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Symposium-in-Print

Tetrahedron Young Investigator Award 2010
Peter Seeberger

Edited by: Prof. Herbert Waldmann

Max-Planck-Institute for Molecular Physiology, Dept of Chemical Biology, Otta-Hahn-Strasse 11, 44227 Dortmund, Germany

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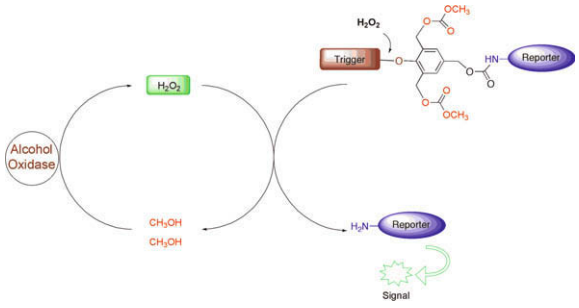
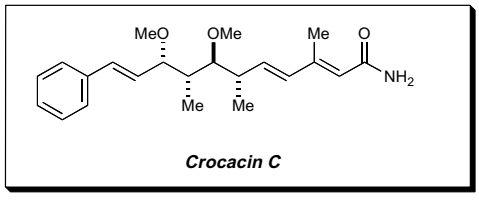
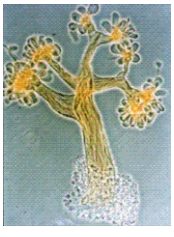
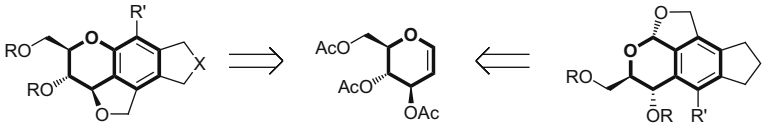
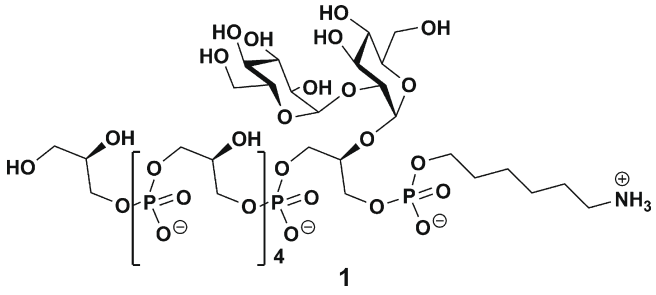






