Abbreviations: Metabolic syndrome (MetS); HOMA-IR IR (Homeostasis Model Assessment - Insulin Resistance); Cardiovascular disease (CVD);

Funding and Conflicts of Interest
This study has not funding and no conflicts of interest.

doi:10.1016/j.metabol.2021.155007

0049
Diet-induced obesity and NASH aggravate SARS-CoV-2 infection in golden Syrian hamsters

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Abstract
Background: Patients with obesity and nonalcoholic steatohepatitis (NASH) are prone to severe forms of COVID-19. Novel drugs are urgently needed and may be evaluated in the Golden Syrian hamster, a relevant preclinical model for SARS-CoV-2 infection. To better replicate the human context, we recently set-up a nutritional hamster model that develops obesity and metabolic comorbidities including dyslipidemia, NASH, and heart failure with preserved ejection fraction.
Objective: We compared the deleterious effects of SARS-CoV-2 infection in lean versus obese hamsters.
Methods: Lean or diet-induced obese/NASH hamsters were intranasally infected with SARS-CoV-2. Hamsters were sacrificed at 4-, 7-, 10-, and 25-days post-infection for serum and organs collection, biochemistry, and histology analysis.
Results: Obese hamsters did not recover their initial body weight at day 25 post-infection, while lean individuals did. During infection, obese hamsters remained dyslipidemic and kept a significantly higher liver histopathological score, versus lean hamsters. Lung viral load and inflammatory genes expression were not different between lean and obese hamsters. However, obese hamsters had significantly higher lung histopathological scoring at 10 days post-infection ($p<0.05$ vs. lean). Additionally, lung and liver fibrosis were higher in obese hamsters at 25 days post-infection (both $p<0.01$). These greater lesions were concomitant with higher serum monocyte chemoattractant protein-1 and Angiotensin II levels, a component known to favor lung inflammation, fibrosis, and oedema.
Conclusion: Diet-induced obesity and NASH aggravated SARS-CoV-2 infection in golden Syrian hamsters. This model will be useful to evaluate novel drugs targeting the severe forms of COVID-19 seen in patients with obesity and NASH.

Keywords: obesity, nonalcoholic steatohepatitis, COVID-19, hamster

Abbreviations: SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; COVID-19, coronavirus disease 2019; NASH, nonalcoholic steatohepatitis

Funding and Conflicts of Interest
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
François Briand and Thierry Sulpice are employees of Physiogenex and have shares in the company.
Valentin Sencio and François Tro

doi:10.1016/j.metabol.2021.155008

0050
Alpha-lipoic acid as an alternative treatment for diabetic polyneuropathy?

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Abstract
Aim : α-lipoic Acid (A α-L) is a pleiotropic compound with potential pharmaco therapeutical value against a range of pathophysiological diseases. The present study evaluates the protective role of α-lipoic acid against AlCl3-induced toxic effects in Wistar Albino rats .
Methods : The experiment was performed on 40 female rats in five groups of 8 rats each: control group (A), group 2 treated with (AlCl3) at (100mg/kg body weight), group 3 treated with alpha lipoic acid (A α-L); group 4 (AlCl3+ A α-L) treated with aluminum chloride and alpha lipoic acid (100 mg/kg body weight) at the same time and group 5 (A α-L -AlCl3) treated with alpha lipoic acid after aluminum chloride intoxication. The treatment is continued for three weeks.
Results : The biochemical assessment revealed a significant increase in blood glucose. The levels of progesterone and LH showed a significant difference between the two groups (pubescent and pre-pubescent), ($p<0.05$).
The results showed serious alterations (the appearance of severe cellular lesions, infiltration of inflammatory and tissue degeneration at the level of hepatic parenchyma). A decrease in plasma glucose concentration was noted in the alpha lipoic acid-treated groups and in the AlCl3 and A combination-treated groups α-L. In the group treated with Aα-L alone, a significant decrease in urea levels was observed compared to the other groups.
CONCLUSION : A α-L, as a dietary supplement, has shown a potential role in cognitive functions with an improvement of the cholinergic system thus having an interesting therapeutic effect.

Keywords: dietary supplement _ α-lipoic Acid _ Wistar Albino rats _ hepatic parenchyma_ glucose _ urea

Abbreviations: α-lipoic Acid (A α-L)

Funding and Conflicts of Interest
None

doi:10.1016/j.metabol.2021.155009

0051
Effects of metformin and lutheinizing hormone receptor agonists on steroidogenesis and spermatogenesis in rats with type 2 diabetes with their separate and combined administration

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