1 week to about 2 weeks. In one embodiment, the infected rodent is raised for about 1 week. In another embodiment, the infected rodent is raised for about 2 weeks. In an additional embodiment, the infected rodent is raised for about 3 weeks. In a further embodiment, the infected rodent is raised for about 4 weeks. In some embodiments, the rodent is an immune-competent rodent. In some embodiments, the rodent is a mouse as described herein. In one embodiment, the immune-competent mouse is a Balb/c mouse. In some embodiments, the rodent is an immune-compromised rodent. In some embodiments, the rodent is a mouse as described herein. In one embodiment, the immune-compromised mouse is a NSG mouse. In other embodiments, the rodent is infected by inoculating the rodent with the modified Enterovirus 71. In one embodiment, the inoculation is intraperitoneal (I.P.). In another embodiment, the inoculation is intramuscular (I.M.). In some embodiments, the virus dose inoculated into the rodent is a median cell culture infectious dose ($CCID_{50}$) between about between about 10^3 and about 10^7. In other embodiments, the virus dose inoculated into the rodent is a $CCID_{50}$ between about between about 10^3 and about 10^6. In one embodiment, the virus dose inoculated into the rodent is a $CCID_{50}$ between about 4×10^3 and about 10^6. In another embodiment, the virus dose inoculated into the rodent is a $CCID_{50}$ between about 10^4 and about 10^6. In an additional embodiment, the virus dose inoculated into the rodent is a $CCID_{50}$ between about 10^5 and about 10^6. In one embodiment, the virus dose inoculated into the rodent is a $CCID_{50}$ of about 10^6.

[0057] The animal model prepared in this manner is an authentic mouse model of EV71 neuro-infection that exhibits face validity, *i.e.*, these animals display the entire range of clinical signs that can be observed across the full spectrum of neurological disease induced by EV71 infection in human patients, including NPE. This animal model also displays construct validity with respect to the gross and histopathological features of disease, which closely resemble those reported in fatal human cases. This new *in vivo* model represents a powerful tool for identifying the key events in EV71 neuro-pathogenesis, for dissecting the mechanism of EV71-induced NPE, developing novel treatment modalities and potential antiviral therapies, and for conducting pre-clinical evaluation of novel vaccines.

[0058] In an additional aspect, the present invention provides a method to screen antiviral drugs. In accordance with this aspect, the method comprises the following steps: providing a test group of animals and a control group of animals in which the animals of each group are animals of the animal model described herein; administering to the test group an antiviral drug candidate;

monitoring disease progression in the test group and the control group; comparing the disease progression in the test group to the disease progression in the control group; and selecting the antiviral drug candidate that reduces disease progression in the test group relative to the control group. In one embodiment, the antiviral drug is first screened in a test rodent cell

WHAT IS CLAIMED IS:

1. An animal model of Enterovirus 71 (EV71) neuro-infection comprising a rodent infected with an EV71 modified for infecting the rodent,

wherein the modified EV71 is:

(a) *EV71:TLLmv*, which has been deposited with China Center for Type Culture Collection and assigned accession number CCTCC V201438;

(b) *EV71:TLLm*, which has been deposited with China Center for Type Culture Collection and assigned accession number CCTCC V201437; or

(c) an EV71 clone derived virus (CDV) containing mutations in VP1 and which is EV71 CDV *CDV:BS$_{VP1}$[K98E/E145A/L169F*, and

wherein the animal model displays acute encephalomyelitis associated with neurogenic pulmonary edema characterized by focal hemorrhage and proteinaceous fluid in the lung alveoli, high serum levels of catecholamines and extensive tissue damage in the brainstem.

2. The animal model of claim 1, wherein the rodent is immuno-competent.

3. The animal model of claim 2, wherein the rodent is a mouse.

4. The animal model of claim 3, wherein the mouse is a BALB/c mouse.

5. The animal model of claim 1, wherein the rodent is immuno-compromised.

6. The animal model of claim 5, wherein the rodent is a mouse.

7. The animal model of claim 6, wherein the mouse is a NSG mouse.

8. A method to screen antiviral drugs, comprising: providing a test group of animals and a control group of animals, wherein the animals of each group comprise the animal model of any one of claims 1-7; administering to the test group an antiviral drug candidate; monitoring disease progression in the test group and the control group; comparing the disease progression in the test group to the disease progression in the

control group; and selecting the antiviral drug candidate that reduces disease progression in the test group relative to the control group.

9. The method of claim 8, wherein the antiviral drug is first screened in a test rodent cell line infected with the modified Enterovirus 71 before screening in the animals.

10. A method to screen effective antiviral vaccines, comprising: providing a test group of animals and a control group of animals, wherein the animals of each group comprise the animal model of any one of claims 1-7; administering to the test group an antiviral vaccine candidate; monitoring disease progression in the test group and the control group; comparing the disease progression in the test group to disease progression in the control group; and selecting the antiviral vaccine candidate that reduces disease progression in the test group relative to the control group.

11. A method of preparing an animal model of Enterovirus 71 (EV71) neuro-infection comprising

infecting a rodent with an EV71 modified for infecting the rodent and

raising the infected rodent,

whereby an animal model of EV71 neuro-infection is prepared,

wherein the modified EV71 is:

(a) *EV71:TLLmv*, which has been deposited with China Center for Type Culture Collection and assigned accession number CCTCC V201438;

(b) *EV71:TLLm*, which has been deposited with China Center for Type Culture Collection and assigned accession number CCTCC V201437; or

(c) an EV71 clone derived virus (CDV) containing mutations in VP1 and which is EV71 CDV *CDV:BS$_{VP1}$[K98E/E145A/L169F]*, and

wherein the animal model displays acute encephalomyelitis associated with neurogenic pulmonary edema characterized by focal hemorrhage and proteinaceous fluid in the lung alveoli, high serum levels of catecholamines and extensive tissue damage in the brainstem.

12. The method of claim 11, wherein the age of the rodent at infection is between 1 week and 4 weeks.

13. The method of claim 11 or 12, wherein the infected rodent is raised for up to 4 weeks.

14. The method of any one of claims 11-13, wherein a median cell culture infectious dose between 10^3 and 10^7 is used for infecting the rodent.

15. The method of any one of claims 11-14, wherein the rodent is immuno-competent.

16. The method of claim 15, wherein the rodent is a mouse.

17. The method of claim 16, wherein the mouse is a BALB/c mouse.

18. The method of any one of claims 11-14, wherein the rodent is immuno-compromised.

19. The method of claim 18, wherein the rodent is a mouse.

20. The method of claim 19, wherein the mouse is a NSG mouse.