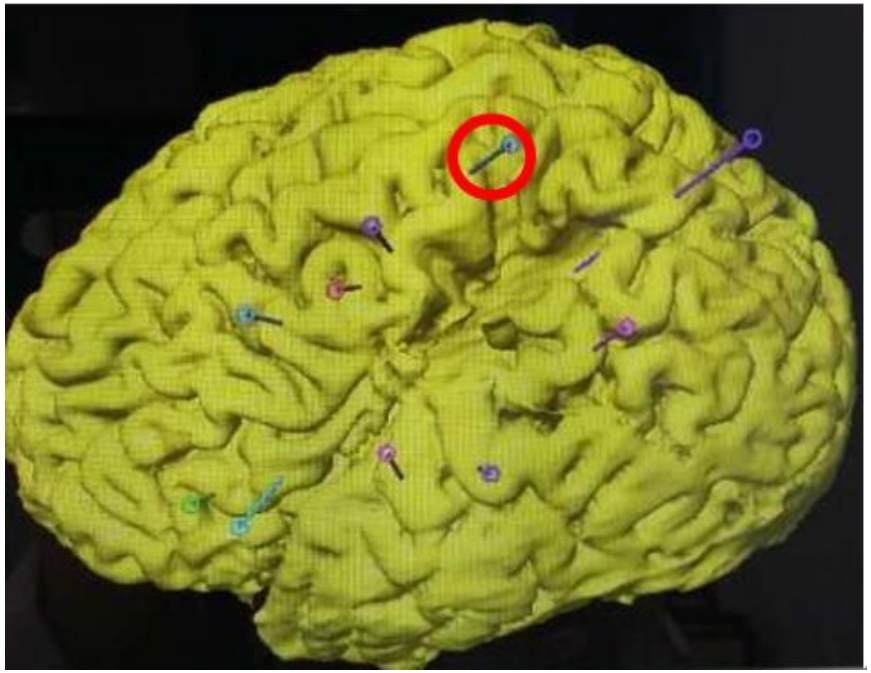
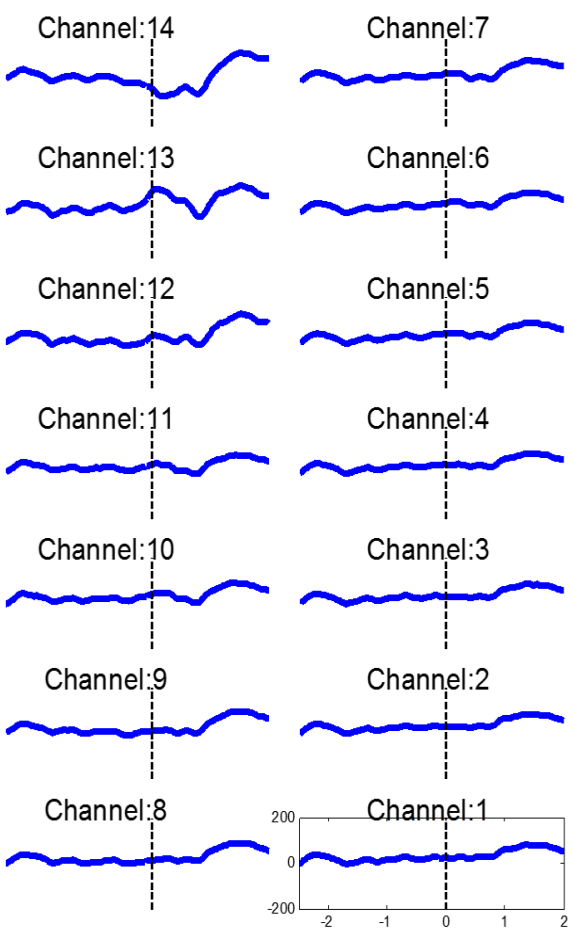
Stereo-electroencephalography Brain-computer Interface Study

