

Supplemental Table 1. Primary data

| Figure | Genotype | [Ca ²⁺] _e | PhTx -/+ | mEPSP (mV) | EPSP (mV) or EPSC (nA)* | Quantal Content | n |
|--------|---------------------------|----------------------------------|-------------|-------------|----------------------------|--------------------|----|
| 1b | <i>wild type</i> | 0.3mM | - | 0.88 ± 0.02 | 28.71 ± 1.40 | 33.31 ± 2.3 | 17 |
| 1b | <i>wild type</i> | 0.3mM | + | 0.42 ± 0.02 | 29.69 ± 1.78 | 69.08 ± 4.63 | 17 |
| 1b | <i>sema-2b</i> | 0.3mM | - | 1.05 ± 0.06 | 35.28 ± 1.10 | 34.43 ± 1.49 | 12 |
| 1b | <i>sema-2b</i> | 0.3mM | + | 0.51 ± 0.03 | 18.88 ± 1.44 | 37.32 ± 2.91 | 15 |
| 1b | <i>PlexB</i> | 0.3mM | - | 0.81 ± 0.03 | 28.97 ± 1.84 | 35.63 ± 2.14 | 8 |
| 1b | <i>PlexB</i> | 0.3mM | + | 0.48 ± 0.03 | 19.17 ± 1.40 | 40.93 ± 3.62 | 11 |
| 1b | <i>PlexA</i> | 0.3mM | - | 0.98 ± 0.03 | 26.12 ± 2.25 | 27.05 ± 2.66 | 8 |
| 1b | <i>PlexA</i> | 0.3mM | + | 0.48 ± 0.02 | 20.74 ± 1.26 | 43.23 ± 2.28 | 17 |
| 1c | <i>wild type</i> | 1.5mM | - | 0.88 ± 0.03 | 222.6 ± 16.81 | 260.3 ± 18.78 | 12 |
| 1c | <i>wild type</i> | 1.5mM | + | 0.42 ± 0.03 | 177.7 ± 7.59 | 478.3 ± 24.65 | 10 |
| 1c | <i>sema-2b</i> | 1.5mM | - | 0.82 ± 0.05 | 196.7 ± 23.53 | 243.4 ± 23.74 | 14 |
| 1c | <i>sema-2b</i> | 1.5mM | + | 0.37 ± 0.02 | 86.28 ± 9.07 | 227.1 ± 15.70 | 9 |
| 1c | <i>PlexB</i> | 1.5mM | - | 0.86 ± 0.04 | 301.5 ± 12.49 | 385.8 ± 32.81 | 11 |
| 1c | <i>PlexB</i> | 1.5mM | + | 0.52 ± 0.03 | 211.3 ± 14.57 | 413.6 ± 26.27 | 11 |
| 1e | <i>sema-2b/ +</i> | 0.3mM | - | 1.01 ± 0.04 | 28.13 ± 1.98 | 27.94 ± 1.71 | 8 |
| 1e | <i>sema-2b/ +</i> | 0.3mM | + | 0.49 ± 0.05 | 28.33 ± 1.21 | 60.55 ± 5.02 | 6 |
| 1e | <i>PlexB/ +</i> | 0.3mM | - | 0.77 ± 0.05 | 25.70 ± 1.50 | 34.75 ± 2.15 | 15 |
| 1e | <i>PlexB/ +</i> | 0.3mM | + | 0.35 ± 0.01 | 23.60 ± 1.24 | 67.05 ± 5.00 | 8 |
| 1e | <i>sema-2b/ PlexB</i> | 0.3mM | - | 0.91 ± 0.04 | 27.96 ± 1.19 | 31.97 ± 2.02 | 9 |
| 1e | <i>sema-2b/ PlexB</i> | 0.3mM | + | 0.51 ± 0.03 | 18.54 ± 1.18 | 36.96 ± 2.38 | 22 |
| 1g | <i>wild type</i> | 0.3mM | N/A | 0.87 ± 0.07 | 25.02 ± 1.49 | 29.84 ± 1.80 | 11 |
| 1g | <i>GluRIIA</i> | 0.3mM | N/A | 0.38 ± 0.01 | 20.88 ± 1.57 | 55.62 ± 4.96 | 7 |
| 1g | <i>sema-2b</i> | 0.3mM | N/A | 1.00 ± 0.04 | 27.25 ± 1.45 | 27.40 ± 1.29 | 11 |

