

# DISTRIBUTION OF $^{14}\text{C}$ -LABELED ARTEETHER IN MICE AFTER INTRAMUSCULAR INJECTION

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**Abstract.** Intramuscular injection of high doses of arteether in experimental animals produces auditory and vestibular problems. We aimed to determine the distribution and accumulation of arteether in mice brains injected with 20  $\mu\text{Ci}/\text{kg}$   $^{14}\text{C}$ -labeled arteether in order to determine sites of toxicity among mice models. Five mice were injected with  $^{14}\text{C}$ -labeled arteether and 2 mice (controls) were injected with sesame oil. Whole blood samples for radioactivity were obtained from each specimen at 0, 5, 15, 30, 40, 50, 60, 70, 80, 90, 120, 150, 180, 210, and 240 minutes. The animals were then euthanized and the brain, heart, liver, spleen, stomach, lung, intestine, and kidney were all removed and checked for radioactivity. The brain was sectioned and examined for radioactivity using autoradiography. The  $^{14}\text{C}$  - arteether had a significantly ( $p=0.001$ ) greater concentration in the hindbrain than in the midbrain or forebrain. The  $^{14}\text{C}$  - arteether peaked in the blood at about 36 minutes with a half-life of 108 minutes. The ratio of  $^{14}\text{C}$  - arteether in the blood compared to the brain was 8 : 1. These results show  $^{14}\text{C}$  - arteether crosses the blood- brain barrier in mice and accumulates in the hindbrain, where there is a high risk for causing neurological damage.

**Keywords:** arteether, distribution, accumulation, mice model

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