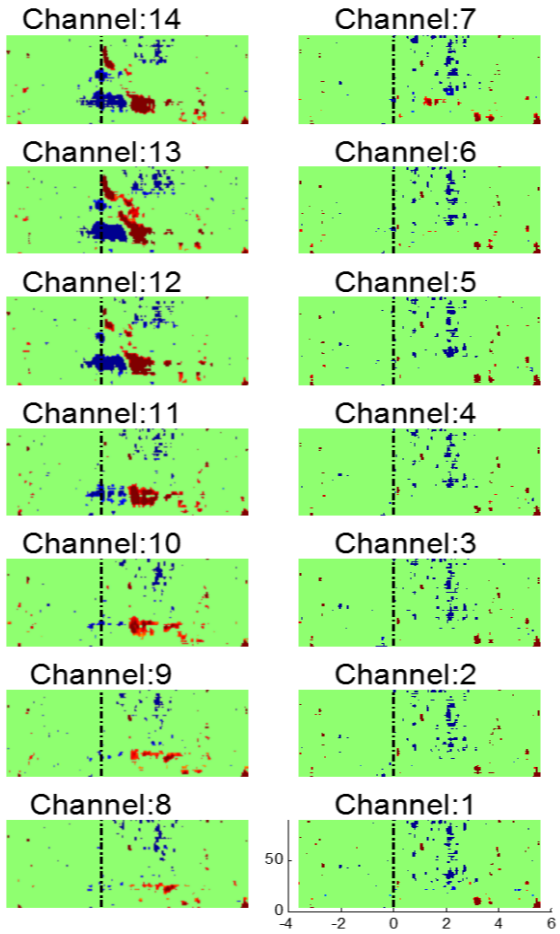
From BioMechatronics and BioRobotics Laboratory
of Shanghai Jiaotong University
http://bbl.sjtu.edu.cn/
Tao Xie, Zehan Wu|2016.03.25

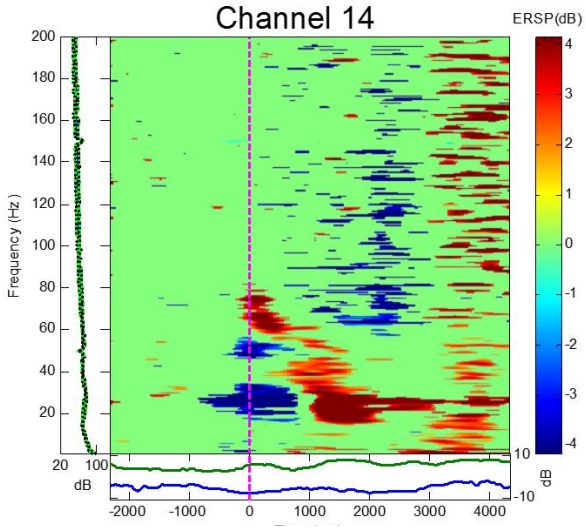


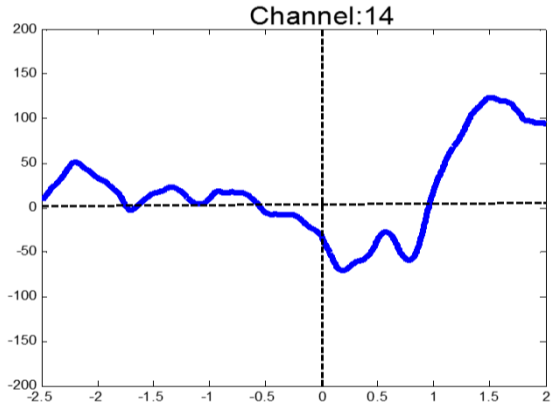
- **Day one:** Only use BP to detect signal, the result is good;
- **Day two:** Detect signal with Neuroscan, system is not stable, and the result is not good;
- **Day three:** with Neuroscan again, system is stable.

