We claim:

1. A rat comprising a genetically modified endogenous *TrkB* locus encoding a tropomyosin receptor kinase B (TRKB) protein,

wherein the TRKB protein comprises a cytoplasmic domain, a transmembrane domain, and an extracellular domain, and all the extracellular domain is encoded by a segment of the endogenous *TrkB* locus that has been deleted and replaced with an orthologous human *TRKB* sequence,

wherein the TRKB protein comprises a human TRKB extracellular domain,

and wherein the TRKB protein comprises an endogenous TRKB signal peptide, an endogenous TRKB transmembrane domain, and an endogenous TRKB cytoplasmic domain.

2. The rat of claim 1, wherein the extracellular domain comprises the sequence set forth in SEQ ID NO: 60, optionally wherein the coding sequence for the extracellular domain comprises the sequence set forth in SEQ ID NO: 72.

3. The rat of any preceding claim, wherein:

(I) the signal peptide comprises the sequence set forth in SEQ ID NO: 55; or

(II) all of the signal peptide is encoded by an endogenous *TrkB* sequence, optionally wherein the coding sequence for the signal peptide comprises the sequence set forth in SEQ ID NO: 67.

4. The rat of any preceding claim, wherein:

(I) the transmembrane domain comprises the sequence set forth in SEQ ID NO: 57; or

(II) all of the transmembrane domain is encoded by an endogenous *TrkB* sequence, optionally wherein the coding sequence for the transmembrane domain comprises the sequence set forth in SEQ ID NO: 69.

5. The rat of any preceding claim, wherein:

(I) the cytoplasmic domain comprises the sequence set forth in SEQ ID NO: 58; or

(II) all of the cytoplasmic domain is encoded by an endogenous *TrkB* sequence, optionally wherein the coding sequence for the cytoplasmic domain comprises the sequence set forth in SEQ ID NO: 70.

6. The rat of any preceding claim, wherein the signal peptide comprises the sequence set forth in SEQ ID NO: 55, the transmembrane domain comprises the sequence set forth in SEQ ID NO: 57, and the cytoplasmic domain comprises the sequence set forth in SEQ ID NO: 58.

7. The rat of any preceding claim, wherein all of the signal peptide, all of the transmembrane domain, and all of the cytoplasmic domain are encoded by an endogenous *TrkB* sequence,

optionally wherein the coding sequence for the signal peptide comprises the sequence set forth in SEQ ID NO: 67, the coding sequence for the transmembrane domain comprises the sequence set forth in SEQ ID NO: 69, and the coding sequence for the cytoplasmic domain comprises the sequence set forth in SEQ ID NO: 70.

8. The rat of any preceding claim, wherein the TRKB protein comprises the sequence set forth in SEQ ID NO: 5.

9. The rat of claim 8, wherein the coding sequence of the genetically modified *TrkB* locus encoding the TRKB protein comprises the sequence set forth in SEQ ID NO: 13.

10. The rat of any preceding claim, wherein the rat is heterozygous or homozygous for the genetically modified endogenous *TrkB* locus.

11. A method of making the rat of any one of claims 1-10, comprising:

(I) (a) modifying the genome of a pluripotent rat cell to comprise the genetically modified endogenous *TrkB* locus;

(b) identifying or selecting the genetically modified pluripotent rat cell comprising the end genetically modified endogenous *TrkB* locus;

(c) introducing the genetically modified pluripotent rat cell into a rat host embryo; and

(d) implanting and gestating the rat host embryo in a surrogate mother; or

(II) (a) modifying the genome of a rat one-cell stage embryo to comprise the genetically modified endogenous *TrkB* locus;

(b) selecting the genetically modified rat one-cell stage embryo comprising the genetically modified endogenous *TrkB* locus; and

(c) implanting and gestating the genetically modified rat one-cell stage embryo in a surrogate mother.

12. A rat cell comprising a genetically modified endogenous *TrkB* locus encoding a tropomyosin receptor kinase B (TRKB) protein,

wherein the TRKB protein comprises a cytoplasmic domain, a transmembrane domain, and an extracellular domain, and all of the extracellular domain is encoded by a segment of the endogenous *TrkB* locus that has been deleted and replaced with an orthologous human *TRKB* sequence,

wherein the TRKB protein comprises a human TRKB extracellular domain,

and wherein the TRKB protein comprises an endogenous TRKB signal peptide, an endogenous TRKB transmembrane domain, and an endogenous TRKB cytoplasmic domain.