
 <b>University of Zurich</b> <small>UZH</small> Institute of Laboratory Animal Sciences	<b>Standard Operating Procedure</b> <b>SOP</b>	<b>Page 1 of 3</b>
<b>Date: 04.12.2019</b>	<b>Buprenorphine analgesia</b>	<b>LTK-TRT-43-A-EN</b> <b>Version: A</b>
<b>This SOP replaces:</b> Date: None Version: None		
<b>Reason for Change:</b> None		
<b>Related SOPs:</b> SOP-LTK-TRT-11-EN sc injection SOP-LTK-RES-5-F-EN Scoring and withdrawal criteria of i.c. tumors SOP-LTK-TRT-17-E-EN Post-surgery analgesia		
<b>Indication of Use:</b> Pain management of tumor bearing animals that do not respond to Carprofen analgesia		
<b>Aim of SOP:</b> This procedure describes how to administer Buprenorphine as analgesic via subcutaneous injection (day) and via drinking water (night)		
<b>Distribution:</b> 1. Server 2. Animal house 3. Group Johannes vom Berg		
<b>Attachments:</b>		
Generated at: 01.12.19	Checked and approved at: 04.12.19	
by: Johannes vom Berg	by: Thorsten Buch	

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**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

**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-B-EN s.c. injection)
3. Repeat injection every 4-6 hours
4. Control analgetic effect before next injection, if necessary increase frequency to 4 hours
5. During dark phase, switch to oral application via drinking water
6. Switch back to s.c. administration the next morning latest 4 hrs after onset of light phase

**Documentation:**  
 Lab book, SOP-LTK-RES-5-F-EN 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](https://www.tierschutz.uzh.ch/dam/jcr:ffffff-a9e4-863e-00000000341f85c6/Merkblatt_Dosierungsempfehlung_BuP_Maus_27_April_2015_Englisch.pdf)