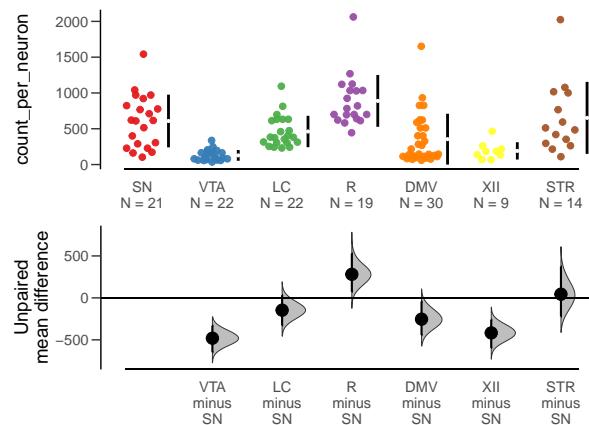
```
data: count_per_neuron by neuron
Kruskal-Wallis chi-squared = 67.386, df = 6, p-value = 1.403e-12
```

Dunn

Comparison	Z	P.unadj	P.adj
DMV - LC	-2.1117441	0.0347084	0.7288765
DMV - R	-4.9124144	0.0000009	0.0000189
LC - R	-2.7062408	0.0068050	0.1429043
DMV - SN	-2.8158643	0.0048646	0.1021570
LC - SN	-0.6831796	0.4944934	1.0000000
R - SN	2.0185955	0.0435293	0.9141149
DMV - STR	-2.4474832	0.0143858	0.3021014
LC - STR	-0.5833195	0.5596782	1.0000000
R - STR	1.8401285	0.0657494	1.0000000
SN - STR	0.0260784	0.9791948	1.0000000
DMV - VTA	2.7269895	0.0063915	0.1342216
LC - VTA	4.5046159	0.0000066	0.0001396
R - VTA	7.0429233	0.0000000	0.0000000

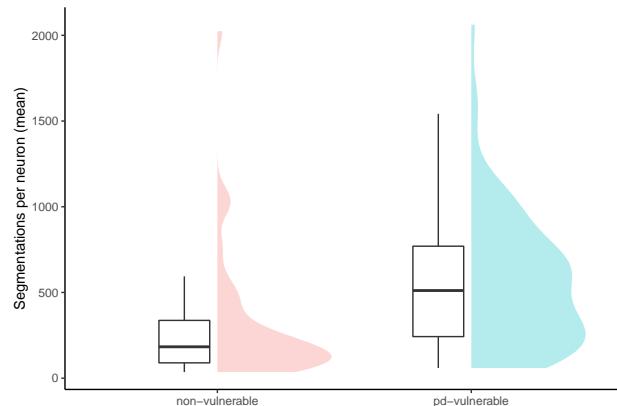
Comparison	Z	P.unadj	P.adj
SN - VTA	5.1351081	0.0000003	0.0000059
STR - VTA	4.5560173	0.0000052	0.0001095
DMV - XII	1.1254594	0.2603944	1.0000000
LC - XII	2.5790534	0.0099071	0.2080501
R - XII	4.6164416	0.0000039	0.0000820
SN - XII	3.0845492	0.0020386	0.0428108
STR - XII	2.8552967	0.0042997	0.0902929
VTA - XII	-0.8534673	0.3934002	1.0000000

Estimation statistics



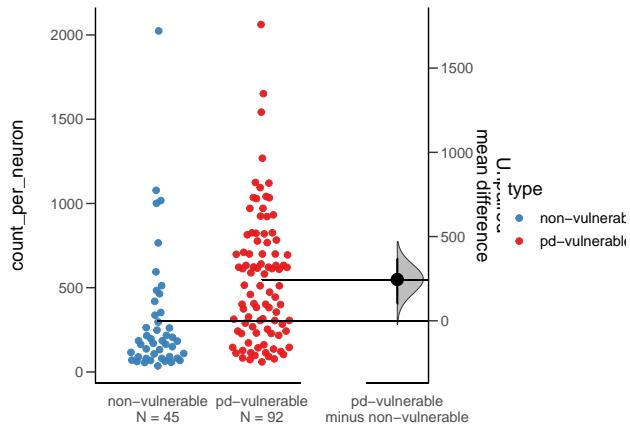
control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	-480.637	-647.429	-330.347
SN	LC	-146.549	-328.531	30.970
SN	R	280.998	73.514	530.019
SN	DMV	-253.894	-443.260	-42.919
SN	XII	-417.482	-595.935	-259.965
SN	STR	43.933	-221.949	374.863

