Animal Housing Requirements

ABSL1= Fairchild, Schermerhorn; JLG; EI, RB, BB, ICRC 11, Hammer (2020) **ABSL2 = NWC 8 (Danino); JLG SC2.053; ICRC 1016; Hammer (1724 in 2020)**			**Preparative or post-mortem agent/Biosafety Level in the Investigator's Laboratory**								
			BSL1	**BSL2**	**BSL2**	**BSL2**	**BSL2**	**BSL2**	**BSL2 + (enhanced safety precautions)**	**BSL2**	**BSL2**
Procedure	**Animal Housing**		Adeno-associated virus (AAV) *OR* plasmids *OR* MMLV *OR* other BSL1 Agents	Human materials *OR* Human cell lines	Human *OR* animal cells transduced with viral vectors. (Cells washed to remove free virus)	Intracranial administration of Lentivirus, G-deleted Rabies OR Herpes virus vectors by stereotactic injection.	Intracranial administration of **Adenoviral** vectors by stereotactic injection.	ALL OTHER Replication-deficient vectors administered **other** than intracranial injection (Retrovirus, G-deleted Rabies, Herpes and Adenovirus vectors)	Pseudotyped lentiviral vectors containing **oncogenic** / growth promoting inserts	Known "Risk Group 2" infectious agents *OR* replication-competent viral vectors	Replication-competent viral vectors e.g., pseudorabies
Agent Administration	ABSL1	Open bench	x	x	x						
	ABSL1	Stereotax: Intracranial injection				x					
	ABSL2	Stereotax: Intracranial injection					x				
	ABSL2	Use of a Biosafety Cabinet						x	x	x	x
Personal Protective Equipment (PPE):	ABSL1	Basic ICM PPE: gown, gloves, shoe covers, hair bonnet	x	x	x	x					
	ABSL2	Basic ICM PPE PLUS: Eye Protection and Double gloves					x	x	x	x	x

Modified: 10-2019 [Biosafety Office]

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Hazard awareness:	ABSL2 only	Door Signage: Identify all infectious agents in use					**X**	**X**	**X**	**X**	**X**
Bio-waste handling:	ABSL1	Waste enters municipal waste (clear bag)	**X**	**X**	**X**						
	ABSL1	Waste enters RMW stream (red bag or sharps container)	**Note 1**	**Note 1**	**Note 1**	**Note 1**	**Note 1**				
	ABSL2	Infectious material autoclaved within facility prior to RMW disposal (red bag)					**X**	**X**	**X**	**X**	**X**
	ABSL2	Sharps flushed with bleach prior to disposal in sharps container				**X**	**X**	**X**	**X**	**X**	**X**

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Cage changing:	ABSL1 / ABSL2	ICM husbandry staff according to the schedule	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
	ABSL2	Performed in a BSC					**X**	**X**	**X**	**X**	**X**
	ABSL2	No cage changing for 72 hours to allow complete shedding of agent						**X**	**X**		
	ABSL2	Disposable caging option						**X**	**X**	**X**	**X**
Animal Bedding:	ABSL1	Bedding disposed in regular trash (clear bag)	**X**	**X**	**X**	**X**					
	ABSL2	Bedding autoclaved within facility prior to RMW disposal (red bag)					**X**	**X**	**X**	**X**	**X**

Note 1 - Small items (e.g. pipette tips, needles, tubes) can be placed in sharps container. Large items (e.g. tissue culture flasks) require installation of red bag service in all ABSL1 procedure rooms.

General Note- Engineered sharps is **highly recommended** for all injection procedures at all biosafety levels and is **required** for NHP work.

**When in doubt, RASCAL training course TC1150 contains risk assessment information to assist researchers determine animal housing and safe work practices.

In Summary, ICM and EH&S agrees on the following parameters:

1. The following **procedures and subsequent housing** was assessed as acceptable to perform at BSL-1/ABSL-1 containment:
   - Injection of human cells or cell lines into animals.
     - Rationale: minimal likelihood of cells containing pathogens that could be aerosolized by injection
   - Housing of animals that had been administered cells transduced with viral vectors; provided the cells had been washed to remove free virus or there had been a culture period of several days that would reduce levels of free virus.
     - Rationale: reduced viral load, viral half–life is in the order of hours.
   - Injection of adeno-associated virus (AAV) into animals.
     - Rationale: AAV is non-pathogenic in humans.
   - Intracranial administration of BSL-2 viruses (with the exception of Adenovirus) by stereotactic injection.
     - Rationale: small (ul) quantities of virus, minimal likelihood of aerosolization due to slow delivery and withdrawal of needle.

2. The following **procedures and subsequent housing** was assessed as acceptable to perform at BSL-2/ABSL-2 containment:
   - Work with known infectious agents that are identified as "Risk Group 2" agents in the BMBL or can cause disease in healthy adult humans.
     - Rationale: BMBL guidance.

3. The following **procedures** should be performed at BSL-2 and **subsequent housing** was assessed as acceptable to perform at ABSL-1 containment following at 72-hour washout period during which ABSL-2 containment is necessary:
   - Administration of replication-deficient vectors by any means other than intracranial injection. Commonly used replication-deficient viral vectors pose minimal exposure risk by 72 h after inoculation. Prudent precautions at BSL-2/ABSL-2 are warranted during initial administration (animals administered viral vectors in a biosafety cabinet) and for 72 h afterwards, but ABSL-1 safety measures may be sufficient after cage changing at 72 h.
     - Rationale: Papers in Comparative Medicine 62, 371-370, 2012; Current Gene Therapy, 9,459-474, 2009