

Chapter 8

Experimental Models

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8. 1. IN VIVO MODELS

As ocular fungal infections are relatively rare compared to the infection of bacterial agents, it is important to use the proper kind of animal and the most effective method in order to draw correct conclusions. An appropriate animal model is crucial for prospective studies designed to identify and evaluate risk factors affecting the development of fungal infections. Investigation of ocular mycosis requires animal models that allow high reproducibility and sensitive quantitation. For example, an animal model would permit the evaluation of the roles of ocular trauma, coinfection with bacteria, and contact lenses in the development keratitis. Moreover, an animal model also would facilitate investigations exploring the pathophysiology, cell biology, genetics, immunology, and therapy of this disease. A prospective animal model must satisfy several basic criteria for serious consideration for long-term studies. The most fundamental criterion is that the disease must conform to Koch's postulates. Disease should be produced by live, infectious organisms. Viable colonies must be isolated from the diseased tissues and grown in pure culture. In addition, the model should display clinical features comparable to the human counterpart. The efficacy of different treatment strategies has been studied extensively but the pathogenesis of ocular infections remain unknown mechanisms. Pigs, rabbits, hamsters are used for experimental ocular infections. Rats and mice are the most widely used animals, since they are easy and cheap to keep in large numbers and there are rich resources of molecular reagents such as antibodies

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