drochloride.

Variable contact time experiments were necessary in order to find "perfect" contact time which ensures quantitation for all carbons of interest (outside the region overlapped by the resonances of cellulose). The peaks chosen for the analysis are these of methyl carbons and quaternary carbon.

^{13}C CPMAS NMR spectra of pseudoephedrine/cellulose mixtures with various compositions were recorded. For statistical reasons, each measurement was repeated three times. A plot was constructed with composition of pseudoephedrine mixtures versus the measured ratio of peak areas. As a next step, the MAS NMR spectra of three drugs containing pseudoephedrine were recorded: Sudafed, Ibuprom-zatoki and Gripex in order to determine, if the content of pseudoephedrine can be determined in the solid commercial formulations.

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Flexible vs partly constrained linkers in NAN-190 and PK-13 analogs investigated as 5-HT$_{1A}$/5-HT$_{7}$ receptor ligands

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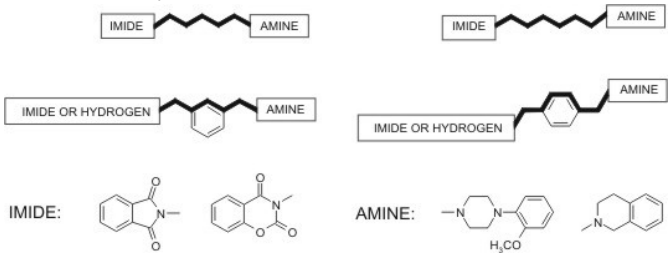
Continuing study of the influence of linker conformation in the structure of long-chain arylpiperazines on the affinity to serotonin 5-HT$_{1A}$ and 5-HT$_{7}$ receptors [1], new flexible and partly constrained derivatives were synthesized. Well characterized, potent 5-HT$_{1A}$ agents (i.e. NAN-190 and PK 13) were selected as a parent molecules and two series of compounds containing o-metoxyphenylpiperazine or 1,2,3,4-tetrahydroizoquinoline pharmacophores were investigated. Structural modifications involved: elongation of polymethylene chain to five and six carbon atoms and introduction of m-xylene and p-xylene moieties into linker fragment. Results of in vitro binding experiments for 5-HT$_{1A}$ and 5-HT$_{7}$ receptors are compared to that obtained for previously published analogues with tetrametylene linkers.



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Chemical characteristics of melanin from the human melanoma malignum

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The *melanoma malignum* is one of the most malignant and often occurring skin tumors, which derives from melanin producing cells – melanocytes. Due to increased melanogenesis in melanoma cells, melanin formation could be used to targeted therapy of the tumor [1]. The increase of the pigment synthesis by *melanoma* cells results in arise of pheo- and eumelanin precursors (5-S-cysteinyldopa and indole derivatives) in blood and urine. These substances may be useful for therapy monitoring as tumor markers. The recognition of related to melanogenesis phenotype of *melanoma* cells could provide a possibility of appropriate selection of therapeutic agents.

The aim of our study was to characterize chemical structure of melanin isolated from the human *melanoma malignum* by two different enzymatic methods of Wilczek et al. [2] and Double et al. [3], with some modifications. Isolated pigment was thermally degraded in the presence of tetramethylammonium hydroxide (TMAH) and thermochemolysis products were analyzed by GC/MS.

Lipid products, especially fatty acids methyl esters and aliphatic and cyclic hydrocarbons were predominant among pyrolysis products of melanin isolated from *melanoma malignum* by the Wilczek method. In contrast, during thermochemolysis of melanin isolated from the tumor cells by the Double method, mainly eumelanin markers (pyrrole and its methyl derivatives, toluene, styrene and benzonitrile) and glycine and alanine methyl derivatives were obtained. The characteristic thermochemolysis products of pheomelanin (sulphur-containing heterocycles) were not observed. The presence of volatile, low-molecular weight compounds such as CO_2, CO, NH_3, H_2S, CH_3SH and SO_2 was confirmed by the analysis of selected mass ions.

Thermochemolysis technique may be useful not only for elucidation of the pigment structure, but it could be also applied to establish the relationship between melanin type and malignancy of *melanoma malignum*.

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