THE UNIVERSITY OF TOLEDO
INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

SUBJECT: Blood Collection Guideline

DATE: April 21, 2021

Blood Collection Guideline

This guideline establishes safe blood collection practices for laboratory animals. Blood collection procedures must be described in the approved Institutional Animal Care and Use Committee (IACUC) protocol, including the method, the volume of blood to be collected, and the interval between blood collection events. The method and volume of blood to be collected will depend on the animal species, frequency of collection, and experimental needs. Researchers should take measures to minimize stress associated with the blood collection procedure and blood loss on the physiology of the animal. This will also help to minimize experimental variables and confounding influences on research data. Any exceptions to these guidelines, such as increase in blood volume or frequency to be collected, must be scientifically justified in the protocol. (1,2) Researchers should contact DLAR for blood collection procedure training.

Table 1. Approximate Circulating Blood Volume

Species	Approximate blood volume
	(mean 72 ml/kg)
Rat	58 to 70 ml/kg body weight (mean 64 ml/kg)
Rabbit	44–70 ml/kg body weight (mean 56 ml/kg)

Percentage of total circulating blood volume that can be safely removed and frequency is summarized in Table 2. “Frequency” represents the recovery period the animal needs in order to replenish cells lost during the bleed and to recover from the physiologic response to hemorrhage. If additional blood samples are needed, the animal may not be bled again until after the period of time stated in “Frequency”. Samples may be taken during a single bleeding event or during multiple events over time. If taken during multiple events (for example during a pharmacokinetics study over 96 hours or a glucose tolerance test over 2 hours), the total volume taken (all samples combined) cannot exceed 15%, and the “recovery period” starts after the last blood collection event. These recommendations do not apply to a terminal sample collection, where an animal is exsanguinated while deeply anesthetized and euthanized while still under anesthesia (must be approved in the IACUC protocol). (3)

Table 2.

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