



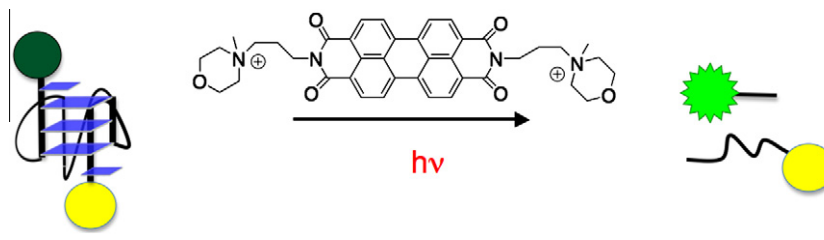
Bioorganic & Medicinal Chemistry Volume 20, Issue 24, 2012

Contents

ARTICLES

- G-quadruplex DNA cleavage preference and identification of a perylene diimide G-quadruplex photocleavage agent** pp 6904–6918

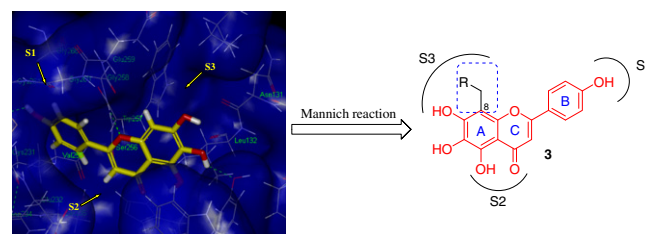
Michelle Schoonover, Sean M. Kerwin*



- Mannich bases of scutellarein as thrombin-inhibitors: Design, synthesis, biological activity and solubility** pp 6919–6923

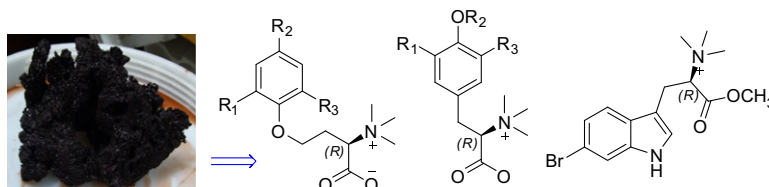
Nian-Guang Li, Shu-Lin Song, Min-Zhe Shen, Yu-Ping Tang*, Zhi-Hao Shi, Hao Tang, Qian-Ping Shi, Yi-Fan Fu, Jian-Ao Duan*

Two series of 8-aminomethylated derivatives were prepared by Mannich reaction of scutellarein (2) with appropriate aliphatic amines, alicyclic amines and formaldehyde. All the compounds were tested for their thrombin inhibition activity through the analysis of prothrombin time (PT), activated partial thromboplastin time (APTT), thrombin time (TT) and fibrinogen (FIB). The antioxidant activities of these target products were assessed by 1,1-diphenyl-2-picrylhydrazyl radical 2,2-diphenyl-1-(2,4,6-trinitrophenyl) hydrazyl (DPPH) assay using 3-(4,5)-dimethylthiaziazolo (-z-y1)-3,5-diphenyltetrazolium bromide (MTT) assay method and the solubility were assessed by ultraviolet (UV). The results showed that morpholinyl aminomethylene substituent derivative (3d) demonstrated stronger anticoagulant activity, better water solubility and good antioxidant activity compared with scutellarein (2), which warrants further development as a agent for ischemic cerebrovascular disease treatment.



- Purpuroids A–J, halogenated alkaloids from the sponge *Iotrochota purpurea* with antibiotic activity and regulation of tyrosine kinases** pp 6924–6928

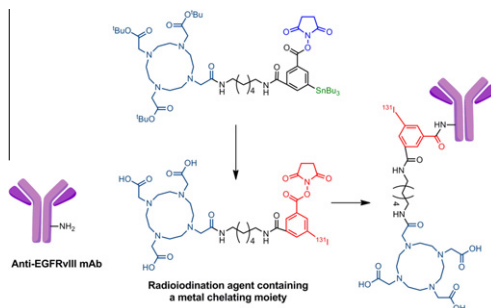
Shi Shen, Dong Liu, Chen Wei, Peter Proksch, Wenhan Lin*



