

2003

Session

NA-1700

# NA-1700

1.

가 .  
, , , . 가  
가  
, (methamphetamine)  
(psychological dependence) (habituation)  
(physical dependence)  
(addiction) (abstinence syndrome)  
가  
, , , , ,  
opioid 가 , 가

가

가 2001

가 1 102 1999

3 1 20-40 20 -40

2000 12 4

500 87.5%가

30%

82%가

가

( ) Greenlife World

NA-1700

( ) (

)

2.

가.

A.

(1) Rat

NA-1700

1) NA-1700

2)

(2) Mouse (methamphetamine)

NA-1700

1) methamphetamine

2) methamphetamine (behavioral sensitization)

3) methamphetamine

A.

(1) NA1700

capsule 1000mg

(2)

Rat(Sprague Dauley, male) mouse(ICR, male)

가

1

250-270g(rat), 20-25g(mouse)

B.

(1)

250-270g

stereotaxic frame

cement . 1  
 forcep osmotic  
 minipump(Alzet 2001)  
 osmotic pump polyethylent tube  
 cement  
 cage 1  
 (26 nmol/ul/hr) 3 -7  
 10mg/kg 2  
 5

(2)

3 osmotic minipump  
 3-7 naloxone 10 mg/kg  
 30  
 8가  
 (jumping, rearing, wet dog shake, teeth  
 chattering, scratching, diarrhea, penis licking, and  
 vocalization). NA-1700  
 1

(3)

protocol NA-1700  
 glutathion  
 가  
 glutathion 가 NA-1700  
 glutathion  
 glutamate (NMDA ) 가가  
 NMDA subunit NR1 ( , , , )  
 ) immunoblot

가 pCREB 가 pCREB  
가 pERK .

(4) methamphetamine

가 20cm, 25cm, 18cm  
plastic cage 1M 50cm video  
Mouse 10 cage ,  
methamphetamine 2mg/kg 30  
saline methamphetamine  
NA-1700  
methamphetamine 1  
methamphetamine

(5) methamphetamine

( )  
Methamphetamine  
(behavioral sensitization) . Saline  
NA-1700 1 methamphetamine  
2mg/kg (i.p.) , cage 30  
1 2 1 7  
NA-1700  
Methamphetamine  
8 3  
11 methamphetamine

(6) methamphetamine

Methamphetamine (conditioned  
place preference, CPP) .

*Pre-conditioning phase*

1 10

2 15

*Conditioning phase*

3, 5, 7, 9

60 , 4,

6, 8, 10 Saline

60

*Testing phase*

11

15  
.Scoring

(7). Apomorphine dopamine  
Conditioned place preference가 24  
dopamine agonist apomorphine 2 mg/kg  
20 .

3.

가. NA1700

NA1700 rat(male, 260-280g) 250mg  
NA1700 250mg/rat .

3 osmotic minipump 26nmol/ul/hr 3

10mg/kg opioid mu kappa mu

30 7 naloxone

5-6 10mg/kg 2 naloxone 10mg/kg

30 7 opioid

(Table 1).

wet-dog shake, rearing, penis licking

NA1700

escape behavior, ptosis, diarrhea, teeth chattering

**Table 1. Withdrawal signs elicited in nalbuphine dependent rats**

	Saline	NA1700	Nalbuphine	Nalbuphine + NA1700
Escape behavior	0/10	0/10	1/10	1/10
Wet-Dog shake	2/10	2/10	10/10	3/10*
Rearing	1/10	2/10	9/10	3/10*
Penis licking	0/10	0/10	5/10	0/10*
Grooming	3/10	3/10	10/10	7/10
Ptosis	0/10	0/10	4/10	1/10
Diarrhea	0/10	0/10	0/10	0/10
Teeth chattering	1/10	1/10	3/10	1/10

NA-1700

glutathion 가  
glutathion 가 NA-1700

glutathion  
 glutathione 가 .  
 ) 가가 NMDA glutamate (NMDA  
 ( , , , ) subunit NR1  
 immunoblot  
 가 가 . pCREB pCREB  
 가 가 pCREB 가  
 pERK . ( 1)

**Figure 1. Western analysis of pERK in nalbuphine dependent rats.**

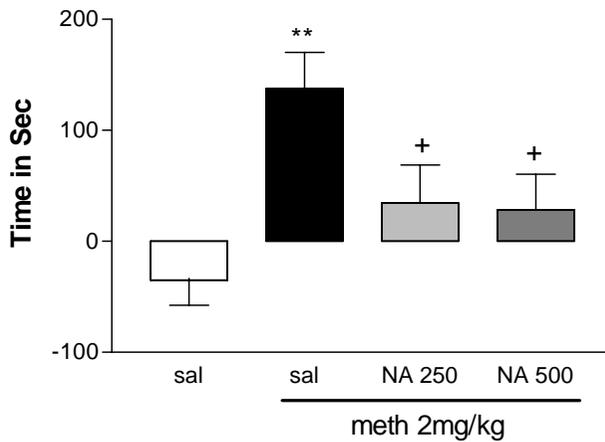


NA-1700

**. Methamphetamine**

Methamphetamine saline group , CPP  
가 Data  
(p<0.01) .NA 250mg/kg 500mg/kg  
methamphetamine group  
methamphetamine (Fig. 2, p<0.05).

