Bioorganic & Medicinal Chemistry 17 (2009) 6787–6795

Contents lists available at ScienceDirect

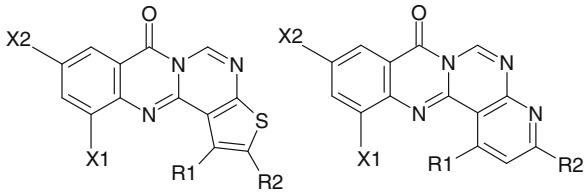
Bioorganic & Medicinal Chemistry

journal homepage: www.elsevier.com/locate/bmc

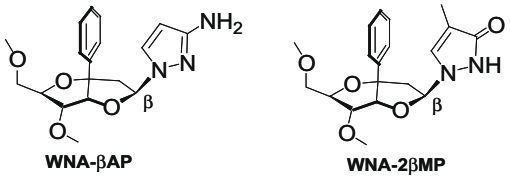
Bioorganic & Medicinal Chemistry Vol. 17, No. 19, 2009

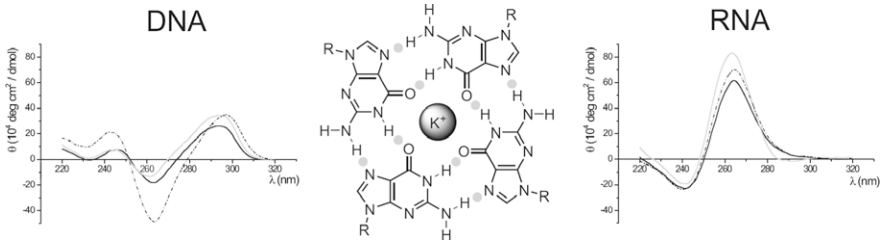
Contents

ARTICLES

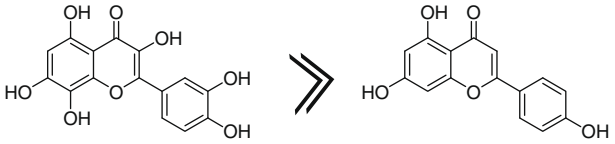


X1 and X2 = H, Br; R1 and R2 = alkyl and aryl



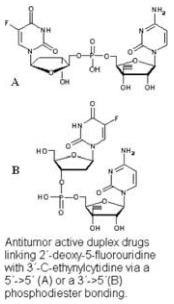


RNA quadruplexes are known to form four-stranded nucleic acid structures as well but few studies have investigated their properties. Here we compare the conformations and stabilities of quadruplex-forming DNA and RNA sequences.

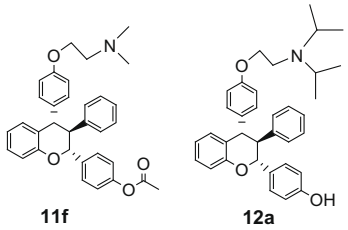


IC_{50} value = 2.6 μM IC_{50} value = 33.4 μM

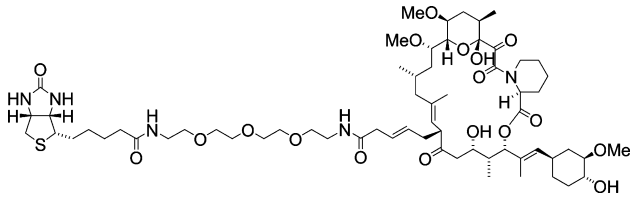
Neuraminidase activities depended on the position and number of hydroxy groups on the flavones backbone.



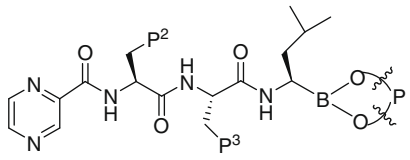
Antitumor active duplex drugs linking 2′-deoxy-5-fluorouridine with 3′-*C*-ethynylcytidine via a 5′→5′ (A) or a 3′→5′ (B) phosphodiester bonding.



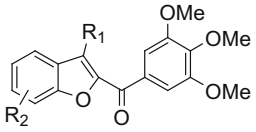
A library of novel 2,3,4-triarylbenzopyrans was synthesized and their SERM and anti-proliferative activities were evaluated. Compound **12a** showed the lowest IC_{50} at 7 μM against MCF-7 and **11f** showed the lowest IC_{50} value of 5.6 μM against MDA-MB-231 cell lines.



