

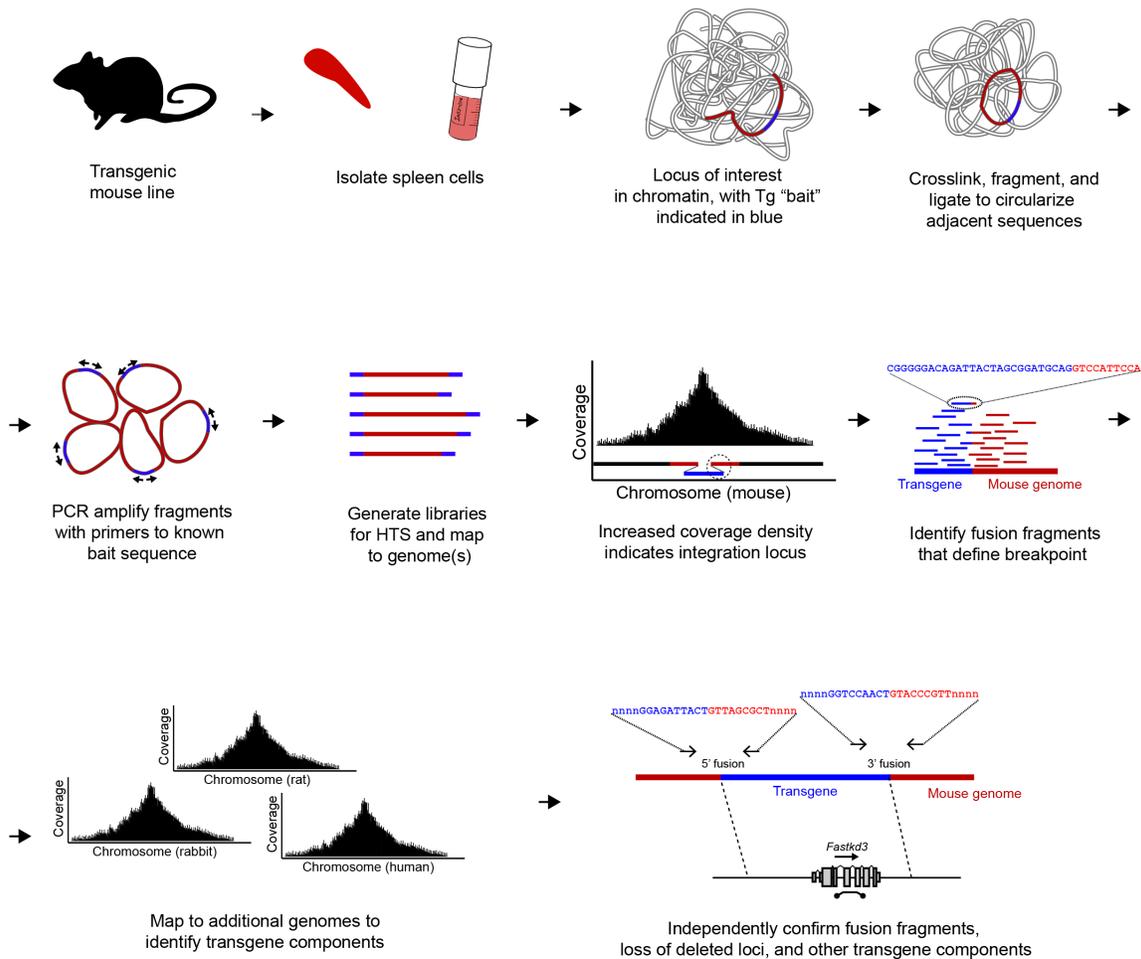
Supplemental Material

Supplemental Tables S1, S2, S3, and S4 are provided as separate Excel files. Supplemental Figure S1, S2, and Supplemental Table S5 are contained in this document.

Supplemental Figure 1. Schematic of the TLA process.