SIB-DOTA: A trifunctional prosthetic group potentially amenable for multi-modal labeling that enhances tumor uptake of internalizing monoclonal antibodies

pp 6929–6939

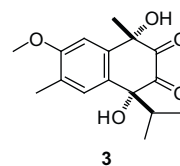
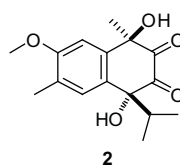
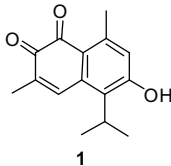
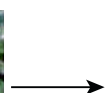
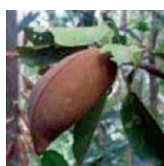
G. Vaidyanathan*, B. J. White, D. J. Affleck, X. G. Zhao, P. C. Welsh, D. McDougald, J. Choi, M. R. Zalutsky



Isolation and synthesis of two antiproliferative calamenene-type sesquiterpenoids from *Sterculia tavia* from the Madagascar Rain Forest

pp 6940–6944

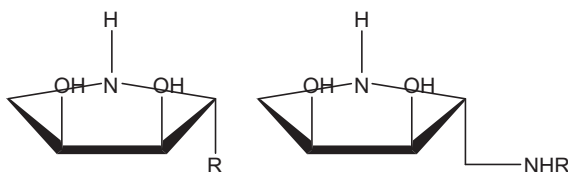
Yumin Dai, Liva Harinantenaina, Peggy J. Brodie, Martin W. Callmander, Sennen Randrianasolo, Etienne Rakotobe, Vincent E. Rasamison, David G. I. Kingston*



Virtual screening and QSAR study of some pyrrolidine derivatives as α -mannosidase inhibitors for binding feature analysis

pp 6945–6959

N. S. H. N. Moorthy*, Natércia F. Brás, Maria J. Ramos, Pedro A. Fernandes



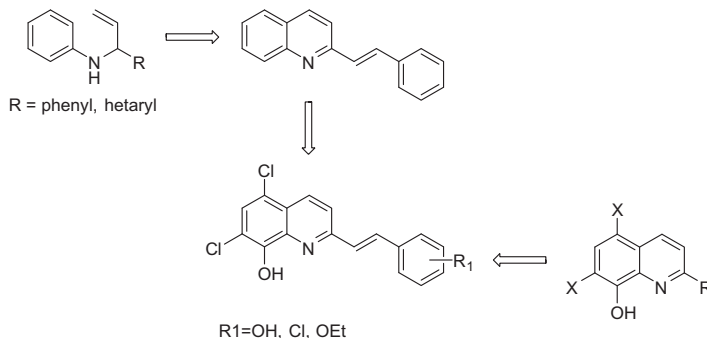
Virtual screening, QSAR and pharmacophore analysis of two set of compounds bearing the (2R, 3R, 4S)-2-aminomethylpyrrolidine 3,4-diol and the functionalized pyrrolidine derivatives with α -mannosidase inhibitory activity revealed that the bond flexibility along with number of aromatic groups are important for the hydrophobic π - π stacking interactions.



Contribution to investigation of antimicrobial activity of styrylquinolines

pp 6960–6968

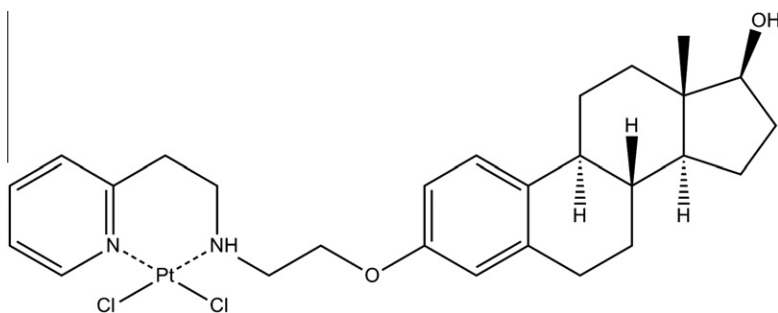
Wioleta Cieslik, Robert Musiol*, Jacek E. Nycz, Josef Jampilek, Marcela Vejsova, Mariusz Wolff, Barbara Machura, Jaroslaw Polanski



