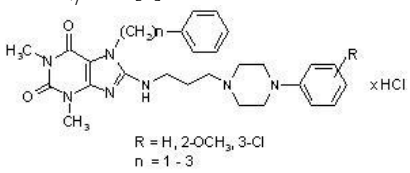
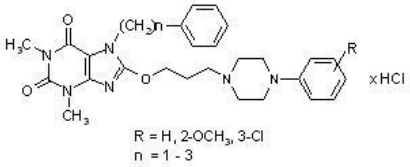
tor ligands a long-chain arylpiperazines (LCAPs) containg a different amide/imide terminal fragment were mainly evaluated towards 5-HT_{1A}, 5-HT_{2A} and 5-HT_7 receptors.

In our earlier studies it was shown that 7-arylalkyl derivatives of 1,3-dimethyl-3,7-dihydropurine-2,6-dione with 8-[3-(4-arylpiperazin-1-yl)-propylamino] moiety, displayed high to moderate affinity for 5-HT_{1A} receptors and moderate to low affinity for 5-HT_{2A} and 5-HT_7 sites [1].



The compounds examined in functional *in vivo* model behaved like postsynaptic 5-HT_{1A} receptor antagonists [1].

To continue our research with this class of purine-2,6-dione analogues we designed and synthesized a novel series of arylpiperazines. Comparing to the previous work structural modifications consisted in replacing the amino group in the 8-position by a ether one.



The new compounds were synthesized in the reaction of previously obtained 1,3-dimethyl-7-arylalkyl-8-bromo-3,7-dihydro-purine-2,6-dione with the appropriate 3-(4-aryl-piperazin-1-yl)-propan-1-ol. The new analogues are under evaluation for their affinity for 5-HT_{1A}, 5-HT_{2A} and 5-HT_7 receptors. The most active derivatives will be tested in *in vivo* behavioral models.

[1] G. Chłoń, M. Pawłowski, B. Duszyńska, A. Szaro, E. Tatarczyńska, A. Kłodzińska, E. Chojnacka-Wójcik: Pol. J. Pharmacol., 2001, 53, 359-368.

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Synthesis of novel pyrido[1,2-c]pyrimidine derivatives as selective ligands for 5-HT_{1A} receptors

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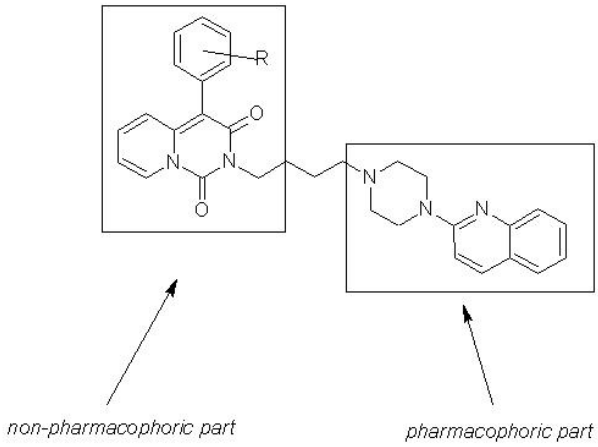
Serotonin (5-HT) is an important neurotransmitter mediator in the peripheral and central nervous system. Serotonin 5-HT_{1A} receptors have been intensively studied because of their implication in several physiological processes and psychiatric disorders such as anxiety and depression. 5-HT_{1A} receptor ligands with serotonin transporter inhibition effect are regarded as potential therapeutics for anxiety, depression. Moreover the chemical structure of synthesized ligands may be responsible for *pre-* and *post*-synapsis agonism or antagonism effect on 5-HT_{1A} receptors.

Although the main investigated structures were buspirone and tandospirone, many modifications have been made in the pharmacophoric and non-pharmacophoric part of potential 5-HT_{1A} receptors ligands.



R= H, 2-Cl, 2-F, 2-Me, 2-MeO, 4-Cl, 4-F, 4-Me, 4-MeO

All novel 4-aryl-2H-pyrido[1,2-c]pyrimidine derivatives containing quinoline substituents were confirmed by ^{1}H and ^{13}C NMR spectra and elementar analysis. Target compounds were assesed for in vitro affinity for serotoninergic 5-HT_{1A} and 5-HT_{2A} receptors and 5-HT-T.

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Homology modeling of the 5-HT_{1A} and 5-HT_{2A} serotonin receptors on the novel ß$_2$-adrenergic receptor template

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Publication of a crystal structure of ß$_2$-adrenergic receptor in November of 2007 [1] seems to be a long awaited breakthrough in discovering three dimensional structure of G-protein coupled receptors, especially in the monoaminergic subgroup. ß$_2$-adrenergic receptor is the second G-protein coupled receptor ever crystalallized and described using rentgenographic methods, after bovine rhodopsin, resolved in 2000 [2]. The newly-published structure revealed fair similarity to the models of monoaminergic receptors obtained on the template of bovine rhodopsin, however some explicit topological differences could be observed. In spite of the fact that localization and shape of the binding site were very similar, divergences in the spatial distribution of the most important interaction points seemed to have potentially significant impact on the ligand recognition pattern.

Considering the fact, that ß$_2$-adrenergic receptor is much more rela-