

SOP #: 703.01Title: SOP - Recommended Volumes for Administered Substances

Approvals:

Attending Veterinarian

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Date:

10/11/12

Assistant Director LAR

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Date:

10/11/12

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#### 1. Purpose

1.1 To assist research personnel on determining the volumes for administering substances to laboratory animals in ways judged to be scientifically, technically and humanely appropriate.

#### 2. Responsibility

2.1 Principal Investigators, Veterinary Staff, Laboratory Technicians

#### 3. Definitions

3.1 Aqueous: dissolved in water.

3.2 Isotonic: same tonicity as blood (around 300 mosm/L).

3.3 Hypertonic: tonicity (osmotic pressure) greater than blood

#### 4. Guidelines

4.1 Solutions injected subcutaneously or intramuscularly must have a pH around 7.4 and be isotonic. Non-isotonic solutions must be injected slowly if intra-peritoneal or intravenous routes are used.

4.2 Injections should be at a constant flow and should offer no resistance (do not apply overt pressure on the syringe's plunger; the injected substance should flow freely) to prevent any unnecessary pain and tissue damage.

4.3 Solutions injected must be close to the animal's temperature (at least room temperature).

4.4 If an injection site shows signs of inflammation or damage, another site must be selected.

4.5 In case of multiple injections, sites must be used in rotation (alternate different sites).

4.6 For non-aqueous injections consideration must be given to time of absorption before re-dosing.

4.7 Intramuscular sites should be limited to 2 per day and subcutaneous sites should be limited to 2-3 per day.

4.8 Recommended volumes per routes and per species.

Species and Weight	Per os (oral) ml/dose		Subcutaneous ml/site		Intramuscular ml/site		Intra-peritoneal ml/dose		Intravenous ml/dose	
	Rec.	Max.	Rec.	Max	Rec.	Max	Rec.	Max	Max	Bolus*
Rat (200g)	2	6	1	2	0.1	0.2	2	4	1	4
Mouse (25g)	0.25	1.0	0.25	1	0.05	0.1	0.5	2	0.125	0.625
Rabbit (5kg)	20	60	300	100	1.0	1.5	20	40	10	40

\*Slow Infusion 5-10min/10ml

## 5. References

5.1 Diehl, K.-H. et al., "A Good Practice Guide to the Administration of Substances and Removal of Blood, Including Routes and Volumes", J. Applied Toxicology., 21, 15–3 (2001).