Self motion



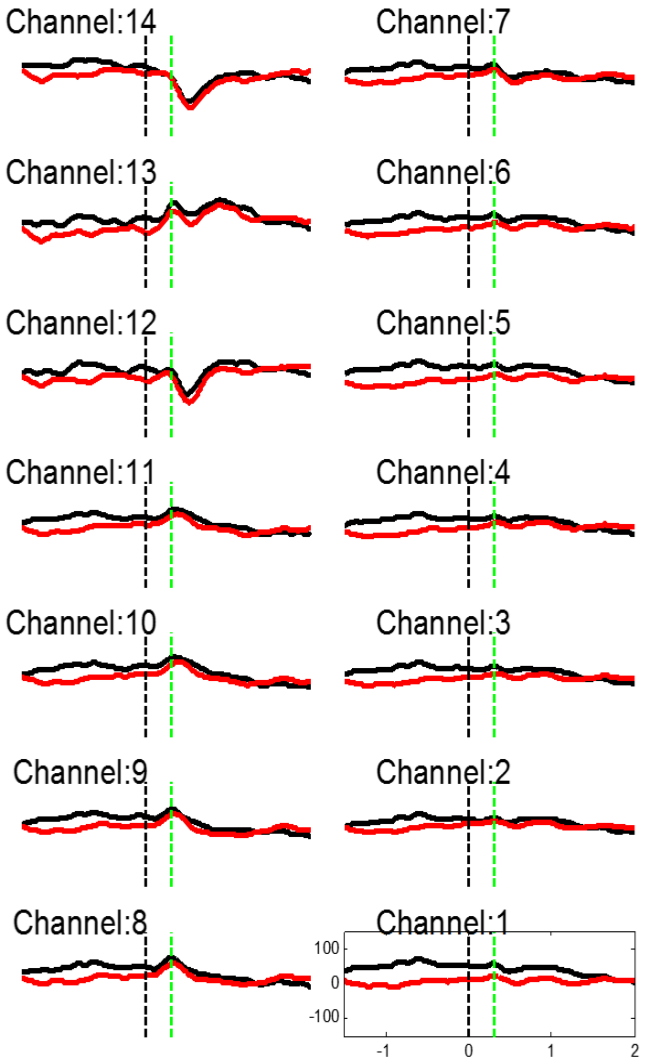


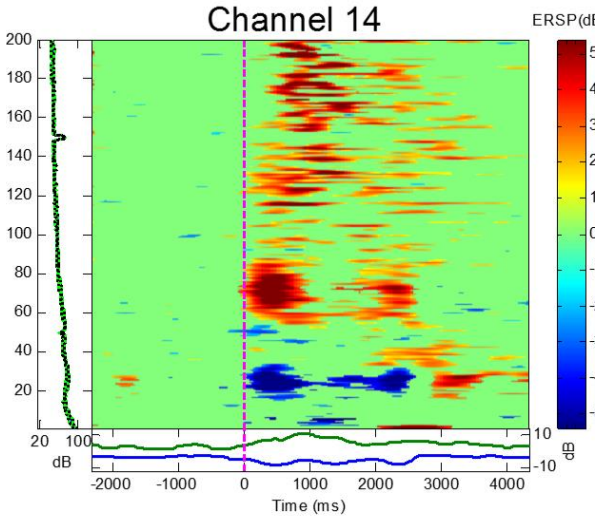


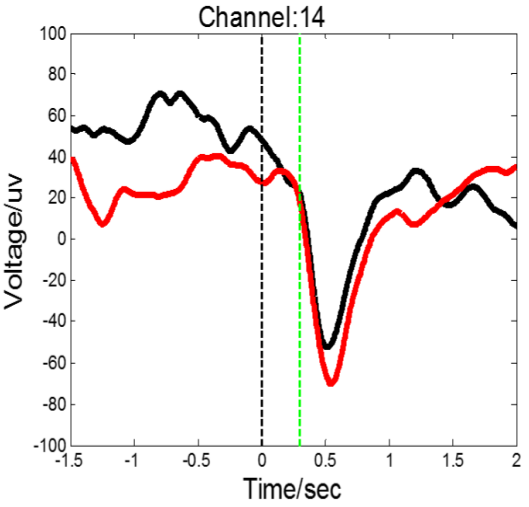


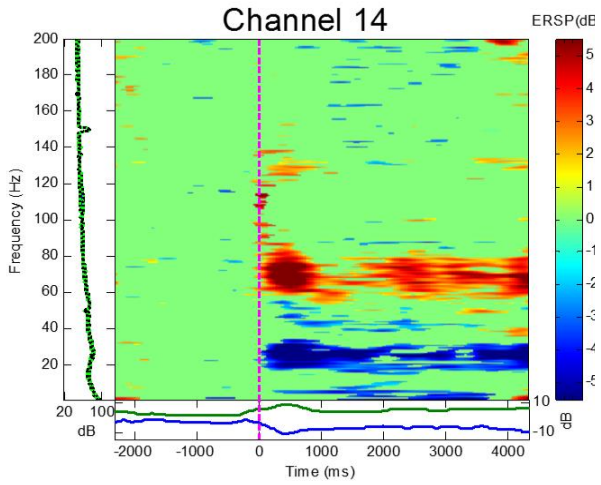
Subject perform brisk wrist motion with 5~10 sec interval.
sEEG shows significant ERD/S and MRCP only for the electrode within motorsensory area.