| | | | | | | | |
|------|--|-------|-----|-------------|--------------|--------------|----|
| 1g | <i>sema-2b</i> , <i>GluRIIA</i> | 0.3mM | N/A | 0.33 ± 0.02 | 11.39 ± 1.46 | 33.88 ± 3.55 | 9 |
| 1g | <i>MN PlexB</i> <i>RNAi</i> | 0.3mM | N/A | 0.80 ± 0.05 | 23.00 ± 1.50 | 29.10 ± 1.93 | 8 |
| 1g | <i>MN PlexB</i> <i>RNAi</i> , <i>GluRIIA</i> | 0.3mM | N/A | 0.37 ± 0.02 | 10.21 ± 0.94 | 27.26 ± 2.59 | 12 |
| 2a | <i>Muscle-GAL4</i> | 0.3mM | - | 1.05 ± 0.12 | 22.44 ± 1.48 | 22.88 ± 2.36 | 9 |
| 2a | <i>Muscle -GAL4</i> | 0.3mM | + | 0.61 ± 0.02 | 23.76 ± 1.22 | 39.44 ± 2.81 | 5 |
| 2a,b | <i>MN-GAL4</i> | 0.3mM | - | 0.85 ± 0.07 | 27.72 ± 0.83 | 33.61 ± 3.05 | 5 |
| 2a,b | <i>MN-GAL4</i> | 0.3mM | + | 0.42 ± 0.03 | 25.99 ± 0.10 | 63.01 ± 5.15 | 5 |
| 2a | <i>MN-GAL4</i> <i>sema2b RNAi</i> | 0.3mM | - | 0.72 ± 0.03 | 22.90 ± 1.51 | 32.36 ± 2.66 | 5 |
| 2a | <i>MN-GAL4</i> <i>sema2b RNAi</i> | 0.3mM | + | 0.38 ± 0.03 | 22.29 ± 0.88 | 59.34 ± 3.30 | 5 |
| 2a | <i>Muscle-GAL4</i> <i>sema2b RNAi</i> | 0.3mM | - | 0.83 ± 0.04 | 23.50 ± 1.10 | 29.15 ± 1.67 | 18 |
| 2a | <i>Muscle-GAL4</i> <i>sema2b RNAi</i> | 0.3mM | + | 0.49 ± 0.02 | 15.73 ± 1.33 | 33.39 ± 3.04 | 25 |
| 2a | <i>Addnl. Control</i> <i>sema-2b</i> , <i>UAS-sema2b</i> | 0.3mM | - | 0.92 ± 0.05 | 20.64 ± 1.88 | 22.95 ± 3.18 | 4 |
| 2a | <i>Addnl. Control</i> <i>sema-2b</i> , <i>UAS-sema2b</i> | 0.3mM | + | 0.50 ± 0.03 | 9.94 ± 1.13 | 20.02 ± 2.02 | 8 |
| 2a | <i>Muscle-GAL4/</i> <i>sema2b</i> <i>rescue</i> | 0.3mM | - | 1.56 ± 0.20 | 27.12 ± 3.11 | 17.80 ± 1.59 | 4 |
| 2a | <i>Muscle-GAL4/</i> <i>sema2b</i> <i>rescue</i> | 0.3mM | + | 0.66 ± 0.03 | 30.17 ± 1.65 | 45.73 ± 2.40 | 9 |
| 2b | <i>MN-GAL4;</i> <i>PlexB RNAi</i> | 0.3mM | - | 0.77 ± 0.06 | 23.78 ± 1.13 | 32.17 ± 2.44 | 11 |
| 2b | <i>MN-GAL4;</i> <i>PlexB RNAi</i> | 0.3mM | + | 0.37 ± 0.02 | 13.26 ± 1.45 | 38.44 ± 4.43 | 15 |
| 2b | <i>MN-GAL4</i> <i>DN PlexB</i> | 0.3mM | - | 0.83 ± 0.06 | 32.24 ± 1.34 | 39.95 ± 2.56 | 9 |
| 2b | <i>MN-GAL4</i> <i>DN PlexB</i> | 0.3mM | + | 0.41 ± 0.04 | 19.40 ± 1.60 | 47.70 ± 3.06 | 10 |
| 2b | <i>Muscle GAL4;</i> <i>PlexB RNAi</i> | 0.3mM | - | 0.80 ± 0.04 | 20.84 ± 1.32 | 26.81 ± 2.16 | 13 |
| 2b | <i>Muscle GAL4;</i> <i>PlexB RNAi</i> | 0.3mM | + | 0.47 ± 0.02 | 22.62 ± 1.74 | 48.43 ± 3.74 | 10 |
| 2g | <i>sema-2b</i> | 0.3mM | - | 0.92 ± 0.12 | 25.08 ± 0.44 | 29.72 ± 3.15 | 7 |
| 2g | <i>sema-2b</i> Sham + PhTx | 0.3mM | + | 0.45 ± 0.02 | 11.38 ± 1.94 | 25.12 ± 4.23 | 8 |
| 2g | <i>sema-2b</i> <i>Sema2b-AP</i> | 0.3mM | + | 0.47 ± 0.03 | 22.83 ± 1.89 | 49.00 ± 3.66 | 11 |

