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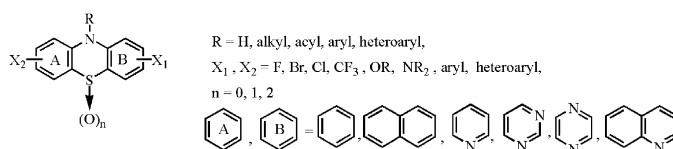
Contents

INVITED REVIEW ARTICLE

Recent progress in biological activities of synthesized phenothiazines

pp. 3179–3189

Krystian Pluta*, Beata Morak-Młodawska and Małgorzata Jeleni



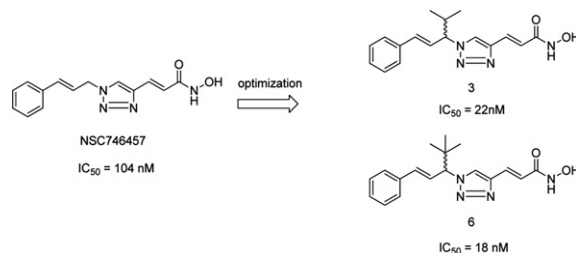
ORIGINAL ARTICLES

Structure-based optimization of click-based histone deacetylase inhibitors

pp. 3190–3200

Jingli Hou, Congran Feng, Zhonghua Li, Qinghong Fang, Huihui Wang, Guoxian Gu, Yikang Shi, Pi Liu, Feng Xu, Zheng Yin, Jie Shen* and Peng Wang

Optimization of lead compound NSC746457 led to identification of two compounds with potent activity against HDAC enzymes.

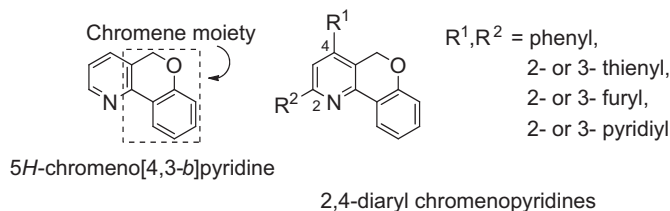


Synthesis of 2,4-diaryl chromenopyridines and evaluation of their topoisomerase I and II inhibitory activity, cytotoxicity, and structure–activity relationship

pp. 3201–3209

Uttam Thapa, Pritam Thapa, Radha Karki, Minh Yun, Jae Hun Choi, Yurngdong Jahng,

Eunyoung Lee, Kyung-Hwa Jeon, Younghwa Na, Eun-Mi Ha, Won-Jea Cho, Youngjoo Kwon* and Eung-Seok Lee**

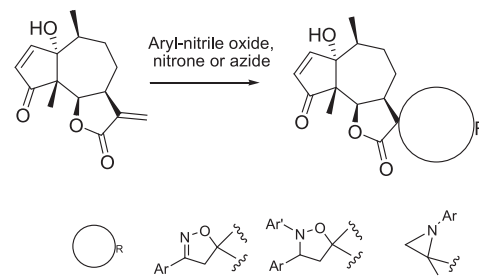


Design and synthesis of spiro derivatives of parthenin as novel anti-cancer agents

pp. 3210–3217

Doma Mahendhar Reddy, Naveed A. Qazi, Sanghpal D. Sawant, Abid H. Bandey, Jada Srinivas, Mannepalli Shankar, Shashank K. Singh, Monika Verma, Gousia Chashoo, Arpita Saxena, Dilip Mondhe, Ajit K. Saxena, V.K. Sethi, Subhash C. Taneja, Gulam N. Qazi and H.M. Sampath Kumar*

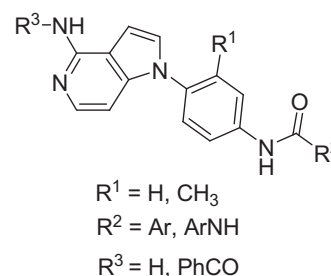
Novel spiro derivatives of parthenin exhibited improved cytotoxicity as revealed by *in vitro* screening and *in vivo* testing of select analogs exhibited better anti-cancer activity with least mammalian toxicity as compared to parthenin.

**Design, synthesis, and antiproliferative activity of new 1H-pyrrolo[3,2-c]pyridine derivatives against melanoma cell lines**

pp. 3218–3226

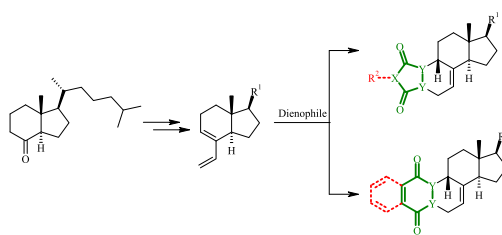
Mohammed I. El-Gamal, Myung-Ho Jung, Taebo Sim and Chang-Hyun Oh*

A series of diarylureas and diarylamides possessing 1H-pyrrolo[3,2-c]pyridine scaffold was synthesized. Their *in vitro* antiproliferative activities against human melanoma cell lines and NIH3T3 fibroblasts were evaluated.

