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Mapping somatotopic of motor fibers and modeling internal capsular stroke**Min-Cheol Lee**

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Recently, several capsular stroke models have been reported with different targets of destruction. This study was performed to establish an accurate internal capsule (IC) target for capsular stroke modeling in rats. We injected adeno-associated virus serotype 5 (AAV)-CaMKII-EYFP into forelimb motor cortex and AAV-CaMKII-mCherry into hindlimb motor cortex (n=9) to anterogradely trace the pyramidal fibers and map their somatotopic distribution in the IC. On the basis of the neural tracing results, we created photothrombotic infarct lesions in rat forelimb and hindlimb motor fiber (FMF and HMF) areas of the IC (n=29) and assessed motor behavior using a forelimb-use asymmetry test, a foot-fault test, and a single-pellet reaching test. We found that the FMFs and HMFs were primarily distributed in the inferior portion of the posterior limb of the IC, with the FMFs located largely ventral to the HMFs but with an area of partial overlap. Photothrombotic lesions in the FMF area resulted in persistent motor deficits. In contrast, lesions in the HMF area did not result in persistent motor deficits. These results indicate that identification of the somatotopic distribution of pyramidal fibers is critical for accurate targeting in animal capsular stroke models: only infarcts in the FMF area resulted in long-lasting motor deficits.

Biography

Min-Cheol Lee has completed his MD and PhD from Chonnam National University Medical School (CNUMS), South Korea. He is the Professor in Department of Pathology/Neuropathology, CNUMS and Affiliated Professor at Gwangju Institute of Science and Technology. He has published more than 100 papers in reputed journals.

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