Literature Review: JAALAS

Angela King-Herbert
CL Davis Seminar
May 17, 2007
What is the sequelae of long-term catheterization in sheep?

Gross and microscopic renal damage including infarcts and membranoproliferative glomerulonephritis despite the absence of overt clinical signs of infection.

Renal Infarction and Immune-mediated Glomerulonephritis in Sheep (Ovis aries) Chronically Implanted with Indwelling Catheters
JAALAS Volume 45, Issue 4, July 2006
By Varada P Rao, Theofilos Poutahidis, Robert P Marini, Hilda Holcombe, Arlin B Rogers, and James G Fox
What are phytoestrogens?
Compounds found in plants that are important for plant growth and for protection of plants from ultraviolet radiation and environmental stress

Name the two soy isoflavones that have structural similarities to mammalian estrogens.
Genistein and daidzein

What is equol?
A daidzein metabolite produced by the gut flora of some humans and most animals

Concentrations of Isoflavones in Macaques Consuming Standard Laboratory Monkey Diet JAALAS Volume 45, Issue 4 July 2006
Fawn C Stroud, Susan E Appt, Mark E Wilson, Adrian A Franke, Michael R Adams, and Jay R Kaplan
When exteriorizing the prostate gland, the following is used as a landmark to identify the prostate:

A. Urethra  
B. Perineal musculature  
C. Rectum  
D. None of the above

Using the perineal approach to exteriorize the prostate gland, what must one be concerned about?

A. Tearing of the rectum and urethra  
B. Puncturing of the seminal vesicles  
C. Cutting the pudendal nerve  
D. Tearing of the perineal musculature

Assessment of an Intraprostatic Injection Technique through a Perineal Approach in Macaques

Contemporary Topics in Laboratory Animal Science

Volume 45, Issue 4 July 2006  Michael M Laffins and Richard J Early
Use of Human Nasal Cannulas during Bronchoscopy Procedures as a Simple Method for Maintaining Adequate Oxygen Saturation in Pigtailed Macaques (Macaca nemestrina)
JAALAS Volume 45, Issue 4 July 2006
By Matthew J Thomas, Leon R Flanary, Bruce A Brown, Michael G Katze, and Carole R Baskin
What procedure is depicted in the picture?

Collection of amniotic fluid using an ultrasound guided technique in the rat
What are the 2 main techniques for collecting amniotic fluid in animals?

- Surgical
- Echographic

True or False - In a recent journal, echographic amniocentesis in the rat results in 100% fetal death

False

Ultrasound-guided Collection of Amniotic Fluid in Pregnant Rats
JAALAS Volume 45, Issue 4 July 2006
By Sophie Serriere, Lydie Nadal-Desbarats, François Seguin, Léandre Pourcelot, and François Tranquart
What instrument can be used to assess the quality of anesthetic/anagelsic mixtures?
   Temperature compensated clinical refractometer

What two variables must be carefully controlled to ensure precision and accuracy when using a refractometer?
   Temperature and wavelength of light

Refractometry for Quality Control of Anesthetic Drug Mixtures
JAALAS Volume 45, Issue 4 July 2006
By Jennifer M Stabenow, Mindy L Maske, and George A Vogler
A high prevalence of spontaneous urinary bladder tumors has been noted in what rat strain/stock?

A. Wistar Han
B. Long Evans
C. Sprague Dawley
D. Zucker fatty rat
E. Brown Norway
Experimentally induced urolithiasis develops by the administration of what agents?

- Melamine
- Terephthalic acid
- Uracil
- Manganese
- Biphenyl
What bacteria, when experimentally inoculated in the kidney or bladder of Wistar rats, initiates stone formation in only a few days?

*Ureaplasma urealyticum*

What other bacteria has been reported to be the causative agent of urinary calculi in Lewis rats after spontaneous infection?

*Corynebacterium renale*
Buprenorphine is:

- A partial mu-opioid receptor antagonist
- A kappa-receptor antagonist
- A full mu-opioid receptor agonist
- A partial kappa-receptor agonist

Pharmacokinetics of Buprenorphine after Intravenous Administration in the Mouse

JAALAS Volume 45, Issue 3 May 2006

By Shipeng Yu, Xiaofeng Zhang, Yichun Sun, Yingxu Peng, James Johnson, Tim Mandrell, Atul J Shukla, and S Casey Laizure
What is the procedure being demonstrated?

