



Six Criteria for Rabies Diagnosis in Living Dogs (2)

(3) How did the illness evolve?

Acute onset from normal health -----> not rabies

Gradual onset or not known -----> go to (4)

(4) How was the condition during the clinical course in last 3-5 days?

Stable or improving (with no treatment) --> not rabies

Symptoms and signs progressing or not known --> go to (5)

(5) Does the dog show the sign of “Circling”?

(It stumbles or walks in a circle and hits its head against the wall as if blind.)

Yes -----> not rabies

No or not known -----> go to (6)

(6) Does this dog show at least 2 of the 17 following signs or symptoms during the last week of life?

Yes -----> rabies

No or showing only 1 sign -----> not rabies

J Med Assoc Thai 2005; 88(3): 419-22





Six Criteria for Rabies Diagnosis in Living Dogs (3)

(6) Does this dog show at least 2 of the 17 following signs or symptoms during the last week of life?

Yes -----> rabies

No or showing only 1 sign -----> not rabies



1. Drooping jaw
2. Abnormal sound in barking.
3. Dry drooping tongue.
4. Licking its own urine.
5. Abnormal licking of water.
6. Regurgitation.
7. Altered behavior.
8. Biting and eating abnormal objects.
9. Aggression.
10. Biting with no provocation.
11. Running without apparent reason.
12. Stiffness upon running or walking.
14. Bites during quarantine
15. Appearing sleepy.
16. Imbalance of gait.
17. Frequent demonstration of the "Dog sitting" position





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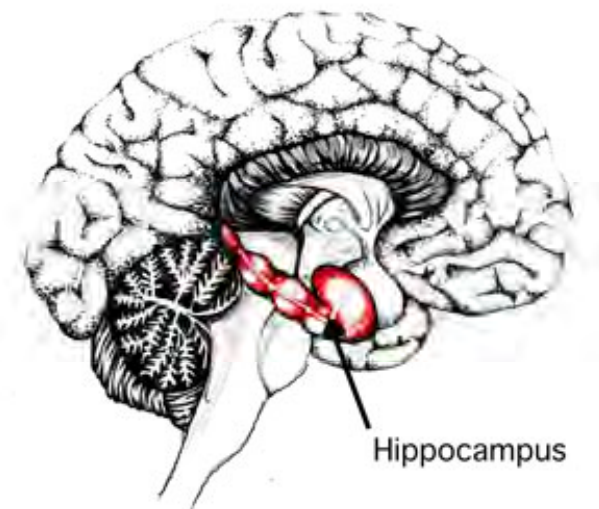
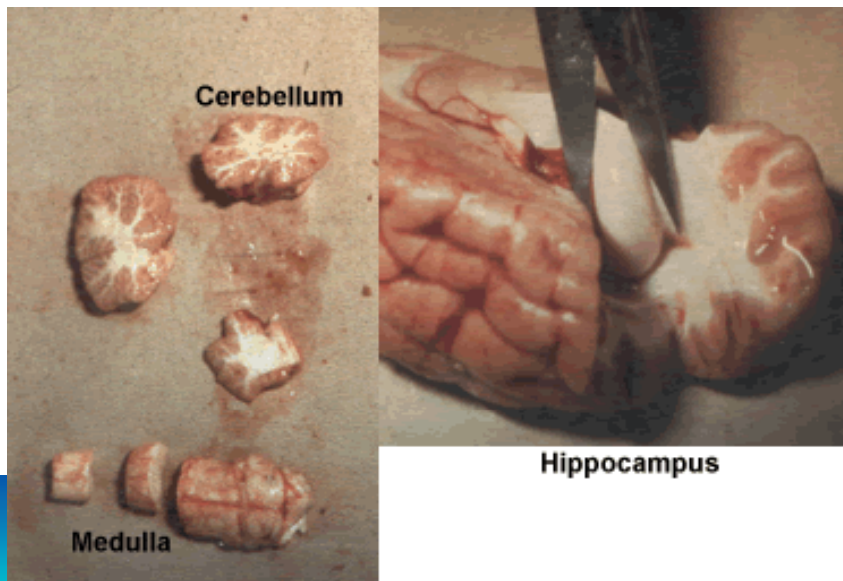
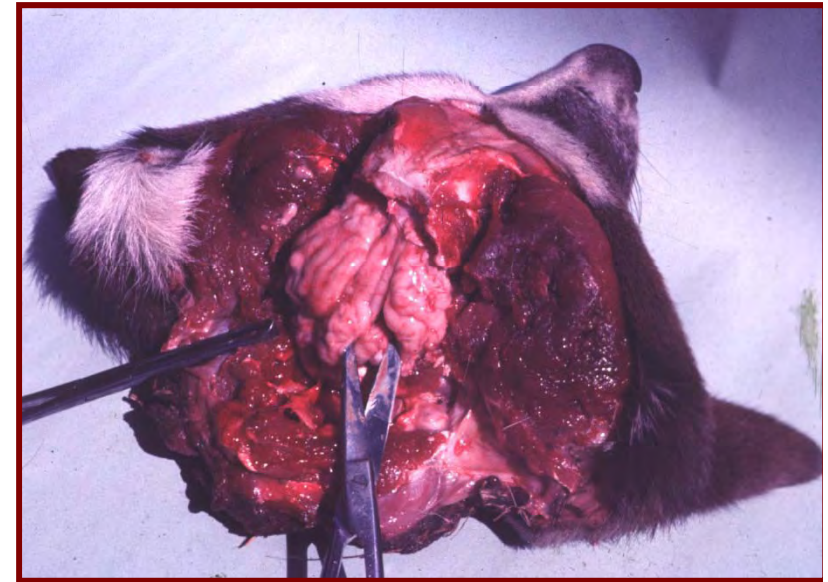
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- fresh brain tissue - CNS
 - hippocampus
 - cerebellum
 - medulla oblongata





