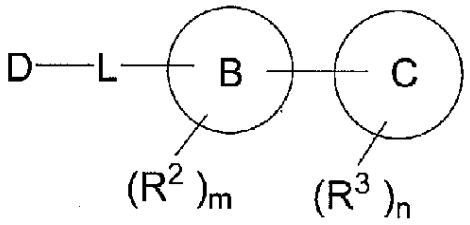
Claims

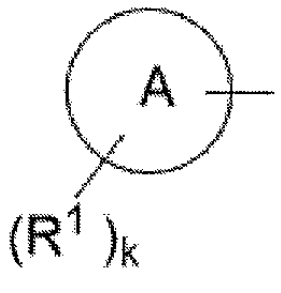
1. A compound represented by Formula I:



[Formula I]

wherein

D is



;

ring A is benzene;

ring B is pyrimidine;

ring C is selected from the group consisting of the following unsaturated rings and their oxides and dioxides, wherein pyrimidine-2,4-dione and dihydropyrimidine-2,4-dione are excluded, and those in which a part or all of unsaturated bonds in these rings are reduced with hydrogen:

pyridazine,

pyrimidine,

indole,

pyrrolopyridine,

indazole,

pyrazolopyridine,

imidazopyridine,

imidazopyrazine,

imidazopyridazine,

triazolopyridine,
pyrazolopyrimidine,
imidazopyrimidine,
triazolopyrimidine,
isoquinoline,
naphthyridine,
quinazoline,
quinoxaline,
benzodioxole,
oxazine,
oxazepine,
benzothiazole, and
triazolopyridazine;

wherein ring C is bonded to a 5-position of ring B,

R^1 is halogen, C_{1-6} alkyl optionally substituted with halogen, $-O-C_{1-6}$ alkyl optionally substituted with halogen or -CN;

R^2 is $-O-C_{1-6}$ alkyl;

R^3 is halogen, C_{1-6} alkyl optionally substituted with halogen or $-O-C_{1-6}$ alkyl, $-O-C_{1-6}$ alkyl optionally substituted with halogen, $-C_{1-6}$ alkyl-OH, -OH, -CN, $-CONH_2$ or $-NH_2$;

L is -O-, which is bonded at a 2-position of ring B; and

k is 0, 1 or 2, and when k is 2, each R^1 independently represents the same or different substituent;

m is 0 or 1;

n is 0, 1 or 2, and when n is 2, each R^3 independently represents the same or different substituent;

or a salt thereof.

2. The compound according to claim 1, wherein, in Formula I, ring C is selected from the group consisting of the following unsaturated rings and their oxides, and those in which a part or all of unsaturated bonds in these rings are reduced with hydrogen:

pyridazine,
pyrrolopyridine,
indazole,
pyrazolopyridine,
imidazopyridine,
imidazopyrazine,
imidazopyridazine,
pyrazolopyrimidine,
triazolopyrimidine,
isoquinoline,
naphthyridine,
quinoxaline,
triazolopyridine, and
triazolopyridazine;

R^1 is halogen or C_{1-6} alkyl optionally substituted with halogen;

R^3 is C_{1-6} alkyl optionally substituted with halogen, $-O-C_{1-6}$ alkyl optionally substituted with halogen, $-OH$, $-CONH_2$ or $-NH_2$;

k and n are 0 or 1; and

m is 0;

or a salt thereof.

3. The compound according to claim 2, wherein, in Formula I, ring C is selected from the group consisting of the following unsaturated rings and their oxides, and those in which a part or all of unsaturated bonds in these rings are reduced with hydrogen:

pyridazine,
pyrazolopyridine, and
Imidazopyridine;

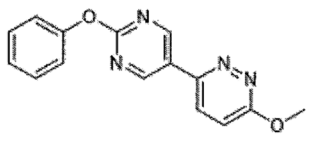
R^3 is $-OH$ or $-NH_2$;

k and m are 0; and

n is 0 or 1;

or a salt thereof.

