

Figure S2. Mapping the cerebellum output pathway with HSV injection. (A) Illustration of HSV injection and tracing pathway. (B) The 5th lobule of the cerebellar vermis (5Cb) injection site. Selected targets are: (C) intermediate geniculate nucleus (InG) of the superior colliculus; (D) posterior thalamic nuclear group (Po) of thalamus (THA); (E) internal capsule (ic); (F) primary motor cortex (M1) and (G) secondary motor cortex (M2).

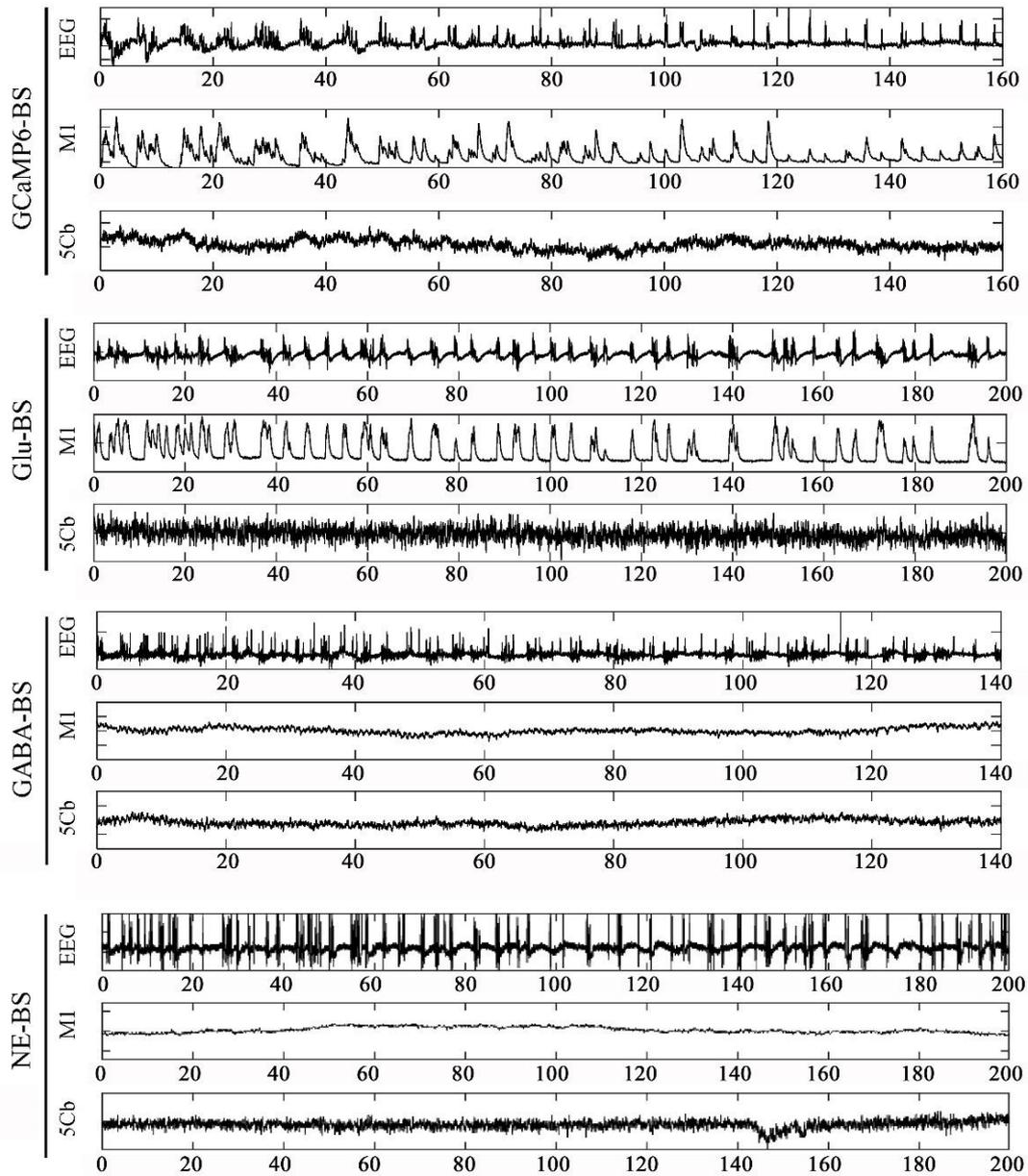


Figure S3. EEG signals and GCaMP6, Glu, GABA or NE release signals in the motor cortices (M1) and the 5th lobule of the cerebellar vermis (5Cb) during burst suppression.