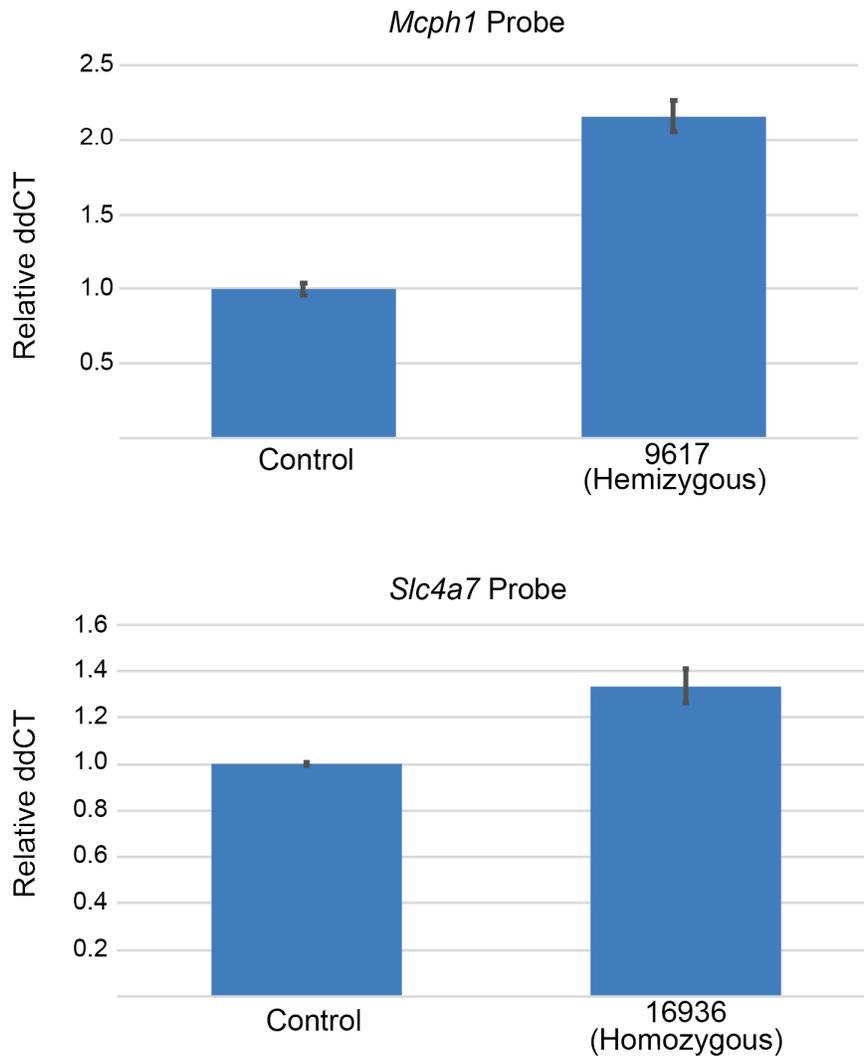
Supplemental Figure 2. Quantitation of the copy number change in duplications identified in strains 9617 and 16936.

Supplemental Table S5. Table of statistical results for mouse phenotyping.



Supplementary Figure 1

Supplemental Figure S1. Schematic overview of the TLA process. Chromatin in spleen cells harvested from the transgenic line of interest is crosslinked *in situ*, restriction digested and re-ligated to circularize. Primers specific to the transgene of interest are used to amplify closely linked chromatin, and PCR products are Illumina sequenced. Mapping to the mouse chromosome reveals increased coverage at the locus linked to the transgene, and further analysis reveals individual fusion fragments that can be assembled into contigs to reconstruct the putative insertion. Mapping to additional genomes can be performed to reveal other elements in the transgene. Finally, reconstructions and structural variations are confirmed by independent analysis techniques.



Supplemental Figure 2. Quantitation of the copy number change in duplications identified in strains 9617 and 16936. Results of qPCR assays showing a gain of two copies of *Mcph1* for the Tg(HLA-A2.1)1Enge transgene (upper panel; Stock # 9617), as expected since the transgenic allele is homozygous in the colony. For Tg(Thy1-SNCA)12Mjff (lower panel; Stock # 16936), which is maintained in a hemizygous state, we observe the expected gain in approximately one copy of *Slc4a7* versus a wild type control.

