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DIGEST

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Studies of Novel 2,6-Bis-(1,2,3-Triazolyl) Substituted Purine Ribonucleosides

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Keywords – Purine nucleosides, ribonucleosides, 1,3-dipolar cycloaddition, fluorescence, ditriazolyl derivatives.

I. Introduction

The synthesis of purine nucleoside analogs has seen a renaissance during the last decade [1]. The modifications of purine nucleoside analogs are very important for antiviral and antitumor therapy [2].

II. Results and Discussions

The synthesis of 2,6-bis-(1,2,3-triazolyl)purine nucleosides **2** and nucleophile substituted nucleoside triazole derivatives **3** was started from diazido derivatives **1**. "Click" reaction with terminal alkynes in the presence of a copper sulfate catalyst with sodium ascorbate as a reducing agent produced 2,6-bistriazolyl derivatives **2**, which with different nucleophiles yielded the target products **3** (Fig. 1).

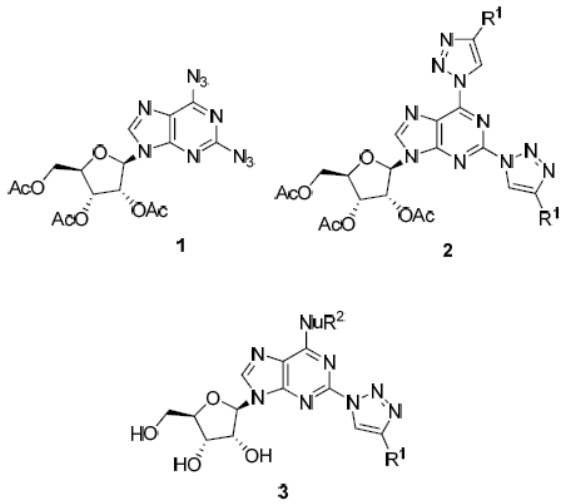


Fig.1. Structures of diazido nucleoside **1**, 2,6-bisitriazolylpurine nucleosides **2** and *C(6)* substituted purine nucleoside **3**.

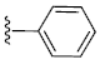
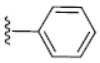
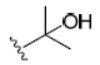
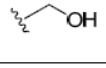
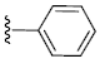
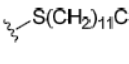
Starting material **1** was prepared by two different approaches. The first approach combines diazidopurine with peracetylated ribofuranose under Vorbrüggen conditions [3]. The alternative way includes ribosylation of 2,6-dichloropurine followed by reaction with NaN_3.

Product **1** underwent 1,3-dipolar cycloaddition reaction with various terminal alkynes and leads to 2,6-bistriazolylnucleosides **2**.

With the latter compounds in hand we studied their reactivity. Aromatic nucleophilic substitution at *C(6)* produced products with general structures **3**.

Amines, alcohols, thiols, substituted hydrazines and hydroxylamines can be used as nucleophiles. The examples of *C(6)* substituted triazolyl purine nucleosides are given in Table 1.

TABLE I
Examples of *C(6)* Substituted Purine Nucleosides **3**

Product A	R^1	NuR^2	Yields, %
3a			90
3b			86
3c			91
3d			88
3f			62

Additionally, the nucleophilic substitution products with general structures **3** possessing donor and acceptor groups perfectly fit in the group of "push-pull" systems. This allows us to study their florescence properties.

III. References

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