PD-vulnerable vs PD-resilient

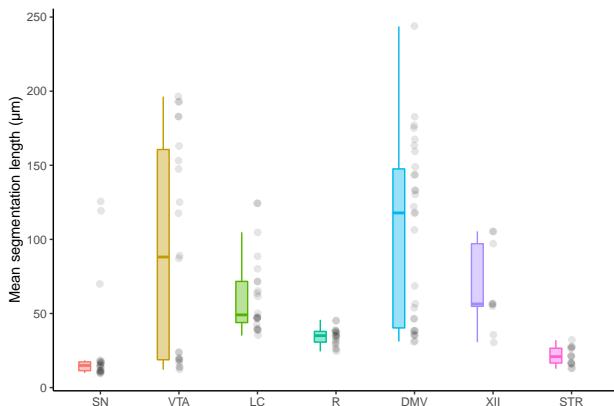


Wilcoxon rank sum test with continuity correction

```
data: data$count_per_neuron by data$type
W = 1068, p-value = 4.433e-06
alternative hypothesis: true location shift is not equal to 0
```



Average segmentation length (μm)



Kruskal-Wallis

Kruskal-Wallis rank sum test

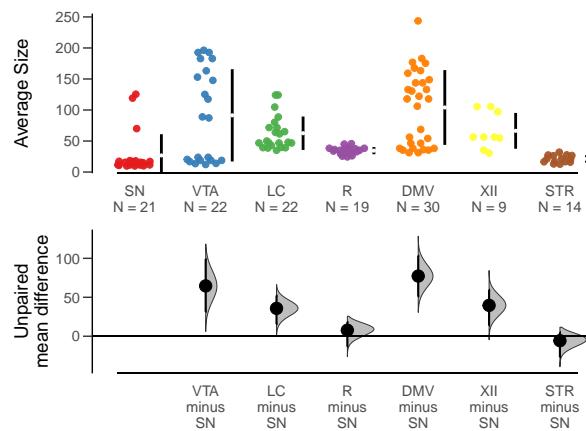
```
data: Average Size by neuron
Kruskal-Wallis chi-squared = 63.024, df = 6, p-value = 1.092e-11
```

Dunn

Comparison	Z	P.unadj	P.adj
DMV - LC	1.0305973	0.3027297	1.0000000
DMV - R	3.6099861	0.0003062	0.0064305
LC - R	2.4559112	0.0140528	0.2951085
DMV - SN	6.3579580	0.0000000	0.0000000

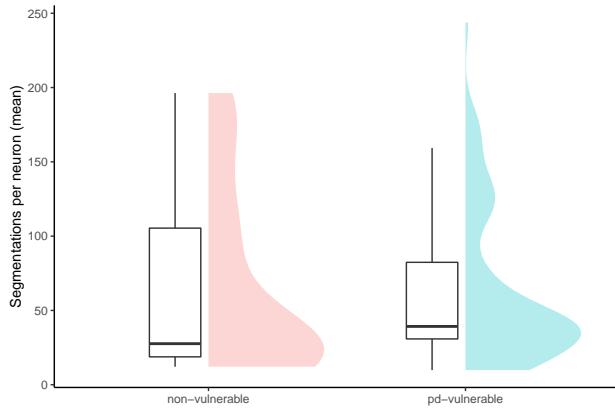
Comparison	Z	P.unadj	P.adj
LC - SN	4.9813038	0.0000006	0.0000133
R - SN	2.3704309	0.0177674	0.3731146
DMV - STR	5.3220750	0.0000001	0.0000022
LC - STR	4.1924230	0.0000276	0.0005796
R - STR	1.8856112	0.0593474	1.0000000
SN - STR	-0.2503577	0.8023108	1.0000000
DMV - VTA	1.8588286	0.0630514	1.0000000
LC - VTA	0.7710414	0.4406824	1.0000000
R - VTA	-1.7136144	0.0865996	1.0000000
SN - VTA	-4.2192807	0.0000245	0.0005147
STR - VTA	-3.5124283	0.0004440	0.0093247
DMV - XII	0.8190679	0.4127477	1.0000000
LC - XII	0.0556341	0.9556333	1.0000000
R - XII	-1.8463948	0.0648349	1.0000000
SN - XII	-3.7591493	0.0001705	0.0035803
STR - XII	-3.3032427	0.0009557	0.0200705
VTA - XII	-0.5319001	0.5947952	1.0000000

