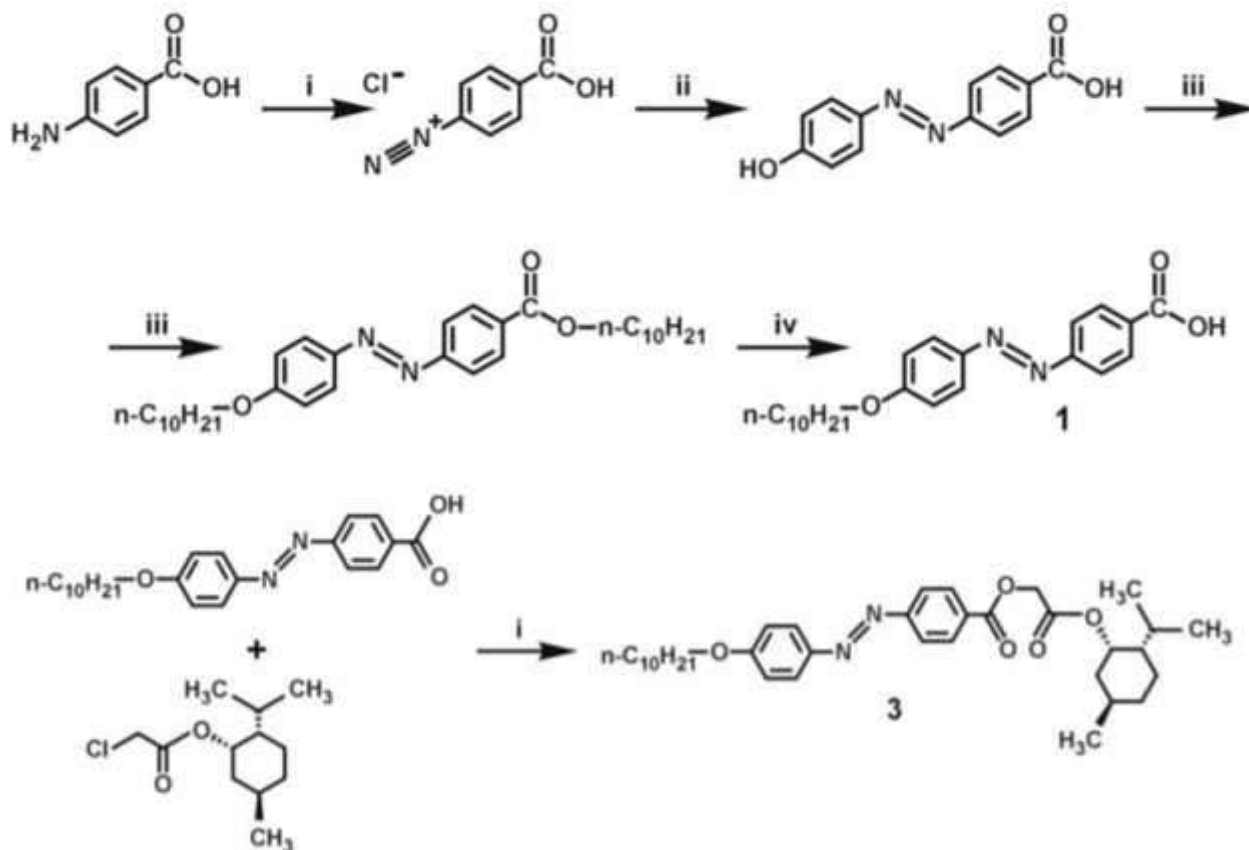


**Chornous V.O.**  
**LIGHT-CONTROLLABLE CHIRAL DOPANT BASED ON AZO-FRAGMENT:  
 SYNTHESIS AND CHARACTERIZATION**

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We present the newly synthesized chiral dopant 2-[(2-isopropyl-5-methylcyclohexyl)oxy]-2-oxoethyl 4-[(E)-[4-(decyloxy)phenyl]diazenyl]benzoate (ChD-3501), consisting of azo- and aliphatic fragments together with a chiral center based on 1-menthol as a reversible light-controllable chiral dopant. To assess the effects of UV/VIS irradiation and temperature in the isotropic and liquid crystalline (LC) states, we studied the spectral kinetics of ethanol solution of ChD3501, as well as induction of the cholesteric helix when it was dissolved in nematic LC (E7) as a chiral dopant. The concentration dependence of the helical pitch of the induced cholesterics was studied by means on Grandjean-Cano method, and the helical twisting power of ChD-3501 in the nematic host E7 was determined. The reversible trans-cis isomerization of chiral dopant ChD-3501 in E7 under UV/VIS irradiation was studied, and it has been found that the storage of the cis-isomer at certain constant temperature also leads to the reversible isomerisation, which presents a certain interest for applications



Synthesis of 2-(1R,2S,5R)-[(2-isopropyl-5-methylcyclohexyl)oxy]-2-oxoethyl 4-[(E)-[4-(decyloxy)phenyl]diazenyl]benzoate (3).