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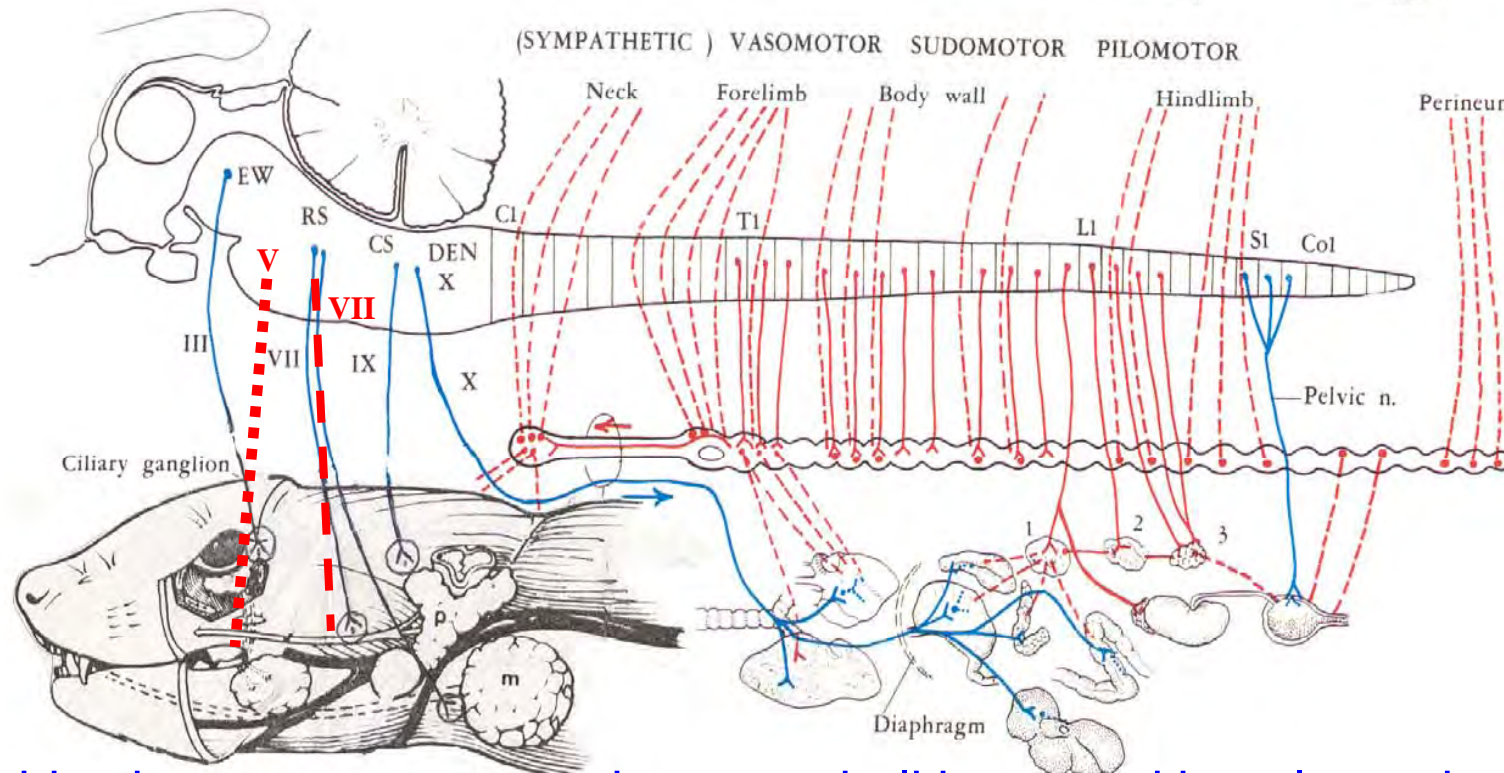
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APPLIED GROSS MAMMALIAN CNS ANATOMY