Super Domain	Domain	Phenotype	B6.Cg-Tg(Alb-cre)21Mgn/J	B6.Cg-Tg(Ins2-cre)25Mgn/J	B6.Cg-Tg(Lck-cre)548Jxm/J	B6.Cg-Tg(Nes-cre)1Kln/J	B6.Cg-Tg(Vav1-icre)A2Kio/J	B6.Cg-Tg(Vil1-cre)997Gum/J	B6.Cg-Tg(Wnt1-cre)11Rth/J
Physiology	ABR	Minimum_dB.12kHz.Minimum.Threshold							
Physiology	ABR	Minimum_dB.18kHz.Minimum.Threshold							
Physiology	ABR	Minimum_dB.24kHz.Minimum.Threshold							
Physiology	ABR	Minimum_dB.30kHz.Minimum.Threshold							
Physiology	ABR	Minimum_dB.6kHz.Minimum.Threshold							
Physiology	BodyComp	PIXIMUS.B.Area		9.80E-15	6.04E-04	2.30E-16			4.62E-02
Physiology	BodyComp	PIXIMUS.BMC		6.18E-11	6.00E-03	1.11E-13			
Physiology	BodyComp	PIXIMUS.BMC.Body.weight	1.00E-04	6.71E-14	2.02E-03	4.48E-13			4.65E-04
Physiology	BodyComp	PIXIMUS.BMD		2.66E-04		2.62E-10			
Physiology	BodyComp	PIXIMUS.Bone.Area..BMC.BMD.		8.89E-15	5.87E-04	2.30E-16			4.62E-02
Physiology	BodyComp	PIXIMUS.Fat.Body.weight	4.44E-02	4.13E-10		2.35E-08			
Physiology	BodyComp	PIXIMUS.Fat.mass	2.44E-02	2.71E-05		1.81E-02			
Physiology	BodyComp	PIXIMUS.Lean.Body.weight		1.82E-07		2.02E-03			
Physiology	BodyComp	PIXIMUS.Lean.mass		8.90E-05		2.45E-06			
Physiology	BodyComp	PIXIMUS.RST	2.58E-02	1.05E-08		2.48E-08			
Physiology	BodyComp	PIXIMUS.Subject.Length		2.21E-04		2.35E-08			
Physiology	BodyComp	PIXIMUS.Subject.Weight				2.21E-04			
Physiology	BodyComp	PIXIMUS.TTM				4.72E-03			
Physiology	ClinicalBloodChemistry	Results.Alanine.aminotransferase..ALT.							
Physiology	ClinicalBloodChemistry	Results.Albumin..ALB.							3.98E-02
Physiology	ClinicalBloodChemistry	Results.Alkaline.Phosphatase		4.65E-04		1.31E-03			
Physiology	ClinicalBloodChemistry	Results.Aspartate.aminotransferase..AST.							
Physiology	ClinicalBloodChemistry	Results.AST.ALT.Ratio							
Physiology	ClinicalBloodChemistry	Results.Bilirubin..TBIL.					1.09E-02		1.78E-03
Physiology	ClinicalBloodChemistry	Results.Calcium..Ca.							
Physiology	ClinicalBloodChemistry	Results.Glucose..GLU.							
Physiology	ClinicalBloodChemistry	Results.HDL.Cholesterol..HDL.D.							
Physiology	ClinicalBloodChemistry	Results.HDL.TCHOL.Ratio				3.74E-04			
Physiology	ClinicalBloodChemistry	Results.Phosphorus..Phos.							
Physiology	ClinicalBloodChemistry	Results.Total.Cholesterol..T.CHOL.							
Physiology	ClinicalBloodChemistry	Results.Total.Protein..TPROT.							
Physiology	ClinicalBloodChemistry	Results.Triglycerides..TG.							
Physiology	ClinicalBloodChemistry	Results.Urea..BUN.					2.96E-04		
Physiology	Hematology	Hematology.Results.Eosinophils.EOS.			2.72E-06				
Physiology	Hematology	Hematology.Results.Hemoglobin.Concentration.Distr..Width..HDW.			2.54E-02				2.67E-07
Physiology	Hematology	Hematology.Results.Lymphocytes..LYM.			1.31E-03	1.66E-02			
Physiology	Hematology	Hematology.Results.Mean.Cell.Volume..MCV.	3.63E-02						
Physiology	Hematology	Hematology.Results.Mean.corpuscular.hemoglobin..CHG.		1.31E-03					3.63E-02
Physiology	Hematology	Hematology.Results.Mean.Platelet.Volume..MPV.							
Physiology	Hematology	Hematology.Results.Measured.Hemoglobin..mHGB.							
Physiology	Hematology	Hematology.Results.Monocytes..MONO.							