4. A compound selected from the group consisting of the following compounds: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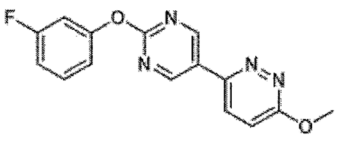
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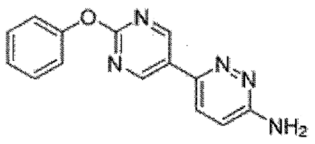
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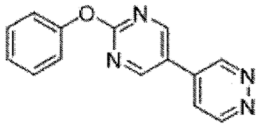
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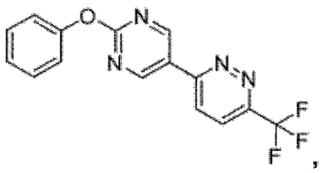
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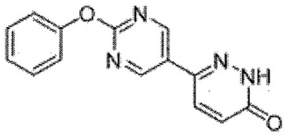
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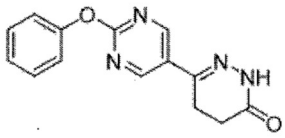
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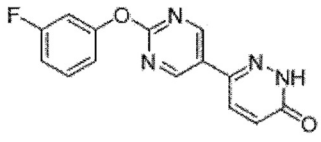
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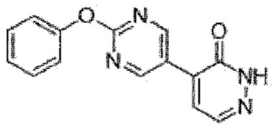
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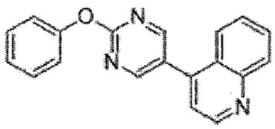
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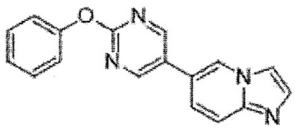
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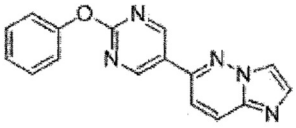
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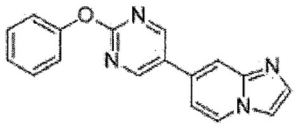
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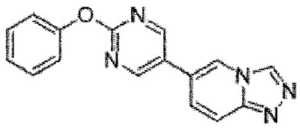
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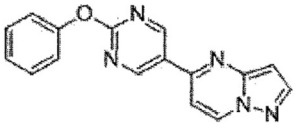
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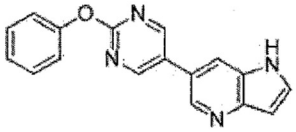
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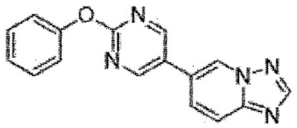
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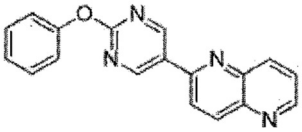
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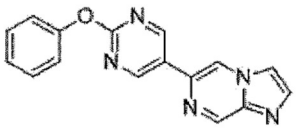
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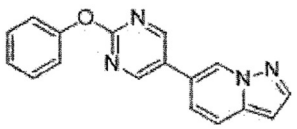
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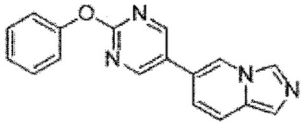
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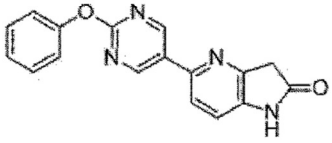
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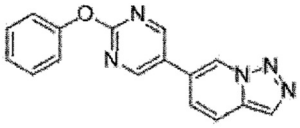
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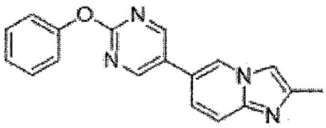
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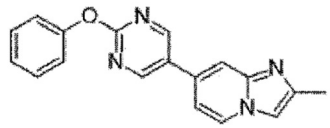
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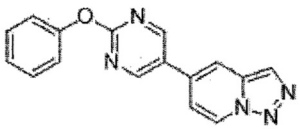
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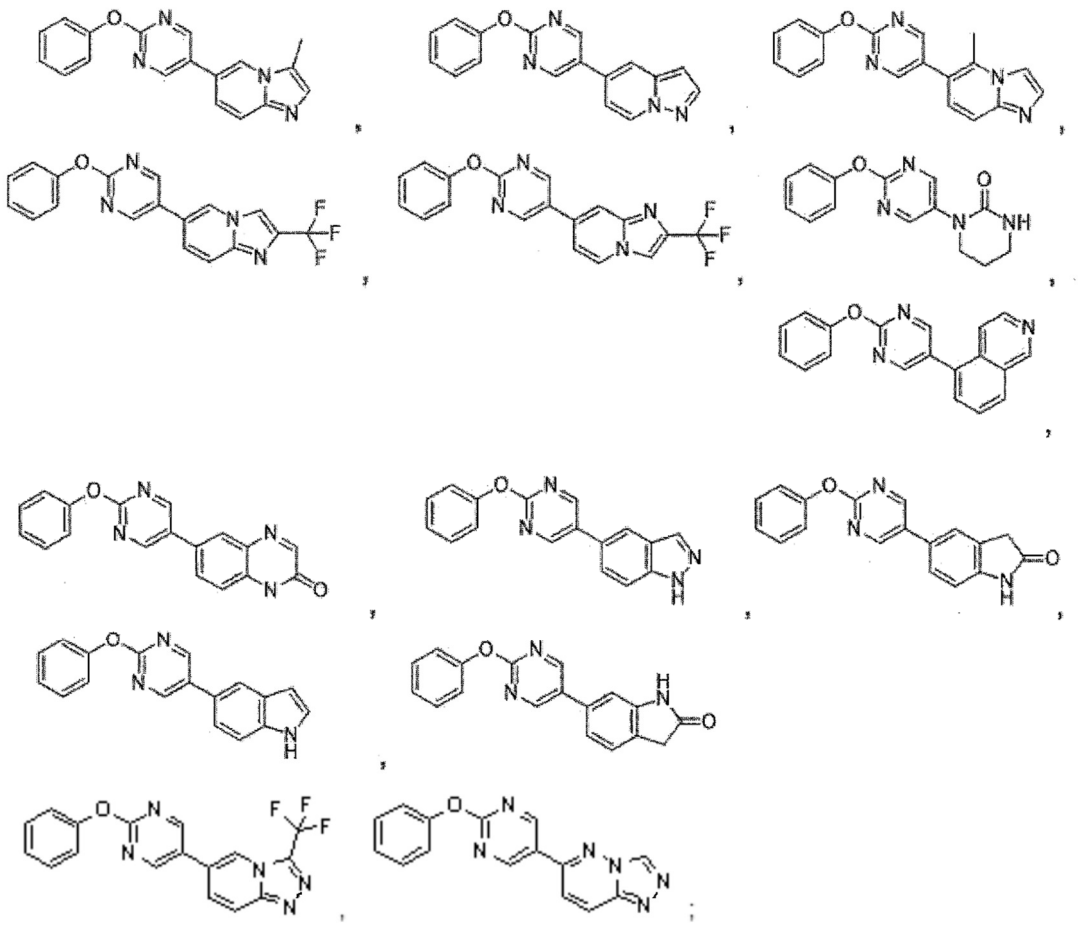
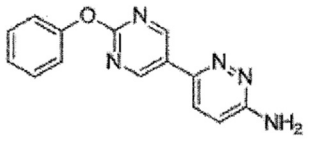


