

Identifying the Ideal Experimental Endpoint

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The identification of endpoints for animal experimentation has long been an important consideration for those performing animal-based research. Selection of endpoints fundamentally involves balancing the scientific goals of the study with humane considerations, or, in other words, meeting experimental objectives without causing excessive or unnecessary pain or distress to the animal subjects. With these considerations in mind, specific endpoint criteria can be generally be categorized as time-, marker-, or condition-based. These criteria can be used to develop endpoint strategies that include single or multiple indicators, as well as objective or subjective indicators. Subjective approaches to developing endpoint strategies generally involve the creation of clinical evaluation systems that are applied to every animal subject at pre-determined intervals which can be shortened as the study progresses. Objective approaches involve identifying specific markers that can predict death or signal the end of the experiment and trigger euthanasia. Subjective and objective approaches can be combined to provide indicators that prompt more intensive animal evaluation, providing an intervention such as an analgesic, or performing euthanasia. Endpoints are perhaps most reliably applied when the data relevant to the endpoint are collected, evaluated and reported as part of the study. Finally, the selection and implementation of both subjective and objective approaches involves inherent caveats that should be recognized and managed. This presentation will review these issues in detail, with examples of their application.