**Cytotoxic ring A-modified steroid analogues derived from Grundmann's ketone**

pp. 3227–3236

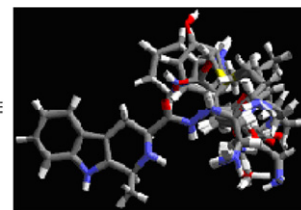
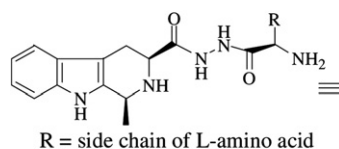
Christoph D. Mayer* and Franz Bracher

**A class of oral N-[(1S,3S)-1-methyl-1,2,3,4-tetrahydro-β-carboline-3-carbonyl]-N'-(amino-acid-acyl)hydrazine: Discovery, synthesis, *in vitro* anti-platelet aggregation/*in vivo* anti-thrombotic evaluation and 3D QSAR analysis**

pp. 3237–3249

Kun Yao, Ming Zhao*, Xiaoyi Zhang, Yuji Wang, Li Li, Meiqing Zheng and Shiqi Peng**

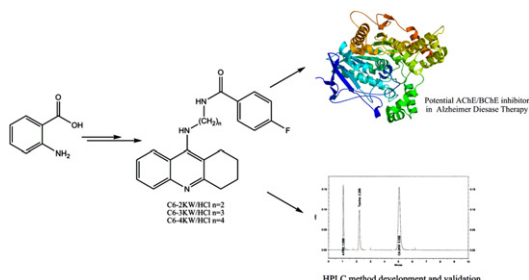
Eighteen novel N-[(1S,3S)-1-methyl-1,2,3,4-tetrahydro-β-carboline-3-carbonyl]-N'-(amino-acid-acyl)hydrazines were explored having stretching conformation and to be orally anti-thrombotic active at a dose of 10 nmol/kg for the first time.



Synthesis, biological activity and HPLC validation of 1,2,3,4-tetrahydroacridine derivatives as acetylcholinesterase inhibitors

pp. 3250–3257

Paweł Szymanski, Adam Karpiński* and Elzbieta Mikiciuk-Olasik

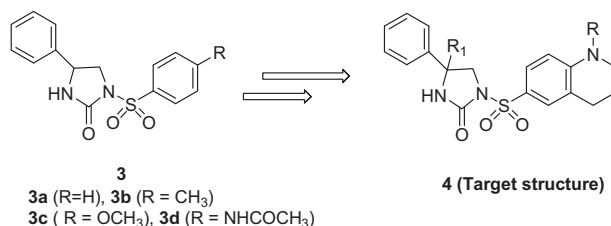


Structure–activity relationship studies of novel arylsulfonylimidazolidinones for their anticancer activity

pp. 3258–3264

Santhosh Subramanian, Nam-Soo Kim, Pillaiyar Thanigaimalai, Vinay K. Sharma, Ki-Cheul Lee, Jong Seong Kang, Hwan-Mook Kim and Sang-Hun Jung*

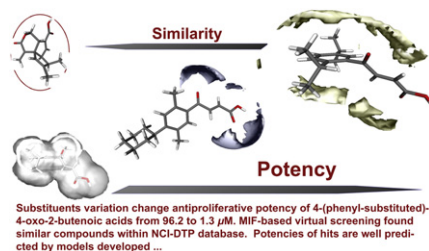
To define the SAR, a series of novel *N*-arylsulfonylimidazolidinone derivatives were designed, synthesized and tested for their *in vitro* and *in vivo* anticancer activity.



Antiproliferative activity of aroylacrylic acids. Structure–activity study based on molecular interaction fields

pp. 3265–3273

Branko J. Drakulić*, Tatjana P. Stanojković, Željko S. Žizak and Milan M. Dabović

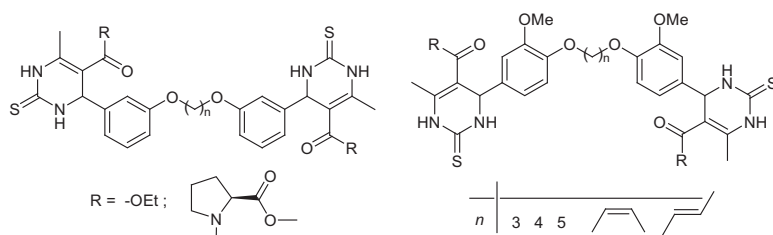


Synthesis and biological evaluation of conformationally flexible as well as restricted dimers of monastrol and related dihydropyrimidones

pp. 3274–3281

Ahmed Kamal*, M. Shaheer Malik, Shaik Bajee, Shaik Azeza, Shaikh Faazil, Sistla Ramakrishna, V.G.M. Naidu and M.V.P.S. Vishnuwardhan

Conformationally flexible, restricted dimers of monastrol and related dihydropyrimidones were synthesized by Biginelli protocol. Some of the dimers on evaluation for anticancer, antimicrobial properties and DNA binding ability provided promising results.

