Justify Animal Numbers: Breeding Colonies

We maintain 2 breeding colonies to generate genetically engineered mice for our experimental needs, as explained/justified above. C57Bl/6 control mice are ordered from our vendor, on an as needed basis.

The XYZ colony is maintained by breeding a heterozygote female to a homozygous affected male (breeding pairs), which results in 50% production of affected offspring. Breeding pairs are replaced annually, and each pair is expected to produce up to 5 litters, with an average of 10 pups per litter, resulting in production of up to 50 pups (25 affected and 25 heterozygous) per pair per year. We need 80 affected XYZ mice per year, and 80 heterozygous animals as controls, for experiments described above, resulting in the need for at least 4 breeding pairs to be maintained per year, with 200 total pups produced per year (**4 pairs** X 50 pups/pair= **200 pups**). Additional affected and heterozygous animals produced will be euthanized, if not needed as replacement breeders in the colony.

The ABC colony is maintained by breeding homozygous affected animals, resulting in 100% production of affected offspring. Again, breeding pairs are used, replaced annually, and each pair is expected to produce up to 5 litters with an average of 6 pups per litter, resulting in production of up to 30 pups per pair per year. We need 90 affected ABC mice per year for experiments described above, resulting in the need for at least 3 breeding pairs to be maintained per year (**3 pairs** X 30 pups/pair= **90 pups**). Unaffected C57Bl/6 mice will be ordered as needed for controls (as described above, need 30/year).

Breeding colony totals:

**4 pairs** (8 mice) per year of XZY breeders X **3 years** = 24 breeders + (**200** offspring per year X **3 years** = 600) = 624 mice.

**3 pairs** (6 mice) per year of ABC breeders X **3 years** = 18 breeders + (**90** offspring per year X **3 years** = 270) = 288 mice.

Grand total of mice needed for experimental and research colony use is: 624 + 288 + (30 C57BL/6 controls X 3 years = 90) = 1002 mice (Undefined category).