**Collection of blood from the jugular vein in a rat**

Comparison of the Stress Response in Rats to Repeated Isoflurane or CO2:O2 Anesthesia Used for Restraint During Serial Blood Collection via the Jugular Vein


By Lotus Y Altholtz, Keith A Fowler, Lori L Badura, and Mark S Kovacs
What 5 criteria were used to determine the successful introduction of NHP infants to their mothers after cesarean delivery?

- Mother displayed affiliative behavior towards infant by touch, smell and/or facial expressions
- Mother groomed infant with fingers or lips
- Mother picked up and held or cradled infant ventrally
- Mother nursed infant
- Mother did not display aggressive behavior towards infant.

What is LEN?

- Lips forward, ears back, neck extended a facial expression exclusive to Macaca nemestrina

Give the common name for Macaca nemestrina.

- Pigtailed macaque

Successful Introduction of Macaca nemestrina Infants to Their Mothers after Cesarean Delivery

By Rita U Bellanca, Diella R Koberstein, Patrick J Delio, Stephen T Kelley, and Carolyn M Crockett
True or False Topical selamectin (0.6 mg/kg) was very effective in eliminating Syphacia muris in rats
   False
True or False Topical selamectin (6.0 mg/kg) was very effective in eliminating Syphacia muris in rats
   False

Choose the correct statement:

A. Fenbendazole and selamectin are both reported to have ovacidal activity.
B. Fenbendazole and selamectin are both reported as not having ovacidal activity
C. Fenbendazole is reported to have ovacidal activity, but selamectin is not.
D. Selamectin is reported to have ovacidal activity but fenbendazole is not

Efficacy and Safety of Topical Selamectin to Eradicate Pinworm (Syphacia spp.) Infections in Rats (Rattus norvegicus) and Mice (Mus musculus)

By William Allen Hill, Mildred Montgomery Randolph, Sharon Jean Lokey, Ernestine Hayes, Kelli Lynn Boyd, and Timothy David Mandrell
What are the five basic types of lasers commonly used today?

Crystal and glass
Gas
Excimer
Semiconductor
Chemical

Between the yorkshire pig and the yucatan minipig, which animal is considered the better model for human skin? Why?

Yucatan minipig; The melanin distribution for human skin samples is closer to the yucatan than the yorkshire. Also the yucatan has less hair than the yorkshire, making it closer anatomically to human skin.

Response of Lightly and Highly Pigmented Porcine Skin (Sus scrofa domestica) to Single 3.8-mm Laser Radiation Pulses

By Anthony C Bostick, Deidre E Stoffregen, and Thomas E Johnson
Based on a recent retrospective study of idiopathic ulcerative dermatitis in mice:

True or False

Ulcerative dermatitis is seen mostly in mice on a Swiss Webster background

(False - only seen in animals on a B6 background)

Average age of onset is approximately 13 months

(True - The incidence of the disease increases as the animals age)

Males are affected more than females

(False - Females are disproportionately affected as compared to males)

*Staphylococcus xylosus* was the bacteria most frequently isolated from lesions

(True)
True or False
Female Long-Evans rats had significantly higher pain thresholds when given oral buprenorphine at 0.5 mg/kg as compared to rats given 0.05 mg/kg subcutaneously.

(False - Female Long-Evans rats given buprenorphine orally at 0.5 mg/kg did not differ from the controls (only given a water vehicle Orally and SC) in pain threshold levels)

Female Long-Evans rats in proestrus were more sensitive to pain than female rats in diestrus. True

Bottom line: 0.5 mg/kg of buprenorphine give orally to female and male LE rats and male SD rats does not appear to be an effective anagelsic.

Ref: Lack of Analgesic Efficacy in Female Rats of the Commonly Recommended Oral Dose of Buprenorphine
Contemporary Topics in Laboratory Animal Science Volume 45, Issue 6 November 2006, Pg. 13
By Alexis C Thompson, Jean M DiPirro, Ahmad R Sylvester, Lisa BE Martin, and Mark B Kristal
What is the best way to remove the mucus layer from the skin of Xenopus laevis -

Gently wipe with a moist sterile gauze pad

What peptides secreted from granular glands in X. laevis skin, inhibit the growth of gram positive and gram negative bacteria several fungi and some protozoal species

magainins
It was recommended that two of the suture materials be avoided in *X. laevis* skin. What were these two materials and why was their avoidance suggested?

