were stained with hematoxylin and eosi
c, Masson’s trichrome and
immunoreacted for markers of striated and smooth muscle (sar
comeric actin and smooth muscle actin, respectively).

**Results:** Two weeks after urethrolysis, a marked reduction of
muscle fibers in the EUS was detected. A recovery was evident
in lesioned, bupivacaine injected animals when compared with
lesioned and saline-injected controls.

**Conclusion:** Our data show that bupivacaine application in the
lesioned external urethral sphincter accelerates its recovery. This
finding opens a therapeutic opportunity to treat stress urinary
incontinence.

**Acknowledgements:** This study has been funded by FEDER -
Fundu Europeu de Desenvolvimento Regional funds through the
COMPETE 2020 - Operacional Programme for Competitiveness and
Internationalisation (POCI), Portugal 2020, and by Portuguese funds
through FCT/Ministério da Ciência, Tecnologia e Ensino Superior in
the framework of the project “Institute for Research and Innovation
in Health Sciences” (POCI-01-0145-FEDER-007274).

**Discussion:**

**Aim:** To prove allicin effect to prevent stroke in insilico and
inivo method.

**Introduction:** Stroke is a disease that can cause permanent disabili
ity, even death. Atherosclerosis is one of the cause of stroke.
One way to prevent stroke is to treat atherosclerosis using allicin.
Allicin works by inhibiting Integrin Alpha Beta-3 and ApoE pro
teins. Therefore, allicin can be considered as an alternative in stroke prevention.

**Methods:** This is true experimental study with two methods. Allicin was taken from pubchem, while ApoE with code (1EA8),
Integrin Alpha Beta-3 with code (1X5) taken from protein data
bank. Afterwards, the ligands and macromolecule were docked
with Pyrx. Analysis was done using Discovery Studio. Pharma
cokinetick study, allicin compounds were analyzed with ACD/I-Lab.
During invivo study, rats were induced with high fat diet for 8 weeks
and were given allicin with dose 5, 10, 20 mg/kg BW during 6 weeks.
Rat blood, carotid artery, and brain were analyzed for lipid pro
liness and were given allicin with dose 5, 10, 20 mg/kg BW during 6 weeks.

**Results:** Pharmacokinetic results showed that allicin has oral
bioavailability above 70%, distributed through lipoproteins and
a few albumins. Allicin can penetrate through membrane and cyto
plasm, affecting its target. Pharmacodynamically, allicin can bind
to active site of ApoE on 149 leucine, and to active side of ApoE on
173 serine. Allicin bound with active site of ApoE will increase ApoE express
ion, thus lowering lipid profile except HDL. Meanwhile, allicin bound with active site of Integrin Alpha Beta-3 blocked
platelet aggregation. Decreasing Integrin Alpha Beta-3 was proven
by invivo results where foam cells were decreasing. These events
cause a decrease foam cell in common artery, causing no brain
hypoxia and increased BDNF. Invivo test showed a decrease in foam
cells on 10 mg/kg BW. On the contrary, the brain showed an increase
in BDNF amount on 20 mg/kg BW.

**Conclusion:** Based on insilico and invivo studies, allicin can be
considered as a preventive treatment to stroke by inhibiting
atherosclerosis development by increasing ApoE, lowering Integrin
Alpha Beta-3 protein, and increasing BDNF.

**References**

HEARTORG/Conditions/Cholesterol/WhyCholesterolMatters/Atherosclerosis,
UCM_305564_Article.jsp#.WAixhZN95sM
proanthocyanidin dietary biofactor Oligonol: its modulation of oxidative stress,
bioefficacy, neuroprotection, food application and chemoprevention potentials.

http://dx.doi.org/10.1016/j.pbj.2017.07.068

**PS074**

In vivo and in silico study of allicin as a stroke prevention

Alfryan Janardhana *, M. Naufal Al Hasan,
N. Edvin Prawira

**Introduction:** Prevention of stroke is an important clinical
aim. Strokes can be caused by a variety of mechanisms, including
hemorrhagic and ischemic stroke. Among the latter, ischemic
stroke is the most common and accounts for about 80% of all
stroke cases. One way to prevent stroke is to treat atherosclerosis using allicin.

Allicin works by inhibiting Integrin Alpha Beta-3 and ApoE proteins. Therefore, allicin can be considered as an alternative in stroke prevention.

