

Animal Models For Cancer Cachexia: What Are The Options?



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Introduction

- Cancer cachexia, a complex wasting syndrome, is common in palliative medicine
- Animal models expand our understanding of its mechanisms
- Review of cancer cachexia animal models will help investigators make an informed choice of the appropriate study model

Methods

- PubMed/ Medline search
- MeSH terms: (“biologic model” OR “animal model”) AND “neoplasm” AND “cachexia”

Results

Preliminary Search:

- 267 articles with 23 reviews
- 96% in English
- 43% published in last 10 years

Table 1:
Commonest Animal Models in Cancer Cachexia

Animal model	Use	Pros	Cons
Yoshida AH-130	Wasting Anorexia Inflammation	Symptoms at low tumor burden	Short experiment time
MAC16 ADK	Metabolic changes	No reactive hyperphagia	No anorexia
MCG101	Anorexia	Short experiment time	High tumor burden
Lewis Lung Carcinoma	Wasting	No anorexia in early tumor growth	Short experiment time
Walker 256	Anorexia	Steady decline in food intake	High tumor burden mein short time

Discussion (Table 1):

- Animal literature is extensive
- MCG101 is a good anorexia model
- MAC16 is excellent for cachexia-related metabolic effects
- Yoshida AH-130 and Lewis lung carcinoma cause severe wasting at low tumor burden

Advantages:

- Tumor and host genetic homogeneity
- Controlled studies
- Fewer confounding variables:
 - + Food intake
 - + Comorbidities
 - + Variable tumor burden
 - + Multiple primary sites
 - + Heterogeneous cancer responses

Disadvantages:

- No animal model explains inter-individual and inter-tumor differences in clinical cachexia
- None reproduces clinical settings (e.g. polymedicated patients)
- Cachexia often at high tumor burden
- Many lack human inflammatory responses
- Often do not metastasize

Conclusions

- Animal models help study mechanisms of cancer cachexia
- No model reproduces human cancer cachexia
- None mimics tumor-host interactions