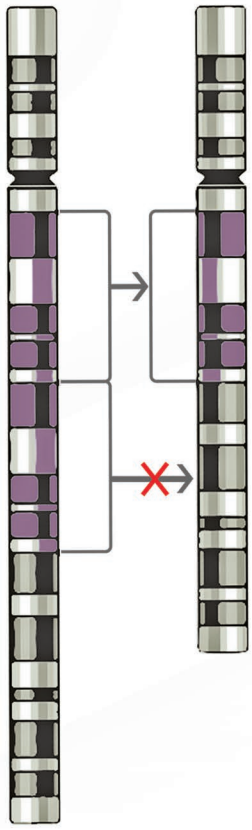
Copy Number Variation In Human Disease

Chromosomal Deletions Modeled in Taconic Biosciences' New CNV Mouse Models

TACONIC

Copy number variations (CNVs) are a type of genetic structural variation involving deletions or duplications of specific and relatively large (>1 kb) regions of DNA. Taconic offers three neuropsychiatric disorder CNV models that develop distinct neurological and behavioral phenotypes. Beneficial in investigations of schizophrenia, autism, epilepsy and ADHD.



TACONIC'S THREE CNV MODELS

1q21.1

Confers high risk of schizophrenia and may increase ADHD and autism.

22q11.2

Confers high risk of schizophrenia and autism. Over 40% of deletion carriers experience psychotic symptoms.

15q13.3

Confers high risk of schizophrenia, autism, and epilepsy in human patients.

TABLE OF PHENOTYPES OBSERVED IN 15q13.3 MODEL

DOMAIN	ASSAY	PHENOTYPE	COMMENT
Basal	Body weight	↑	
Aggression	Stress-induced aggression	↑	Corticosterone response to restraint stress unaltered
Light/Dark Cycle	Diurnal activity	↓ (dark phase)	
Seizures	MEST	↓ (dark phase)	
	PTZ seizures	↓ (Clonic, tonic), Up (myoclonic jerks, single spikes, absence-like)	Behavioral and EEG level
	Nicotine seizures	↓	15 mg/kg (nicotine tartrate = 5.2 mg/kg nicotine)
Sensorimotor Processing	Acoustic startle response	↓	Decreased activity during exploration
Positive Symptoms	Basal motility	↓	
Cognition	Morris watermaze	↓ (24h retrieval)	4 days acquisition, probe test on day 5
EEG	AEP amplitude	↓ (PC,FC)	
	Baseline gamma power	↑	Measured during active state (animal moving)
	Evoked gamma power	↓	
	Peak theta frequency	↓	Active state

Adapted from https://www.ncbi.nlm.nih.gov/pubmed/24090792

UPCOMING WEBINAR
For more information regarding all of these psychiatric models, please join Taconic for a webinar on December 13th. Visit **taconic.com/webinars** to register.