Rabies is an acute progressive encephalitis caused by a lyssavirus





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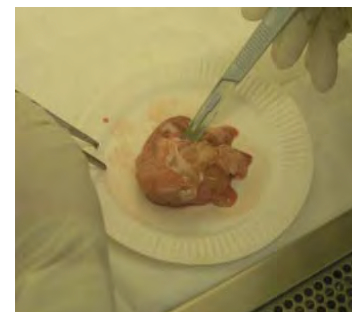
狂犬病實驗室診斷流程



疑似狂犬病腦組織

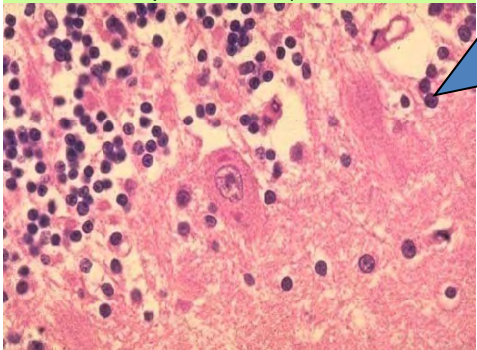
採樣部位：

- ❖ 腦幹
- ❖ 大腦皮質
- ❖ 小腦
- ❖ 海馬角
- ❖ 延腦

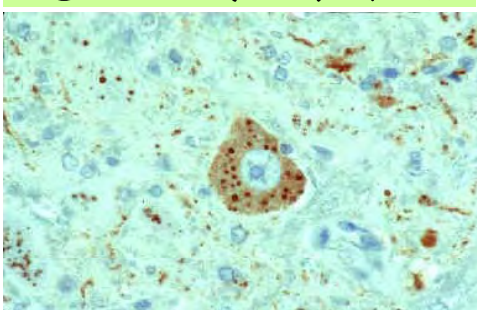


直接螢光抗體染色
dFA (FAT)