Chondromyces crocatus





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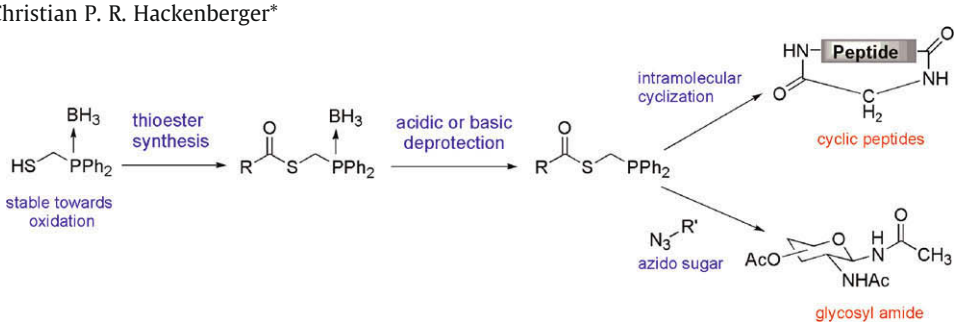
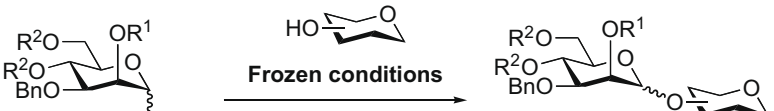
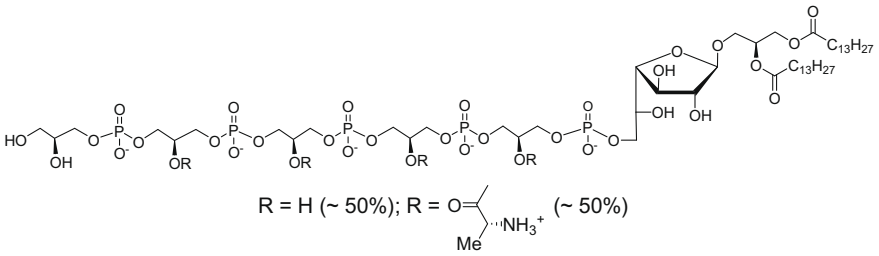
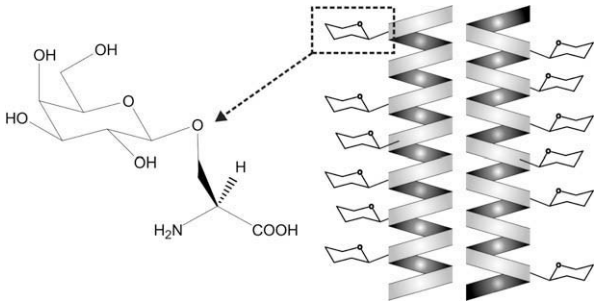
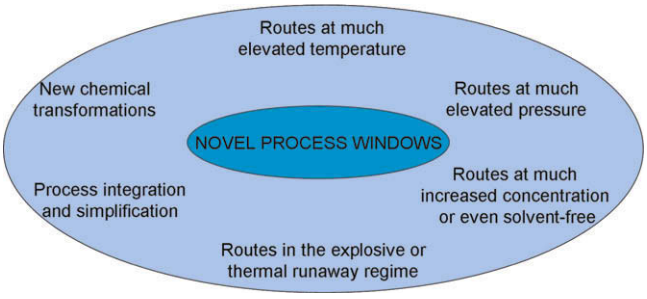


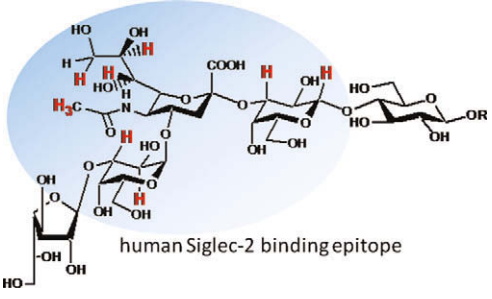


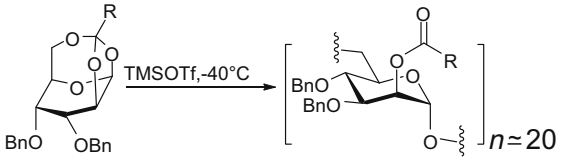
	R^1	R^2
2	Bn	Bn
4	Bn	PhCH<
5	Bn	$H_{10}C_6$<
6	Bz	Bn

