| **System** | **Spont.** | **Gratings (SF = 0.05 cpd)** | **Full-field Flashes** | **Natural Images** | **Natural Movies** | **Moving Bars** |
| --- | --- | --- | --- | --- | --- | --- |
| **LL1**  **(simualtions\_ll1/)** | spont: 20 trials  **Inputs from bkg only;**  **…tw\_only…** 10 trials each | **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217): 10 trials each  **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each  **Contrast = 80%; TF = 8 Hz; 8 directions**  g(9, 39, 69, 99, 129, 159, 189, 219): 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_ …\_LGN\_only\_no\_con: 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217)\_ …\_LGN\_only\_no\_con: 10 trials each  **OPTOGENETIC silencing of LGN,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_stop\_1s\_...: 10 trials | flash\_1: 10 trials |  |  | Bbar\_v50pixps\_hor: 10 trials  Bbar\_v50pixps\_vert: 10 trials  Wbar\_v50pixps\_hor: 10 trials  Wbar\_v50pixps\_vert: 10 trials |
| **LL2**  **(simualtions\_ll2/)** | spont: 20 trials  **Inputs from bkg only;**  **…tw\_only…** 10 trials each | **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217): 10 trials each  **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each  **Contrast = 80%; TF = 8 Hz; 8 directions**  g(9, 39, 69, 99, 129, 159, 189, 219): 10 trials each  **Contrast = 30%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_...\_ctr30: 10 trials each  **Contrast = 10%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_...\_ctr10: 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_ …\_LGN\_only\_no\_con: 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217)\_ …\_LGN\_only\_no\_con: 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 30%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_...\_ctr30…\_LGN\_only\_no\_con: 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 10%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_...\_ctr10…\_LGN\_only\_no\_con: 10 trials each  **Short tests; Contrast = 80%; TF = 4 Hz**  g8\_8\_sd278\_test500ms: 1 trial  g8\_8\_sd278\_test500ms\_LGN\_only\_no\_con: 1 trial  g8\_8\_sd278\_test500ms\_no\_con: 1 trial  **OPTOGENETIC suppression of 20% Scnn1a, including LIF,**  **Injection current -30 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_30\_LIF\_fraction20: 10 trials  **OPTOGENETIC suppression of 20% Scnn1a, including LIF,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_50\_LIF\_fraction20: 10 trials  **OPTOGENETIC suppression of 20% Scnn1a, including LIF,**  **Injection current -100 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_100\_LIF\_fraction20: 10 trials  **OPTOGENETIC suppression of 20% Scnn1a, including LIF,**  **Injection current -150 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_150\_LIF\_fraction20: 10 trials  **OPTOGENETIC suppression of 50% Scnn1a, including LIF,**  **Injection current -30 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_30\_LIF\_fraction50: 10 trials  **OPTOGENETIC suppression of 50% Scnn1a, including LIF,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_50\_LIF\_fraction50: 10 trials  **OPTOGENETIC suppression of 50% Scnn1a, including LIF,**  **Injection current -100 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_100\_LIF\_fraction50: 10 trials  **OPTOGENETIC suppression of 50% Scnn1a, including LIF,**  **Injection current -150 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_150\_LIF\_fraction50: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -30 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_30\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_50\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -100 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_100\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -150 pA,**  **Contrast = 80%; TF = 2 Hz; 1 direction**  g7\_...\_Sup\_Scnn1a\_150\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -30 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_Sup\_Scnn1a\_30\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_Sup\_Scnn1a\_50\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -100 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_Sup\_Scnn1a\_100\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -150 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_Sup\_Scnn1a\_150\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a, including LIF,**  **Injection current -150 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_Sup\_Scnn1a\_150\_LIF: 10 trials  **OPTOGENETIC suppression of 100% Scnn1a,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_sup5: 10 trials  **OPTOGENETIC suppression of 