Estimation statistics



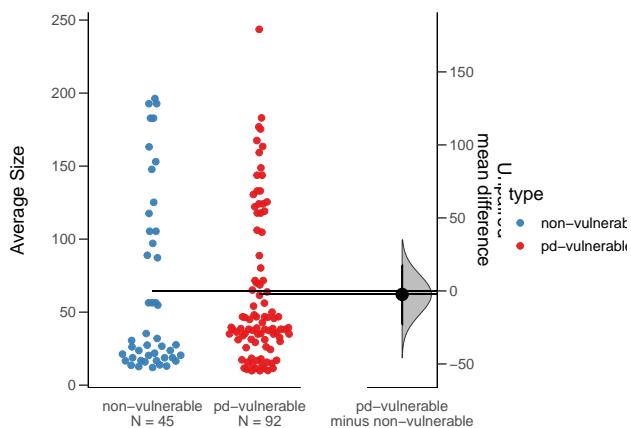
control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	64.612	31.380	99.114
SN	LC	35.757	15.428	52.260
SN	R	7.734	-13.329	18.413
SN	DMV	77.256	50.864	103.509
SN	XII	39.640	13.643	59.692
SN	STR	-5.698	-27.024	5.072

PD-vulnerable vs PD-resilient



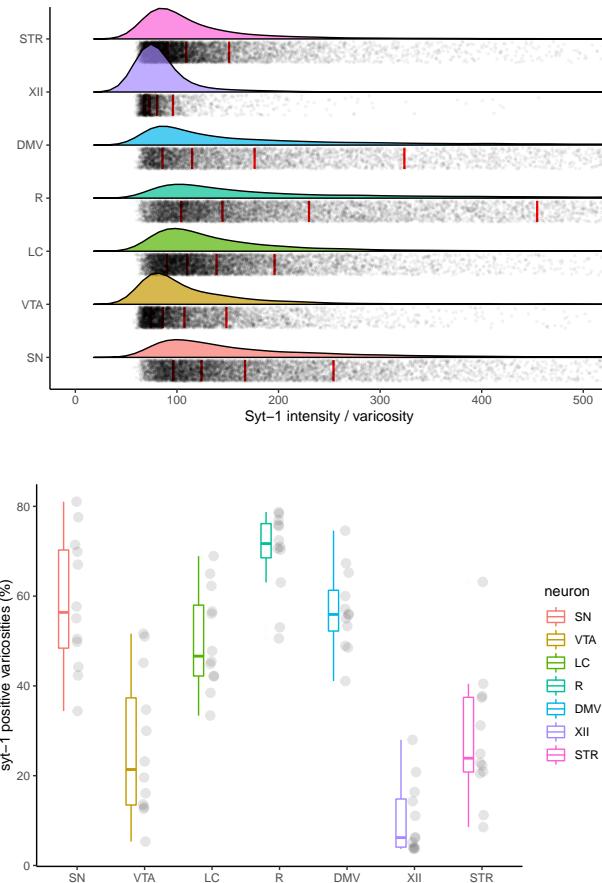
Wilcoxon rank sum test with continuity correction

```
data: data$'Average Size' by data$type
W = 1887, p-value = 0.4029
alternative hypothesis: true location shift is not equal to 0
```



PD-vulnerable neurons have a higher proportion of varicosities that are positive for Syt1