Synthesis and cytotoxic activities of estrone and estradiol *cis*-dichloroplatinum(II) complexes

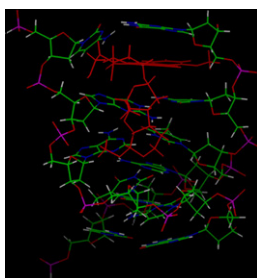
pp 6969–6978

Miroslav Kvasnica*, Lucie Rarova, Jana Oklestkova, Milos Budesinsky, Ladislav Kohout

**The interaction of nemorubicin metabolite PNU-159682 with DNA fragments d(CGTACG)₂, d(CGATCG)₂ and d(CGCGCG)₂ shows a strong but reversible binding to G:C base pairs**

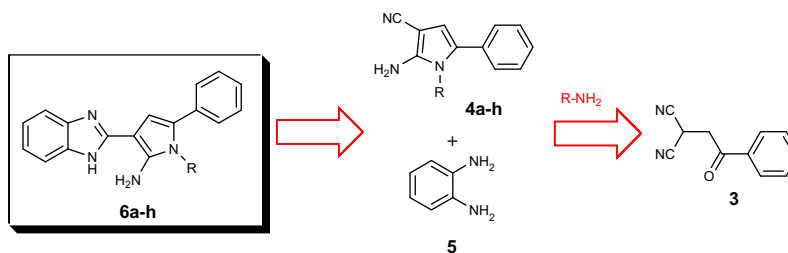
pp 6979–6988

Stefania Mazzini*, Leonardo Scaglioni, Rosanna Mondelli, Michele Caruso, Federico Riccardi Sirtori

**Synthesis and docking studies of novel antitumor benzimidazoles**

pp 6989–7001

Mohamed A. Omar, Yasser M. Shaker*, Shadia A. Galal, Mamdouh M. Ali, Sean M. Kerwin, Jing Li, Harukuni Tokuda, Raghda A. Ramadan, Hoda I. El Diwani

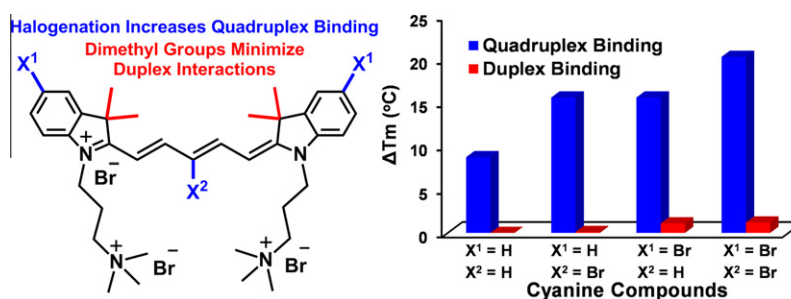


Novel benzimidazole-pyrrole conjugates

Halogenated pentamethine cyanine dyes exhibiting high fidelity for G-quadruplex DNA

pp 7002–7011

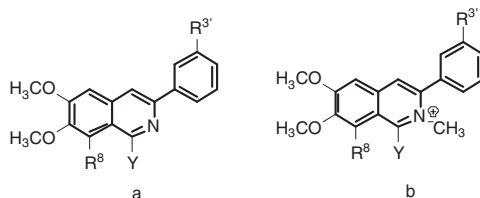
Rupesh Nanjunda, Eric A. Owens, Leah Mickelson, Sergey Alyabyev, Nancy Kilpatrick, Siming Wang, Maged Henary*, W. David Wilson*



3-Phenyl substituted 6,7-dimethoxyisoquinoline derivatives as FtsZ-targeting antibacterial agents

pp 7012–7029

Cody Kelley, Yongzheng Zhang, Ajit Parhi, Malvika Kaul, Daniel S. Pilch, Edmond J. LaVoie*