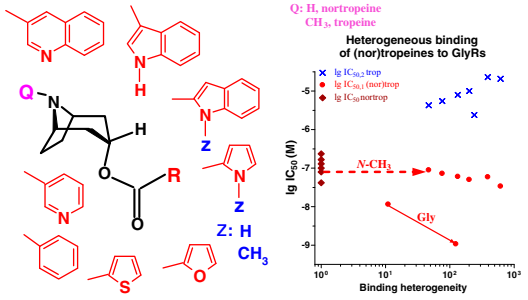
We describe the construction of the first prokaryotic T7 phage display libraries from randomly digested *Pseudomonas stutzeri* and *Vibrio fischeri* gDNA, and a plant cDNA library from *Arabidopsis thaliana*.

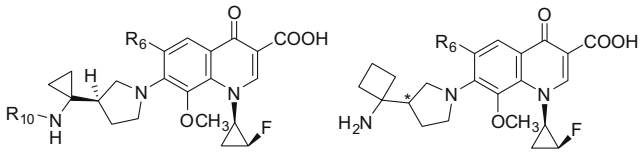


Series of tripeptide boronic acid proteasome inhibitors were designed and synthesized. The most active compound inhibited 20S proteasome with IC_{50} less than 0.1 nM and inhibited two hematologic cell lines with IC_{50} less than 10 nM.

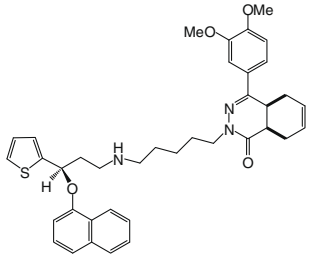


R_1=H or Me
R_2=H, halogen, Me, OMe, OEt and OH

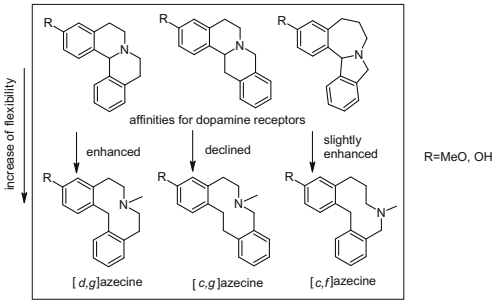


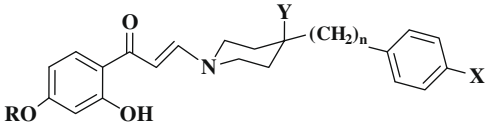


1: R_6 = F, R_{10} = H
2: R_6 =F, R_{10} = CH_3
4: R_6 =H, R_{10} = H
5: R_6 =H, R_{10} = CH_3
3: R_6 =F
6: R_6 =H



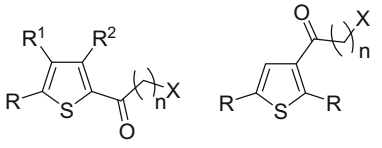
(*R*)-15

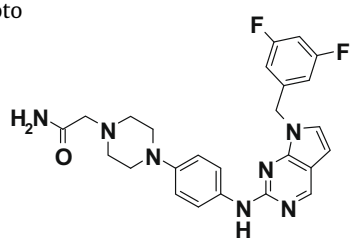




R=Me, H; X = OH, Cl, Br, H; Y= OH, H; n = 0,1

A series of *E*-3-(piperidin-1-yl)-1-(4-substituted phenyl)prop-2-en-1-one derivatives have been synthesized and evaluated for dopaminergic activity in animal models.