Figure 7-1



Kruskal-Wallis

Kruskal-Wallis rank sum test

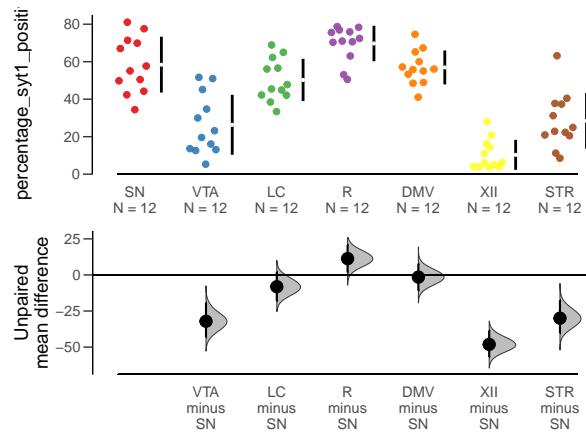
```
data: percentage_syt1_positive by neuron
Kruskal-Wallis chi-squared = 59.589, df = 6, p-value = 5.456e-11
```

Dunn

Comparison	Z	P.unadj	P.adj
DMV - LC	0.8368274	0.4026896	1.0000000
DMV - R	-1.5062893	0.1319929	1.0000000
LC - R	-2.3431167	0.0191234	0.4015914
DMV - SN	-0.1422607	0.8868741	1.0000000
LC - SN	-0.9790881	0.3275365	1.0000000
R - SN	1.3640287	0.1725585	1.0000000
DMV - STR	3.0042104	0.0026627	0.0559169

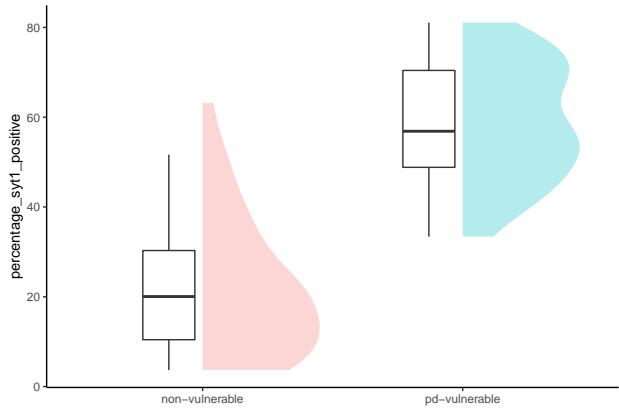
Comparison	Z	P.unadj	P.adj
LC - STR	2.1673830	0.0302057	0.6343189
R - STR	4.5104997	0.0000065	0.0001358
SN - STR	3.1464711	0.0016525	0.0347033
DMV - VTA	3.1632076	0.0015604	0.0327686
LC - VTA	2.3263802	0.0199983	0.4199638
R - VTA	4.6694969	0.0000030	0.0000634
SN - VTA	3.3054683	0.0009482	0.0199117
STR - VTA	0.1589972	0.8736711	1.0000000
DMV - XII	4.7197066	0.0000024	0.0000496
LC - XII	3.8828792	0.0001032	0.0021678
R - XII	6.2259959	0.0000000	0.0000000
SN - XII	4.8619672	0.0000012	0.0000244
STR - XII	1.7154962	0.0862543	1.0000000
VTA - XII	1.5564990	0.1195895	1.0000000

