|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model architecture  (Fig. 4) | Type-I 5-HT  neurons | | | | | Type-II 5-HT  neurons | |  |
|  | | | **Punishment** | **Reward** | **Punishment** | **Reward** |
| **Model #** | | | |
| a | **DA🡪GABA-VTA**  **()**  **5HT🡪GABA-DRN**  **()** | **5HT🡪DA**  **)** | **5HT🡪Glu**  **()** | **1** | **2** | **3** | **4** |
| **5HT🡪Glu**  **()** | **5** | **6** | **7** | **8** |
| **5HT🡪DA**  **()** | **5HT🡪Glu**  **()** | **9** | **10** | **11** | **12** |
| **5HT🡪Glu**  **()** | **13** | **14** | **15** | **16** |
| **DA🡪GABA-VTA**  **()**  **5HT🡪GABA-DRN**  **()** | **5HT🡪DA**  **()** | **5HT🡪Glu**  **()** | **17** | **18** | **19** | **20** |
| **5HT🡪Glu**  **()** | **21** | **22** | **23** | **24** |
| **5HT🡪DA**  **()** | **5HT🡪Glu**  **()** | **25** | **26** | **27** | **28** |
| **5HT🡪Glu**  **()** | **29** | **30** | **31** | **32** |
| b | **5HT🡪Glu**  **()** | | | **33** | **34** | **35** | **36** |
| **5HT🡪Glu**  **()** | | | **37** | **38** | **39** | **40** |
| c | **-** | | | **41** | **42** | **43** | **44** |
| d | **-** | | | **45** | **46** | **47** | **48** |
| e | **-** | | | **49** | **50** | **51** | **52** |
| f | **-** | | | **53** | **54** | **55** | **56** |
| g | **-** | | | **57** | **58** | **59** | **60** |
| h | **-** | | | **61** | **62** | **63** | **64** |
| i | **-** | | | **65** | **66** | **67** | **68** |
| j | **-** | | | **69** | **70** | **71** | **72** |
| k | **-** | | | **73** | **74** | **75** | **76** |
| l | **5HT🡪DA**  **()** | | | **77** | **78** | **79** | **80** |
| **5HT🡪DA**  **()** | | | **81** | **82** | **83** | **84** |