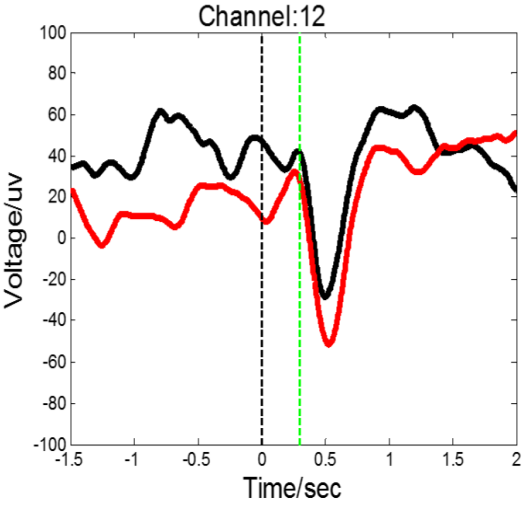
- **Cue real motion (black: keep 1 sec; red: keep 3 sec)**



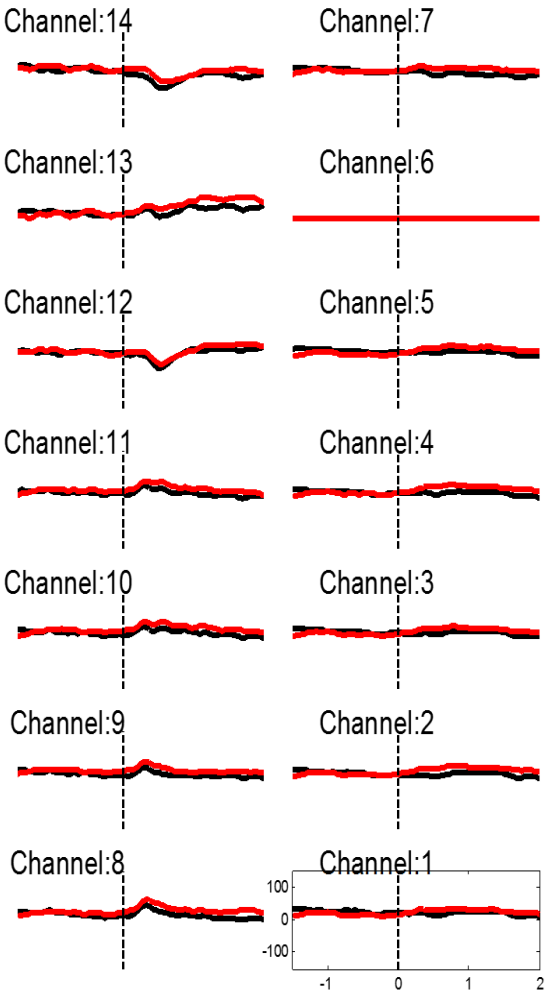


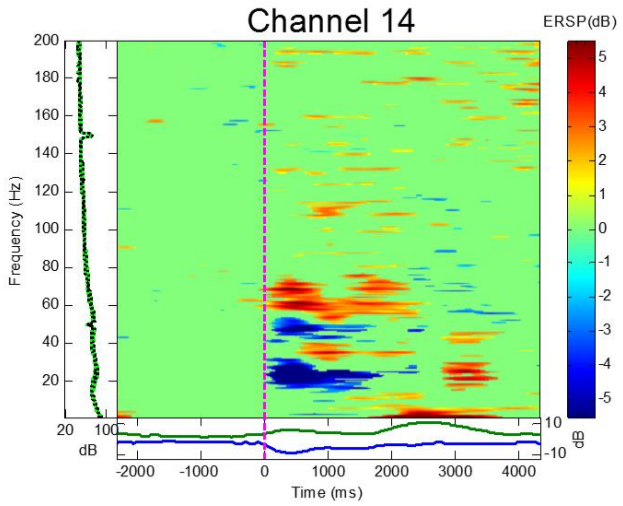


