

Guide for the macro and microscopic morphology of the laboratory rat

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The laboratory rat (*Rattus rattus norvegicus*) belongs to Order Rodentia and Family Muridae. Rats were initially used for experimental purposes since the half of the nineteenth century. Several strains have been developed for studying genetic diseases, neuroanatomy, nutritional disorders, diabetes, hypertension, and others. The rat is the most important animal used as a model for biological experiments in research laboratories worldwide. The wide acceptance of the rat is due to several factors such as low cost, need for small spaces for maintenance, omnivorous diet and large litters with short space between the generations. The widespread use of the mouse as a model requires knowledge of their morphology. This knowledge is fundamental to the choice of method, and for the subsequent analysis of the results found in experiments. Although there is extensive documentation literature with images of human anatomy and pets (especially on the dog and cat), the same does not occur with the rat. It does not exist, also, literature on the rat morphology in Portuguese, facilitating the dissemination of this knowledge into our country, even for use in high school. Disclose the morphology of the laboratory rat to spread basic knowledge, encouraging the correct use of animals in scientific experiments. Reducing errors in the collection of material (reducing the number of animals required under 3 "R" principle) which is on meeting the current policies of Animal Welfare/Bioethics. Involving the laboratory rat anatomy and histology in a single publication, facilitating its use as a source of basic knowledge. Encourage the use of the publication in Portuguese as literature in high school and to support research labs, in several areas of knowledge. The animals were bred and kept in the biotery of the Department of Morphology - UFF. After the sacrifice, the animals were fixed in buffered formalin solution. After, the animals were dissected for the achievement of visceral systems macroscopic images. We used the anatomical techniques of injection-corrosion, forced air drying, freeze dehydration, vessels injection with colored latex. After the capture of macroscopic images by using a digital camera, fragments of all organs were collected and processed according to the usual technique for paraffin. The cuts were stained by H.E., Weigert's Resorcin-Fuchsin, Masson and Gomori Trichrome, PAS and Alcian blue. The guide is being used in the discipline of laboratory animals morphology, encouraging their integrated study, with satisfactory results. Joint presentation of the subjects that make up the morphology increases the interest of students, encouraging connection between macro and microscopic anatomy.