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MEETING ABSTRACTS

NEUROBEHAVIORAL CONSEQUENCES OF CHRONIC ADMINISTRATION OF POTENTIAL ANTIDEPRESSANT SMe1EC2M3 IN ANIMAL MODEL OF DEPRESSION

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Depression is becoming the most common psychiatric illness worldwide. Its etiology is not fully understood, but the monoamine theory is supported by antidepressant mechanism of action that modulates monoaminergic systems. Known antidepressants have various side effects, so there is a need to search for new therapeutics. Our previous study revealed an antidepressant effect after acute pyridoindole derivative SMe1EC2M3 treatment (1).

We studied the effect of chronic administration of the SMe1EC2M3 under stressed conditions induced by chronic mild stress (CMS) procedure in Sprague-Dawley male rats (n=72). From day 8th of the CMS, we intraperitoneally treated the animals by 5 or 25 mg/kg/day dose. We evaluated changes in behavior in sucrose preference test (SPT), open field test (OF) and forced swim test (FST). Potential neurotoxicity was investigated using primary hippocampal neurons cultures from Wistar neonates. Cells were treated without or with SMe1EC2M3 (0.25; 0.50; 1.00; 1.50 µM) or all-trans retinoic acid (ATRA). We evaluated 3 coverslips/group and 7 areas of interest/ coverslip. Using Sholl analysis, we counted dendrites intersection by concentric circles from the soma to 200 µm and the length of the longest neurite from the nucleus to the apical end.

Higher immobility in FST, lower consumption in SPT and shorter distance traveled in OF confirmed the depression-like behavior. Both doses reversed the effect of CMS by reducing immobility and prolonging the swimming. No neurotoxicity of the SMe1EC2M3 was observed. In group 1.50 µM SMe1EC2M3, neurites length was stimulated and we found more neurons with the longest neurite over 200 µm. No significant changes in the number of neurite branches were found between groups.

Our findings suggest, SMe1EC2M3 may be a good candidate for future MMD studies of treatment options.

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References

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