Silk and chromic gut; Should be avoided because they elicited the strongest gross and histologic reactions and they were associated with a high rate of dehiscence.

According to the authors, what is the preferred suture material for *X. laevis* skin?

Monofilament nylon, because it caused the least amount of histologic tissue reaction and it had a low incidence of dehiscence.

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**Evaluation of the Gross and Histologic Reactions to Five Commonly Used Suture Materials in the Skin of the African Clawed Frog (*Xenopus laevis*)**

*JAALAS* Volume 45, Issue 6 November 2006

By Allison D Tuttle, J Mac Law, Craig A Harms, Gregory A Lewbart, and Stephen B Harvey
What is a natural sequela of platelet aggregation and fibrin deposition?

**Thrombotic occlusion**

What are the four types of thrombi?

- **Fibrin sheath**
- **intraluminal thrombus**
- **Fibrin tail**
- **Mural thrombus**

**Noninfectious Complications Due to Vascular Access Ports (VAPs) in Yucatan Minipigs (Sus scrofa domestica) Contemporary Topics in Laboratory Animal Science Volume 45, Issue 6 November 2006 By Christine A Ege, Nannette C Parra, and Thomas E Johnson**
What are benzimidazoles?

**Antihelmintics**

Name a commonly used benzimidazole

**Fenbendazole**

What is their mode of action?

They act via inhibition of microtubule polymerization via binding to beta tubulin in susceptible parasites

What strain of rats is used to study seizure mechanisms?

**Do not use acronyms**

Genetically Epilepsy Prone Rats substrain 9, see page 720 the Laboratory Rat to learn more about this substrain

**Fenbendazole Treatment and Litter Size in Rats**

Contemporary Topics in Laboratory Animal Science

Volume 45, Issue 6 November 2006, pages 35-39

By Nancy A Johnston, Jeremiah R Bieszczak, Steven Verhulst, Kimberly E Disney
Give the causative agent of monkey B virus

*Cercopithecine herpesvirus 1*

Animals experimentally infected with monkey B virus must be housed and handled under what animal biosafety level?

A. Animal biosafety level 1  
B. Animal biosafety level 2  
C. Animal biosafety level 3  
D. Animal biosafety level 4

According to a recent journal article, tissue infected with herpesvirus can be safely handled after how many hours of formalin fixation?

A. 12 hours  
B. 24 hours  
C. 36 hours  
D. 48 hours  
The timeframe has not been determined

In Vivo Experimentation with Simian Herpesviruses: Assessment of Biosafety and Molecular Contamination

*JAALAS Volume 45, Issue 2, March 2006*

*By Jerry W Ritchey, Darla H Black, Kristin M Rogers and Richard Eberle*
What animal is an important model for hepatitis B virus infections in humans?
A. Mus musculus
B. Saimiri sciureus
C. Macaca mulatta
D. Marmota monax
E. Sigmodon hispidus

Woodchuck hepatitis virus belongs to which virus family?
A. Hepadnaviridae
B. Herpesviridae
C. Coronaviridae
D. Picornaviridae
E. Retroviridae

Chronic Care and Monitoring of Woodchucks (Marmota monax) during Repeated Magnetic Resonance Imaging of the Liver
JAALAS, Volume 45, Issue 2, March 2006
List 6 parameters that were used in a comprehensive “weight of evidence” approach to evaluate male cynomolgus monkeys for sexual maturity.

- Age
- Body weight
- Testicular volume
- Serum testosterone
- Ejaculate volume
- Sperm quality

Methods for the Prediction of Breeding Success in Male Cynomolgus Monkeys (Macaca fascicularis) Used for Reproductive Toxicology Studies

JAALAS, Volume 45, Issue 2, March 2006
By Julie K Meyer, Dalene Fitzsimmons, Thomas F Hastings, and Gary J Chellman
True or False When provided with increased vertical space, rhesus monkeys in captivity spent less time at elevated heights.

False

Use of Enclosures with Functional Vertical Space by Captive Rhesus Monkeys (Macaca mulatta) Involved in Biomedical Research

JAALAS, Volume 45, Issue 5, pp. 31-34, September 2006

By Wendy M Clarence, Jennifer P Scott, Michael C Dorris, and Martin Paré
In rhesus monkeys, prolonged individual housing is implicated as a leading contributing factor in the development of _____ _____ (no acronyms).

**Self-injurious behavior**

Stereotypical behaviors and self-biting in rhesus monkeys decreased with _____ _____.

