1. No.
   2023G011

2. Title
   Effect of Nicotine on Sleep-Wake Rhythms in Diurnal Common Marmosets

3. Period
   2023-2025

4. Summary
   A skull-implanted EEG telemetry system with subcutaneous implantable thermometer was applied in freely moving marmosets. In marmosets, the timing of wake-up (awakening) was virtually identical to the start time of the light period. Under both the 12-hour light/12-hour dark condition and the 14-hour light/10-hour dark condition, wake-up time was almost identical to the start of the light period. This indicates that the circadian clock of marmosets is synchronized to the start of the light phase. However, initiation of sleep was not identical to the onset of darkness. Under conditions with longer days (14-hours light/10-hour dark condition), marmosets fell asleep while environment was still light-on.

   When marmosets were placed under light/dark conditions with an 8-hour phase advance, their EEG and body temperature rhythms began to advance in phase immediately after the time shift, and re-entrained to the new light/dark cycle 7-9 days after the beginning of jetlag. We further demonstrate that the 8-hour delay jetlag of the light/dark conditions takes 3-6 days for re-entrainment to the new light/dark cycles in their EEG and body temperature rhythms.

   Marmosets, a non-human primate, exhibited monophasic sleep, and their wakefulness and sleep were strongly controlled by the circadian rhythm. Similar to humans, eastward jet lag (forward jet lag) required more days to resynchronize than westward jet lag (backward jet lag).