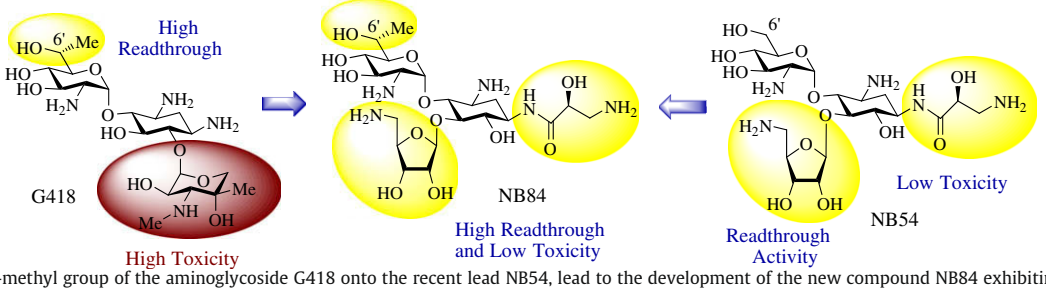




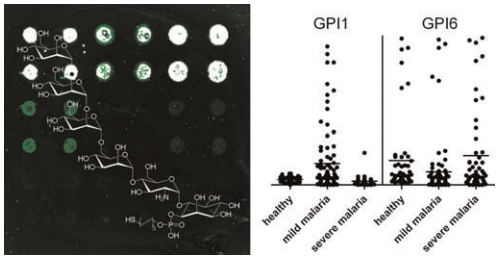




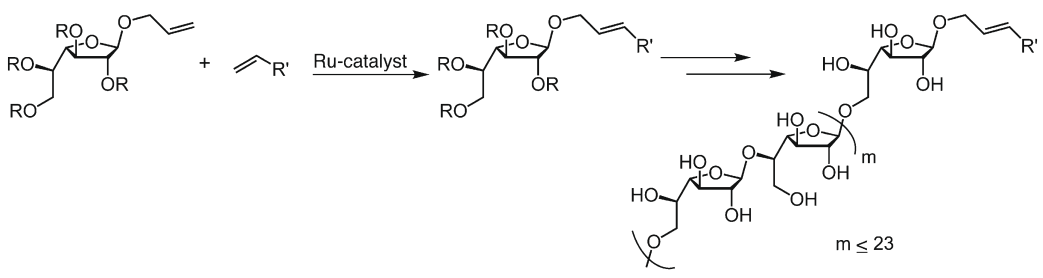


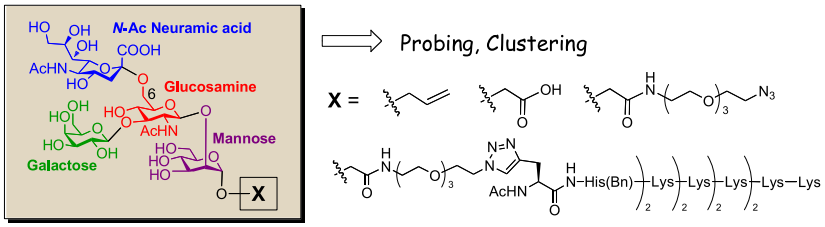


Introduction of (*R*)-6′-methyl group of the aminoglycoside G418 onto the recent lead NB54, lead to the development of the new compound NB84 exhibiting significantly improved readthrough activity and reduced toxicity.



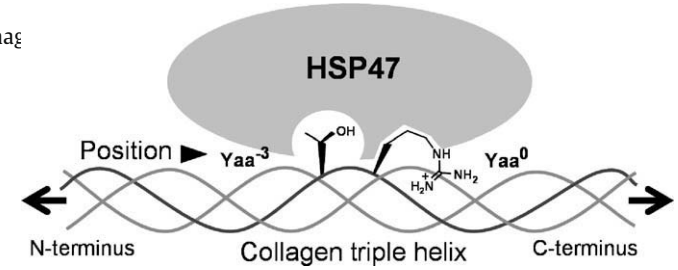
A carbohydrate microarray spotted with synthetic GPI-glycans provides insights into the anti-malarial antibody response in healthy and malaria diseased individuals.



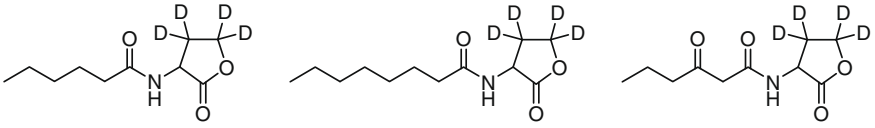


Synthesis and clusterization of Galβ(1→3)[NeuAcα(2→6)]GlcNAcβ(1→2)Man motif of the *N*-glycan, as the molecular probes for their biological evaluation, are reported.

