Poly(oximinoalkyl)amines as a New Type of Ligands for Copper-Accelerated Azide-Alkyne Cycloaddition

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The copper(I)-catalyzed azide-alkyne cycloaddition(CuAAC) is one of the premier example of click chemistry, a term which means a set of 'almost perfect' bond-forming reactions useful for rapid assembly of molecules with desired function. In order to accelerate cycloaddition reaction and prevent undesirable ones, different ligands are often used. I suggested, that poly(oxyminoalkyl)amines could be good accelerating ligands. For investigation of their catalytic activity, a range of poly(oxyminoalkyl)amines was tested as accelerating ligands in CuAAC. Most of them have shown high performance and the best results were obtained with specially synthesized ligand which contained bis(beta-oximinoalkyl)amine fragment connected to 1,2,3-triazole ring. Its activity approximately 10 times surpassed the most used in CuAAC ligand TBTA [Tris[(1-benzyl-1H-1,2,3-triazol-4-yl)methyl]amine]. Its high catalytic activity was proved on various azide and acetylenes. According to these results, I may claim that the new high-efficient ligand will find applications in clickchemistry, in particular in bioconjugation and organic synthesis.

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