

## **P5.11.**

### **Reciprocal organization of somatosensory cortical areas 3b and 1 in the squirrel monkey**

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The strong, reciprocal connections between somatosensory cortical areas 3b and 1 demonstrate their close functional relationship. In addition, tactile submodalities are mapped in a similar way in both areas. Consequently, the specific role of areas 3b and 1 in tactile perception is hard to decipher. To explore the neural circuitry underlying the functional organization of areas 3b and 1 we used tract tracing aided by functional mapping and compared the projection patterns of areas 3b and 1. Reciprocal connections between the two areas preferred homologous representations. Within areas 3b and 1 the horizontal pattern of connections confirmed previous functional observations showing strong interactions between neighboring fingers. Laminar distribution of retrograde and anterograde labeling, which were mostly localized to the superficial layers, did not reveal specific hierarchical relationship between the two areas. However, the area of the strongest input of the injected representation was significantly smaller in area 1 than in 3b. Interestingly, when considering cortical magnification factor, the skin area represented by the densest retrograde labeling was comparable in areas 3b and 1. This finding supports previous observations suggesting a larger convergence of somatosensory information on neurons of area 1 than those of 3b.

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