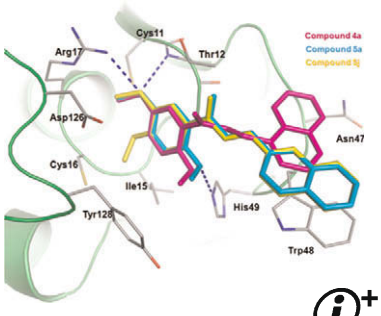
REGULAR ARTICLES



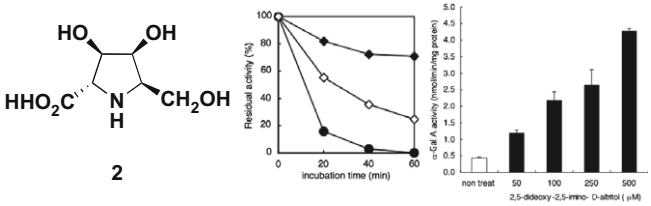
HSP47 binds to triple-helical collagen, recognizing Yaa^0 and Yaa^{-3} side-chains in the Xaa-Yaa^{-3}-Gly-Xaa-Yaa^0-Gly sequence. Structural preferences for Yaa^0 and Yaa^{-3} were determined using synthetic collagen-mimetic peptides.

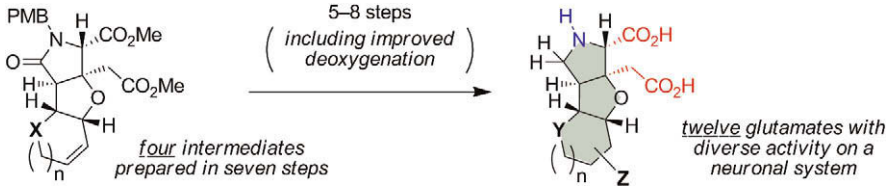


1-d_4 **3**-d_4 **4**-d_4

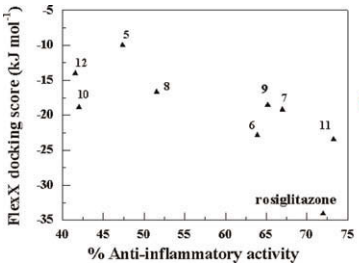


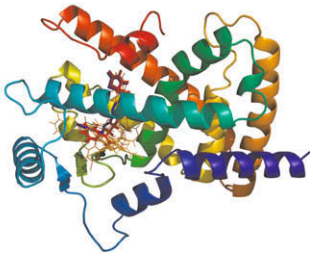
We have recently identified five synthetic chalcones which inhibit the activity of *Mycobacterium tuberculosis* protein tyrosine phosphatase A (PtpA), an enzyme associated with *M. tuberculosis* infectivity, and we carried out the analysis of the molecular recognition of these inhibitors on their macromolecular target through Structure–Activity Relationship (SAR) studies and molecular modeling.

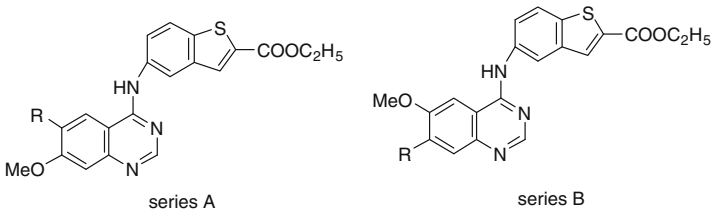




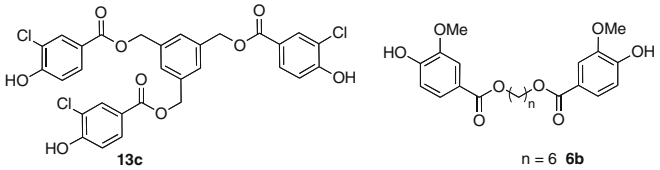
Trend between the docking scores (PPARγ receptor) and the anti-inflammatory activity of eight new synthesized 5-arylidene-3-benzyl-thiazolidine-2,4-diones compounds. The compound **11** exhibited an anti-inflammatory activity slightly higher than the reference drug, rosiglitazone, a well-known potent agonist of the PPARγ.