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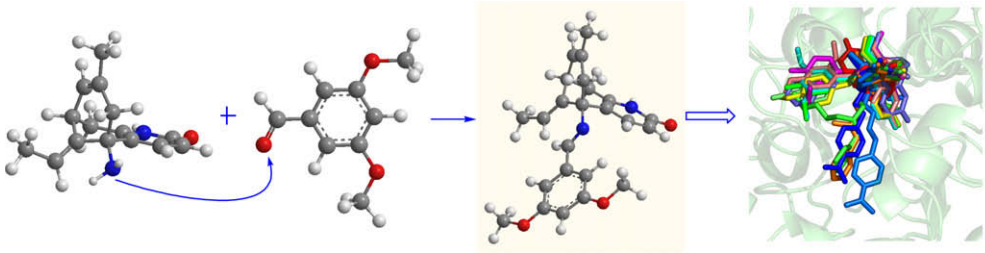
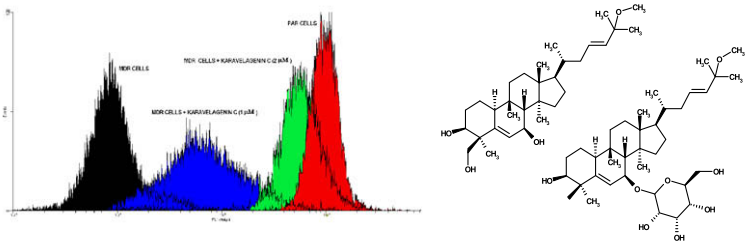
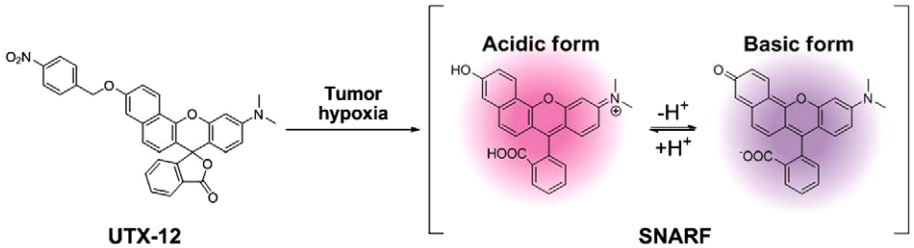
The novel 7*H*-pyrrolo[2,3-*d*]pyrimidine derivative **24** (AS1810722) inhibited STAT6 activation with an IC_{50} value of 1.9 nM and showed a good profile of CYP3A4 inhibition. Compound **24** also inhibited in vitro differentiation of Th2 cells and eosinophil infiltration in an antigen-induced mouse asthmatic model after oral administration.

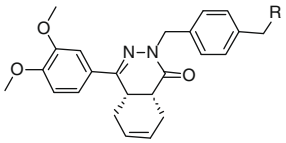


Hup A compound **5** IC_{50} 0.02 nM complex compounds (**1**-**11**) with *Tc*AChE



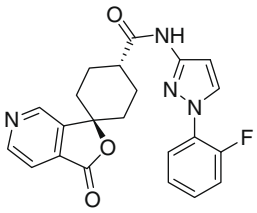
Discovery of new potent P-glycoprotein inhibitors, with the cucurbitane scaffold, on multidrug resistant cancer cells.



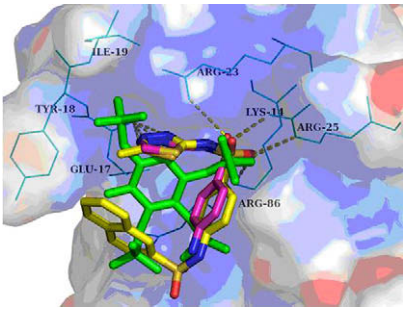


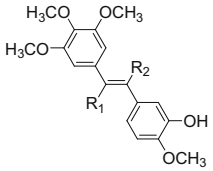
A series of novel phthalazinones were synthesized as PDE4 inhibitors. The most potent of these, with IC_{50} values in the subnanomolar range, had anti-inflammatory activity in a mouse dermatitis model.

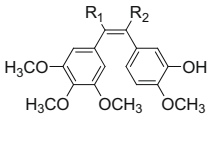
Compound **21j** showed high Y5 binding affinity, metabolic stability and brain and cerebrospinal fluid (CSF) penetration, and low susceptibility to P-glycoprotein transporters.



21j
hY5 IC_{50}: 1.3 nM

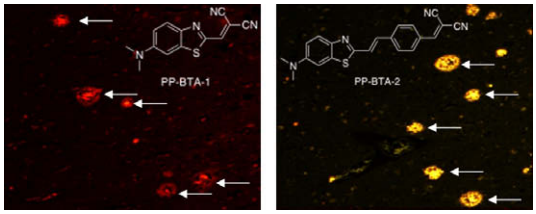


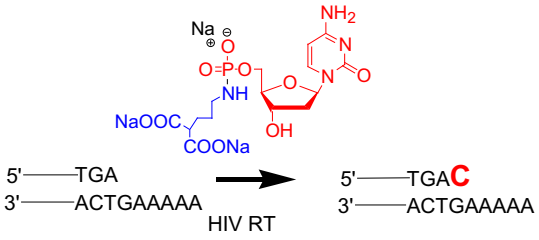




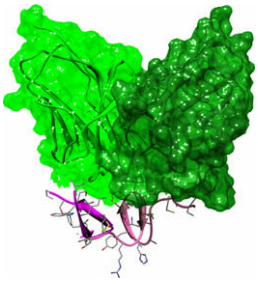
21: R_1 = Ph, R_2 = Me
23: R_1 = Ph, R_2 = Et
25: R_1 = R_2 = Ph
27: R_1 =Me, R_2 = Ph
29: R_1 = Et, R_2 = Ph