組織病理學檢查

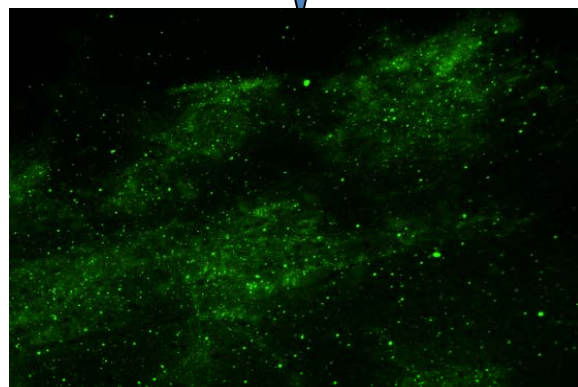


免疫組織化學染色

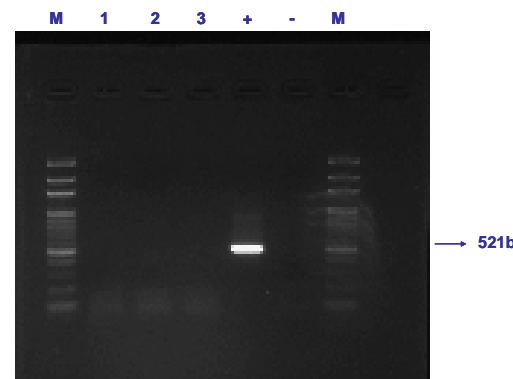


+

±



RT-PCR



Rabies陰性

Rabies陽性

Rabies陰性

Rabies陽性

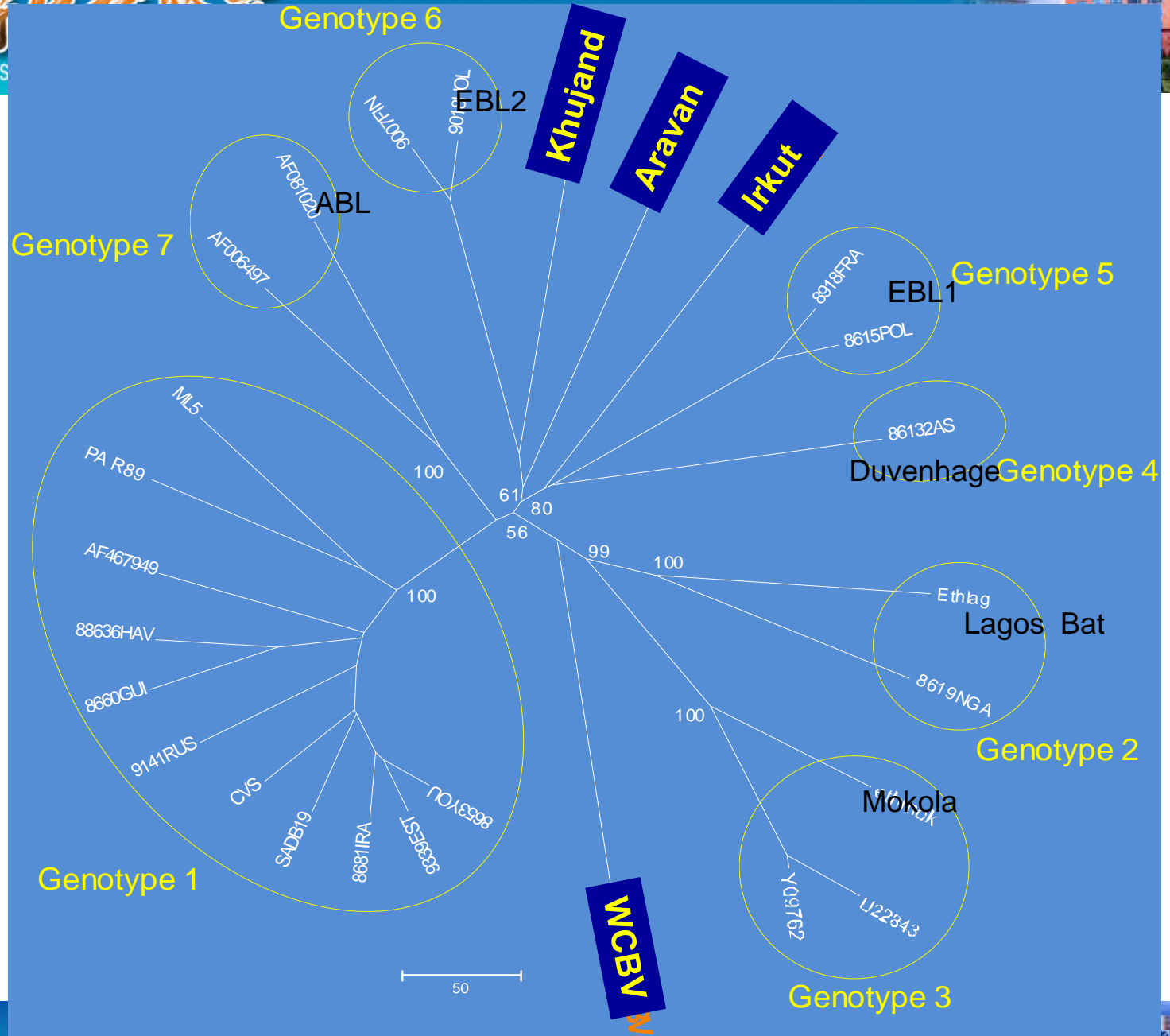
Rabies陰性

Rabies陽性



Genus
Lyssavirus

Blue bars indicate newly described putative viral species isolated from Eurasian bats (Kuzmin et al., 2005)





Lyssavirus genus

- Rabies virus (genotype 1)
- Lagos bat virus (genotype 2)^a
- Mokola virus (genotype 3)^b
- Duvenhage virus (genotype 4)
- European bat lyssavirus 1, 2 (genotype 5, 6)
- Australian bat lyssavirus (genotype 7)
- New virus: Aravan, Khujand, Irkut, West Caucasian bat virus

a: no human infections

b: mainly isolated from cats





Distribution of lyssavirus

- Rabies virus has a worldwide distribution.
- Other lyssaviruses are relatively restricted geographically.
- In some countries, bats carrying genotype 1 variants are equally causes of human infections
 - In USA, from 1958 to 2000, 32 of 35 human cases were associated with bat rabies, including 26 of 28 cryptic cases. [Messenger SL et al., 2002]





Lyssavirus genus

- ✓ Australian bat lyssavirus cause **3 fatal human infections^a**
- ✓ European bat lyssaviruse account for 3 human infections^b and few animal cases (marten貂, sheep)

a:

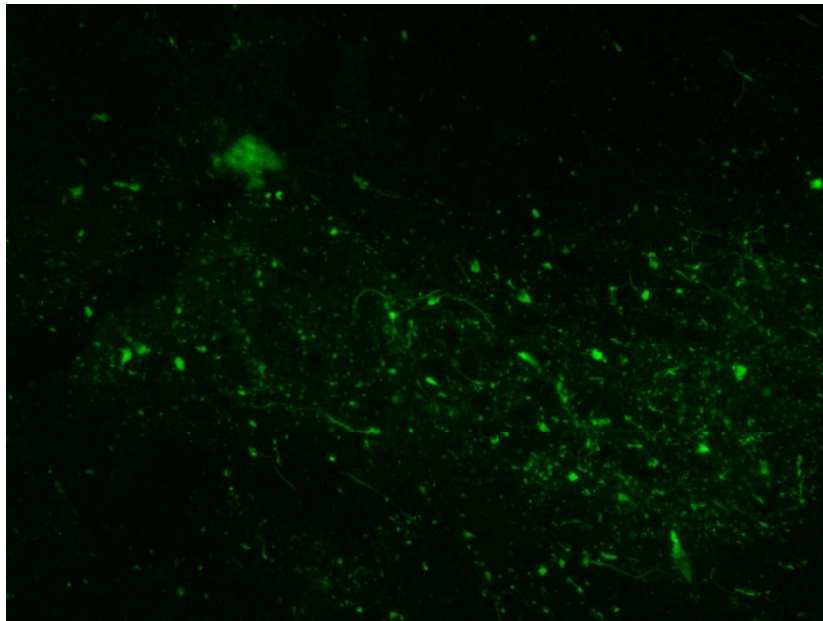
1). the illness is indistinguished from classic rabies. 2). both cases had sustained bat-related injuries. 3). ABL can cause encephalitis in infected bats. 4). sick flying foxes have higher seropositive rate (6.5% vs. <1%)

b:

1).One case of EBL-1 in humans, two human death due to EBL-2 infection.
2).EBL1 is mainly associated with Eptesicus serotinus, EBL2 with Myotis bats

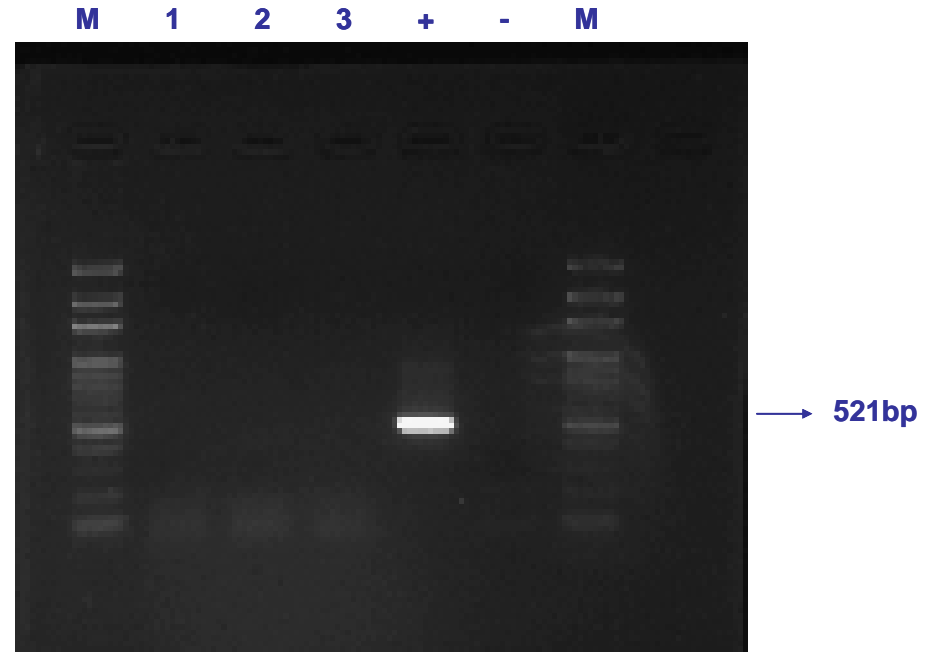


Surveillance on rabies and lyssaviruses in bats in Taiwan



The staining result of direct fluorescent assay for rabies

(staining result of positive control, brain tissues of mice inoculated intracerebrally with rabies fixed virus were used as positive control)



The electrophoresis of RT-PCR amplicon for rabies

lane M : 100 bp ladder, lane1-3: bat samples, lane + : positive control, lane- : negative control

