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Short Note

9-(4-Methoxyquinazolin-2-yl)-9*H*-purin-6-amine

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Abstract: A novel hybrid consisting of quinazoline and adenine moieties has been synthesized as a precursor of a potential biologically active target compound. The structure of 9-(4-methoxyquinazolin-2-yl)-9*H*-purin-6-amine (**2**) was characterized and confirmed using the following spectroscopic methods: LC-UV-MS, ^{1}H-NMR, ^{13}C-NMR and HSQC-NMR.

Keywords: 9-substituted adenine; quinazoline

1. Introduction

Various *N*-aryl nucleobases are known for their antitumor [1,2] and antimicrobial [3] activity. A significant number of *N*9-arylpurines have been reported to act as agonists or antagonists for several receptors and enzymes [4]. In particular, a variety of 9-substituted adenines have been published for their interaction with adenosine receptors, which are found to be upregulated in various tumor cells [5]. On the other hand, quinazolines as heterocyclic compounds containing two fused six-membered aromatic rings, a benzene ring and a pyrimidine ring [6], are considered to be a "privileged structure" for drug development [7]. Over the years, medicinal chemists have synthesized a variety of quinazoline derivatives with different biological activities (anti-cancer [8–11], antimicrobial [12–15], *etc.*) by inserting various active groups to the quinazoline moiety using developing synthetic methods [16].

Taking into consideration the value of both adenine and quinazoline entities, we have designed a route for the synthesis of a target compound consisting the conjugation of these moieties. *In silico* modeling of the coupled molecule which assess the binding affinity as well as the potential inhibitory effect on specific binding sites of human proteins, reveals a promising result that this compound can be used as precursor molecule for medicinal chemical structures. This coupling is achieved by regioselective *N*-arylation via nucleophilic aromatic substitution (SN_{Ar}) [17]. In this paper we report the synthesis of 9-(4-methoxyquinazolin-2-yl)-9*H*-purin-6-amine which constitutes an intermediate of the aforementioned route (Scheme 1).

2. Experimental Section

2.1. General Methods

All reagents were used as received without further purification unless stated otherwise. Flash chromatography was performed on silica gel 60, 0.04–0.063 mm (Zeochem, Uetikon, Switzerland). Melting points were measured on a Stuart SMP30 melting point apparatus (Bibby Scientific Limited (Group HQ), Stone, UK) and are uncorrected. HPLC was carried out on an Agilent 1200 system (Agilent Technology, Santa Clara, CA, USA), using the column: Grace Prevail 5 μm C18, 4.6 mm × 250 mm (Grace Alltech, Breda, NL, USA). Mass analysis was performed on a Bruker MicrOTOF (Bruker Daltonics, Bremen, Germany). ESI was used for ionization and the spectrum was recorded in positive mode. NMR spectra (^{1}H, ^{13}C, ^{13}C-HSQC) were recorded on a Bruker 500 MHz Avance III system