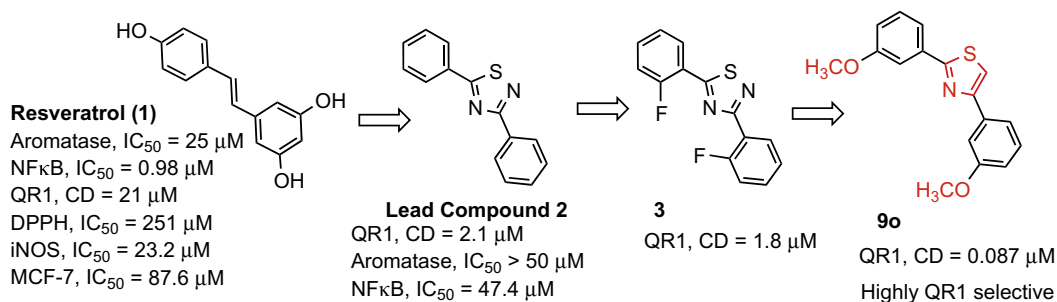


R_3 = phenyl, 4-biphenyl, *t*-butyl, 4-*t*-butylphenyl; R_8 = H or OCH_3 ; Y = H, CH_3 , NHCH_3 , $\text{N}(\text{CH}_3)_2$, $\text{NC}(\text{NH}_2)_2$, CN, CH_2NH_2 , $\text{CH}_2\text{CH}_2\text{NH}_2$, $\text{CH}_2\text{NC}(\text{CH}_3)\text{NH}_2$, $\text{CH}_2\text{NC}(\text{NH}_2)_2$, $\text{CH}_2\text{CH}_2\text{NC}(\text{NH}_2)_2$.

Optimization of thiazole analogues of resveratrol for induction of NAD(P)H:quinone reductase 1 (QR1)

pp 7030–7039

Abdelrahman S. Mayhoub, Laura Marler, Tamara P. Kondratyuk, Eun-Jung Park, John M. Pezzuto, Mark Cushman*



Inhibition of monoamine oxidase by 8-[(phenylethyl)sulfanyl]caffeine analogues

pp 7040–7050

Samantha Mostert, Wayne Mentz, Anél Petzer, Jacobus J. Bergh, Jacobus P. Petzer*

	R	IC_{50} MAO-A (μM)	IC_{50} MAO-B (μM)
1a	H	18.7	0.271
1b	4-Cl	8.46	0.020
1c	4-Br	108	0.019
1e	4- CF_3	No inhibition	0.019
1j	3- CF_3	141	0.017

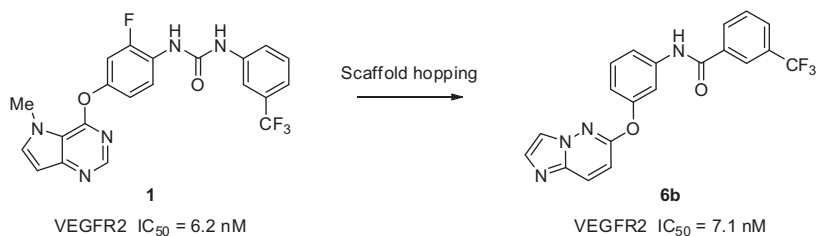
The human MAO inhibition potencies of a series of sulfanylc caffeine derivatives are reported.



Design, synthesis, and evaluation of imidazo[1,2-*b*]pyridazine derivatives having a benzamide unit as novel VEGFR2 kinase inhibitors

pp 7051–7058

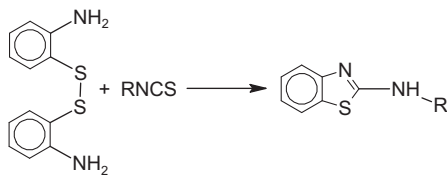
Naoki Miyamoto, Yuya Oguro, Terufumi Takagi, Hidehisa Iwata, Hiroshi Miki, Akira Hori, Shinichi Imamura*



Anti-infective and herbicidal activity of N-substituted 2-aminobenzothiazoles

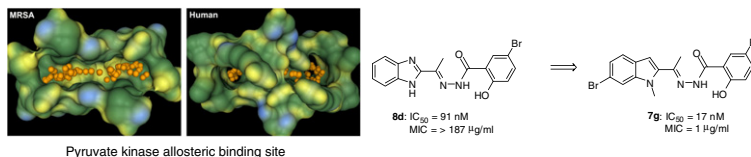
pp 7059–7068

Dagmar Fajkusova*, Matus Pesko, Stanislava Keltosova, Jiahui Guo, Zbynek Oktabec, Marcela Vejsova, Peter Kollar, Aidan Coffey, Jozef Csollei, Katarina Kralova, Josef Jampilek*