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|----|---|-------|---|-------------|--------------|---------------|----|
| | +PhTx | | | | | | |
| 2h | <i>PlexB</i> | 0.3mM | - | 0.82 ± 0.03 | 32.10 ± 1.56 | 37.81 ± 3.22 | 5 |
| 2h | <i>PlexB</i> | 0.3mM | + | 0.51 ± 0.03 | 17.89 ± 1.52 | 33.92 ± 0.74 | 5 |
| 2h | Sham + PhTx <i>PlexB</i> | 0.3mM | + | 0.44 ± 0.02 | 16.45 ± 1.09 | 37.35 ± 2.03 | 5 |
| 4a | <i>Sema2b-AP</i> +PhTx | 0.3mM | - | 0.79 ± 0.03 | 23.79 ± 1.18 | 30.62 ± 1.99 | 11 |
| 4a | <i>wild type</i> | 0.3mM | + | 0.37 ± 0.02 | 23.64 ± 1.5 | 63.97 ± 4.83 | 7 |
| 4a | <i>Mical^{KG}</i> | 0.3mM | - | 0.74 ± 0.06 | 18.18 ± 1.37 | 24.67 ± 1.19 | 7 |
| 4a | <i>Mical^{KG}</i> | 0.3mM | + | 0.37 ± 0.02 | 10.19 ± 1.54 | 27.98 ± 4.83 | 8 |
| 4a | <i>Mical^{KG}/swp2</i> | 0.3mM | - | 0.63 ± 0.04 | 15.99 ± 0.47 | 25.82 ± 1.19 | 10 |
| 4a | <i>Mical^{KG}/swp2</i> | 0.3mM | + | 0.4 ± 0.01 | 8.85 ± 1.1 | 22.53 ± 2.8 | 12 |
| 4a | <i>Mical⁵⁸⁴/swp2</i> | 0.3mM | - | 0.76 ± 0.03 | 24.5 ± 1.18 | 32.77 ± 1.99 | 10 |
| 4a | <i>Mical⁵⁸⁴/swp2</i> | 0.3mM | + | 0.4 ± 0.02 | 14.83 ± 1.89 | 37.81 ± 5.39 | 12 |
| 4a | <i>MN-GAL4</i> <i>Actin5c GFP</i> <i>M44L</i> | 0.3mM | - | 0.7 ± 0.04 | 24.15 ± 1.35 | 35.7 ± 2.54 | 16 |
| 4a | <i>MN-GAL4</i> <i>Actin5c GFP</i> <i>M44L</i> | 0.3mM | + | 0.38 ± 0.02 | 15.38 ± 1.04 | 40.88 ± 2.87 | 16 |
| 4a | <i>wild type</i> | 1.5mM | - | 0.8 ± 0.04 | 234.6 ± 11 | 316.7 ± 24.15 | 21 |
| 4a | <i>wild type</i> | 1.5mM | + | 0.4 ± 0.02 | 187.5 ± 6.7 | 526.3 ± 28.33 | 16 |
| 4a | <i>Mical^{KG}</i> | 1.5mM | - | 0.68 ± 0.06 | 164.1 ± 9.71 | 289 ± 27.13 | 18 |
| 4a | <i>Mical^{KG}</i> | 1.5mM | + | 0.46 ± 0.05 | 88.98 ± 5.74 | 223.3 ± 34.3 | 11 |
| 4a | <i>MN DN</i> <i>Actin5C</i> | 1.5mM | - | 0.73 ± 0.06 | 213.6 ± 18 | 304.5 ± 35.09 | 8 |
| 4a | <i>MN DN</i> <i>Actin5C</i> | 1.5mM | + | 0.41 ± 0.01 | 145.1 ± 12 | 361.5 ± 35.86 | 8 |
| 4b | <i>MN-GAL4</i> | 0.3mM | - | 0.8 ± 0.03 | 21.13 ± 1.21 | 26.52 ± 1.28 | 18 |
| 4b | <i>MN-GAL4</i> | 0.3mM | + | 0.37 ± 0.02 | 22.88 ± 1.22 | 63.79 ± 4.45 | 17 |
| 4b | <i>MN-GAL4</i> <i>Mical RNAi</i> | 0.3mM | - | 0.78 ± 0.03 | 21.97 ± 1.64 | 28.55 ± 2.14 | 14 |
| 4b | <i>MN-GAL4</i> <i>Mical RNAi</i> | 0.3mM | + | 0.4 ± 0.01 | 11.79 ± 1.46 | 28.07 ± 3.925 | 11 |
| 4b | <i>MN-GAL4</i> Mical Rescue | 0.3mM | - | 0.9 ± 0.06 | 26.17 ± 1.08 | 29.69 ± 1.65 | 8 |
| 4b | <i>MN-GAL4</i> Mical Rescue | 0.3mM | + | 0.39 ± 0.03 | 22.24 ± 2.57 | 57.04 ± 5.96 | 8 |
| 4b | <i>Muscle GAL4</i> | 0.3mM | - | 1.04 ± 0.12 | 22.44 ± 1.48 | 22.88 ± 2.36 | 9 |
| 4b | <i>Muscle GAL4</i> | 0.3mM | + | 0.61 ± 0.02 | 23.76 ± 1.22 | 39.44 ± 2.81 | 5 |
| 4b | <i>Muscle GAL4</i> <i>Mical RNAi</i> | 0.3mM | - | 0.87 ± 0.04 | 27.18 ± 0.83 | 31.44 ± 1.27 | 12 |

