Laboratory Animals – Veterinary Pathology Subsection

Animal models of human diseases - Clarifications in Q&A format

This document produced Sep. 2019 intends to give clarifications to the change in the content of the Laboratory Animal subsection of Veterinary Pathology, which will be effective as of Exam 2020. It reflects a Q&A session held at the 2019 ECVP Summer School.

The lab animal subsection now covers animal models of human diseases in addition to the previous topics with a number of questions matching the following proportions:

- 40% Non-infectious spontaneous background pathology of laboratory animals
- 20% Infectious diseases of laboratory animal species
- 40% Pathology of well-established or well-described animal models of human diseases (transgenic, experimental, infectious…).

1. What does it mean when talking about "relevant" animal models of human disease? How is "relevance" of an animal model defined?

The terminology "relevant" or "specific" animal models has been used in previous communications regarding the change in the content of the Lab Animal subsection. The relevance of animal models to the human disease can be debated. The term specific is vague. These terms will be replaced with "WELL-ESTABLISHED OR WELL DESCRIBED" models of human disease".

By "WELL-ESTABLISHED", the exam committee understands animal models that are commonly used by the scientific community based on the capacity to obtain/reproduce this model and on its detailed pathologic characterization. Examples include: transgenic RasH2 mice, bleomycin-induced pulmonary fibrosis in rodents, collagen-induced arthritis in rats, or SIV in non-human primates.

By "WELL-DESCRIBED", the exam committee understands animal models with good macro/microscopic characterization, regardless of it being reported for the first time or it being commonly used by the research community.

Please note that knowledge on the relevance of animal models, because it is subjective and debatable, will not be tested.

2. Will questions focus on the animal model itself (human disease features, mouse strain, mutation associated, steps followed to create the model) or on the pathology and pathogenesis associated with the animal model, including the background lesions?

The questions will mainly focus on the morphologic macro/microscopic characterization of the model and pathogenesis, as generally for the exam. The questions will not focus on how to technically create an animal model. This applies to the paper selection as well: only papers including gross and/or microscopic descriptions of the models are in the scope.

3. KO and KI mice are often employed to study the role of a gene, although they might not necessarily represent an animal model of human disease *per se*. Will such a case be taken into consideration for potential questions?

These papers are of lower priority, but might be considered as long as they include good pathology descriptions.

3. Are there any other additional journals in the reading list after including Animal models of human diseases as topic for exam questions? (Besides *Veterinary Pathology*, *Toxicologic Pathology* and *Comparative Medicine*)

Not as core journals. However, as generally for the exam, papers in journals outside the reading list might be taken into consideration (e.g., reviews on well-established animal models).

4. Could the exam committee confirm that the *American Journal of Pathology* is not included in the reading list for the Lab Animal section? *American Journal of Pathology* was proposed as a main source of papers at the time the reformatted lab animal section was advertised.

American Journal of Pathology is NOT part of the main reading list of journals. It has been replaced by *Toxicologic Pathology.*

5. Can "Satellite Symposium Issues" of Toxicologic Pathology (e.g. *https://journals.sagepub.com/doi/full/10.1177/0192623316672074*) represent a source of questions for the exam?

No.

6. Should we study in vitro research models of human diseases?

No.

7. Is it correct to assume the following?

- Animal models of diseases affecting domestic animals should not be included in the reading list for this new part of the exam.

Correct, these are not included.

- Study of the book *Nonhuman Primates in Biomedical Research* should be limited to the chapters mentioned in the reading list = Chapters 1, 2, 4 and 6. Chapters dealing with animal models (tuberculosis, malaria, atherosclerosis) are not included in the reading list.

These chapters (i.e, other than 1, 2, 4 and 6) are NOT included as source of questions since, to date, the 2nd and last edition of this book is dated 2012.

8. Concerning the Laboratory Animal minor item in general, can questions regarding a single-case spontaneous lesion in a lab animal be included (e.g. *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4681249/*)?

No.

9. Can animal models of human disease be considered in other parts of the exam, such as in the gross pathology and histopathology parts? If so, would these include experimentally induced models or only spontaneous models?

Induced animal models are NOT included in the gross pathology and histopathology parts of the exam.

Both parts of the exam include only SPONTANEOUS pathologic conditions.

Many spontaneous conditions in diverse animal species may serve as models of human disease. Because they are spontaneous (and not because they may serve as a model of human disease), they can be included in the histopathology section (e.g., any spontaneous tumor in an animal which has a human counterpart, or an atherosclerotic lesion in a Watanabe rabbit with heritable hyperlipidemic syndrome).