**Outdoor housing**

Effects of Outdoor Housing on Self-Injurious and Stereotypic Behavior in Adult Male Rhesus Macaques (Macaca mulatta)


By M Babette Fontenot, Mandi N Wilkes, and Cheryl S Lynch
What is being depicted in the above image?

Vegetative left atrioventricular valve lesion

True or False Doxorubicin induces cardiomyopathy in rats, creating model to study mechanisms of drug induced cardiac toxicity

True

Validation of the Use of Long-term Indwelling Jugular Catheters in a Rat Model of Cardiotoxicity
JAALAS, Volume 45, Issue 5, pp.55-64, September 2006
By Lynn M Wachtman, Michelle D Browning, Djahida Bedja, Scott Pin, and Kathleen L Gabrielson
What is the causative agent of Tyzzer’s disease?

*Clostridium perfringens*

*Clostridium difficile*

*Clostridium colinum*

*Clostridium piliforme*

*Clostridium chauvoei*

True or False The close relationship between C. piliforme and C. colinum precludes the development of specific PCR assay for Tyzzer’s disease.

**True**

Ribosomal RNA Sequences of Clostridium piliforme Isolated from Rodent and Rabbit: Re-examining the Phylogeny of the Tyzzer’s Disease Agent and Development of a Diagnostic Polymerase Chain Reaction Assay

JAALAS, Volume 45, Issue 5, September 2006

By Sanford H Feldman, Anahita Kiavand, Michel Seidelin, and Heinz R Reiske
What procedure is being performed in the previous slide? Be specific

Laparoscopic Ovariectomy

True or False  Rhesus monkeys undergoing ovariectomy via laparotomy had a convalescence period for about 8 days before their hospital discharge.

False

Evaluation and Comparative Analysis of a Technique for Laparoscopic Ovariectomy in Rhesus Macaques (Macaca mulatta)

JAALAS, Volume 45, Issue 5, pp.74-78, September 2006

By C Andrew Matchett, Pablo R Morales, and Jack L Orkin
Streptococcus pyogenes is also known as _______ (no acronyms)
Group A streptococcus
What are the 3 most common superficial infections caused by Streptococcus pyogenes?
Acute tonsillitis
Pharyngitis
Pyoderma
What is considered the key virulence factor in Group A streptococcus?
A. T protein
B. M protein
C. Agglutination protein
D. All of the above
E. None of the above
Acute rheumatic fever and rheumatic heart disease

Toxic Shock due to Streptococcus pyogenes in a Rhesus Monkey (Macaca mulatta)

JAALAS, Volume 45, Issue 5, pp. 79-82, September 2006

By Anapatricia García, Katherine Paul, Bernard Beall, and Harold McClure
When are 50 mHZ vocalizations emitted in rats?

- During sexual behaviors
- During manual tactile stimulation
- During juvenile play
- During agonistic male aggressive behavior

True or False Adult mice produce ultrasonic vocalizations during aversive situations.

False

JAALAS Vol 46 # 1 January 2007 pg 28-34
List the adverse effects of audiogenic stress in rodents

- Embryotoxicity
- Teratogenesis
- Resorption
- Abortion
- Intrauterine growth retardation

JAALAS Vol 46 #1 pg
True or False Hearing loss due to noise is reversible; with hearing restored after a few days to few weeks of noise reduction

False

List the characteristics of noise induced hearing loss

- Bilateral
- Associated with permanent nerve damage
- It is not profound hearing loss
- It does not progress once the noise stops
- The rate of NIHL decreases as threshold increases
- Continuous noise is more damaging than intermittent noise
What are the elements of a hearing conservation program?

- Monitoring
- Engineering and administrative controls
- Audiometric testing (baseline and annual)
- Hearing protection
- Training and supervision
- Record keeping

JAALAS 46, #1 pg 42-44
The emission of ultrasonic vocalizations in the rat are dependent on 3 parameters. List them:

Animal’s age
Environmental condition
Affective state
What is the whipworm of the baboon?

- Trichuris trichiura
- Trichuris vulpis
- Trichuris campanula
- Trichuris spiralis

JALAS Vol 46, #2, pg. 42-45, March 2007
Give the genus and species of an animal model of emesis.

*Suncus murinus*

Give the common name of this animal model

*House musk Shrew*

JAALAS 46, 2, pp. 81-85 March 2007