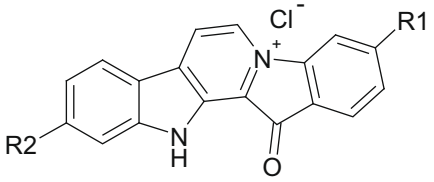






Two series of 4-benzothienyl amino quinazolines were designed and synthesized as new analogues of the EGFR inhibitor Gefitinib, with improved anti-tumor and pro-apoptotic activity.

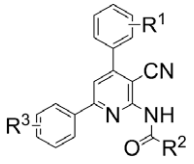




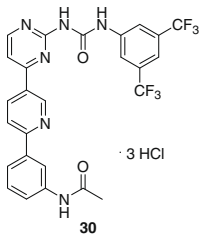
1: R1 = Br; R2 = H

2: R1 = H; R2 = Br

Cancer-preventive and cytotoxic activities of 3- and 10-bromofascaplysins (**1** and **2**) are mediated, at least in part, through the induction of caspase-dependent apoptosis.

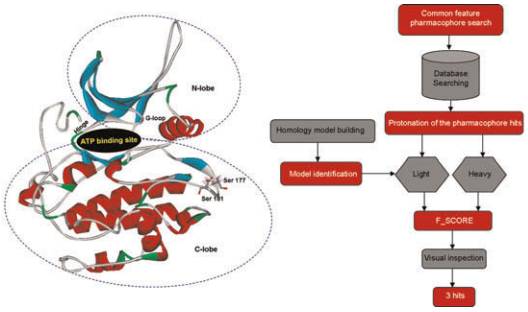


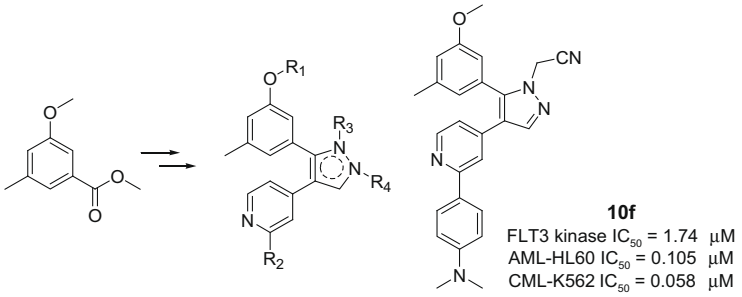
Synthesis and structure–activity relationships of 2-acylamino-4,6-diphenylpyridines as novel small molecule GPR54 antagonists are reported.