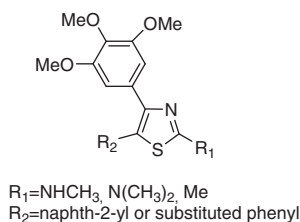
**Optimization and structure–activity relationships of a series of potent inhibitors of methicillin-resistant *Staphylococcus aureus* (MRSA) pyruvate kinase as novel antimicrobial agents**

Nag S. Kumar, Emily A. Amandoron, Artem Cherkasov, B. Brett Finlay, Huansheng Gong, Linda Jackson, Sukhbir Kaur, Tian Lian, Anne Moreau, Christophe Labrière, Neil E. Reiner, Raymond H. See, Natalie C. Strynadka, Lisa Thorson, Edwin W.Y. Wong, Liam Worrall, Roya Zoraghi, Robert N. Young*

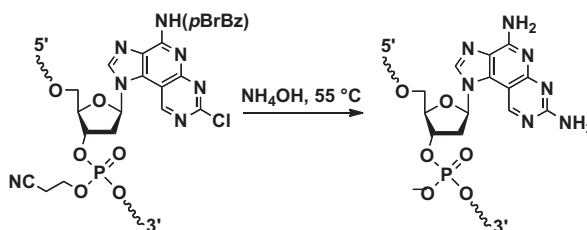
In silico and in vitro enzyme screening identified a benzimidazole hydrazone (**8d**) as a lead inhibitor of methicillin-resistant *Staphylococcus aureus* (MRSA) pyruvate kinase (PK) but without significant antibacterial activity. Structural and structure–activity studies have shown that this series binds in a novel allosteric binding site unique to bacterial PK. The original series was optimized for enzyme inhibition activity to identify indole analogs, such as **7g**, with nanomolar potency as inhibitors of MRSA PK, with high selectivity over human PK isoforms and which exhibit minimum inhibitory concentrations (MIC) for MRSA as potent as 1 µg/ml.

**Synthesis and biological evaluation of 2-substituted-4-(3',4',5'-trimethoxyphenyl)-5-aryl thiazoles as anticancer agents**

Romeo Romagnoli*, Pier Giovanni Baraldi*, Maria Kimatrai Salvador, M. Encarnacion Camacho, Delia Preti, Mojgan Aghazadeh Tabrizi, Marcella Bassetto, Andrea Brancale, Ernest Hamel, Roberta Bortolozzi, Giuseppe Basso, Giampietro Viola*

**A practical post-modification synthesis of oligodeoxynucleotides containing 4,7-diaminoimidazo[5',4':4,5]pyrido[2,3-d]pyrimidine nucleoside**

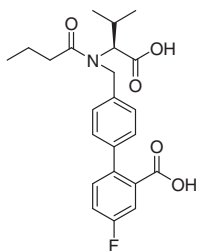
Noriko Tarashima, Yosuke Higuchi, Yasuo Komatsu, Noriaki Minakawa*



Synthesis and biological evaluation of new fluorine substituted derivatives as angiotensin II receptor antagonists with anti-hypertension and anti-tumor effects

pp 7101–7111

Ya-jing Da, Wei-dong Yuan, Ting Xin, Yong-yan Nie, Ying Ye, Yi-jia Yan, Li-sha Liang, Zhi-long Chen*



Compound 4

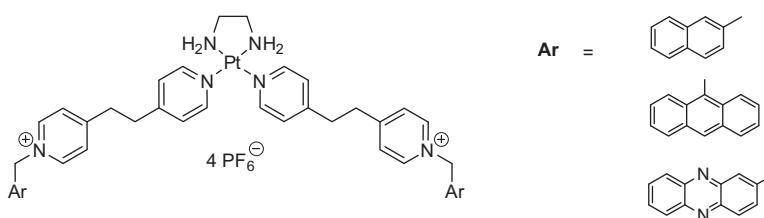
Compound **4** has a high affinity to AT₁ receptor and efficient anti-hypertensive effect. Furthermore, it can inhibit the growth of prostate cancer cells and tumors.



