**Purpose**

To determine the tissue distribution of radioactivity after single intravenous (IV) or oral (PO) administration of [14C]brincidofovir (BCV) to rats.

**Background**

- BCV is in development as an orally-administered lipid conjugate nucleotide for treatment of adenovirus in hematopoietic cell transplant (HCT) recipients and other immunocompromised patients.
- Oral administration has resulted in dose-limiting GI events in hematopoietic stem cell transplant (HCT) patients.
- Development of an IV formulation has been initiated, with minimal GI toxicity observed in rats after repeat IV administration for up to 1 month.

**Methods**

[14C]BCV was administered to pigmented and non-pigmented rats by 2 hour IV infusion or by oral (PO) administration of [14C]BCV to rats. The tissue distribution was determined by quantitative radioactive counting. Compared to the oral route, IV administration of BCV resulted in higher radioactivity after single intravenous (IV) or oral administration.

**Results**

Radioactivity was well distributed with similar qualitative distribution patterns of the radioactivity after IV and oral administration. Peak concentrations of radioactivity in most tissues occurred at 4 to 8 h after oral administration, or at the end of the 2h IV infusion. Tissue radioactive exposure was generally higher after IV than after oral gavage administration. Tissues with the lowest concentration of radioactivity were brain, spinal cord, skeletal muscle, white adipose tissue and bone. Brain and spinal cord radioactivity was higher after IV than after oral administration (~20% of plasma concentration compared to ~5% after oral administration).

**Conclusions**

- At 168 h post-dose, tissue concentrations in most tissues were less than 1 µg-equivalent/g tissue.
- At 35 days post-dose, radioactivity was below the limit of quantification in all tissues except for bone marrow, lymph node, spleen and adrenal gland after IV administration, and small intestine, liver and kidney cortex after PO administration.
- No evidence of specific association with melanin containing tissues was found.

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