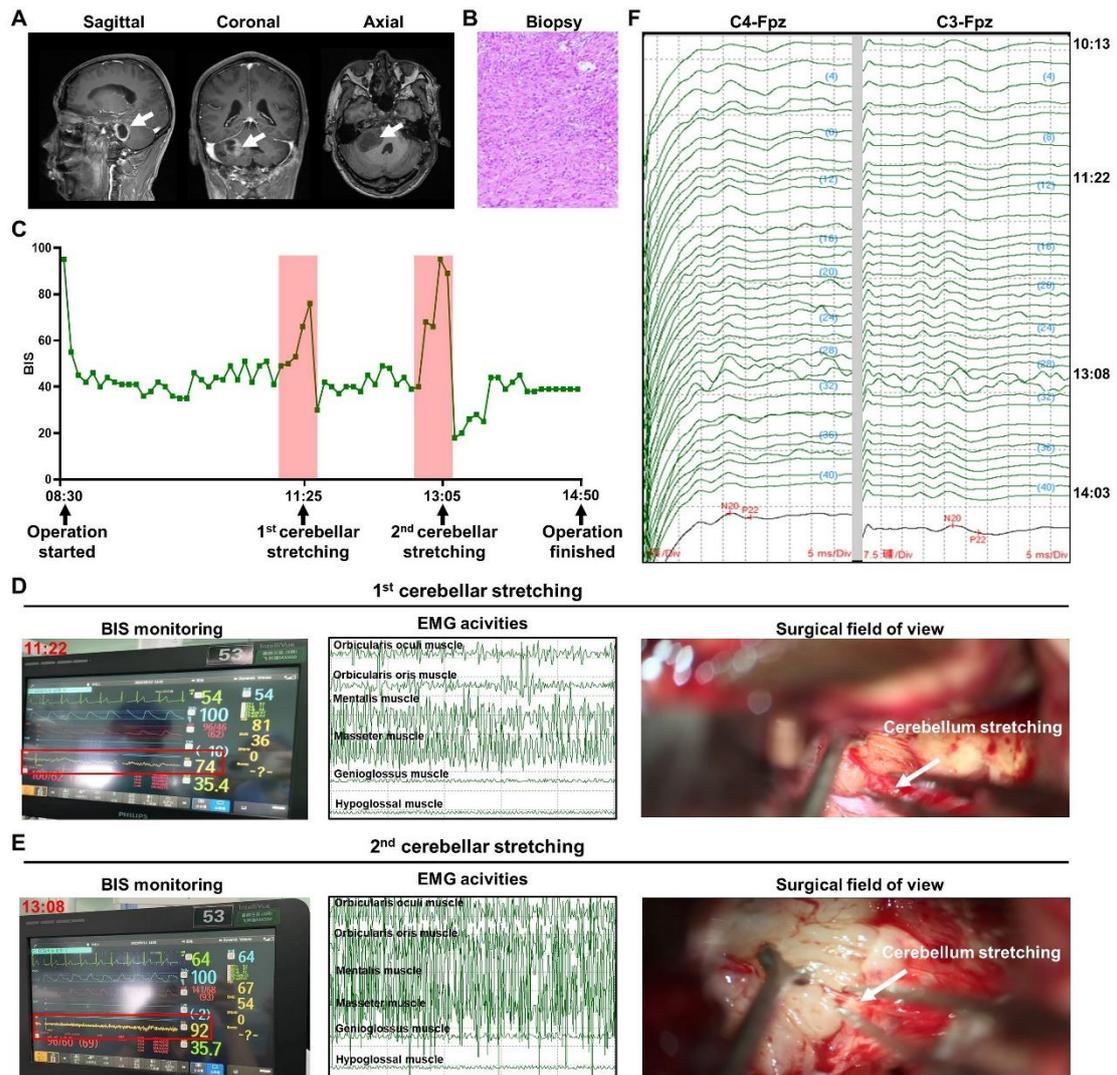


Figure S4. The EEG biospectral index (BIS) changes of EEG undergoing the right acoustic neuroma resection under general anaesthesia in a 57-year-old male patient. The patient was anaesthetised with sevoflurane, propofol, remifentanyl hydrochloride and remazolam to keep the biospectral index (BIS, an useful tool for assessment the sedative-hypnotic state) between 40 and 60. Incidentally, the BIS reading was increased from 40 to 93 with EEG transition from slow-wave activity to fast-wave activity during surgical manipulation. The depth of anaesthesia was adequate and these BIS changes indicated that the strong anatomical and functional connectivity between near cerebellum (surgical stimulation) and cortex (BIS recording). (A) MRI image of the right acoustic neuroma; (B) Biopsy (hematoxylin and eosin stain) with schwannoma demonstrating cell histology. (C) The changes of BIS during the process of operation; (D) The response of the BIS (left panel) and the electromyography (middle panel), and the surgical field of view (right panel) during the 1st cerebellar stretching; (E) The response of the BIS (left panel) and the electromyography (middle panel), and the surgical field of view

(right panel) during the 2nd cerebellar stretching; (F) The electroencephalogram activity of the C4-Fpz and C4-Fpz during the process of operation.