CL Davis
Topics in Laboratory Animal Medicine

2009 ILAR Review

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In evaluating the neurobiology of sexual reward, reinforcement refers to:

A. An increase in the probability of a response associated with a positive stimulus

B. An increase in the probability of a response associated with an aversive stimulus

C. The ability to elicit an approach behavior

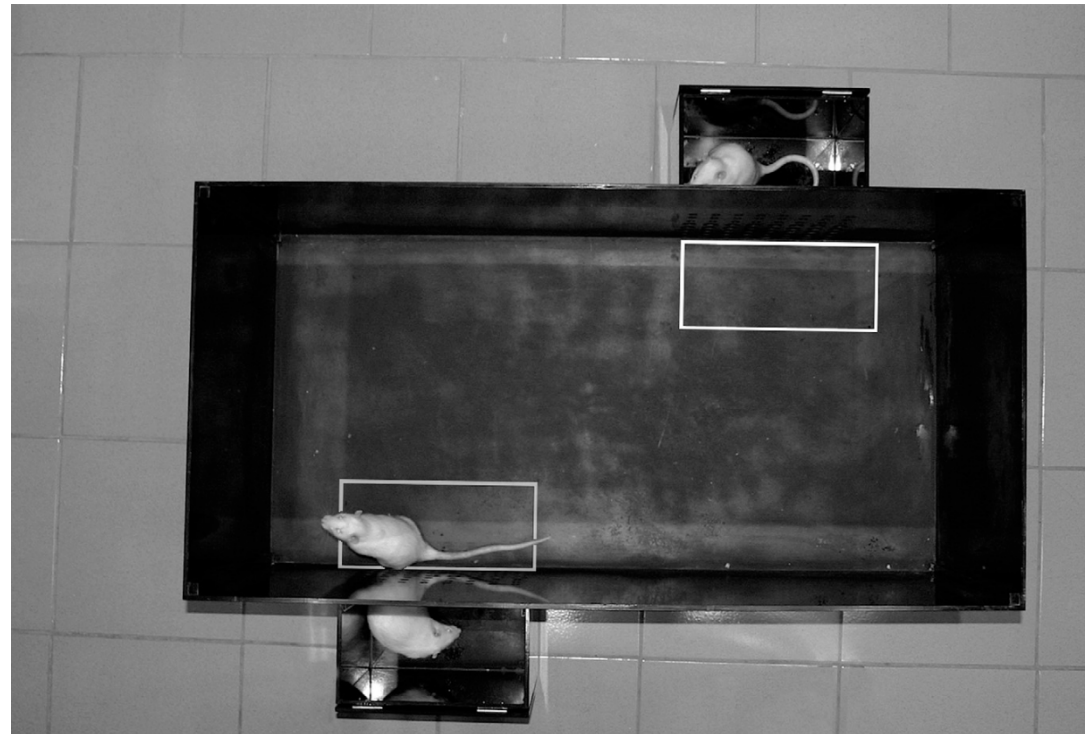ILAR **50**(1): *Evaluating the Neurobiology of Sexual Reward, p. 15*

In the female prairie vole, select the hormone that **interferes** with pairing in females

A. Vasopressin

B. Oxytocin

C. Corticosterone

D. Dopamine

ILAR **50**(1): *Neuroendocrinology of Social Behavior, p. 8*

This apparatus demonstrates:

A. Operant behavior

B. Partner preference

C. Sexual incentive motivation

D. Place preference conditioning

ILAR **50**(1): *Evaluating the Neurobiology of Sexual Reward, p. 17, 18.*

This apparatus demonstrates:

A. Operant behavior

B. Partner preference

C. Sexual incentive motivation

D. Place preference conditioning

E. Sexual pacing behavior

ILAR **50**(1): *Evaluating the Neurobiology of Sexual Reward, p. 21.*

Female mice confirmed pregnant aborted their pregnancy when exposed to an unfamiliar male mouse. This pregnancy block is known as:

A. Whitten effect
B. Bruce effect
C. Lee-Boot effect

ILAR **50**(1): *Olfactory Regulation of the Sexual Behavior and Reproductive Physiology of the Laboratory Mouse: Effects and Neural Mechanisms, p.32.*

Chemosensory cues implicated in pregnancy block include all **EXCEPT**:

A. Major histocompatability complex peptides

B. High molecular weight urinary proteins

C. Low molecular weight urinary proteins

ILAR **50**(1): *Olfactory Regulation of the Sexual Behavior and Reproductive Physiology of the Laboratory Mouse: Effects and Neural Mechanisms, p. 34.*

Exposure of juvenile female mice to urine from which of the following will accelerate puberty?

A. Juvenile male mice

B. Non-estrous female mice

C. Pregnant female mice

D. Subordinate male mice

ILAR **50**(1): *Olfactory Regulation of the Sexual Behavior and Reproductive Physiology of the Laboratory Mouse: Effects and Neural Mechanisms, p. 34.*

Rat pups develop auditory function at:

A. Post natal day 2-4

B. Post natal day 6-8

C. Post natal day 12-14

D. Post natal day 16-18

ILAR **50**(1): *Communication of Adult Rats by Ultrasonic Vocalization: Biological, Sociobiological, and Neuroscience Approaches, p. 44.*

Rat vocalization is characterized by:

A. Long 22 kHz alarm vocalization, short 50 kHz social vocalizations

B. Long 50 kHz alarm vocalization, short 22kHz social vocalization

C. Short 22 kHz alarm vocalization, long 50 kHz social vocalizations

D. Short 50 kHz alarm vocalization, long 22 kHz social vocalizations

ILAR **50**(1): *Communication of Adult Rats by Ultrasonic Vocalization: Biological, Sociobiological, and Neuroscience Approaches, p. 44.*

Maternal behavior is triggered by:

A. Rapid decline of progesterone accompanied by rise in estradiol

B. Rapid rise of progesterone accompanied by decline in estradiol

C. Rapid rise of progesterone accompanied by a decline in oxytocin

D. Rapid decline in estradiol accompanied by a rise in oxytocin

The "Guide" recommends that "Whenever it is appropriate, social animals should be housed in pairs or groups, rather than individually…" For which of the following animal species is this not true?

A. Sprague Dawley rats

B. C57 Bl6 mice

C. Beagle dogs

D. Syrian hamsters

E. Zebra finches

ILAR **50**(1): *Optimization of the Laboratory Conditions for the Study of Social Behavior,*
       p. 74.

The laboratory animal veterinarian in the following country has no specific role for monitoring of animal health and well-being:

A. United Kingdom

B. India

C. Japan

D. Canada

E. Germany

ILAR **50**(1): *Adequate Veterinary Care for Animals in Research: A Comparison of Guidelines from Around the World, p. 87.*

Select from the following the disease model in large animals that has been created through genetic engineering

A. Golden Retriever model of Duschene Muscular Dystrophy

B. Pig model of Cystic Fibrosis

C. Cairn terrier model of Globoid Cell Leukodystrophy

D. Feline model of Mucopolysaccharidosis VI

ILAR **50**(2): *Gene Therapy in Large Animal Models of Human Genetic Diseases, pps. 114, 116.*

Inherited disorders of metabolism commonly present with:

A. Chronic growth failure

B. Normal histologic evaluation of organs

C. Ability to maintain colony by breeding homozygous effected animals

D. Normal biochemical test values until puberty

ILAR **50**(2): *Gene Therapy of Inherited Metabolic Disorders in Companion Animals, p. 122-126.*

Unlike lentiviruses, adeno-associated viruses are unique in use for viral vectored gene therapy due to:

A. Their ability to replicate in both proliferating and quiescent cells

B. Their inability to replicate without help from other co-infecting viruses

C. Only one serotype identified for use in gene therapy

D. No variability in cell and tissue tropism

In studies of Hemophilia B (Factor IX deficiency) in Chapel Hill strain dogs, inhibitory anti-canine F.IX antibodies were formed after rAAV gene therapy administered by what route?