Physiology	Hematology	Hematology.Results.Neutrophils..NEUT.			6.89E-03	6.89E-03			
Physiology	Hematology	Hematology.Results.Platelet.Count..PLT.				1.25E-02			
Physiology	Hematology	Hematology.Results.Red.Blood.Cells..RBC.	3.27E-02						
Physiology	Hematology	Hematology.Results.Red.Cell.Distr..Width..RDW.							
Physiology	Hematology	Hematology.Results.Red.Cell.Hem..Con..Mean..CHCM.							
Physiology	Hematology	Hematology.Results.White.Blood.Cells..WBC.							
Behavior	ECT	ECT.mA.Threshold				3.98E-02			
Behavior	HB	Center							
Behavior	HB	Corner							
Behavior	HB	Parameters.Total.Hole.Pokes							
Behavior	HB	Percent.Center							
Behavior	HB	Percent.Cornor							
Behavior	HB	PercentMaxHole							
Behavior	LD	Collected.Values.Left.Side.Mobile.Time.Spent							1.81E-02
Behavior	LD	Collected.Values.Pct.Time.in.Dark							
Behavior	LD	Collected.Values.Reaction.Time							
Behavior	LD	Collected.Values.Right.Side.Mobile.Time.Spent		1.66E-02					
Behavior	LD	Collected.Values.Right.Side.Time.Spent							
Behavior	LD	Collected.Values.Side.Changes							
Behavior	OFA	Outputs.Center.Average.Speed							
Behavior	OFA	Outputs.Distance.Traveled.First.Five.Minutes							6.47E-04
Behavior	OFA	Outputs.Distance.Traveled.Slope							
Behavior	OFA	Outputs.Distance.Traveled.Total							4.47E-04
Behavior	OFA	Outputs.PctTime.Center.Slope							
Behavior	OFA	Outputs.PctTime.Corners.Slope							
Behavior	OFA	Outputs.Periphery.Permanence.Time							
Behavior	OFA	Outputs.Whole.Arena.Resting.Time							4.47E-04
Behavior	PPI	AVG.Corrected.S_avg							
Behavior	PPI	AVG.Corrected.Percent.PP1_avg							
Behavior	PPI	AVG.Corrected.Percent.PP2_avg							
Behavior	PPI	AVG.Corrected.Percent.PP3_avg							
Behavior	PPI	AVG.Corrected.PPI.Global_avg							
Behavior	PPI	AVG.Corrected.Slope.Max_avg							
Behavior	PPI	Startle.Amplitude.Corrected.S_vmax							
Behavior	PPI	Startle.Amplitude.Corrected.Percent.PP1_vmax							
Behavior	PPI	Startle.Amplitude.Corrected.Percent.PP2_vmax							
Behavior	PPI	Startle.Amplitude.Corrected.Percent.PP3_vmax							
Behavior	PPI	Startle.Amplitude.Corrected.PPI.Global_vmax							
Behavior	PPI	Startle.Amplitude.Corrected.Slope.Max_vmax							
Behavior	RR	QC.Totals.Average.Duration							
Behavior	RR	QC.Totals.Learning.Slope							
Behavior	SLEEP	Results.Breath.Rate.During.Sleep.Mean					5.04E-03		
Behavior	SLEEP	Results.Breath.Rate.During.Sleep.Standard.Deviation							
Behavior	SLEEP	Results.Diurnal.Wake.Ratio.Median							
Behavior	SLEEP	Results.Light.Onset.Wake.Median	1.21E-03			1.07E-04			
Behavior	SLEEP	Results.Light.Sleep.Bout.Lengths.Mean					4.78E-02		
Behavior	SLEEP	Results.Light.Sleep.Bout.Lengths.Standard.Deviation		1.07E-02					
Behavior	SLEEP	Results.Peak.Wake.wrt.Dark.Onset.Median							
Behavior	SLEEP	Results.Sleep.Bout.Lengths.Mean					3.74E-02		
Behavior	SLEEP	Results.Sleep.Daily.Percent							
Behavior	SLEEP	Results.Sleep.Light.Phase.Percent							
Behavior	TST	Results.Time.immobile							
Physiology			6	13	8	19	0	1	7
Behavior			0	1	2	2	2	1	4

Supplemental Table S5. Table of statistical results for mouse phenotyping.