

TECHNICAL BULLETIN

Comparison of **MediDrop**[®] and water as orally-administered vehicles for commonly used drugs used in mouse medicine

Introduction

Oral administration of medication is an easy method of delivery for various medication. However, many drugs tend to precipitate in water, lowering the dose of medication that the

animals are actually getting. In this study we aim to compare **MediDrop**[®] and water as orally-administered vehicles for commonly used drugs used in mouse medicine.

Protocol

Eight groups were defined using four different medications (TMS, Enrofloxacin, Meloxicam and Ibuprofen) delivered in 2 different media (water and **MediDrop**[®] **Sucralose**). Three 8-week-old B6 females per drug-delivery method group were used. Two additional control mice, individually housed, received the media only (water or **MediDrop**[®]) without any medication. Animals were acclimated to water or **MediDrop**[®] for 72 hours before being provided with the respective drugs. Blood was collected from all groups via the submandibular method at days 1, 3 and 7 days after the start of drug administration, and blood drug concentration levels were determined by UCSF's Drug Studies Unit-Analytical Division. All bottles containing **MediDrop**[®] or water were shaken daily. Our endpoints for all groups (including controls) were 7 days.



Results

All mice continued to gain weight normally. The average body weights of mice in the study were between 15-20g. Mice drank the water and **MediDrop**[®] with drugs. The control animals appeared to drink or displace a lot of water and **MediDrop**[®], possibly due to a singly housed effect.

TMS and Ibuprofen plasma levels were higher in day 1, day 3 and day 7 in mice administered the drug in **MediDrop**[®] than those administered drug in water. (Fig. 1&2) Meloxicam plasma levels were higher in day 3 and day 7 in mice administered the drug in **MediDrop**[®] than those administered drug in water, (Fig. 3) while Enrofloxacin plasma levels were higher only on day 7 in mice administered the drug in **MediDrop**[®] than those administered drug in water. (Fig. 4)

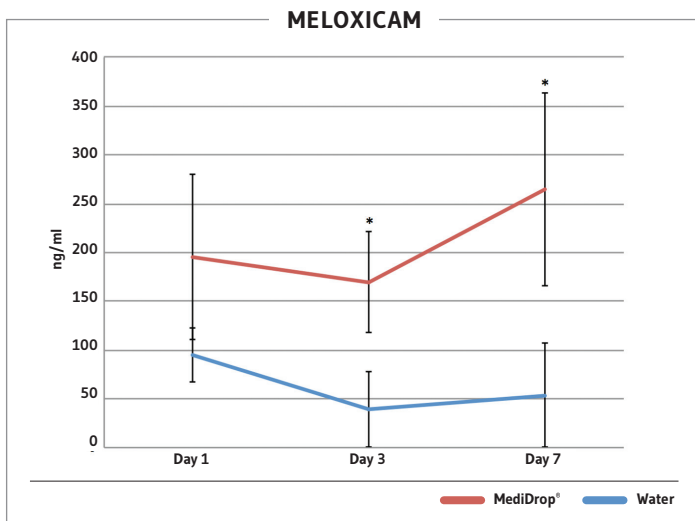


Figure 1: Meloxicam plasma levels are higher in day 3 and day 7 in mice administered the drug in MediDrop than those administered drug in water. Error bars= STDEV. *Statistically Significant