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|----|---|-------|---|-------------|---------------|---------------|----|
| 4b | <i>Muscle GAL4</i> <i>Mical RNAi</i> | 0.3mM | + | 0.43 ± 0.03 | 24.64 ± 1.2 | 58 ± 3.41 | 10 |
| 4i | <i>rim/+</i> | 1.5mM | - | 0.71 ± 0.03 | 274.7 ± 14.14 | 389.9 ± 27.55 | 6 |
| 4i | <i>rim/+</i> | 1.5mM | + | 0.33 ± 0.01 | 200.7 ± 23.65 | 607.6 ± 68.05 | 7 |
| 4i | <i>sema-2b/+</i> | 1.5mM | - | 0.71 ± 0.02 | 239.5 ± 9.16 | 340.7 ± 19.25 | 10 |
| 4i | <i>sema-2b/+</i> | 1.5mM | + | 0.37 ± 0.03 | 217.6 ± 7.91 | 596.7 ± 57.51 | 8 |
| 4i | <i>PlexB/+</i> | 1.5mM | - | 0.63 ± 0.01 | 342.3 ± 19.84 | 541.3 ± 24.05 | 7 |
| 4i | <i>PlexB/+</i> | 1.5mM | + | 0.32 ± 0.02 | 292.1 ± 17.53 | 899.7 ± 58.01 | 7 |
| 4i | <i>sema-2b/+;</i> <i>rim/+</i> | 1.5mM | - | 0.79 ± 0.04 | 200.2 ± 13.11 | 264.0 ± 26.88 | 10 |
| 4i | <i>sema-2b/+;</i> <i>rim/+</i> | 1.5mM | + | 0.44 ± 0.02 | 150.4 ± 6.46 | 340.9 ± 24.00 | 10 |
| 4i | <i>rim/+; PlexB/+</i> | 1.5mM | - | 0.67 ± 0.01 | 274.2 ± 14.30 | 414.2 ± 24.22 | 11 |
| 4i | <i>rim/+; PlexB/+</i> | 1.5mM | + | 0.42 ± 0.02 | 194.5 ± 11.75 | 463.3 ± 24.18 | 8 |

Genotypes are as follows:

1) *wild type* = *w1118* 2) *PlexB* = *PlexB^{KG00878}* 3) *PlexA* = *PlexA^{Df(4)C3}* 4) *sema2b* = *sema2b^{C4}*
 5) MN-GAL4 = *OK371-GAL4/+* 6) Muscle-GAL4 = *BG57-GAL4/+* 7) *rim* = *rim¹⁰³* 8) Mical Rescue = *UAS-mical* 9) *swp2* = Df chromosome that uncovers the *mical* locus.

* All data recorded at 0.3mM $[Ca^{2+}]_e$ are presented as mV. All data recorded at 1.5mM $[Ca^{2+}]_e$ are presented as nA.