

 University of Zurich Institute of Laboratory Animal Sciences	Standard Operating Procedure SOP	Page 1 of 3
Date: 11.11.2022	Buprenorphine analgesia	LTK-TRT-43-B-EN Version: B
This SOP replaces: Version: A		
Reason for Change: Comments from the veterinary office		
Related SOPs: SOP-LTK-TRT-11 sc injection SOP-LTK-RES-5 Scoring and withdrawal criteria of i.c. tumors SOP-LTK-TRT-18 Injection Anesthesia		
Indication of Use: Post-surgery pain management: after surgical intervention and before application of antidote (in case of reversible 3-component anesthesia, FDD) Pain management of tumor bearing animals		
Aim of SOP: This procedure describes how to administer Buprenorphine as analgesic via subcutaneous injection (day) and via drinking water (night)		
Distribution: <ol style="list-style-type: none"> 1. Server 2. Animal house 3. Group Johannes vom Berg 		
Attachments:		
Generated at: 11.11.2022	Checked and approved at: 11.11.2022	
by: Michal Beffinger	by: Johannes vom Berg	



Date: 11.11.2022

Buprenorphine analgesia

**LTK-TRT-43-B-EN
Version: B**

Responsible Persons: Any person with Modul 1 and registered on a particular animal permit

Reagents:

Via s.c. injection (during sleep phase – lights ON)

0.33 ml Buprenorphinum (Temgesic®) 0.3 mg/ml; (= 0.1 mg/kg BW via s.c. injection)
+ 4.67 ml acqua

à 0,1 ml/20 g BW subcutaneous

Store stock solution at 4°C until expiry date and working dilution for up to 1 week at 4°C or up to one year at -20°C.

Note concentration, compound name and your initials and date of first opening (stock) and date of dilution (working solution) on vial/tube

Via drinking water (during wake phase – lights OFF)

1ml Buprenorphinum (Temgesic®) 0.3 mg/ml; (=1mg/kg via drinking water)
+ 32ml drinking water

Scale up if necessary.

Note concentration, compound name, your initials and date of dilution on water bottle. In addition, weigh the bottle beforehand and the next morning to assess water consumption over night and therefore how much buprenorphine was administered. Buprenorphine in the drinking water might lead to a reduced drinking behaviour.

Safety:

1. Temgesic falls under the controlled substances legislation and is therefore stored with restricted access. Persons working with this protocol have to report to Johannes vom Berg to obtain the substance, and to get instructions on use and reporting.
2. General rules for working with sharp tools (scalpels, syringes, scissors) have to be followed.
3. Follow the rules for the animal house



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Method Description:

1. Place affected animal in individual cage (Buprenorphine can lead to increased locomotor activity and reduced food intake) to avoid medication (drinking water) of non-affected animals in the same cage > weight change is an important readout for survival studies
2. Apply working solution with 0,1 ml 20g BW as subcutaneous injection (see SOP-LTK-TRT-11 s.c. injection)
3. Check if analgesia is effective 1 hour after first injection. If mouse still shows pain symptoms euthanize immediately. See SOP-LTK-RES-5 Scoring and withdrawal criteria of i.c. tumors and SOP-LTK-RES-41 Scoring Post-Application of Binder proteins.
4. During the light phase, repeat injection every 4-6 hours
5. Control analgetic effect before next injection, if necessary increase frequency to 4 hours
6. During dark phase, switch to oral application via drinking water
7. Switch back to s.c. administration the next morning latest 4 hrs after onset of light phase
8. The maximum duration for Buprenorphine analgesia (with repeated cycles of checks/injections every 4-6 hours during the light phase and drinking water during the dark phase) is 3 days

Documentation:

Lab book, SOP-LTK-RES-5 Scoring and withdrawal criteria of i.c. tumors

Problem management:

Report any other adverse event to your supervisor or vet

Literature:

“Buprenorphine via drinking water and combined oral-injection protocols for pain relief in mice”, Mareike Sauer, Thea Fleischmann, Miriam Lipiski, Margarete Arrasa, Paulin Jirkof, Applied Animal Behaviour Science, Volume 185, December 2016, Pages 103-112

„Merkblatt 03/2015 Analgesie Buprenorphin Maus“, Tierschutz UZH
https://www.tierschutz.uzh.ch/dam/jcr:ffffff-a9e4-863e-00000000341f85c6/Merkblatt_Dosierungsempfehlung_BuP_Maus_27_April_2015_Englisch.pdf