100% Rorb,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_sup1: 10 trials  **OPTOGENETIC suppression of 100% Nr5a1,**  **Injection current -70 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_sup3: 10 trials  **OPTOGENETIC suppression of 100% PV1,**  **Injection current -70 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_sup4: 10 trials  **OPTOGENETIC suppression of 100% PV2,**  **Injection current -50 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_sup2: 10 trials  **OPTOGENETIC excitation of 100% Scnn1a,**  **Injection current 160 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_test5: 10 trials  **OPTOGENETIC excitation of 100% Rorb,**  **Injection current 200 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_test1: 10 trials  **OPTOGENETIC excitation of 100% Nr5a1,**  **Injection current 230 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_test3: 10 trials  **OPTOGENETIC excitation of 100% PV1,**  **Injection current 340 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_test4: 10 trials  **OPTOGENETIC excitation of 100% PV2,**  **Injection current 210 pA,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_test2: 10 trials  **OPTOGENETIC silencing of LGN,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_stop\_1s\_...: 10 trials  **LGN inputs removed from V-clamped cells,**  **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217)\_ ...\_remove\_inputs\_from\_SEClamp\_cells:  1 trial each  **V-clamping at 0 mV (measure inh. Currents),**  **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217)  \_...\_SEClamp\_e0:  10 trials each | flash\_1: 10 trials  flash\_2: 10 trials | imseq\_(0-99): 1 trial each | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials  **Scrambled:**  TouchOfEvil\_frames\_3600\_to\_3750\_scrbl\_t:  10 trials  TouchOfEvil\_frames\_3600\_to\_3750\_scrbl\_xy:  10 trials | Bbar\_v50pixps\_hor:  10 trials  Bbar\_v50pixps\_vert: 10 trials  Wbar\_v50pixps\_hor: 10 trials  Wbar\_v50pixps\_vert: 10 trials |
| **LL3**  **(simualtions\_ll3/)** | spont: 20 trials  **Inputs from bkg only;**  **…tw\_only…** 10 trials each | **Contrast = 80%; TF = 2 Hz; 8 directions**  g(37, 67, 97, 127, 157, 187, 217): 10 trials each  **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each  **Contrast = 80%; TF = 8 Hz; 8 directions**  g(9, 39, 69, 99, 129, 159, 189, 219): 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 80%; TF = 2 Hz; 8 directions**  g(7, 37, 67, 97, 127, 157, 187, 217)\_ …\_LGN\_only\_no\_con: 10 trials each  **No recurrent connections; inputs from LGN only;**  **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218)\_ …\_LGN\_only\_no\_con: 10 trials each  **OPTOGENETIC silencing of LGN,**  **Contrast = 80%; TF = 4 Hz; 1 direction**  g8\_...\_stop\_1s\_...: 10 trials | flash\_1: 10 trials  flash\_2: 10 trials | imseq\_(0-99): 1 trial each | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials | Bbar\_v50pixps\_hor: 10 trials  Bbar\_v50pixps\_vert: 10 trials  Wbar\_v50pixps\_hor: 10 trials  Wbar\_v50pixps\_vert: 10 trials |
| **RL1**  **(simualtions\_rl1/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials |  |  |  |
| **RL2**  **(simualtions\_rl2/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials  flash\_2: 10 trials |  | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials |  |
| **RL3**  **(simualtions\_rl3/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials  flash\_2: 10 trials |  | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials |  |
| **LR1**  **(simualtions\_lr1/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials |  |  |  |
| **LR2**  **(simualtions\_lr2/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials  flash\_2: 10 trials |  | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials |  |
| **LR3**  **(simualtions\_lr3/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials  flash\_2: 10 trials |  | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials |  |
| **RR1**  **(simualtions\_rr1/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials |  |  |  |
| **RR2**  **(simualtions\_rr2/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials  flash\_2: 10 trials | imseq\_(0-99): 1 trial each | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials |  |
| **RR3**  **(simualtions\_rr3/)** | spont: 20 trials | **Contrast = 80%; TF = 4 Hz; 8 directions**  g(8, 38, 68, 98, 128, 158, 188, 218): 10 trials each | flash\_1: 10 trials  flash\_2: 10 trials | imseq\_(0-99): 1 trial each | TouchOfEvil\_frames\_1530\_to\_1680: 10 trials  TouchOfEvil\_frames\_3600\_to\_3750: 10 trials  TouchOfEvil\_frames\_5550\_to\_5700: 10 trials |  |