

Searches for Mouse Protocols and Procedures

The tables below contain links to searches of multiple databases for alternatives and refinements for a study involving a diabetic retinopathy mouse model and several commonly used procedures. Construct your own queries with appropriate terms, or use the examples below if they are relevant.

Important! Pubmed MeSH Terms are specific words and phrases drawn from the NLM's controlled vocabulary. Use the [MeSH Terms Browser](#) to find the MeSH Terms most appropriate for your study. Substituting phrases not found in the MeSH vocabulary will **not** be effective.

Hot Tip! The [MAJR] qualifier identifies a MeSH Term which is a main topic of the article. Use [MAJR] in place of [MeSH] and [ALL] to find the subset of articles focussed on the search terms. Compare the "focussed" and "inclusive" examples below to see the effect of using the [MAJR] qualifier.

Replacement and Reduction:

The goal of these searches is to find models or systems which are more informative, to reduce animal numbers through better statistical methods, to replace species with ones more acceptable to society, and to replace animal use with in vitro or computer models, if possible.

| | PubMed | Agricola | Other |
|---|--|------------------------------------|-------------------------------------|
| Gene, condition or disease AND species | <i>focussed:</i> Insulin [MAJR] AND Mice [MAJR] <i>inclusive:</i> Insulin [ALL] AND Mice [ALL] | w=Insulin & (w=Mouse + w=Mice) | MGI Insulin |
| | <i>focussed:</i> "Diabetes Mellitus, Experimental" [MAJR] AND Mice [MAJR] <i>inclusive:</i> "Diabetes Mellitus, Experimental" [MeSH] AND Mice [ALL] | w=Diabetes & (w=Mouse + w=Mice) | MGI Diabetes |
| | <i>focussed:</i> "Diabetic Retinopathy" [MAJR] AND Mice [MAJR] <i>inclusive:</i> "Diabetic Retinopathy" [MeSH] AND Mice [ALL] | w=Retinopathy & (w=Mouse + w=Mice) | |
| | "Diabetes Mellitus, Experimental" [MeSH] AND ((Double [WORD] AND Blind* [WORD]) OR Placebo [WORD]) | | |
| Alternative Animal Models | "Diabetes Mellitus, Experimental" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH] OR "Models, Genetic" [MeSH]) | | |
| | "Diabetic Retinopathy" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH] OR | | |

| | | | |
|-------------------------------------|--|---|---|
| | "Models, Genetic" [MeSH] | | |
| | focussed: "Streptozocin" [MAJR] AND Mice [MAJR] inclusive: "Streptozocin" [MeSH] AND Mice [ALL] | (w=Streptozotocin + w=Streptozocin) & (w=Mice + w=Mouse) | |
| In Vitro Assays | ("Diabetes Mellitus, Experimental" [MeSH] AND "Biological Assay" [MeSH]) NOT ("Models, Animal" [MeSH] OR "Animal Experimentation" [MeSH]) | | |
| Models Not Involving Animals | ("Diabetes Mellitus, Experimental" [MeSH] AND ("Models, Theoretical" [MeSH] OR "Computer Simulation" [MeSH])) NOT ("Models, Animal" [MeSH] OR "Animal Experimentation" [MeSH]) | | |
| Statistical Methods | "Statistics" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | (w=Statistics + w=Statistical) & ((w=Sample & w=Size) + w=Power) | Statistics Core Hyperstat StatPages.net Power Analysis bibliography crossover designs |
| Teaching | "Teaching" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | w=teaching & w=alternatives | NORINA |

Use the [PubMed MESH Terms Browser](#) to find terms to build your own queries.
Use [Pubmed Clinical Queries](#) for studies focussed on therapies.