A. Intramuscular

B. Portal vein

C. Peripheral vein

D. Isolated limb perfusion

ILAR **50**(2): *Protein Replacement Therapy and Gene Transfer in Canine Models of Hemophilia A, Hemophilia B, von Willebrand Disease, and Factor VII Deficiency, p. 153, 154.*

This breed of dog is an animal model for:

A. Macro-thrombocytopenia

B. Hereditary spherocytosis

C. Pyruvate kinase deficiency of RBC's

D. Glanzmann thrombasthenia

ILAR **50**(2): *Potential Large Animal Models for Gene Therapy of Human Genetic Diseases of Immune and Blood Cell Systems, p. 171-173.*

Characteristics of Duchenne muscular dystrophy in the canine model include:

A. Mild phenotype

B. Uniform degeneration of all skeletal muscles

C. Sparing of cardiac and smooth muscle

D. Muscle lesions beginning *in utero*

Inherited dilated cardiomyopathy has been studied in which animal?

A. Main coon cat

B. Portuguese water dog

C. Boxer dog

Select the correct statement regarding Adeno-associated virus (AAV) gene therapy of animal models of retinal disease

A. All AAV serotypes have similar tropism for retinal pigmented epithelium

B. Only AAV 2/8 is able to transduce all cell layers of the retina

C. Subretinal injection of AAV 2/2 is inferior to intravitreal injection

D. Vector DNA has not been dectected in optic nerve or brain when AAV 2/2 vector was injected via subretinal injection

ILAR **50**(2): *AAV-Mediated Gene Therapy for Retinal Disorders in Large Animal Models, p. 209-210.*

Currently, targeted creation of specific genetic disease models in large animal species is limited to:

A. Non-human primate
B. Dog
C. Cat
D. Swine

ILAR **50**(2): *Large Animal Models of Genetic Disease: Pertinent IACUC Issues, p. 227.*

Naturally occuring models of obstructive sleep apnea (OSA) include all of the following EXCEPT:

A. Lamb

B. English bulldog

C. Zucker obese rat

D. German short-haired pointer

ILAR **50**(3): *Sleep-Disordered Breathing across the Life Span: Exploring a Human Disorder Using Animal Models, p. 243.*

This instrument is used for :

A. Urine collection

B. Mouse euthanasia

C. Monitoring breathing

D. Administration of compounds under pressure

ILAR **50**(3): *Breathing and Sleep: Measurement Methods, Genetic Influences, and Developmental Impacts, p. 249-253.*

The most important sleep apnea component underlying cardiovascular complications of sleep-disordered breathing is:

A. Sleep fragmentation
B. Obstructed respiratory efforts
C. Hypertension
D. Intermittent hypoxia

ILAR **50**(3): *Cardiovascular Consequences of Sleep-Disordered Breathing: Contribution of Animal Models to Understanding of the Human Disease, p. 262.*

Pathogenesis of sleep apnea inducement of atherosclerosis includes:

A. Decreased carotid intima-media thickness

B. Increased vasodilation

C. Systemic inflammation

D. Normo-lipidemia

ILAR **50**(3): *Cardiovascular Consequences of Sleep-Disordered Breathing: Contribution of Animal Models to Understanding of the Human Disease, p. 270.*

Animal models of intermittent hypoxemia (IH) cause different responses depending upon the exposure paradigm. Select the correct paradigm.

A. Hypocapnic, eucapnic and hypercapnic IH all result in increased arterial blood pressure

B. Hypocapnic and eucapnic IH both result in increased hematocrit

C. IH is associated with diminished NO-dependent vasodilation and diminished COX-2 expression

Animal models of IH, in which rodents are exposed to IH during their sleep phase, results in all of the following EXCEPT:

A. Alteration of circadian glucose homeostasis

B. Impairment of muscle carbohydrate uptake

C. Induction of hyperlipidemia

D. Downregulation of cholesterol synthesis enzymes

ILAR **50**(3): *Metabolic Consequences of Sleep-Disordered Breathing, p. 289.*

Which of the 4 categories of animal models of Obstructive Sleep Apnea (OSA) have been used to study the relationship of OSA to metabolic disease?

