

Scientists create an effective analgesic without side effects

October 17 2016, by Tatiana Arsenyeva

Scientists at the Institute for Problems of Chemical and Energetic Technologies (IPCET) and collaborators have developed tiovyurtsin, a generic drug for the treatment of pain. The new analgesic lacks the side effects typical of steroid and non-steroidal anti-inflammatory drugs.

"As a raw material for the new drug, we used glyoxal—a substance for which the industrial technology of synthesis was developed by chemists at Tomsk State University," said Sergey Sysolyatin, the director of the IPCET SB RAS (a graduate of TSU's Faculty of Chemistry). "High-energy compounds are also based on glyoxal. At the intermediate stage of synthesis, we are withdrawing a small portion of the substance, modifying it, and then obtaining a drug with excellent pharmacological characteristics."

Preclinical tests carried out at the ED Goldberg Research Institute of Pharmacology and Regenerative Medicine (Tomsk) showed that the new analgesic suppresses pain symptoms of various etiologies and has a longer period of effectiveness than other painkillers, with no toxic effects on the body. Tiovyurtsin is in class IV of low-hazard substances.

Furthermore, prolonged use (28 days), did not induce drug dependence or affect breathing, and there was no stimulating effect on the central nervous system, which indicates the absence of the effects observed in the use of morphine.

"I think that new technology of the Biysk Institute is a big step forward

for modern pharmacology," says Alexander Vorozhtsov, a professor at TSU, deputy director of the IPCET SB RAS, and director of the technological platform Medicine of the Future. "Previously, the use of glyoxal as a raw material for the synthesis of hexaazaisowurtzitane has had a primarily defensive application. Only in recent years have these chemicals been considered for application in medicine."

Preclinical tests of the new drug are in the final stage. This development already has a patent, and this joint project of Biysk and Tomsk scientists is planned to be implemented in the Federal Program Development of the Pharmaceutical and Medical Industry of the Russian Federation for the Period to 2020 and Beyond.

Provided by Tomsk State University

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