## PC-BASED AUTOMATED APPARATUS TO TEST COGNITIVE ABILITIES OF MARMOSET MONKEYS

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The extremely high reproductive power of common marmosets (*Callithrix jacchus*) can realize the development of genetically modified primate models for human disease, including nervous and mental disease. However, In spite of the high potential of marmosets as experimental animals for human disease, no simple and convenient method to test cognitive functions of marmosets has been available. Considering its nervous character and susceptibility to environmental change, the best approach is testing their cognitive functions in their home cages. To this end, we developed a PC-based automated apparatus consist of a small sized PC with touch screen and a special designed reward delivery machine. The total weight of this apparatus is about 3 kilograms and therefore, we could easily hang the apparatus on the front panel of their home cages. Because the apparatus could run with a battery of the PC, we don't have to care about any power cables. We applied this apparatus for training marmosets to perform a pattern discrimination task. In the pattern discrimination task, the marmosets were required to correctly choose one (S+) of two patterns to get a reward. The marmosets usually perform 150 trials a day, and learnt each discrimination in one or two days. All experiments were conducted in accordance with Guide for the Care and Use of Laboratory Primate (Primate Research Institute, Kyoto University) and Japanese regulations on animal experiments. Our newly developed apparatus allows us to measure cognitive functions of common marmosets in their home cages.

Key words: home cage, cognitive task, animal model, new apparatus