Synthesis and DNA interaction of ethylenediamine platinum(II) complexes linked to DNA intercalants

pp 7112–7118

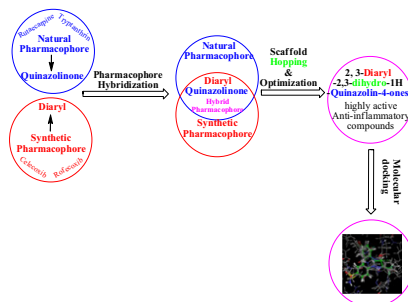
Katerina Duskova, Sara Sierra, María-José Fernández, Lourdes Gude, Antonio Lorente*



Analogue-based design, synthesis and docking of non-steroidal anti-inflammatory agents. Part 2: Methyl sulfanyl/methyl sulfonyl substituted 2,3-diaryl-2,3-dihydro-1H-quinazolin-4-ones

pp 7119–7127

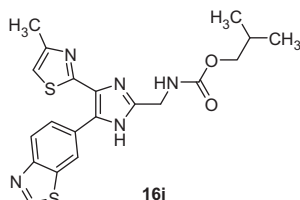
E. Manivannan*, S. C. Chaturvedi



5-(1,3-Benzothiazol-6-yl)-4-(4-methyl-1,3-thiazol-2-yl)-1H-imidazole derivatives as potent and selective transforming growth factor- β type I receptor inhibitors

pp 7128–7138

Hideaki Amada*, Yoshinori Sekiguchi, Naoya Ono, Takeshi Koami, Tetsuo Takayama, Tetsuya Yabuuchi, Hironori Katakai, Akiko Ikeda, Mari Aoki, Takumi Naruse, Reiko Wada, Akiko Nozoe, Masakazu Sato



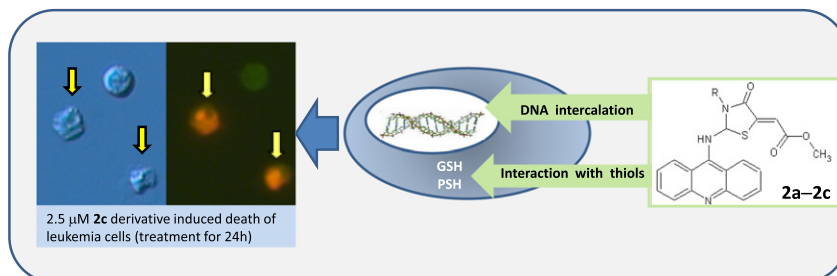
16i

ALK5 IC₅₀ = 5.5 nM
Smad2/3 IC₅₀ = 36 nM

DNA binding acridine–thiazolidinone agents affecting intracellular glutathione

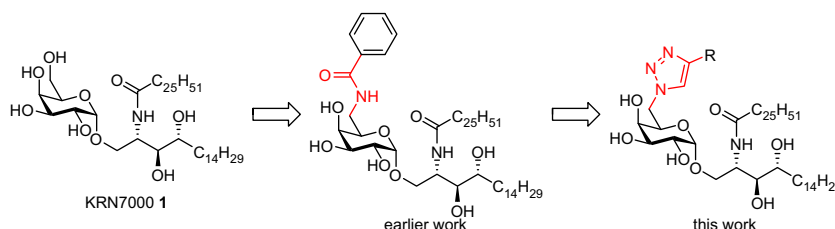
pp 7139–7148

Helena Paulíková*, Zuzana Vantová, L'uba Hunáková, Lýdia Čížeková, Mária Čarná, Mária Kožurková, Danica Sabolová, Pavol Kristian, Slávka Hamul'áková, Ján Imrich