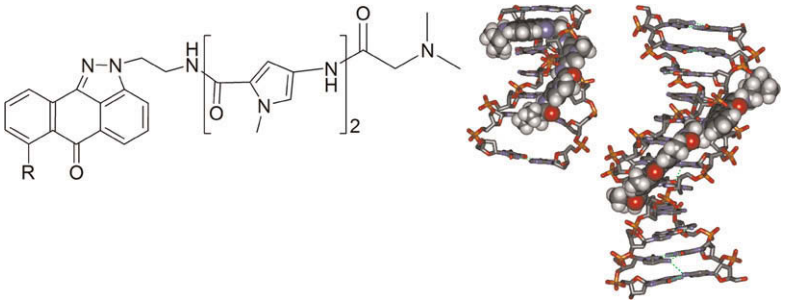


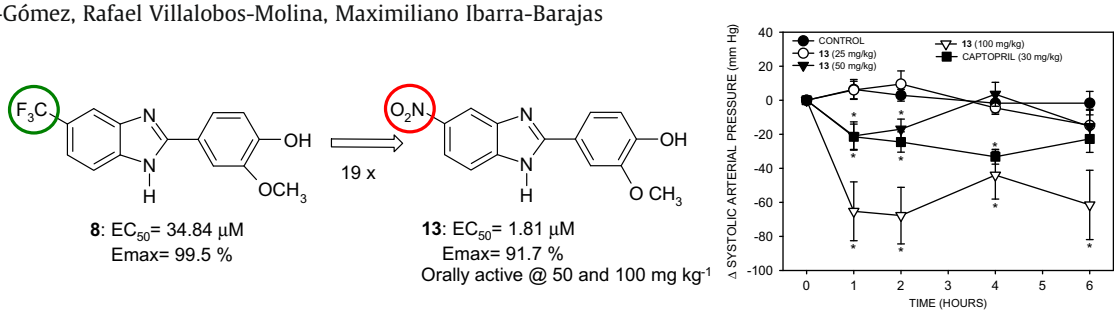
30
Breast Cancer-MDA-MB-468 (μM)
IC_{50} = 0.84, TGI = 2.35, LC_{50} = 5.85

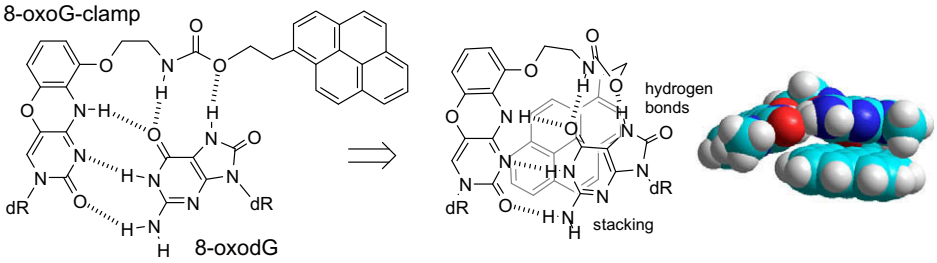
A new series of N-substituted-2-aminopyrimidines has been designed, synthesized, and tested over a panel of 60 cancer cell lines. Compound **30** has showed multiple inhibitions over a number of oncogenic kinases. A molecular modeling study was made by docking of the most active compound **30** into the kinase domain of ABL1 to investigate its possible binding interactions.





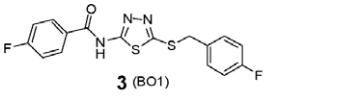




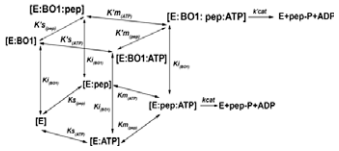


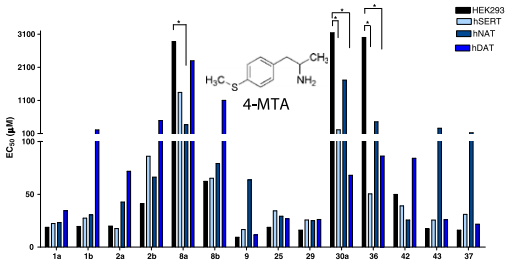
8-OxoG-clamp derivatives having a variety of *N*-functional groups were synthesized to clarify the suitable structure for more selective recognition, and 2-pyrene-1-yl-ethoxycarbonyl unit was found to produce higher stability with 8-oxoG.

The dual Src-Abl inhibitor BO1 targets AblT315I through a non-competitive mechanism with limited loss of potency.