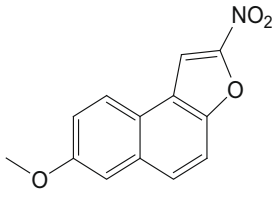
22: R_1 = Ph, R_2 = Me
24: R_1 = Ph, R_2 = Et
26: R_1 = R_2 = Ph
28: R_1 =Me, R_2 = Ph
30: R_1 = Et, R_2 = Ph



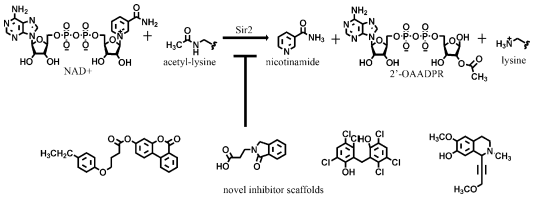


The replacement of the pyrophosphate moiety of 2′-deoxynucleoside triphosphates by non natural δ-dicarboxylic butyl amino acid allows incorporation of natural 2′-deoxycytidine into DNA using HIV-1 reverse transcriptase (RT) as enzyme. In contrast, 3′-deoxycytidine analog was not substrate of the HIV-1 RT.

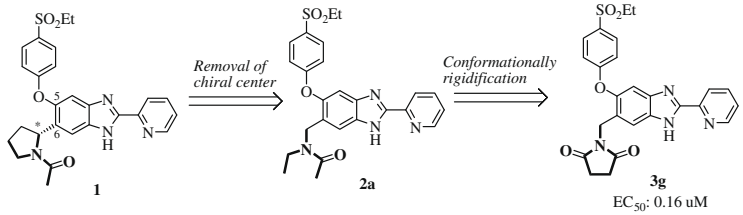




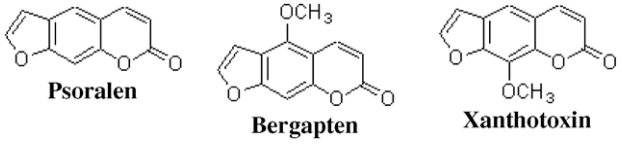
2

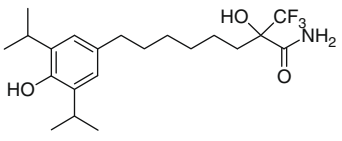


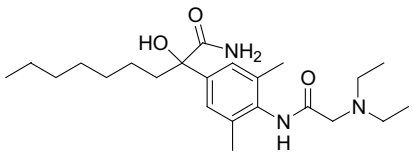
Sir2 enzymes catalyze the reaction between NAD^+ and acetyl-lysine to form the products nicotinamide, 2′-*O*-acetyl-ADP-ribose, and lysine. Here, we identified and characterized four novel inhibitor scaffolds of this enzyme family with low micromolar potency through high throughput in vitro screening against the sirtuin homologue, yeast Hst2.



Novel benzimidazole GKAs, exemplified by **3g,** were designed and synthesized by removing the chiral center of lead **1**, followed by conformational rigidification. Rat OGTT and X-ray crystallographic analysis were also conducted.







OTHER CONTENTS

*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

An insight into biologically relevant chemical space showing the scaffolds of potential natural-product based inhibitors orbiting their target, the protein structure of protein 11-beta steroid dehydrogenase (PDB code 1xu7). Graphic produced using Pymol (http://www.pymol.org). [M. A. Koch, A. Schuffenhauer, M. Scheck, S. Wetzel, M. Casaulta, A. Odermatt, P. Ertl, H. Waldmann, Charting biologically relevant chemical space: A structural classification of natural products (SCONP), *PNAS* **2005**, *102*, 17272–17277 and S. Wetzel, H. Waldmann, Cheminformatic analysis of natural products and their chemical space, *Chimia* **2007**, *61*(6), 355–360].

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ISSN 0968-0896