**Supplementary File 1: Pupal Neuromuscular Anatomy**

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| --- | --- | --- | --- | --- | --- |
| SpatialGroup (N=17) | Muscle/MN-IB (N=17) | CCAP-R+MN (N=11) | Nerve | Segments (N=17) | CCAP-R+Muscle (N=5) |
| D/DL | 1 | + | ISNDM | A1-A7 | - |
| D/DL | 2 | + | ISNDM | A1-A7 | - |
| D/DL | 3 | + | ISNDM | A1-A7 | - |
| D/DL | 9 | + | ISNDM | A1-A7 | - |
| D/DL | 10 | + | ISNDM | A1-A7 | - |
| D/DL | 4\* | - | ISNDM | A1-A3 | - |
| V/VL | 12\* | - | ISNb | A1-A4 | - |
| V/VL | 13 | + | ISNb | A1-A7 | - |
| V/VO | 28 | + | ISNb | A1-A7 | - |
| V/VO | 15 | + | ISNd | A1-A7 | - |
| L/DO | 5\* | - | SNa | A1-A4 | - |
| L/TR | 8 | - | SNa | A1-A7 | - |
| L/TR | 21/22 | - | SNa | A1-A7 | + |
| L/TR | 22/23 | - | SNa | A1-A7 | + |
| L/TR | 23/24 | - | SNa | A1-A7 | + |
| V/TR | 25 | - | TN | A1-A7 | - |
| V/VA | 26 | - | SNc | A1-A7 | - |

a. Abbreviations: D, dorsal; L, lateral; V, ventral; DL, dorsal longitudinal; VL, ventral longitudinal; VO, ventral oblique; DO, dorsal oblique; TR, transverse; VA, ventral acute

b. \* Degrades prior to pupal ecdysis in segments posterior to HS3 or HS4

c. N is the number of animals