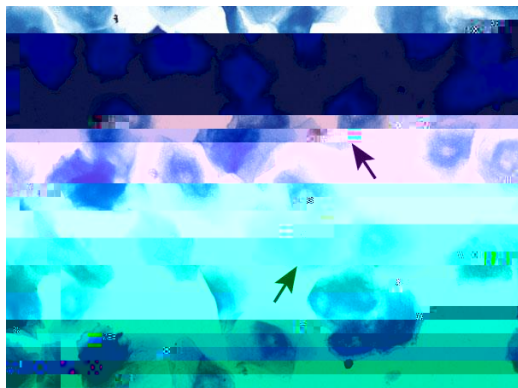


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Large Nucleated Epithelial Cells: These cells are larger with moderate to abundant amounts of blue to sky blue cytoplasm and a lower nuclear to cytoplasmic ratio in comparison to small epithelial cells. They are round to polygonal and may have irregular, jagged or angular borders. Large epithelial cells can have some degree of keratinization and possess nuclei that may be intact, degenerate, or pyknotic. Occasionally, large nucleated epithelial cells will contain finely stippled cytoplasmic granules.



Anucleated Keratinized Epithelial Cells: Anucleated epithelial cells are also known as squames or “cornflakes”. They are aged cells and are characterized by an abundant blue to sky blue cytoplasm with jagged or angular edges. They lack nuclei, although pale round areas representing where a nucleus had existed (nuclear “ghost”) may be visualized. The distal one-fourth to one-third of the vaginal lumen is covered by squamous epithelial cells and is permanently keratinized.

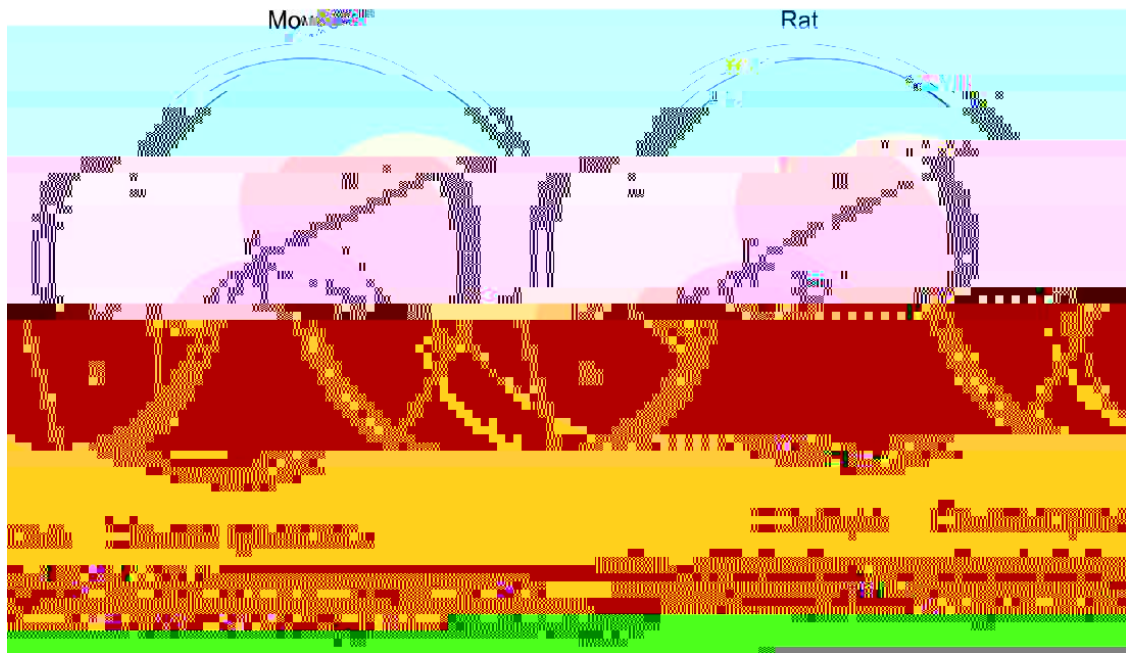


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Stages of the Estrous Cycle

The stages of the estrous cycle are identified by the absence, presence, or proportion of the described four basic cell types as well as by the cell density and arrangement of the cells on the slide. Conventionally, the cycle is divided into the four stages of proestrus, estrus, metestrus, and diestrus, however some researchers condense or subdivide the stages.

One general approach to staging vaginal smears is to first assess for the presence of neutrophils. If neutrophils are a dominant feature, or consistently observed, the stage is either metestrus or diestrus; if neutrophils are rare to absent, the stage is either proestrus or estrus.



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excretions are low.

It is worth noting that changes occurring in the mouse estrous cycle are evident in the animal's physiology and anatomy. With practice,

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Vaginal Cytology of the Laboratory Rat and Mouse: Review and Criteria for the Staging of the Estrous Cycle Using Stained Vaginal Smears Michelle c. Cora 1, Linda Kooistra 2, and Greg Travlos. Cellular and Molecular Pathology Branch, National Toxicology Program, National Institute of Environmental Health Sciences, National Institutes of Health, Research Triangle Park, North Carolina, USA 2Charles River Laboratories, Inc., Pathology Associates, Durham, North Carolina, USA

Determination of the estrous cycle phases of rats: some helpful considerations. Marcondes, F. K., Bianchi, F. J. and Tanno, A. P. Depto. Ciências Fisiológicas, Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas, Av. Limeira, 901, CEP 13414-903, Piracicaba, SP, Brazil

A quantitative method for assessing stages of the rat estrous cycle. CH Hubscher, DL Brooks, JR Johnson Department of Anatomical Sciences & Neurobiology, University of Louisville, Louisville, Kentucky 40292 Submitted June 17, 2004; revised February 2, 2005; accepted March 8, 2005

Mouse Estrous Cycle Identification Tool and Images. BTE3 12 Tf 0 0 1 512.26 531.19 Tm 0 G 0 JBT 0