or a salt thereof.

5. The compound according to claim 4 selected from the group consisting of the following compounds: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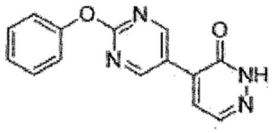
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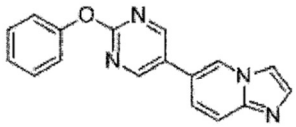
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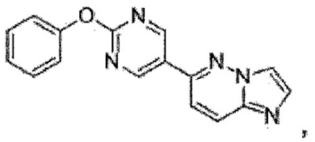
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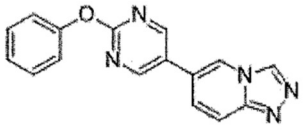
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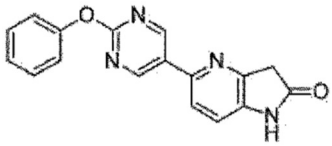
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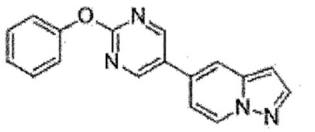
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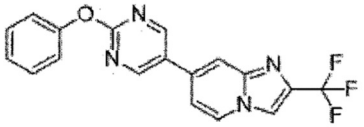
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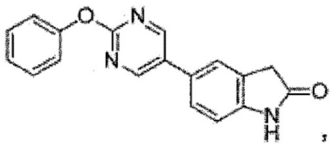
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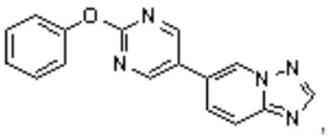
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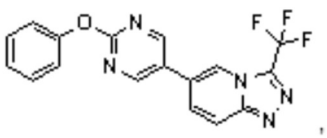
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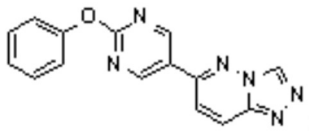
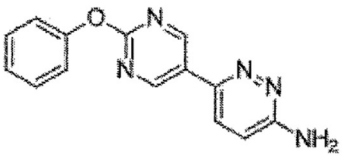


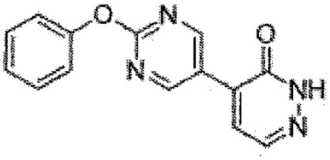
or a salt thereof.