A. Spontaneous sleep apnea

B. Mechanical or surgical airway obstruction

C. Intermittent hypoxic gas delivery

D. Induction of sleep fragmentation

ILAR **50**(3): *Metabolic Consequences of Sleep-Disordered Breathing, p. 295-298.*

Cognitive consequences of obstructive sleep apnea include all of the following except:

A. Depressed mood

B. Impaired fine motor skills

C. Impaired gross motor skills

D. Impaired memory and /or executive functioning

ILAR **50**(3): *Insight from Animal Models into the Cognitive Consequences of Adult Sleep-Disordered Breathing, p. 307.*

Which IACUC consideration is appropriate for protocol review involving animal models of sleep-disordered breathing?

A. In-vitro studies of the effects of IH on specific neurons can easily replace whole animal models

B. In rodents, husbandry activities during normal working hours are unlikely to effect data

C. Sleep-disordered breathing is an insignificant problem in the human population

D. Surgical models must be weighed for their importance due to the stress and need to provide appropriate analgesia

ILAR **50**(3): *An IACUC Perspective on Animal Models of Sleep-Disordered Breathing.*

Credible methods to demonstrate emotion in fish include all EXCEPT:

A. Creating a lesion (ablation) with subsequent observation of effect

B. Hormone manipulation

C. Genetic selection and characterization of genetic differences

D. Measurement of cortisol levels in different "emotional states"

ILAR **50**(4): *Challenges in Assessing Fish Welfare, p. 331-332.*

Choice preference testing of Nile tilapia (*Oreochromis niloticus*) revealed that this species of fish has a significant preference for:

A. Yellow light of low intensity (<80 lux)

B. Yellow light of high intensity (>100 lux)

C. Green light of low intensity (<80 lux)

D. Green light of high intensity (>100 lux)

Nociceptors have been identified in which of the following fish?

A. Shark

B. Rainbow trout

C. Skate

D. Stingray

ILAR **50**(4): *Pain Perception in Fish: Indicators and Endpoints, p. 339.*

The greatest changes in levels of gene expression in response to noxious stimuli in rainbow trout have been identified in which area of brain?

A. Forebrain

B. Midbrain

C. Hindbrain

D. Cerebellum

ILAR **50**(4): *Pain Perception in Fish: Indicators and Endpoints, p. 339.*

In response to hypoxia:

A. Cyprinids show increases in blood glucose

B. Epaulette shark show increases in blood glucose

C. Epaulette shark have increased ventilation and metabolism

D. Cyprinids have decreased levels of gamma-aminobutyric acid (GABA)

ILAR **50**(4): *Fish Sedation, Anesthesia, Analgesia, and Euthanasia: Considerations, Methods, and Types of Drugs, p. 344.*

In study of electrical behaviors in response to pain and distress in weakly electric fish:

A. Jamming avoidance response becomes more erratic with lower amplitudes

B. Chirping behavior increases

C. Electric organ discharge amplitude is maintained

D. Electric organ discharge amplitude is increased

ILAR **50**(4): *Effects of Restraint and Immobilization on Electrosensory Behaviors of Weakly Electric Fish, p. 368-370.*

As early as 24 hours post fertilization, zebra fish embryo mRNA expression was detected for which opoid receptor?

A. drMOR

B. drDOR1

C. drDOR2

D. drKOR

As early as 24 hours post fertilization, zebra fish embryo mRNA expression was detected for which opoid receptor?

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B. drDOR1

C. **drDOR2**

D. drKOR

ILAR **50**(4): *The Zebrafish: A Model to Study the Endogenous Mechanisms of Pain, p. 383.*