**Davydova N.V.**  
**THE TOTAL ANTIOXIDANT ACTIVITY OF BLOOD PLASMA IN CASE OF ALCOHOL  
 INTOXICATION, ITS COMBINATION WITH MODIFIED PHOTOPERIOD AND  
 MELATONIN ADMINISTRATION**

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The role of reactive oxygen species in pathogenesis of ethanol intoxication is well established. In modern life, alcohol consumption is often combined with mistimed or nearly

constant exposure to light leading to desynchronization of normal circadian rhythms. The biological rhythms are regulated by melatonin, which is produced in the pineal gland in darkness, and besides many physiological effects, it has potent antioxidant action.

Total antioxidant activity together with antioxidant enzymes are commonly used markers of antioxidant status and thus oxidative stress. The capacity of known and unknown antioxidants and their synergistic interaction is assessed, thus providing insight into the delicate balance between oxidants and antioxidants in vivo.

The aim of the work was to study the total antioxidant activity (TAOA) of rats' blood plasma in terms of alcohol intoxication, its combination with constant light exposure and melatonin administration.

Experiments were performed on 32 white male rats weighing 180-230 g, kept under standard conditions and a vivarium diet. Subacute alcohol intoxication was induced by intragastric administration of 40% ethanol in a dose of 7 ml/kg of body weight for 7 days. The light exposure was caused by a constant fluorescent light with an intensity of 1500 lux for 24 hours a day.

We have revealed that alcoholic intoxication was accompanied by a decrease in TAOA by 15% below the control level. Combination of ethanol poisoning with light exposure caused more significant decrease of TAOA of blood plasma (by 27%). It can be related to a decreased level of SH-groups in blood plasma which promotes the non-enzymatic antioxidant effect. The content of SH-groups against the background of alcoholic intoxication and its combination with constant lighting was by 25.6% and 13.3% below the control level correspondingly. This represents a decrease in the adaptive response to oxidative stress related to ethanol poisoning and lack of melatonin under constant light exposure.

The administration of "Vita-melatonin" in a dose of 5 mg/kg daily at 8 p.m. for 7 days contributed to the normalization of TAOA of blood plasma in both experimental groups and SH-groups of alcoholized rats, which have been exposed to light. The alcoholized rats which had received melatonin against the background of normal photoperiod showed only tendency to normalization of SH-groups, but the level was 13% lower than in control.

Thus, melatonin administration contributed to the normalization of total antioxidant activity of rats' blood plasma against the background of alcoholic intoxication and its combination with constant lighting.

**Dikal M.V.**

## **MORPHOLOGICAL CHANGES IN THE CORTEX OF THE KIDNEYS UNDER THE DEVELOPMENT OF ASEPTIC FEVER**

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Fever is a pathological process characterized by Kidney disorders of thermoregulation and can occur both in various pathological conditions and under the influence of pyrogenic substances and includes three stages: temperature rise, high temperature and its decrease.

The aim of the study was to find out the peculiarities of morphological changes in the cortical region of the kidneys in the dynamics of aseptic fever under the conditions of pyrogenal administration.

In experiments on 60 males of nonlinear white rats weighing 0.16-0.20 kg, aseptic fever was investigated, which was simulated by a single subcutaneous injection of pyrogenal at a dose of 25 µg/kg. Histological examinations were performed with staining of dewaxed sections with hematoxylin and Slinchenko.

According to the obtained results, morphological changes under conditions of aseptic fever were characterized in the first stage by temperature rise, vacuolar dystrophy of the epithelium of the proximal tubules and small-focal nature of changes in protein properties with a color shift to red, in the second stage, at high temperature, expansion of Shumlyansky-Bowman capsule and dystrophic changes in the epithelium of the distal tubules, and in the third stage, a decrease in temperature by