6. A compound represented by the following formula:



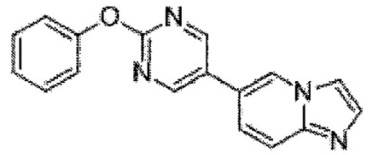
or a salt thereof.

7. A compound represented by the following formula:



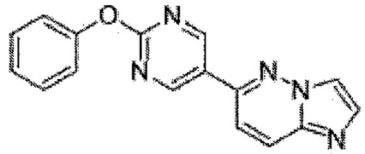
or a salt thereof.

8. A compound represented by the following formula:



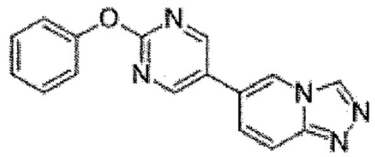
or a salt thereof.

9. A compound represented by the following formula:



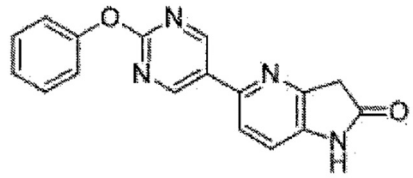
or a salt thereof.

10. A compound represented by the following formula:



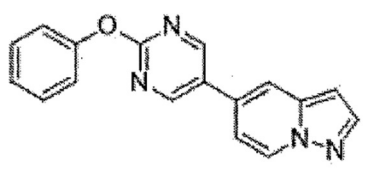
or a salt thereof.

11. A compound represented by the following formula:



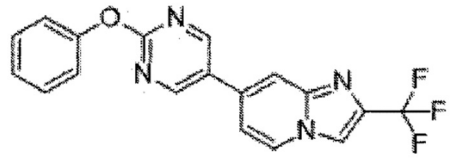
or a salt thereof.

12. A compound represented by the following formula:



or a salt thereof.

13. A compound represented by the following formula:



or a salt thereof.

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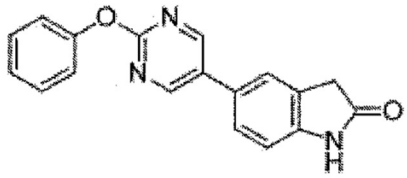
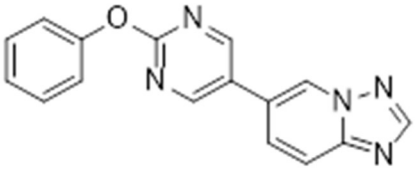


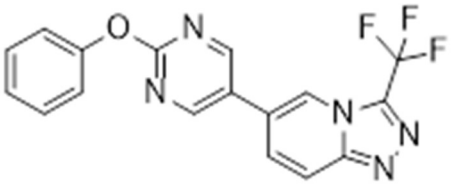
or a salt thereof.

15. A compound represented by the following formula:



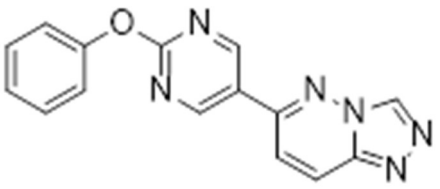
or a salt thereof.

16. A compound represented by the following formula:



or a salt thereof.

17. A compound represented by the following formula:



or a salt thereof.

18. A pharmaceutical composition comprising a compound or a salt thereof according to any of Claims 1 to 17 as an active ingredient and pharmaceutically acceptable carrier or excipient.

19. A compound or a salt thereof according to any one of claims 1 to 17 for use in treating, preventing and/or diagnosing seizure in disease involving epileptic seizure or convulsive seizure, wherein the disease comprises multiple drug resistant seizure, refractory seizure, acute symptomatic seizure, febrile seizure and status epilepticus.