**Methods:** This is true experimental study with two methods. Allicin was taken from pubchem, while ApoE with code (1EA8),
Integrin Alpha Beta-3 with code (1X5) taken from protein data
bank. Afterwards, the ligands and macromolecule were docked
with Pyrx. Analysis was done using Discovery Studio. Pharma
cokinetick study, allicin compounds were analyzed with ACD/I-Lab.
During invivo study, rats were induced with high fat diet for 8 weeks
and were given allicin with dose 5, 10, 20 mg/kg BW during 6 weeks.
Rat blood, carotid artery, and brain were analyzed for lipid pro
liness and were given allicin with dose 5, 10, 20 mg/kg BW during 6 weeks.

**Results:** Pharmacokinetic results showed that allicin has oral
bioavailability above 70%, distributed through lipoproteins and
a few albumins. Allicin can penetrate through membrane and cyto
plasm, affecting its target. Pharmacodynamically, allicin can bind
to active site of ApoE on 149 leucine, and to active side of ApoE on
173 serine. Allicin bound with active site of ApoE will increase ApoE express
ion, thus lowering lipid profile except HDL. Meanwhile, allicin bound with active site of Integrin Alpha Beta-3 blocked
platelet aggregation. Decreasing Integrin Alpha Beta-3 was proven
by invivo results where foam cells were decreasing. These events
cause a decrease foam cell in common artery, causing no brain
hypoxia and increased BDNF. Invivo test showed a decrease in foam
cells on 10 mg/kg BW. On the contrary, the brain showed an increase
in BDNF amount on 20 mg/kg BW.

**Conclusion:** Based on insilico and invivo studies, allicin can be
considered as a preventive treatment to stroke by inhibiting
atherosclerosis development by increasing ApoE, lowering Integrin
Alpha Beta-3 protein, and increasing BDNF.

**References**

HEARTORG/Conditions/Cholesterol/WhyCholesterolMatters/Atherosclerosis,
UCM_305564_Article.jsp#.WAixhZN95sM
proanthocyanidin dietary biofactor Oligonol: its modulation of oxidative stress,
bioefficacy, neuroprotection, food application and chemoprevention potentials.

http://dx.doi.org/10.1016/j.pbj.2017.07.069

**PS148**

Anxiety-like behavior in elevated plus maze
among sleep fragmentation of one light phase
of rats’ circadian cycle

A. Leković *, A. Ademović, Z. Grubač, N. Šutulović,
B. Knezović, M. Novaković

**Institute of Medical Physiology "Richard Burian",
Belgrade University School of Medicine, Serbia

**E-mail address:** aleksa.lekovic@gmail.com

(A. Leković).

**Aim:** To assess anxiety-like behavior in rats after twelve hours of sleep fragmentation during the light phase of sleep-wake cycle, using the elevated plus maze test.

**Introduction:** Hallmark of sleep fragmentation is set of frequent, brief arousals, which modulates sleep architecture without significant diminishment of total sleep time. Anxiety is recognized as comorbidity in numerous disorders, including some of those related to sleep quality. Sleep fragmentation may be appropriate model of sleep alteration pattern in some disorders, yet its effects on behavioral alterations have not been broadly investigated.

**Methods:** Sleep fragmentation was achieved by treadmill method lasting for 12 h, during the light phase of the day (starting at 8 AM). Wistar albino male rats were randomly divided into: sleep fragmentation group (SF, n = 8, treadmill programmed to alternately work 30 s ON and 90 s OFF every 2 min); activity group (AC, n = 8, treadmill programmed to alternately work 10 min ON and
30 min OFF); and treadmill control group (TC, n = 8, rats stayed in the treadmill set to OFF mode and conditions equivalent to cages). Immediately after the sleep fragmentation regimen, elevated plus maze test was performed. To assess anxiety-like behavior, we measured time spent in the open arms, as well as number of transitions between open and closed arms.

**Results:** SF group spent significantly less time in the open arms compared to both, AC and TC group (p < 0.001). SF rats also had significantly less number of transitions between closed and open arms of the maze, compared to AC and TC group (p < 0.05). Moreover, no significant difference was observed in any of the measured parameters between TC and AC group.

**Conclusion:** The results of our study indicate that acute 12-h sleep fragmentation induced anxiety-like behavior in rats in elevated plus maze. Further research should help us better understand impact of this phenomenon on psychiatric disorders.

http://dx.doi.org/10.1016/j.pbj.2017.07.070