

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Open field test before and after mounting the neural probe system on the head of the mice for 30 minutes (8x speed).

File Name: Supplementary Movie 2

Description: Demonstration of the wireless drug delivery using the preliminary configuration of the neural probe integrated with an electrolytic pump (1x speed).

File Name: Supplementary Movie 3

Description: Surgical procedure (1x speed).

File Name: Supplementary Movie 4

Description: The connection of the packaged probe to the wireless module in the awake mouse (1x speed).

File Name: Supplementary Movie 5

Description: Real-time changes of behaviour and neural activities before and after bicuculine (BIC) injection into the substantia nigra (SN) of the freely behaving mouse (4x speed).

File Name: Supplementary Movie 6

Description: Real-time changes of behaviour and neural activities before and after bicuculine (BIC) injection into the substantia nigra (SN) of the freely behaving mouse (Full length movie) (4x speed).

File Name: Supplementary Movie 7

Description: Demonstration of repeatable circling behaviour by BIC injection into the SN of the freely behaving mouse for 7 consecutive days (8x speed).

File Name: Supplementary Movie 8

Description: Demonstration of dose-dependent effect of BIC on circling behaviour by activating the pump differently with 3 cycles and 6 cycles (2x speed).

File Name: Supplementary Movie 9

Description: Suppression of feeding behaviour by muscimol injection into lateral hypothalamus (LH) of the freely behaving mouse (16x speed).

File Name: Supplementary Movie 10

Description: Demonstration of social interaction and neural activities in real-time during a food competition test between two mice (4x speed).

File Name: Supplementary Movie 11

Description: Demonstration of social interaction and neural activities in real-time during a food competition test between two mice while muscimol was injected into the LH of the red mouse (4x speed).

File Name: Supplementary Movie 12

Description: Real-time neural activities of mPFC for 6 successive trials after muscimol injection into the LH of the red mouse (1x speed).