CLAIM(S):

1. A rhesus macaque adeno-associated virus (AAV) vector comprising a promoter operably linked to a nucleic acid sequence that encodes human aldehyde dehydrogenase, wherein the AAV vector is AAV serotype rh.10 vector, and the vector further comprises a nucleic acid sequence encoding a mitochondrial localization sequence operably linked to the nucleic acid sequence that encodes human aldehyde dehydrogenase sequence.

2. The vector of claim 1, wherein the vector is selected from the group consisting of adeno-associated virus (AAV), adenovirus, lentivirus, retrovirus, and plasmid.

3. The vector of claim 2, wherein the vector is an AAV vector.

4. The vector of claim 3, wherein the AAV vector is a non-human adeno-associated virus.

5. The vector of claim 4, wherein the non-human adeno-associated virus is a rhesus macaque adeno-associated virus.

6. The vector of claim 5, wherein the rhesus macaque adeno-associated virus is the adeno-associated virus serotype rh.10.

72. The vector of claim 1, wherein the promoter is a constitutively active promoter.

8. The vector of claim 1, wherein the promoter is a cell type specific promoter.

9. The vector of claim 1, wherein the promoter is an inducible promoter.

103. The vector of claim 72, wherein the constitutively active promoter is a chicken beta-actin promoter.

114. The vector of claim 1, wherein the human aldehyde dehydrogenase is human aldehyde dehydrogenase 2 (ALDH2).

12. The vector of claim 1, wherein the vector further comprises a nucleic acid sequence encoding a mitochondrial localization sequence operably linked to the nucleic acid sequence that encodes human aldehyde dehydrogenase sequence.

135. The vector of claim 1, wherein the vector encodes SEQ ID NO: 1.

146. The vector of claim 12, wherein the vector encodes SEQ ID NO: 3.

157. A composition comprising the vector of any one of claims 1-14 6 and a pharmaceutically acceptable carrier.

168. A composition comprising the vector of any one of claims 1-6 for use in the treatment of method of treating aldehyde dehydrogenase deficiency in a mammal, or treating or preventingthe treatment or prevention of a disease characterized by aldehyde dehydrogenase deficiency or any symptom thereof in a mammal, the method comprising administering a vector of any of claims 1-14 to the mammal.

9. Use of the vector of any of claims 1-6, in the preparation of a medicament for the treatment of aldehyde dehydrogenase deficiency in a mammal, or the treatment or prevention of a disease characterized by aldehyde dehydrogenase deficiency or any symptom thereof in a mammal.

1710. The method use of claim 16 9, wherein the mammal is a human.

1811. The method use of claim 179, wherein the mammal is heterozygous or homozygous for an ALDH2*2 allele.

1912. The method use of any of claims 16-18 9, wherein the mammal is afflicted with a the disease characterized by a deficiency in aldehyde dehydrogenase is selected from the group consisting of ethanol toxicity, upper respiratory/digestive tract cancer, osteoporosis, squamous cell carcinoma, fanconi anemia, Parkinson's disease, Alzheimer's disease, stroke, hypertension, cardiac arrhythmia, myocardial infarction, and nitroglycerin intolerance.

2013. The method use of any of claims 16-19 9, wherein the vector medicament is to be administered to the mammal not more than once within about 30 days.

2114. The method use of any one of claims 16-209, wherein the vector medicament is to be administered by intraoral, intramuscular, transdermal, intravenous, intraarterial, subcutaneous, intradermal, or intraperitoneal administration.

2215. The method use of any of claims 16-21 9, further comprising analyzing the amino acid sequence or nucleic acid sequence of the mammal, and selectingwherein the medicament is to be administered to the mammal for treatment ifwhose residue 487 of ALDH2 protein in the mammal is not glutamineglutamic acid.

2316. The method of claim 229, wherein the subject is selected for treatment when themedicament is to be administered to the mammal whose amino acid at residue 487 is lysine.

24. The vector of any of claims 1-14, or composition of claim 15, for treating aldehyde dehydrogenase deficiency in a mammal, or treating or preventing a disease characterized by aldehyde dehydrogenase deficiency or any symptom thereof in a mammal.

25. Use of he vector of any of claims 1-14, or composition of claim 15, for preparing a medicament for treating aldehyde dehydrogenase deficiency in a mammal, or treating or preventing a disease characterized by aldehyde dehydrogenase deficiency or any symptom thereof in a mammal.

17. The vector of claim 1, wherein the promoter is a cell type specific promoter or an inducible promoter.