**Fig. 2. Effects of NA-1700 on methamphetamine-induced psychological dependence in mice.**  
**Methamphetamine induced CPP**

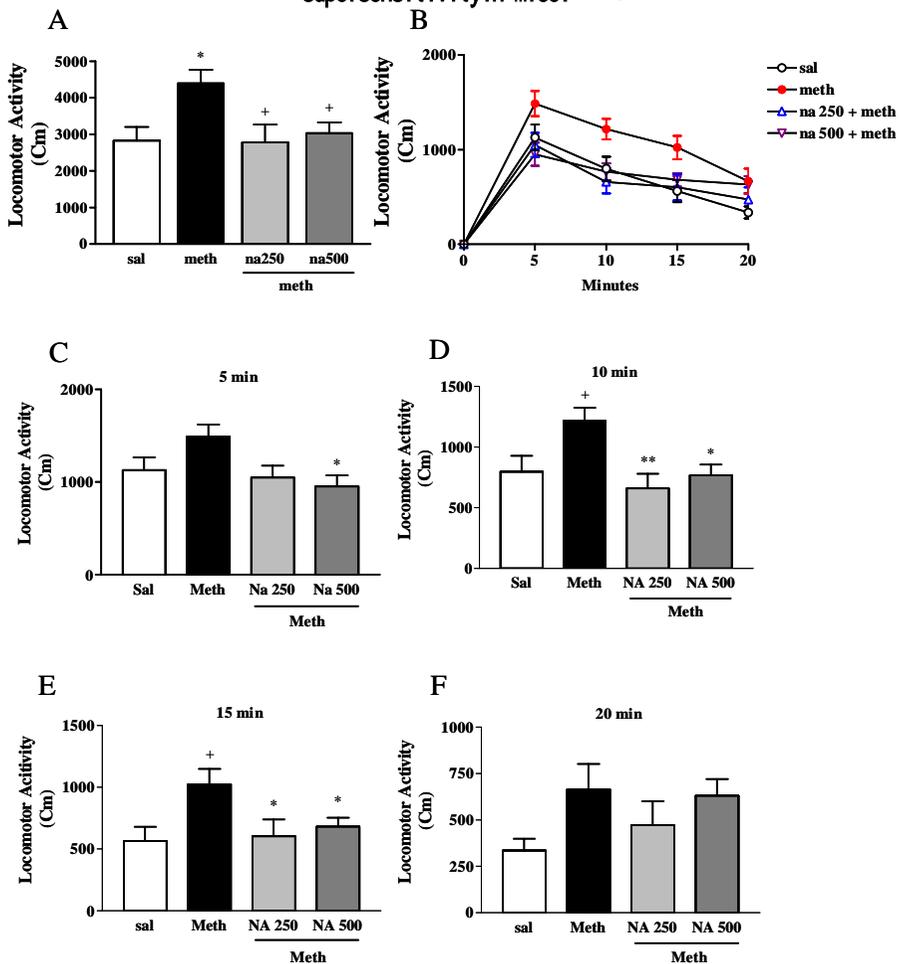


**. Apomorphine dopamine**

Conditioned place preference가 24 apomorphine 2  
mg/kg 20 . Dopamine agonist

Apomorphine methamphetamine saline group  
 locomotor activity가 가 . NA 250mg/kg 500mg/kg  
 methamphetamine saline  
 group (Fig. 3, p<0.05).

Fig. 3. Effects of NA-1700 on apomorphine-induced dopamine receptor  
 Total supersensitivity in mice Time



4.

NA1700

가

가

NA1700

NA1700

가

가

5.

NA-1700

GreenLife Inc.

( ,

).

NA-1700

가.

NA-1700

M. Hospital

가 W

5

( 4 ,

1 )

NA-1700

test가

28

40

3

2

10

20

NA-1700

가

(

NA-1700

).

A.

vital signs ( , , ), ,  
(SGOT, SGPT)

가

가

NA-1700

10

NA-1700 (1000mg/capsule) 6

4

10

, 2 , 6 , 10 , 2 , 6

가

B.

(1) NA-1700

4

5

가

가  
 ( , , , ) 가  
 가 1 10 10  
 가 1 가 10  
 가 1 가 3  
 3 2 3  
 1

(2) NA-1700

가  
 가  
 “ ”, “ ”  
 3 24  
 2  
 가  
 가 3  
 (NA-1700 )  
 가  
 NA-1700 2  
 3

C.

(1) L.S., 42

가 10  
 , 5 . 20  
 6  
 가  
 30 가  
 2  
 24 가 4  
 2  
 NA-1700  
 vital signs

(2) W.G., 40  
 22

가  
 . NA-1700 가  
 1 4  
 가  
 가 1 NA-1700  
 가 10 가

(3) W.D., 35  
 15 . 6  
 3  
 3  
 . NA-1700  
 가

가

24

가

가 8

10

(4) H.V. ,

(13 , 4 )

28

가

NA-1700

16

가

“

”

5 6

2

6

(5) B.T. ,

10

NA-1700

가

1

6

24

가

가

D.

NA-1700 4 1  
3 6

가

가

## 6. NA-1700

“ ”

가

NA-1700

NA-1700

가

가

가

pool