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| --- | --- | --- | --- | --- |
| Parameter | Mean value | Range | Reference | Notes |
|  |  |  |  |  |
| Excitability | | | | |
| Rheobase | 30 pA |  | *Dieudonne 1998* | Min current to induce spikes |
| Spontaneous frequency | 3 +/- 1.7 Hz | 0.62-5.7 Hz | *“* | 200-300 micron slices |
| F-I slope | 70 +/- 20 Hz/nA |  | “ | 1s pulses, Internal soln with low Ca2+ buffering (BK? Sk?) |
|  | 230 +/- 50 Hz/nA |  | “ | With high Ca buffering |
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|  |  |  |  |  |
| Spontaneous EPSCs | | | | |
| Frequency | 1.6 +/- 1.5 Hz | 0.15 – 6.3 |  | Frequency fell to 80% in presence of TTX -> most are miniature events?? |
| Amplitude | 38+/-9 pA | 47 +/- 11 pA |  | But mossy fibres are cut |
|  |  |  |  |  |
| MF- GoC synapses: Triple Exponential Synapse | | | | |
| Current | 62 pA | 28 to 456 pA; 72 pA median | *Cesana et al, JNeuro 2013:* 10.1523/JNEUROSCI.4867-11.2013 | WM stim (300 um away)  **What is the distribution?** |
|  | 66 pA |  | *Kanichay and Silver JNeurosci 2008* |  |
| 20-80% rise | 0.2+/-0.1 ms |  | *Cesana et al 2013* |  |
| Tau\_rise | 0.1 ms | - | *Kanichay and Silver 2008* |  |
| Tau\_decay1 | 0.7 ms | 0.6 +/- 0.2 ms in Cesana 2013 | “ |  |
| Tau\_decay2 | 3.5 ms | 4.9 +/- 3 ms in Cesana 2013 | “ |  |
| Gfast |  |  |  |  |
| Gslow | 0.2+/-0.14 |  |  |  |
| Spatial distribution |  |  |  |  |
| Number per GoC |  |  |  |  |
| NMDA component |  |  | *Cesana et al 2013* |  |
| Amplitude | 27 +/-6pA at +50 mV, -4 pA at -30 mV |  | “ | Glun2A/2b voltage dependence |
| 20-80 rise | 5+/- 3.1 ms |  | “ |  |
| Tau rise |  |  |  |  |
| Tau decay |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| GrC- GoC synapses | | | | |
| Ascending axon synapse: | | | | |
| Current | 45 +/-27 pA | 10-77 pA | *Cesana et al 2013* |  |
| Latency | 1.3 +/-0.3 ms | 0.8-1.93s | *“* |  |
| PPR | 1.46 |  | *“* |  |
| 20-80% rise | 0.3+/-0.1ms |  |  |  |
| Tau rise |  | Integral had tau of 2.5+/-1.7ms | *“* |  |
| Tau\_decay | 1.3  /-0.4 ms | 0.5-2.1ms | *“* | 1 +/- 0.25 ms from Ca by bP AP by PF stim |
| Spatial distribution | 6 of 10 on basolateral |  | *“* | Other 4 may be pf or distal aa contacts |
| Number per GoC | 400-800 |  | *“* | Calculated based on immunohistochemical labelling density and evoked EPSCs |
| Parallel fibre synapse: | | | | |
| Number per GoC | ~1000-1200 | - | Cesana et al 2013 | Calculated based on densities and GoC dendritic surface area |
| Current | 38 ± 9 pA | 10-50 pA | *Dieudonne 1998* |  |
| Tau rise |  |  |  |  |
| Tau decay | 1.06 ms | Single Exp Syn |  |  |
| Tau decay1 | 0.96 ms | Double Exp Syn | “ | 0.5-3.26 –could be dendritic filtering?;  2.7 +/-0.6 ms in Cesana 2013 -> filtering? |
| Tau decay 2 | 4.7 ms |  |  |  |
| Spatial distribution |  |  |  |  |
| Conductance | 0.9 nS |  | Calculated as peak for ExpSyn (only AMPA?) |  |
| NMDA component: |  |  |  |  |
| Current |  | 0-60 pA |  |  |
| Tau rise |  |  |  |  |
| Tau decay1 | 31 +/- 9 ms |  | *Dieudonne 1998* |  |
| Tau decay | 170 +/- 15 ms |  | “ |  |
| gfast | 0.3 of peak |  |  |  |
| gslow | 0.7 of peak |  |  |  |
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