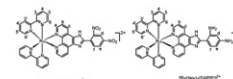


Synthesis, cellular uptake, apoptosis, cytotoxicity, cell cycle arrest, interaction with DNA and antioxidant activity of ruthenium(II) complexes

pp. 3282–3290

Hong-Liang Huang, Zheng-Zheng Li, Zhen-Hua Liang, Jun-Hua Yao and Yun-Jun Liu*

Ruthenium(II) complexes $[\text{Ru}(\text{bpy})_2(\text{DNPIP})]^{2+}$ (**1**) and $[\text{Ru}(\text{bpy})_2(\text{DAPIP})]^{2+}$ (**2**) were synthesized. The DNA-binding behaviors were investigated. The cytotoxicity was evaluated by MTT method. The apoptosis and cellular uptake were also studied.



Scheme 1 The structure of complexes

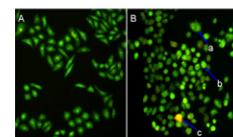


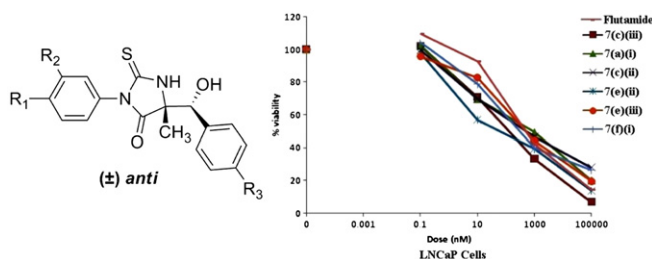
Fig. 8 BRL-782 cells were stained by AOT-EB and observed under fluorescence microscopy. BRL-782 cells without treatment (A) and in the presence of complex 1 (B) incubated at 37 °C and 5% CO₂ for 48 h. Cells in A, B and C are living, apoptotic and necrotic cells, respectively.

Aldol derivatives of Thioxoimidazolidinones as potential anti-prostate cancer agents

pp. 3291–3301

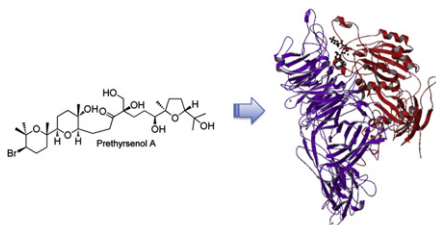
Gopal L. Khatik, Jasmine Kaur, Varun Kumar, Kulbhushan Tikoo, P. Venugopalan and Vipin A. Nair*

The *anti* aldol products, 3-(substituted phenyl)-5-[(substituted phenyl) hydroxy methyl]-5-methyl-4-oxo-2-thioxoimidazolidinones were synthesized and screened for anti-prostate cancer activities on PC-3 and LNCaP cell lines.

**Cytotoxic oxasqualenoids from the red alga *Laurencia viridis***

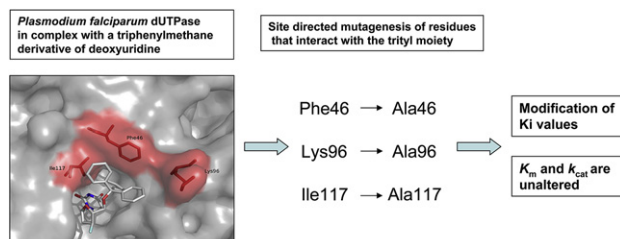
pp. 3302–3308

Francisco Cen-Pacheco, Janny A. Villa-Pulgarin, Faustino Mollinedo, Manuel Norte, Antonio H. Daranas* and José J. Fernández*

**Site-directed mutagenesis provides insights into the selective binding of trityl derivatives to *Plasmodium falciparum* dUTPase**

pp. 3309–3314

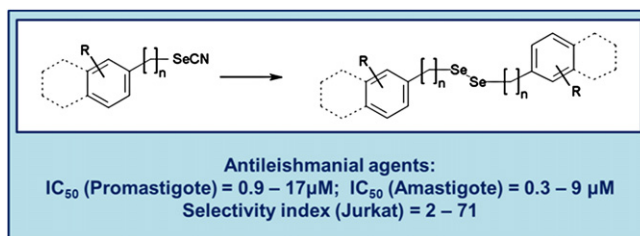
Eliseo Recio, Alexander Musso-Buendía, Antonio E. Vidal, Gian Filippo Ruda, Ganasan Kasinathan, Corinne Nguyen, Luis Miguel Ruiz-Pérez, Ian H. Gilbert and Dolores González-Pacanoska*



