



# 31<sup>ST</sup> ECNP CONGRESS

6-9 OCTOBER 2018

BARCELONA

*The future of CNS treatments*

PROGRAMME



**ECNP** *neuroscience  
applied*

## SUNDAY POSTER SESSION

12.00-14.00 POSTER AREA

SUNDAY

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### Antidepressant effect of adipokinetic hormone/red pigment-concentrating hormone family of peptides in olfactory bulbectomy model of rats

*O. Mutlu\**, L. Kleteckova, J. Horáček, K. Holubová, T. Páleníček, G. Ulak, C. Höschl, K. Valeš (Turkey)

Animal models - Method; Pharmacology - Method; Mood and bipolar disorder

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### Different effects of adipokinetic hormone/red pigment-concentrating hormone family of peptides in posttraumatic stress disorder model of rats

*O. Mutlu\**, C. Cerit, N. Pinterová, J. Horáček, F. Akar, T. Páleníček, C. Höschl, K. Valeš (Turkey)

Animal models - Method; Stress related disorder; Pharmacology - Method

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### Researching the effects of witnessing trauma in rats

*A. Coskun\**, S. Candansayar, H. Bolay Belen, A. Donmez, O. Gulbahar, N. Coskun (Turkey)

Animal models - Method; Anxiety - Disorder

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### A gene expression study of the glutamate-nitric oxide pathway in schizophrenia

*M. Kinoshita\**, E. Candemir, S. Kittel-Schneider, A. Reif, F. Freudenberg (Germany)

Genetic & molecular approaches - Method; Post-mortem / pathology - Method; Psychotic disorder

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### Photoperiodic responses of behavior and the brain monoamines in obese AY/a and wild-type a/a mice

*E. Bazhenova\**, N. Khotskin, I. Sorokin, D. Fursenko, A. Kulikov (Russia)

Genetic & molecular approaches - Method; Animal models - Method; Mood and bipolar disorder

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### Level of DNA methylation in BDNF gene is significantly decreased in anorexia nervosa

*G. Maussion, J. Clarke, P. Gorwood, N. Ramoz\** (France)

Genetic & molecular approaches - Method; Eating disorder



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## Programme of the 31st ECNP Congress - Barcelona 2018

The scientific programme forms the central part of the congress.

Below you can browse the provisional programme of the 31st ECNP Congress.

More symposia, industry sessions and poster sessions (including abstracts and e-posters) will be added once they become available, including abstracts and biographies of the speakers.

Download the preliminary programme here

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### Antidepressant effect of adipokinetic hormone/red pigment-concentrating hormone family of peptides in olfactory bulbectomy model of rats

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One of the major neuropeptide groups in insects is the adipokinetic and hypertrehalosemic peptide family, which belongs to the adipokinetic hormone/red pigment-concentrating hormone (AKH/RPCH) family of peptides. In our previous studies [1, 2], we showed antidepressant effects of AKH after both acute and chronic injections in forced swimming test (FST) in mice. The aim of this study was to investigate the effects of Anax imperator AKH (Ani-AKH), *Libellula auripennis* AKH (Lia-AKH) and *Phormia-Terra* hypertrehalosemic hormone (Pht-HrTH) on depression and memory in olfactory bulbectomy (OBX) model of depression in Wistar-albino rats. We had 8 different groups: Sham control (administered saline+5% DMSO; n=8), Sham Ani-AKH 2 mg/kg (n=8), Sham Lia-AKH 2 mg/kg (n=9), Sham Pht-HrTH 2 mg/kg (n=10), OBX (Bulbectomized) control (administered saline+5% DMSO; n=8), OBX Ani-AKH 2 mg/kg (n=8), OBX Lia-AKH 2 mg/kg (n=8), OBX Pht-HrTH 2 mg/kg (n=7). Drugs administration started after 3 weeks of surgery and continue for 14 days in each experimental day before the tests. Behavioural tests started at the 5th day of the injections. The animals were subjected to respectively, openfield (OF) (day 5), Morris water maze (MWM) (day 6-11), elevated plus maze (EPM) (day 12), forced swimming (FST) (day 13-14) to evaluate effects of AKH on locomotion, memory, anxiety and depression in OBX model. The results of the study were evaluated by two-way ANOVA followed by Bonferroni's post hoc test when significant differences were detected. In the OF test, OBX animals exerted higher total distance moved and speed compared to sham animals ( $p < 0.001$ ). In MWM test, Lia-AKH ( $p < 0.05$  and  $p < 0.01$ ; respectively) and Pht-HrTH ( $p < 0.001$ ) significantly decreased escape latency compared to sham control in the 4th and 5th days. Lia-AKH ( $p < 0.05$ ) and Pht-HrTH ( $p < 0.05$ ) significantly increased time spent in escape platform's quadrant

compared to sham control group while Lia-AKH ( $p < 0.05$ ) significantly increased time spent in escape platform's quadrant compared to OBX control in the probe trial of MWM test. Ani-AKH ( $p < 0.01$ ), Lia-AKH ( $p < 0.01$ ) and Pht-HrTH ( $p < 0.05$ ) significantly decreased mean distance to platform compared to sham control group while Lia-AKH ( $p < 0.01$ ) and Pht-HrTH ( $p < 0.05$ ) significantly decreased mean distance to platform compared to OBX control in the probe trial of MWM test. Lia-AKH ( $p < 0.001$ ) and Pht-HrTH ( $p < 0.05$ ) significantly increased speed of the animals compared to OBX control in the probe trial of MWM test. Ani-AKH ( $p < 0.01$ ), Lia-AKH ( $p < 0.001$ ) and Pht-HrTH ( $p < 0.001$ ) significantly decreased immobility time compared to OBX control group in the FST test. Pht-HrTH ( $p < 0.05$ ) significantly increased %open arm time compared to OBX control group in the EPM test. Ani-AKH ( $p < 0.05$ ) significantly increased %open arm entry compared to sham control group while Ani-AKH ( $p < 0.05$ ) and Pht-HrTH ( $p < 0.05$ ) significantly increased %open arm entry compared to OBX control group in EPM test. Pht-HrTH ( $p < 0.01$ ) significantly decreased weight gain in 2 weeks compared to sham control group in OBX study. In conclusion, AKH/RPCH family peptides may demonstrate improved effects on depression and cognitive impairment in OBX model of depression in rats.

## References

- [1] Mutlu, O., Gumuslu, E., Kokturk, S., Ulak, G., Akar, F., Erden, F., Kaya, H., Tanyeri, P., 2016. Effects of chronic administration of adipokinetic and hypertrehalosemic hormone on animal behavior, BDNF and CREB expression in the hippocampus and neurogenesis in mice. *Fundam Clin Pharmacol* 30, 4-13.
- [2] Mutlu, O., Ulak, G., Akar, F., Erden, F., Celikyurt, I.K., Bektas, E., Tanyeri, P., Kaya, H., 2017. Effects of acute administration of adipokinetic hormone on depression, anxiety, pain, locomotion and memory in mice. *Chin J Physiol* 60, 106-113.

## Keywords:

Animal models - Method  
 Pharmacology - Method  
 Mood and bipolar disorder

Abstract

Lia-AKH

OBX study

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