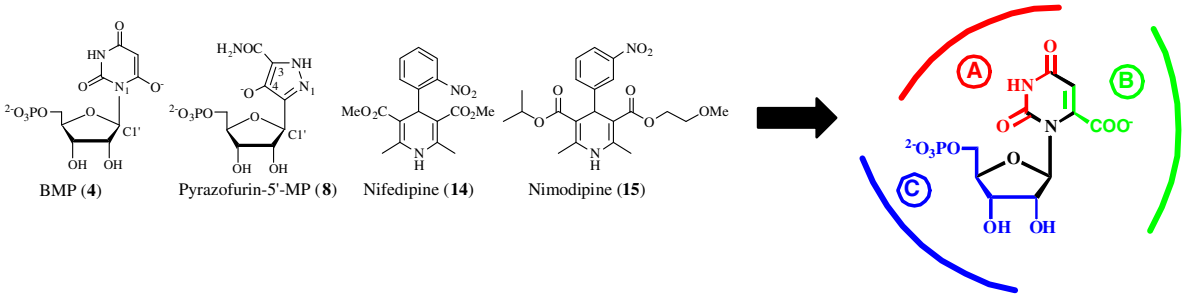


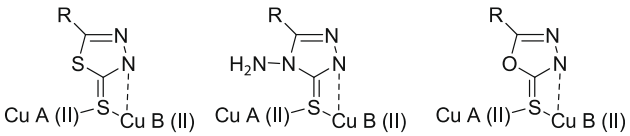
AblT315I



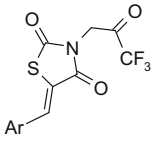


Impurities isolated from clandestine 4-MTA synthesis show cytotoxicity to cells expressing the human serotonin, noradrenaline and dopamine transporters.

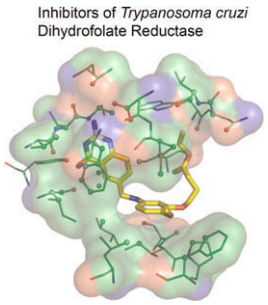


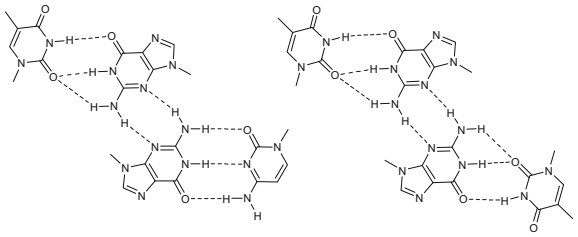


Kinetic and enzyme binding studies provide novel clues to mono-dentate binding of a series of substituted thiadiazole, oxadiazole, and triazole moieties to the active site dicopper center of tyrosinase including hydrophobicity mainly contributing to the potent inhibition of the enzyme.

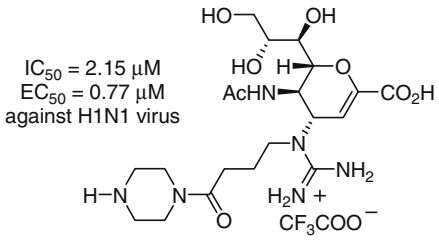


New non-carboxylic acid containing 5-arylidene-2,4-thiazolidinedione derivatives have been identified as aldose reductase inhibitors active at low micromolar doses.

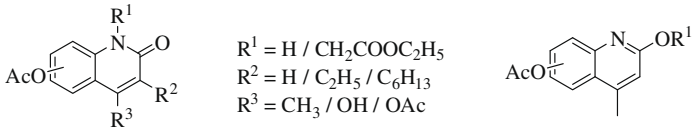




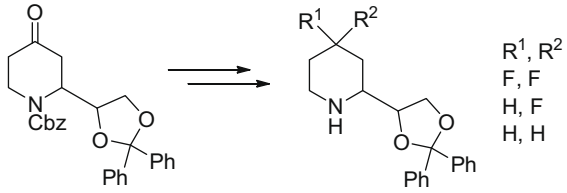
G–T mismatches can form minor groove aligned tetrads (G:C:G:T or G:T:G:T) of similar structure and stability to those formed by G–C Watson–Crick base pairs.