20. The compound or salt thereof according to Claim 19, wherein the epileptic seizure is selected from focal onset or partial seizure with motor onset comprising automatism, atonic seizure, clonic seizure, epileptic spasms, hyperkinetic seizure, myoclonic seizure and tonic seizure, focal onset or partial seizure with non-motor onset comprising autonomic seizure, behavior arrest seizure, cognitive seizure, emotional seizure and sensory seizure, and focal to bilateral tonic-clonic seizure/secondary generalization of partial seizure; generalized onset seizure including motor seizure comprising tonic-clonic seizure, clonic seizure, tonic seizure, myoclonic seizure, myoclonic-tonic-clonic seizure, myoclonic-atonic seizure, atonic seizure and epileptic spasms, generalized onset seizure including non-motor seizure comprising typical absence seizure, atypical absence seizure, myoclonic absence seizure and eyelid myoclonic seizure; and seizure of unknown onset including motor seizure comprising tonic-clonic seizure and epileptic spasms, and seizure of unknown onset including non-motor seizure comprising behavior arrest seizure.

21. The compound or salt thereof according to Claim 19, wherein the disease involving epileptic seizure or convulsive seizure is selected from Dravet syndrome, Lennox-Gastaut syndrome, West syndrome/epilepsia nutans, Ohtahara syndrome, Doose syndrome, Landau-Kleffner syndrome, Rasmussen syndrome, Aicardi syndrome, Panayiotopoulos syndrome, Kojewnikow syndrome, Tassinari syndrome, Geschwind syndrome, hemiconvulsion-hemiplegia-epilepsy syndrome, mesial temporal lobe epilepsy, epilepsy with structural/metabolic cause comprising epilepsy after stroke, traumatic epilepsy, infectious epilepsy, epilepsy associated with cerebrovascular disorder, epilepsy associated with brain tumor, epilepsy associated with neurodegenerative disease, epilepsy associated with autoimmune disorder, and congenital malformation, congenital metabolic abnormality comprising, phenylketonuria, mitochondrial disease, lysosomal disease, and Sturge-Weber syndrome, and congenital genetic abnormality comprising Rett's syndrome, Angelman's syndrome, 5p syndrome, 4p syndrome, and Down's syndrome.

22. Use of a compound or a salt thereof according to any of Claims 1 to 17 in the manufacture of a medicament for treating, preventing and/or diagnosing seizure in disease involving epileptic seizure or convulsive seizure, wherein the disease comprises multiple drug resistant seizure, refractory seizure, acute symptomatic seizure, febrile seizure and status epilepticus.

23. The use according to Claim 22, wherein the epileptic seizure is selected from focal onset or partial seizure with motor onset comprising automatism, atonic seizure, clonic seizure, epileptic spasms, hyperkinetic seizure, myoclonic seizure and tonic seizure, focal onset or partial seizure with non-motor onset comprising autonomic seizure, behavior arrest seizure, cognitive seizure, emotional seizure and sensory

seizure, and focal to bilateral tonic-clonic seizure/secondary generalization of partial seizure; generalized onset seizure including motor seizure comprising tonic-clonic seizure, clonic seizure, tonic seizure, myoclonic seizure, myoclonic-tonic-clonic seizure, myoclonic-atonic seizure, atonic seizure and epileptic spasms, generalized onset seizure including non-motor seizure comprising typical absence seizure, atypical absence seizure, myoclonic absence seizure and eyelid myoclonic seizure; and seizure of unknown onset including motor seizure comprising tonic-clonic seizure and epileptic spasms, and seizure of unknown onset including non-motor seizure comprising behavior arrest seizure.

24. The use according to Claim 22, wherein the disease involving epileptic seizure or convulsive seizure is selected from Dravet syndrome, Lennox-Gastaut syndrome, West syndrome/epilepsia nutans, Ohtahara syndrome, Doose syndrome, Landau-Kleffner syndrome, Rasmussen syndrome, Aicardi syndrome, Panayiotopoulos syndrome, Kojewnikow syndrome, Tassinari syndrome, Geschwind syndrome, hemiconvulsion-hemiplegia-epilepsy syndrome, mesial temporal lobe epilepsy, epilepsy with structural/metabolic cause comprising epilepsy after stroke, traumatic epilepsy, infectious epilepsy, epilepsy associated with cerebrovascular disorder, epilepsy associated with brain tumor, epilepsy associated with neurodegenerative disease, epilepsy associated with autoimmune disorder, and congenital malformation, congenital metabolic abnormality comprising, phenylketonuria, mitochondrial disease, lysosomal disease, and Sturge-Weber syndrome, and congenital genetic abnormality comprising Rett's syndrome, Angelman's syndrome, 5p syndrome, 4p syndrome and Down's syndrome.