Estimation statistics



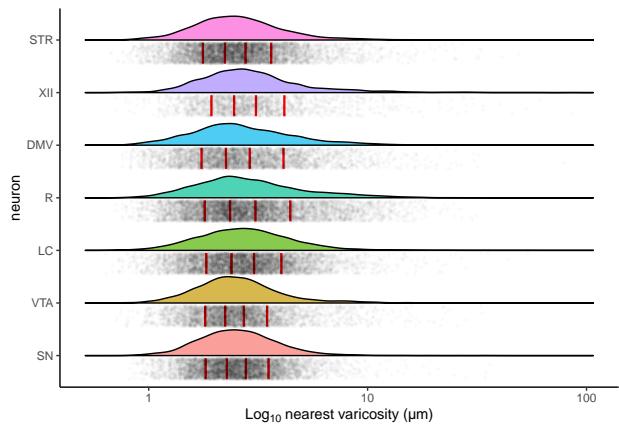
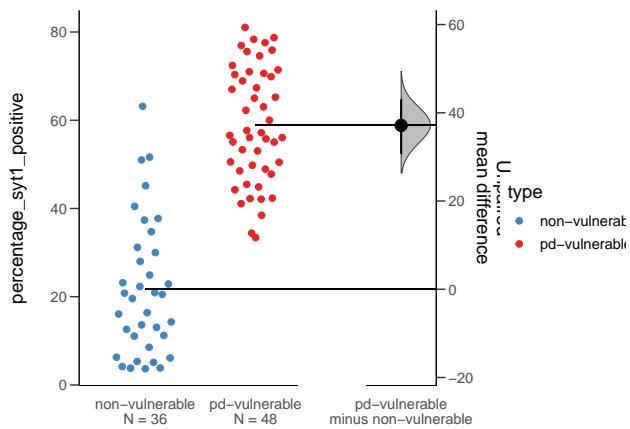
control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	-32.085	-43.167	-19.261
SN	LC	-8.150	-18.037	2.028
SN	R	11.295	1.790	20.876
SN	DMV	-1.493	-10.867	7.755
SN	XII	-48.120	-56.935	-38.492
SN	STR	-29.978	-40.417	-17.486

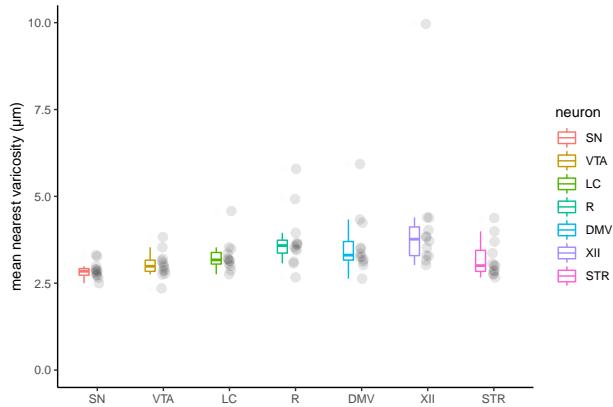
PD-vulnerable vs PD-resilient



Wilcoxon rank sum exact test

```
data: data_percentage_syt1_positive$percentage_syt1_positive by data_percentage_syt1_positive$type
W = 79, p-value = 2.941e-16
alternative hypothesis: true location shift is not equal to 0
```





Kruskal-Wallis

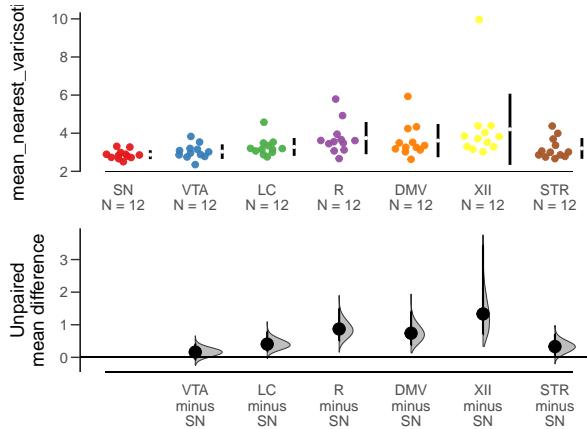
Kruskal-Wallis rank sum test

```
data: mean_nearest_varicsotiey by neuron
Kruskal-Wallis chi-squared = 28.368, df = 6, p-value = 8.011e-05
```