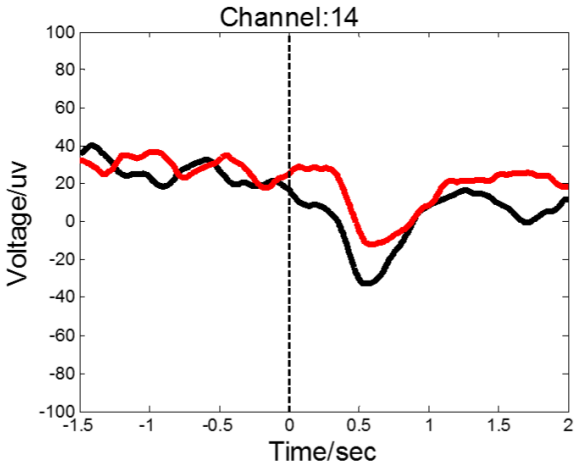


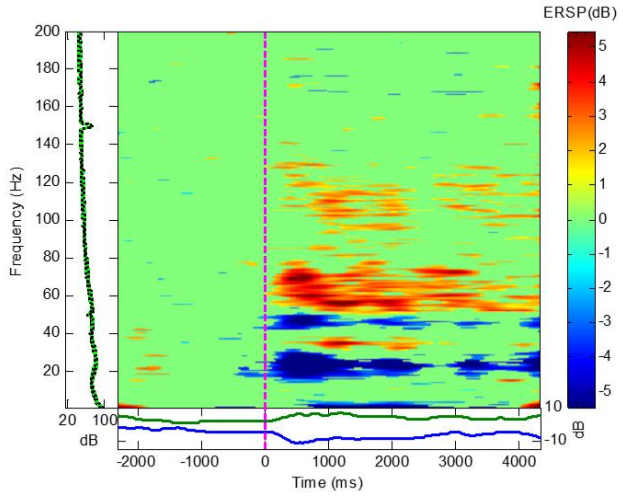


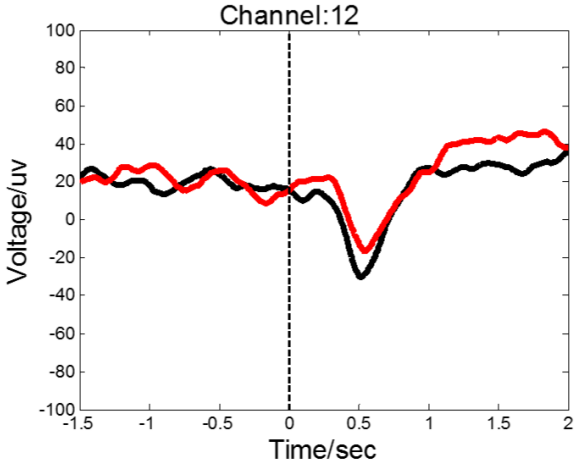
- **Cue imagery motion (black: keep 1 sec; red: keep 3 sec)**