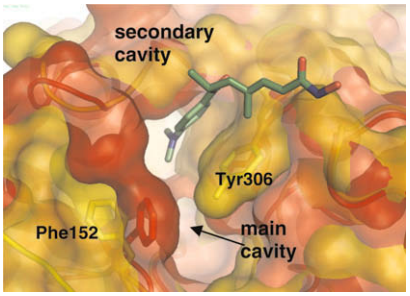


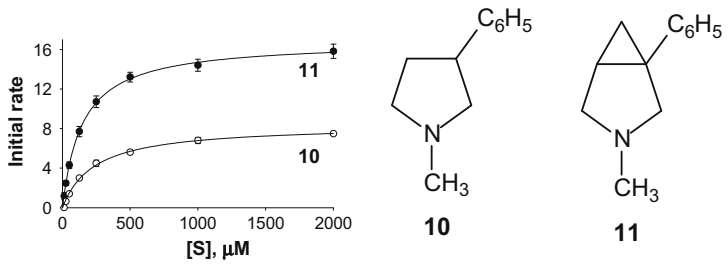
Zanamivir derivative having an extended (piperazinocarbonyl)propyl substituent at the internal N-position of the guanidinium group is designed as an inhibitor specifically against the group-1 neuraminidases of influenza viruses.

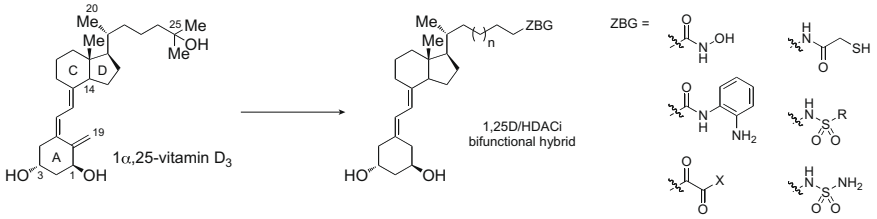


A series of novel quinolin-2-one derivatives were synthesized and examined for their antiplatelet action by virtue of causing Calreticulin Transacetylase catalyzed activation of platelet Nitric Oxide Synthase.

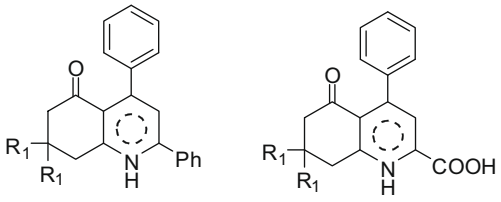


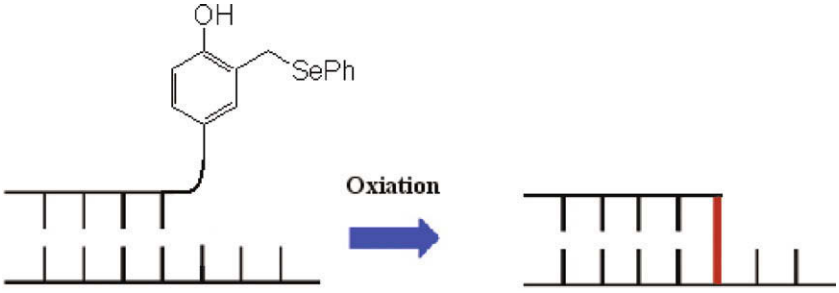






Incorporation of zinc-binding groups into the side-chain of 1α,25-dihydroxyvitamin D_3 (1,25D) fully bifunctional hybrid molecules which act both as vitamin D receptor agonists and histone deacetylase inhibitors. These bifunctional hybrids display in vitro antiproliferative activity against the AT84 squamous carcinoma cell line while lacking the in vivo hypercalcemic effects of 1,25D.





Oligonucleotide-selenium conjugate was designed and synthesized and its sequence-specific cross-linking ability was investigated.

*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

The cover shows the binding surface of the monoclonal antibody raised against the antherax tetrasaccharide that recognizes Bacillus anthracis spores shown as background. The STD NMR structure and the image were generated by Dr. Heiko Möller (Uni Konstanz). The cover was designed by Marie-Lyn Hecht and Peter H. Seeberger.

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