**Synthesis of 6''-triazole-substituted α -GalCer analogues as potent iNKT cell stimulating ligands**

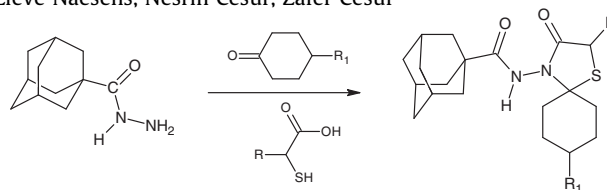
pp 7149–7154

Nora Pauwels, Sandrine Aspeslagh, Dirk Elewaut, Serge Van Calenbergh*

**Microwave assisted synthesis and anti-influenza virus activity of 1-adamantyl substituted N-(1-thia-4-azaspiro[4.5]decan-4-yl)carboxamide derivatives**

pp 7155–7159

Füsun Göktas*, Evelien Vanderlinden, Lieve Naesens, Nesrin Cesur, Zafer Cesur

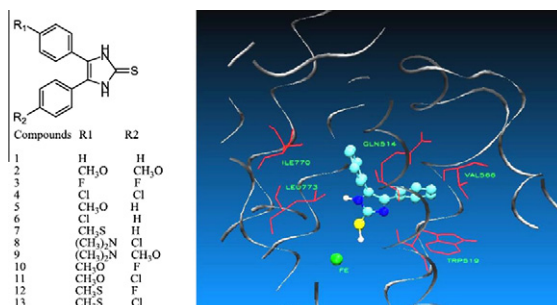


The novel 1-adamantyl substituted N-(1-thia-4-azaspiro[4.5]decan-4-yl)carboxamides derived from adamantane-1-carbohydrazide were synthesized and tested for the antiinfluenza activity.

Synthesis and SAR study of 4,5-diaryl-1H-imidazole-2(3H)-thione derivatives, as potent 15-lipoxygenase inhibitors

pp 7160–7166

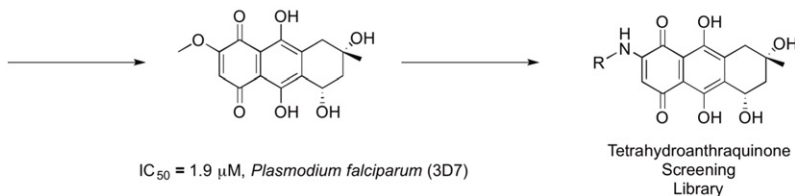
Amir Assadieskandar, Mohsen Amini, Marjan Salehi, Hamid Sadeghian, Maliheh Alimardani, Amirhossein Sakhteman, Hamid Nadri, Abbas Shafiee*



Synthesis and antimalarial evaluation of a screening library based on a tetrahydroanthraquinone natural product scaffold

pp 7167–7174

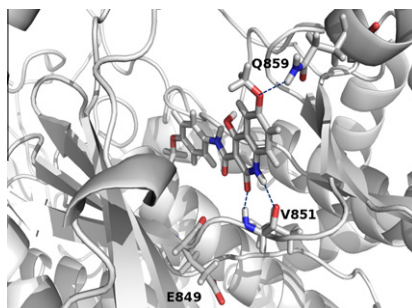
Vanida Choomuenwai, Katherine T. Andrews, Rohan A. Davis*



N-Phenyl-4-hydroxy-2-quinolone-3-carboxamides as selective inhibitors of mutant H1047R phosphoinositide-3-kinase (PI3K α)

pp 7175–7183

Dima A. Sabbah, Neka A. Simms, Wang Wang, Yuxiang Dong, Edward L. Ezell, Michael G. Brattain, Jonathan L. Vennerstrom, Haizhen A. Zhong*

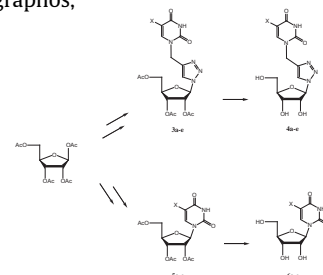


Triazole pyrimidine nucleosides as inhibitors of Ribonuclease A. Synthesis, biochemical, and structural evaluation

pp 7184–7193

Vanessa Parmenopoulou, Demetra S. M. Chatzileontiadou, Stella Manta, Stamatina Bougiatioti, Panagiotis Maragozidis, Dimitra-Niki Gkaragkouni, Eleni Kaffesaki, Anastassia L. Kantsadi, Vassiliki T. Skamnaki, Spyridon E. Zographos, Panagiotis Zounpoulakis, Nikolaos A. A. Balatsos*, Dimitris Komiotis*, Demetres D. Leonidas*