Refinement:

The goal of these searches is to find alternate procedures which cause less pain or distress.

| | PubMed | Agricola | Other |
|-------------------------|---|---|---|
| Euthanasia | "Euthanasia" [MeSH] AND Mice [ALL] | w=Euthanasia & (w=Mice + w=Mouse) | Methods pdf Methods |
| Blood Collection | "Blood Specimen Collection/Methods" [MeSH] AND Mice [ALL] | (w=Blood & (w=Sampling + w=Collecting)) & (w=Mice + w=Mouse) | collection from the saphenous vein |
| Anesthesia | "Anesthesia/Methods" [MeSH] AND Mice [ALL] | w=Anesthesia & (w=Mice + w=Mouse) | altweb Mice OR Mouse |
| Analgesia | "Analgesia/methods" [MeSH] AND Mice [ALL] | w=Analgesia & (w=Mice + w=Mouse) | altweb Mice OR |

| | | | |
|---------------------------------------|---|---|----------------------------------|
| | | | Mouse |
| Neuromuscular Blockade | "Neuromuscular Blockade" [MeSH] AND Mice [All] | w=Neuromuscular & w=Blockade & (w=Mice + w=Mouse) | |
| Surgery | "Surgical Procedures, Operative/Methods"[MAJR] AND Mice [MAJR] | w=Surgery & (w=Mice + w=Mouse) | |
| ID | "Animal Identification Systems" [MeSH] AND Mice [ALL] | w=Identification & (w=Mice + w=Mouse) | |
| Immunizations | "Freund's Adjuvant" [MeSH] AND Alternatives [ALL] | w=Freund's & w=Alternatives | Alternatives to CFA |
| Footpad Injections | Footpad [ALL] AND Alternative [ALL] | w=Footpad & w=Alternatives | |
| Monoclonal Antibodies, Ascites | "Antibodies, Monoclonal" [MeSH] AND ("Bioreactors" [MeSH] OR "Methods" [MeSH] OR "Ascites" [MeSH] OR "Animal Experimentation" [MeSH]) | ((w=Monoclonal & (w=Antibodies + w=Antibody)) + w=Ascites) & (w=Alternatives + w=Bioreactors) | ILAR Mab Production |
| Experimental Infection | "Infection" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | w=Infection & w=Alternatives & (w=Mouse + w=Mice) | |
| Biohazards | "Containment of Biohazards" [MeSH] AND Mice [ALL] | w=Biohazard & (w=Mouse + w=Mice) | |
| Substance Administration | "Drug Administration Routes" [MeSH] AND Mice [ALL] | | |
| Toxicology | "Toxicology" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | w=Toxicology & w=Alternatives & (w=Mouse + w=Mice) | Toxnet |
| Tumor Studies | "Neoplasms" [MeSH] AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | w=Tumor & w=Alternatives & (w=Mouse + w=Mice) | NCI eMice |
| | "Neoplasm Transplantation/Methods" [MeSH] AND Mice [ALL] | | |
| | "Xenograft Model Antitumor Assays" [MeSH] | | |
| Bone Marrow Transplantation | ("Radiation Chimera" [MeSH] OR "Bone Marrow Transplantation" [MeSH]) AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | | |
| Transgenics | ("Mice, Knockout" [MeSH] OR | | Search MGI |

| | | | |
|------------------------|---|---|------------------------------------|
| and Targeting | "Mice, Transgenic" [MeSH]) AND ("Animal Experimentation" [MeSH] OR "Models, Animal" [MeSH]) | | Search IMR |
| Restraint | "Restraint, Physical/Methods" [MeSH] AND Mice [ALL] | w=Restraint & (w=Mice + w=Mouse) | |
| Diet | "Diet" [MeSH] AND Mice [ALL] | w=Diet & (w=Mice + w=Mouse) | |
| Intubation | "Intubation/Methods" [MeSH] AND Mice [ALL] | w=Intubation & (w=Mice + w=Mouse) | |
| Perfusion | "Perfusion/Methods" [MeSH] AND Mice [ALL] | w=Perfusion & (w=Mice + w=Mouse) | |
| Catheterization | "Catheterization/Methods" [MeSH] AND Mice [ALL] | (w=Catheter + w=Catheterization) & (w=Mouse + w=Mice) | |
| Housing | "Housing, Animal" [MeSH] AND Mice [ALL] | w=Caging & (w=Mouse + w=Mice) | Mouse Housing Enrichment DB |
| Aging | | | NIA |

Why Searches For Alternatives Must Be Performed

[Mice](#) | [Rats](#) | [Dogs](#) | [Cats](#) | [Rabbits](#) | [Frogs](#) | [Ferrets](#) | [Goats](#) | [Pigs](#) | [Fish](#) | [Primates](#)