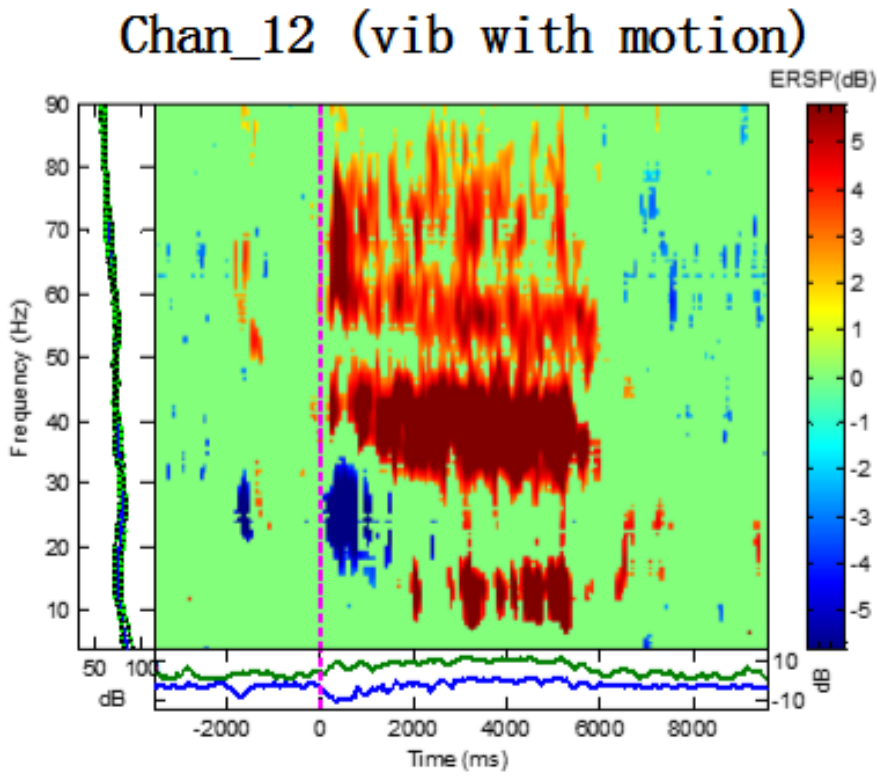


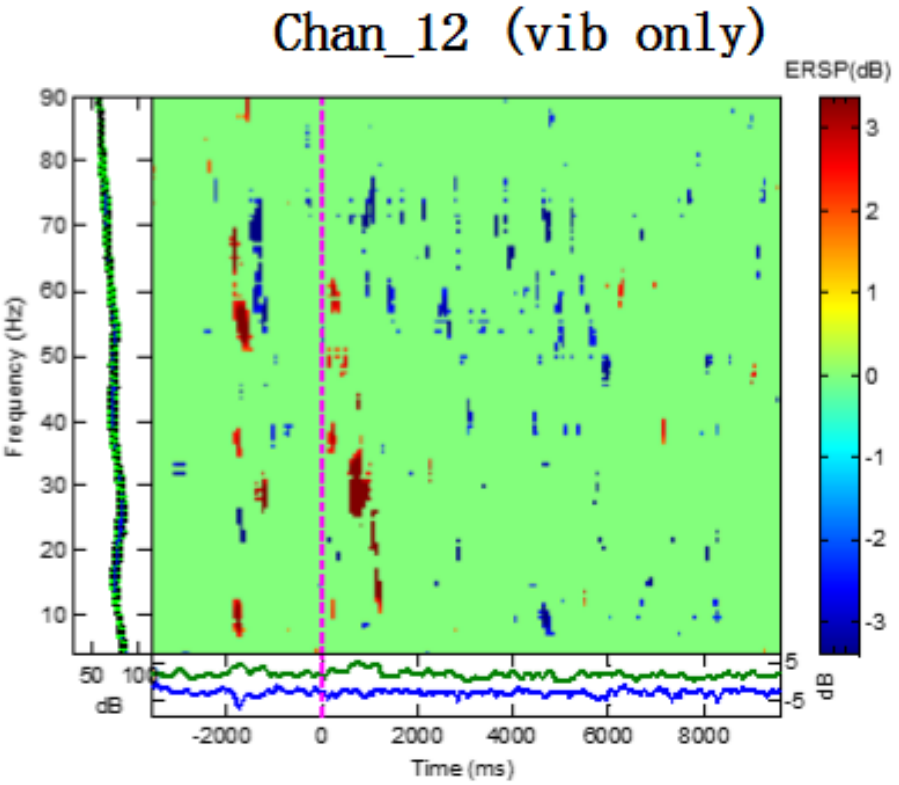






- **Vibration**


Chan_12 (vib with motion)
ERSP(dB)
Frequency (Hz)
Time (ms)
dB


Chan_12 (vib only)
ERSP(dB)
Frequency (Hz)
Time (ms)
dB

Anyhow, thank **Shize Jiang**, and we have a happy work together!

- Neuroscan system
- g.tec system

Online and offline study

日本光电脑电采集系统

Offline study

Different electrodes location focus on different study point

- Self-motion, cue-motion (real & imagery)
- Force level study
- Vib-stimulation
- Visual-stimulation

Contents lists available at SciVerse ScienceDirect

NeuroImage

journal homepage: www.elsevier.com/locate/ynimg

Toward a minimally invasive brain–computer interface using a single subdural channel: A visual speller study

Dan Zhang [a,1], Huaying Song [a,1], Rui Xu [a], Wenjing Zhou [c], Zhipei Ling [b,*], Bo Hong [a,**]

[a] *Department of Biomedical Engineering, School of Medicine, Tsinghua University, Beijing 100084, China*
[b] *Department of Neurosurgery, Chinese PLA General Hospital, Beijing 100853, China*
[c] *Department of Neurosurgery, Affiliated Yuquan Hospital, School of Medicine, Tsinghua University, Beijing 100084, China*

Thanks