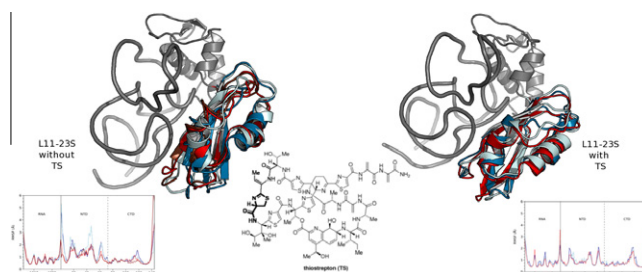
The synthesis of 1,2,3-triazole 5-substituted uracil furanonucleosides **4a–e** and 5-substituted uridines **6a–e**, is reported. The presence of the triazole group between the sugar and the base of the inhibitor is of primary importance for efficient inhibition, while the insertion of a substituent at the 5-pyrimidine position results to a less potent inhibitor of Ribonuclease A.



Influence of thiostrepton binding on the ribosomal GTPase associated region characterized by molecular dynamics simulation

pp 7194–7205

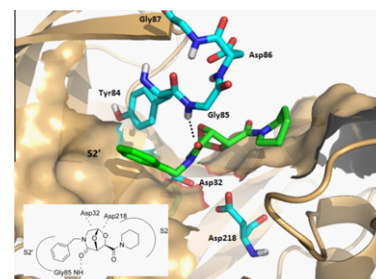
Antje Wolf, Sascha Baumann, Hans-Dieter Arndt, Karl N. Kirschner*



Bicyclic peptidomimetics targeting secreted aspartic protease 2 (SAP2) from *Candida albicans* reveal a constrained inhibitory chemotype

pp 7206–7213

Chiara Calugi, Andrea Trabocchi*, Flavia De Bernardis, Silvia Arancia, Pierluigi Navarra, Roberto Cauda, Antonio Cassone, Antonio Guarna*



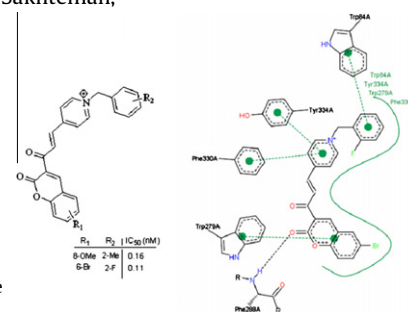
The binding mode of a panel of bicyclic aspartic protease inhibitors towards SAP2 of *Candida albicans* was assessed through enzyme inhibition assays and molecular modeling studies on a panel of stereoisomeric compounds.



Novel coumarin derivatives bearing *N*-benzyl pyridinium moiety: Potent and dual binding site acetylcholinesterase inhibitors

pp 7214–7222

Masoumeh Alipour, Mehdi Khoobi, Alireza Foroumadi, Hamid Nadri, Alireza Moradi, Amirhossein Sakhteman, Mehdi Ghandi, Abbas Shafiee*



A novel series of coumarin derivatives linked to benzyl pyridinium group were achieved as potent and dual binding site acetylcholinesterase inhibitors.

*Corresponding author

Supplementary data available via SciVerse ScienceDirect

COVER

Dipyrone (metamizol) is a common antipyretic drug and the most popular non-opioid analgesic in many countries. In spite of its long and widespread use, molecular details of its fate in the body are not fully known. Two unknown metabolites were now found, viz. arachidonoyl amides, and positively tested for cannabis receptor binding (CB1 and CB2) and cyclooxygenase inhibition. Two more puzzle pieces of the dipyrone story found! (Rogosch, T.; Sinning, C.; Podlewski, A.; Watzer, B.; Schlosburg, J.; Lichtman, A.H.; Cascio, M.G.; Bisogno, T.; Di Marzo, V.; Nüsing, R.; Imming, P. *Bioorg. Med. Chem.* **2012**, *20*, 103–109.)

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