



## GROUPE DE RECHERCHE SUR L'ALCOOL ET LES PHARMACODÉPENDANCES

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Une communication affichée a été présentée lors du congrès de la société européenne de recherche biomédicale sur l'alcoolisme (ESBRA) à Valencia, Espagne. [lien](#)

### **DOES SUSCEPTIBILITY TO ALCOHOL BEHAVIORAL SENSITIZATION ALTER OPERANT SELF-ADMINISTRATION AND MOTIVATION FOR ALCOHOL?**

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INSERM Eri 24 – Research Group on Alcohol & Pharmacodependences, Université de Picardie Jules Verne, France – ANR SAMENTA SENSIBALCO 12-SAMA-008-01

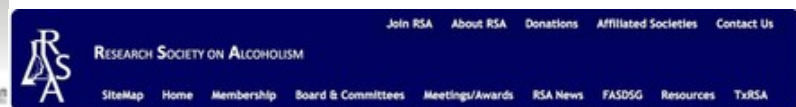
Ethanol-induced behavioral sensitization (EIBS) is thought to play a role in drug taking behavior and relapse after abstinence. However, the exact role of sensitization and the vulnerability to its development in addiction phenotypes remains poorly understood. Until recently, some studies have investigated addictive behaviors in mice either prone or resistant to EIBS. Data are now available regarding the correlation between sensitization score and other phenotypes and regarding different addictive phenotypes when comparing sensitized mice and resistant mice. In this context, we have investigated to our knowledge for the first time, the operant ethanol self-administration level and the motivation to self-administer alcohol (breakpoint) depending on the vulnerability to develop sensitization: i.e. in both EIBS resistant and EIBS prone outbred Swiss mice. To induce EIBS, mice were treated once a day with 2.5 g ethanol/kg during 10 days and challenged with the same dose of ethanol 7 days later. EIBS was characterized by a significant increase in locomotion between the challenge day and day 1 and then considered as the 'EIBS prone' group. When the difference was not significant mice were considered as the 'EIBS resistant' group. Mice were then trained to self-administer 20% ethanol solution in response to one active nose poke (the other one being inactive) on a FR2 schedule. Motivation was assessed with a progressive ratio schedule. Our results show that both operant self-administration level and motivation are dependent upon the sensitization phenotype. These results confirm that EIBS vulnerability is crucial in the development of addictive behaviors.



octobre 2014.

Is alcohol operant self-administration changed after induction of sensitization to the motor stimulant effects of alcohol? Coune F, Gonzalez Marin MC, Legastelois R, Botia B, Jeanblanc J & Naassila M.

Behavioral sensitization to ethanol: a model of alcoholism ? Legastelois R, Botia B, Coune F, Jeanblanc J & Naassila M.



Une communication sous forme d'affiche a été présentée lors du 37ème congrès de la société américaine de recherche sur l'alcoolisme (RSA) à Bellevue, USA:



IS ALCOHOL OPERANT SELF-ADMINISTRATION CHANGED AFTER INDUCTION OF SENSITIZATION TO THE MOTOR STIMULANT EFFECTS OF ALCOHOL?

By: Marin, M. C. Gonzalez; Jeanblanc, J.; Naassila, M.; et al.

Conference: 37th Annual Scientific Meeting of the Research-Society-on-Alcoholism (RSA) / 17th Congress of the International-Society-for-Biomedical-Research-on-Alcoholism (ISBRA) Location: Bellevue, WA Date: JUN 21-25, 2014

Sponsor(s): Res Soc Alcoholism; Int Soc Biomed Res Alcoholism

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#### RSA / ISBRA ABSTRACTS

### 0959

IS ALCOHOL OPERANT SELF-ADMINISTRATION CHANGED AFTER INDUCTION OF SENSITIZATION TO THE MOTOR STIMULANT EFFECTS OF ALCOHOL?

