

Efficient synthesis of pillar[5]arenes and pillar[6]arenes as the new synthetic acetylcholine receptors

© Gregory V. Zyryanov,^{1,2*} Alice A. Meyer,² Oleg S. Eltsov,² Dmitry S. Kopchuk,^{1,2+}
Igor S. Kovalev,² Igor L. Nikonov,² Albert F. Hasanov,² Dmitry Rudkevich,³
Vladimir L. Rusinov,^{1,2} and Oleg N. Chupahin^{1,2}

¹*I. Ya. Postovsky Institute of Organic Synthesis UrB RAS.*

Kovalevskaya St., 22. Akademicheskaya St., 20. Ekaterinburg, 620990. Russia.

Phone/fax: +7 (343) 369-30-58. E-mail: dkopchuk@mail.ru

²*Ural Federal University. Mira St., 19. Ekaterinburg, 620002. Russia.*

Phone/fax: +7 (343) 375-45-01.

³*University of Texas at Arlington. Nedderman St., 701. Arlington, Texas, 76013.*

USA. Phone/fax: +7 (817) 272-2011

*Supervising author; +Corresponding author

Keywords: *synthetic receptors, pillararenes, acetylcholine, encapsulation.*

Abstract

An efficient synthesis of pillar [5] - and pillar [6] arenes with alkyl substituents of various lengths from commercially available reagents (1,4-dialkoxybenzene and paraformaldehyde or 1,3,5-trioxane in the presence of Lewis acids) has been worked out. Cyclooligomerization products were isolated in high yields and with high oligoselectivity. In the presence of acetylcholine 1,4-bis(dodecyloxy)pillar[5]arene forms the inclusion complex in the ratio 1:1, which is observed by ¹H NMR method.