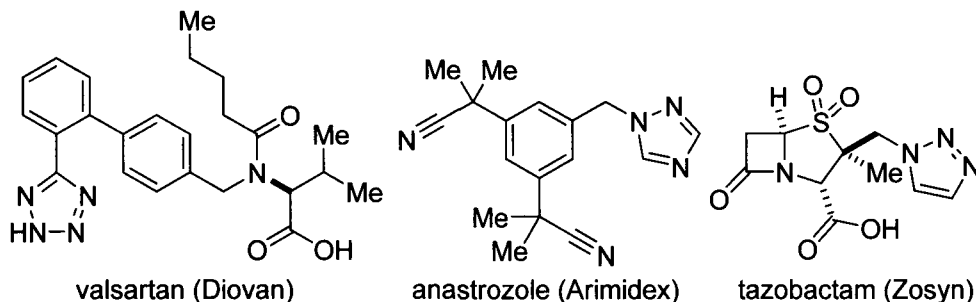


In tetrazole's ^{13}C -NMR spectrum, the chemical shift for the C5 is at 143.1 ppm.



Triazoles and tetrazoles do not exist in nature. However, many synthetic medicines do contain triazoles and tetrazoles. For instance, valsartan, an angiotensin receptor blocker (ARB) indicated for treatment of high blood pressure and other cardiovascular disease contains a tetrazole.³ Anastrozole contains a 1,2,4-triazole and is an aromatase-inhibiting drug approved for treatment of breast cancer.⁴ Tazobactam is a 1,2,3-triazole containing compound that inhibits the action of bacterial β -lactamases and is used to treat bacterial infection in combination with the beta-lactam antibiotic piperacillin.⁵

Five-membered ring systems with more than one N atom including triazole and tetrazoles have been recently reviewed.⁶

9.2 Reactivity of the Triazole and Tetrazole Ring

9.2.1 Substitution of the 1,2,3-Triazole

Triazole undergoes halogenation, and bromination of the triazole provides the 4,5-dibromo derivative. The 4,5-dibromotriazole was prepared by bromination of triazole with NBS.⁷ Triazoles are readily alkylated on nitrogen by alkylhalides, dimethylsulfate, diazomethane, and conjugate addition. In addition, triazoles are acylated by acyl halides and anhydrides and the alkylations are not regioselective.⁸