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Ethanol-induced behavioral sensitization (EIBS) is proposed to play a role in early and recurring steps of alcohol dependence, but its impact on alcohol abuse is not clear. We proposed here to explore potential changes in operant alcohol self-administration after the induction of sensitization to the motor stimulant effects of alcohol in female outbred Swiss mice. To do so, mice were first exposed to a two-bottle choice test with free access to water or 10% EtOH for several weeks. They were then trained to nose-poke for 10% ethanol solution under fixed-ratio schedules (30 or 60 min sessions). Progressive-ratio schedules were also used to measure breakpoints. Thereafter, EIBS was initiated by daily i.p. injections of 1.25 and 2.0 g/kg ethanol for 23 days and its expression was tested after one week. Operant behavior was re-assessed after the expression of sensitization. Our results show that EIBS induced significant changes in alcohol self-administration using FR1 schedule depending on the initial level of alcohol self-administration. Mice self-administering low or high levels of alcohol displayed an increase and a decrease in operant behavior respectively. In contrast, EIBS did not change the breakpoint values. Interestingly, we also showed that in mice self-administering high levels of alcohol, the breakpoint is positively correlated with the sensitivity to acute motor stimulant effects of alcohol. In conclusion, our findings demonstrate that operant alcohol self-administration is changed by the induction of behavioral sensitization.

Un symposium sur la sensibilisation comportementale à l'alcool a été organisé lors du dernier congrès de l'IBANGS à Louvain (20-24 mai 2013). The International Behavioural and Neural Genetics Society (IBANGS). Ce symposium a été l'occasion de présenter les premiers résultats du projet SENSIBALCO. Les participants à ce symposium étaient notamment M. Naassila ; SL 2nd Boehm; TJ Phillips.



[site web](#)



Présentation d'un poster au 14ème congrès de l'ESBRA à Varsovie 8-11 septembre 2013.

#### ANXIETY-LIKE BEHAVIOR AND BDNF LEVELS AS MARKERS OF VULNERABILITY TO ETHANOL-INDUCED BEHAVIORAL SENSITIZATION

M. Naassila, R. Legastelois, S. Alaux-Cantin, H. Houchi and B. Botia

##### Abstract

Here, we focused on the characterization of predictive factor of vulnerability to develop ethanol-induced behavioral sensitization (EIBS) in mice, defined as a progressive enhancement of locomotor activity following chronic ethanol treatment and proposed as a relevant process in the initial and recurring stages of addiction. Anxiety is one of the various contributing factors that may predispose individuals to ethanol responsiveness, we thus focused on one major question: do anxiety traits influence the subsequent development of EIBS in mice? First, ethanol-naïve DBA/2J mice were submitted to anxiety-like behavioral tests. Then, during 10 days, mice were injected once daily with ethanol immediately followed by locomotor activity measurement. Mice were classified in 2-subgroups (resistant or sensitized) based on their sensitization score. A retrospective analysis highlighted a negative correlation between the sensitization score and the basal anxiety profile. Furthermore, the high-anxiety mice (resistant mice) maintained their profile all along the sensitization induction and during expression at day 17, after an ethanol challenge ("trait" anxiety). We then employed pathway focused real-time PCR arrays targeting genes involved in transduction pathways to elucidate some of the neuroadaptations underlying EIBS in both striatum and amygdala. Among the 84 genes screened, we identified putative anxiety-related genes differentially regulated between resistant and sensitized mice (*crf*, *creb* and *bdnf*). BDNF protein, measured by Elisa test, was correlated with basal anxiety scores. Based on basal anxiety levels, we demonstrated that anxiety predicts the propensity to develop EIBS and identified *bdnf* as a crucial molecular marker of this susceptibility.



Présentation d'un poster au 16ème congrès de l'ISBRA, September 9-12, 2012 Sapporo, Japan

#### ANXIETY-LIKE BEHAVIOR AND BDNF LEVELS AS MARKERS OF VULNERABILITY TO ETHANOL-INDUCED BEHAVIORAL SENSITIZATION

Author(s): Naassila, M.; Legastelois, R.; Alaux-Cantin, S.; et al.

Conference: 16th World Congress of the International-Society-for-Biomedical-Research-on-Alcoholism (ISBRA)Location: Sapporo, JAPANDate: SEP 09-12, 2012

Sponsor(s): Int Soc Biomed Res Alcoholism (ISBRA); Japanese Med Soc Alcohol & Drug Studies (JMSAS); Sci Council Japan

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Présentation d'un poster au 35ème congrès du RSA 23-27 juin 2012 San Francisco

ANXIETY-LIKE BEHAVIOR AND BDNF LEVELS AS MARKERS OF VULNERABILITY TO ETHANOL-INDUCED BEHAVIORAL SENSITIZATION

Author(s): Botia, B.; Legastelois, R.; Alaux-Cantin, S.; et al.

Conference: 35th Annual Scientific Meeting of the Research-Society-on-Alcoholism (RSA)Location:

San Francisco, CA Date: JUN 23-27, 2012

Sponsor(s): Res Soc Alcoholism (RSA)

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