Dunn

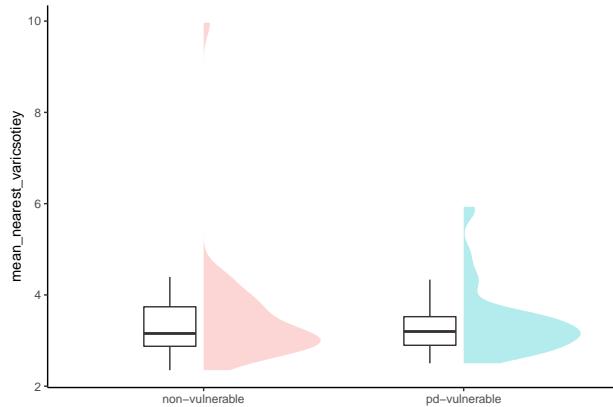
Comparison	Z	P.unadj	P.adj
DMV - LC	0.8703005	0.3841362	1.0000000
DMV - R	-0.5941475	0.5524135	1.0000000
LC - R	-1.4644480	0.1430716	1.0000000
DMV - SN	3.1297345	0.0017496	0.0367425
LC - SN	2.2594340	0.0238564	0.5009844
R - SN	3.7238820	0.0001962	0.0041198
DMV - STR	1.5732355	0.1156643	1.0000000
LC - STR	0.7029350	0.4820962	1.0000000
R - STR	2.1673830	0.0302057	0.6343189
SN - STR	-1.5564990	0.1195895	1.0000000
DMV - VTA	2.0334906	0.0420030	0.8820626
LC - VTA	1.1631901	0.2447524	1.0000000
R - VTA	2.6276381	0.0085980	0.1805579
SN - VTA	-1.0962439	0.2729721	1.0000000
STR - VTA	0.4602551	0.6453331	1.0000000
DMV - XII	-1.2133997	0.2249770	1.0000000
LC - XII	-2.0837002	0.0371874	0.7809363
R - XII	-0.6192523	0.5357502	1.0000000
SN - XII	-4.3431343	0.0000140	0.0002950
STR - XII	-2.7866353	0.0053258	0.1118426
VTA - XII	-3.2468903	0.0011667	0.0245014

Estimation Statistics



control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	0.162	-0.077	0.415
SN	LC	0.406	0.183	0.789
SN	R	0.871	0.507	1.500
SN	DMV	0.740	0.375	1.411
SN	XII	1.332	0.708	3.438
SN	STR	0.331	0.056	0.717

PD-vulnerable vs PD-resilient

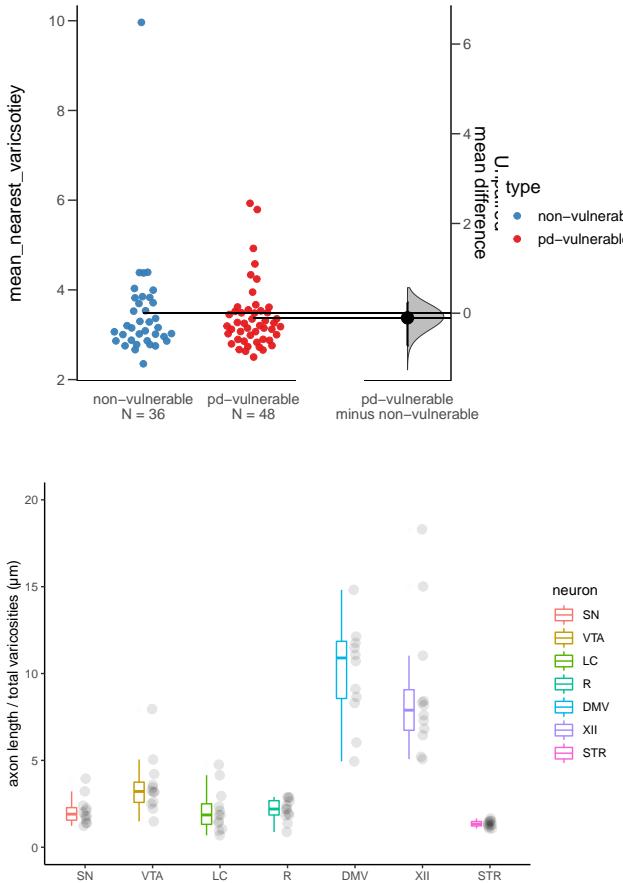


Wilcoxon rank sum exact test

```

data: mean_varicosity_nn_length$mean_nearest_varicsoiy by mean_varicosity_nn_length$type
W = 875, p-value = 0.9248
alternative hypothesis: true location shift is not equal to 0

