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Benzamides and benzamidines as specific inhibitors of epidermal growth factor receptor and v-Src protein tyrosine kinases

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The benzamides **1** and the benzamidines **2** as well as the cyclic benzamidines **3** were designed and synthesized as the mimics of 4-anilinoquinazolines for an inhibitor of EGFR tyrosine kinase. The specific inhibitions of EGFR tyrosine kinase were observed in the benzamides **1a** and **1b**, and the benzamidine **2a**, whereas the specific inhibitions of v-Src kinase were observed in the benzamidine **2d** at a 10 μg/ml concentration of compounds. The cyclic benzamidines **3a** and **3b** showed potent kinase inhibition of EGFR at a 1.0 μg/ml concentration. According to the docking simulation using the X-ray structure of EGFR kinase domain in complex with erlotinib, the LigScore2 scoring function value of erlotinib was calculated as 5.61, whereas that of the benzamide **1a** was 5.05. In a similar manner, the LigScore2 value of the cyclic benzamidine **3a** was calculated as 5.10.