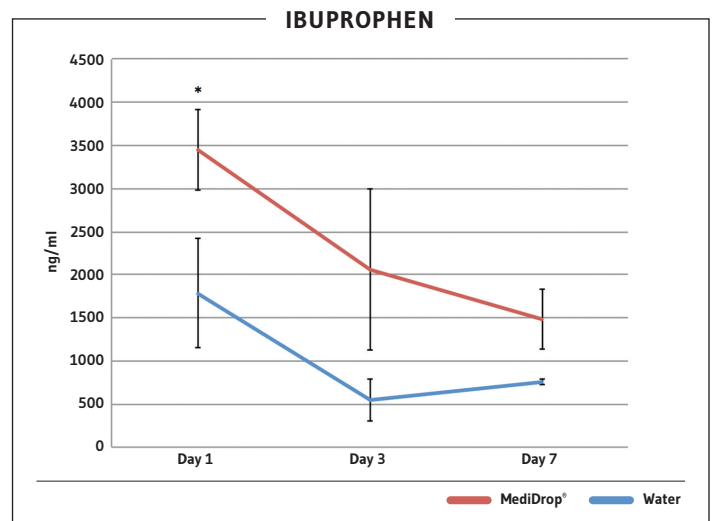


Figure 2: Ibuprofen plasma levels are higher in day 1, day 3 and day 7 in mice administered the drug in MediDrop than those administered drug in water. Error bars= STDEV

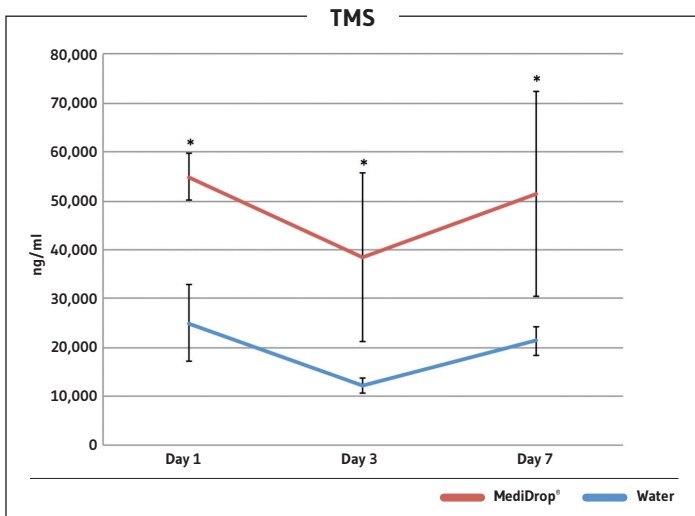


Figure 3: TMS plasma levels are higher in day 1, day 3 and day 7 in mice administered the drug in MediDrop than those administered drug in water. Error bars= STDEV. *Statistically Significant

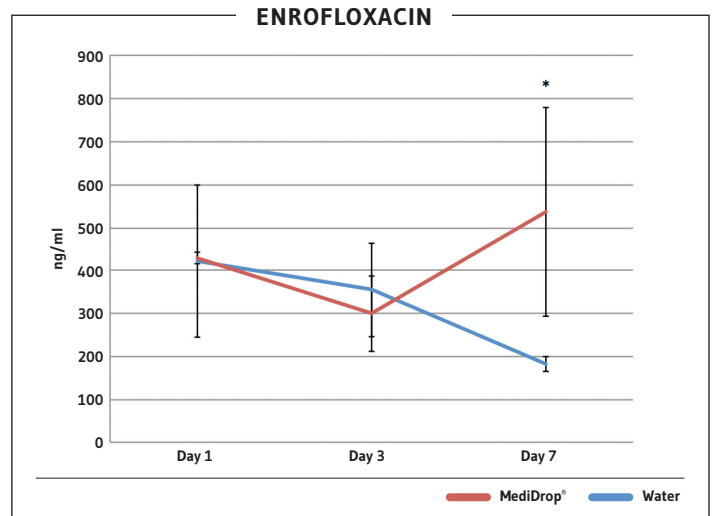


Figure 4: Enrofloxacin plasma levels are higher only on day 7 in mice administered the drug in MediDrop than those administered drug in water. Error bars= STDEV. *Statistically Significant

Discussion

Results appear very promising. This study demonstrated that **MediDrop®** is a superior dosing method to water, especially for TMS and meloxicam. Further studies might be necessary to test the efficacy and therapeutics levels of drugs.

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