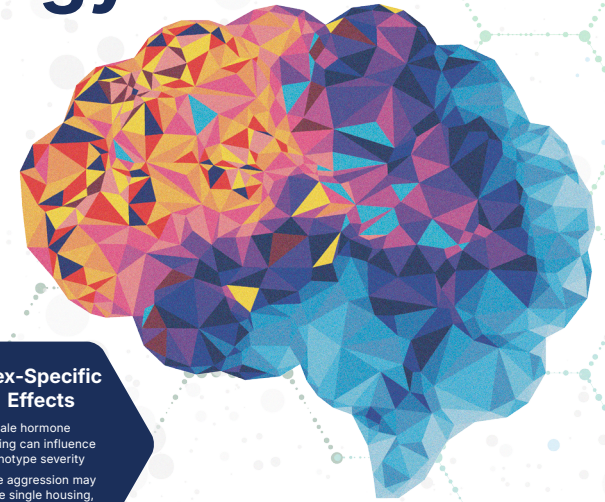


Breeding Neurological Disease Models Is Not Routine Biology

Neuro models introduce biological, behavioral, and operational risks that standard breeding programs are not designed to absorb.

Why Neuro Colonies Fail Without Specialized Strategies



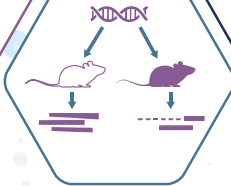
Age-Related Attrition

- Neurodegenerative models often require age-holding
- Attrition increases with time
- Overage must be planned before breeding begins



Genetic Background Sensitivity

- Expression varies by strain background
- Improper mating formats introduce cohort-to-cohort variability



Behavioral Phenotypes

- Aggression, impaired memory, or loss of nesting behavior
- Impacts: housing strategy, pup survival, cohort uniformity



Microbiome & Epigenetic Effects

- Behavioral readouts are highly sensitive to environmental drift
- Housing consistency and staff continuity matter



Physical & Motor Dysfunction

- Ataxia, gait abnormalities, paralysis
- Require enhanced monitoring and predefined humane endpoints



Sex-Specific Effects

- Female hormone cycling can influence phenotype severity
- Male aggression may force single housing, impacting phenotype



How Taconic Manages Risk in Complex Neuro Breeding Programs



Strategy Before Breeding Begins

Designed, Not Assumed

- ▶ Cohort requirements defined upfront (genotype, sex, age, phenotype timing)
- ▶ Phenotype onset mapped by sex and zygosity
- ▶ Mating formats selected to control severity and viability
- ▶ Reserve breeders and cryopreservation identified in advance
- ▶ Accounting for possible attrition

Built-In Risk Mitigation

Problems Are Planned For—Not Discovered Late

- ▶ **Parallel Mating Strategies**
 - » Faster identification of failure points
 - » Insight into allele-specific or format-specific outcomes
- ▶ **Active Phenotype Monitoring**
 - » Expected vs adverse phenotypes pre-documented
 - » Humane endpoints protected without compromising data
- ▶ **Benchmarking Against Parent Lines and Literature**
 - » Early detection of drift, expression changes, or background effects
- ▶ **Environmental control**
 - » Enrichment suited to expected phenotype
 - » Intentional husbandry and housing conditions

Real-World Outcomes

- ▶ Maternal care failure corrected via mating redesign and breeder rotation
- ▶ High pup loss reversed by revising breeding formats while preserving genotype goals
- ▶ Early-onset paralysis mitigated through accelerated breeding + cryopreservation



Taconic Neuro Expertise Delivers

- ▶ Cohort Integrity
- ▶ Timeline Protection
- ▶ Animal Welfare Compliance
- ▶ Scientific Reproducibility

Taconic—Specialized colony management for complex neurological models.
Partner with teams who expect variability—and design for it.



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