```



Kruskal-Wallis

Kruskal-Wallis rank sum test

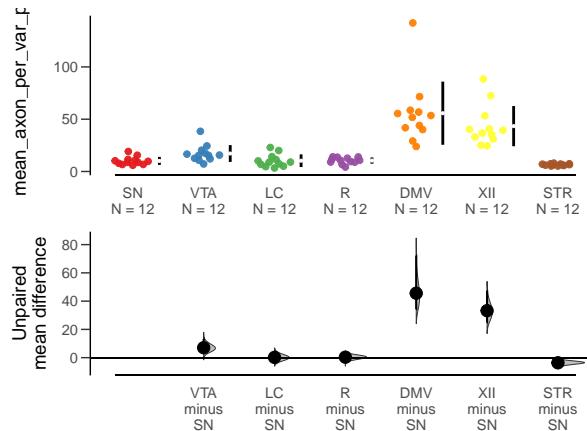
```
data: mean_axon_per_var_px by neuron
Kruskal-Wallis chi-squared = 62.576, df = 6, p-value = 1.346e-11
```

Dunn

Comparison	Z	P.unadj	P.adj
DMV - LC	4.6611287	0.0000031	0.0000660
DMV - R	4.1506639	0.0000332	0.0006962
LC - R	-0.5104647	0.6097259	1.0000000
DMV - SN	4.4519218	0.0000085	0.0001787
LC - SN	-0.2092069	0.8342868	1.0000000
R - SN	0.3012579	0.7632179	1.0000000
DMV - STR	6.1255766	0.0000000	0.0000000
LC - STR	1.4644480	0.1430716	1.0000000
R - STR	1.9749127	0.0482781	1.0000000
SN - STR	1.6736548	0.0941985	1.0000000
DMV - VTA	2.5857967	0.0097154	0.2040239
LC - VTA	-2.0753320	0.0379558	0.7970713
R - VTA	-1.5648673	0.1176140	1.0000000

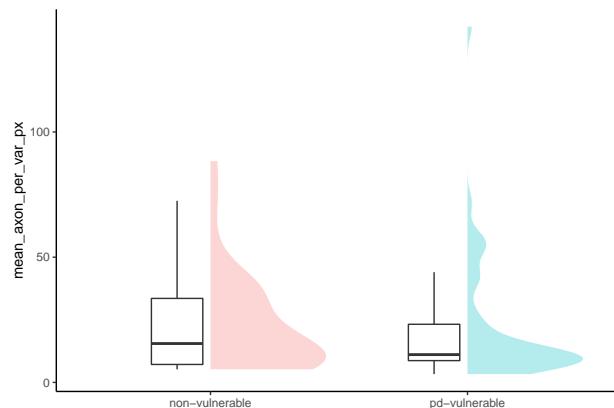
Comparison	Z	P.unadj	P.adj
SN - VTA	-1.8661251	0.0620239	1.0000000
STR - VTA	-3.5397799	0.0004005	0.0084097
DMV - XII	0.4602551	0.6453331	1.0000000
LC - XII	-4.2008736	0.0000266	0.0005584
R - XII	-3.6904089	0.0002239	0.0047018
SN - XII	-3.9916667	0.0000656	0.0013778
STR - XII	-5.6653216	0.0000000	0.0000003
VTA - XII	-2.1255416	0.0335414	0.7043703

Estimation Statistics



control_group	test_group	difference	bca_ci_low	bca_ci_high
SN	VTA	7.053	3.235	13.312
SN	LC	0.197	-3.298	4.452
SN	R	0.326	-2.720	2.683
SN	DMV	45.600	34.165	72.217
SN	XII	33.246	24.793	47.406
SN	STR	-3.624	-6.413	-1.893

PD-vulnerable vs PD-resilient



Wilcoxon rank sum exact test

```
data: mean_varicosity_lengthpervar_length$mean_axon_per_var_px by mean_varicosity_lengthpervar_length$  
W = 917, p-value = 0.6369  
alternative hypothesis: true location shift is not equal to 0
```