Selenocyanates and diselenides: A new class of potent antileishmanial agents

pp. 3315–3323

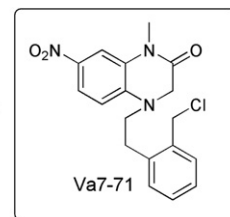
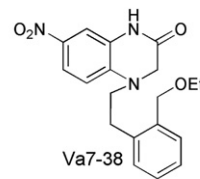
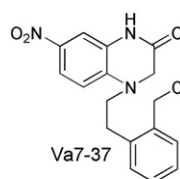
Daniel Plano, Ylenia Baquedano, David Moreno-Mateos, María Font, Antonio Jiménez-Ruiz, Juan Antonio Palop* and Carmen Sanmartín

**Ligand-based discovery of novel trypanosomicidal drug-like compounds: *In silico* identification and experimental support**

pp. 3324–3330

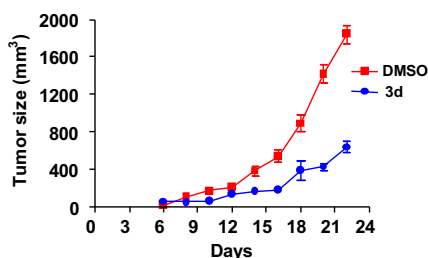
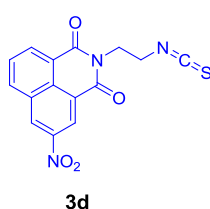
Juan Alberto Castillo-Garit*, Maria Celeste Vega, Miriam Rolón, Yovani Marrero-Ponce, Alicia Gómez-Barrio, José A. Escario, Alfredo Alvarez Bello, Alina Montero, Francisco Torrens, Facundo Pérez-Giménez, Vicente J. Arán and Concepción Abad

Two QSAR models to identify new trypanosomicidal compounds were developed. Three compounds showed more than 70% of anti-epimastigote elimination at 10 μ g/mL. Additionally, compound Va7-71 has a 100% of intracellular amastigote elimination.

**Development of novel naphthalimide derivatives and their evaluation as potential melanoma therapeutics**

pp. 3331–3338

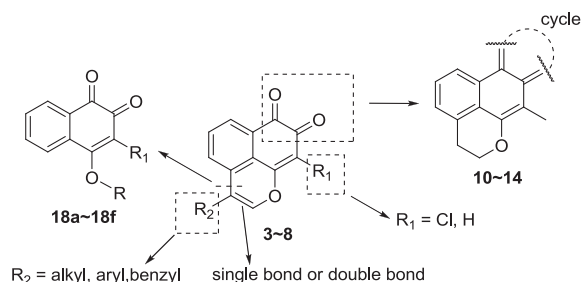
Ugir Hossain Sk, A.S. Prakasha Gowda, Melissa A. Crampsie, Jong K. Yun, Thomas E. Spratt, Shantu Amin and Arun K. Sharma*

**Synthesis and evaluation of mansonone F derivatives as topoisomerase inhibitors**

pp. 3339–3347

Wei-Bin Wu, Jie-Bin Ou, Zhi-Hong Huang, Shuo-Bin Chen, Tian-Miao Ou, Jia-Heng Tan, Ding Li, Liu-Lan Shen, Shi-Liang Huang**, Lian-Quan Gu and Zhi-Shu Huang*

Various novel mansonone F derivatives were designed and synthesized for SARs study, and some of these compounds showed significant stronger inhibition against topoisomerase II than a positive control Etoposide.

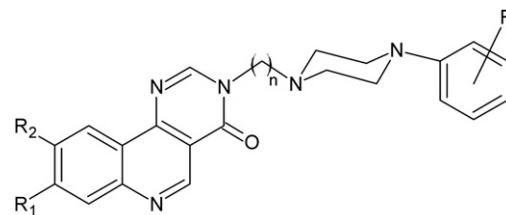


Synthesis and structural investigation of some pyrimido[5,4-c]quinolin-4(3H)-one derivatives with a long-chain arylpiperazine moiety as potent 5-HT_{1A/2A} and 5-HT₇ receptor ligands

pp. 3348–3361

Wiesława Lewgowd, Andrzej J. Bojarski, Małgorzata Szczesio, Andrzej Olczak, Marek L. Glowka, Stefan Mordalski and Andrzej Stanczak*

The synthesis and serotonergic activity (5-HT_{1A/2A/7} receptors) of a novel series of pyrimido[5,4-c]quinolones with a long-chain arylpiperazine moiety are reported. The conformations of the polymethylene chain of LCAPs are thoroughly studied and discussed in details.



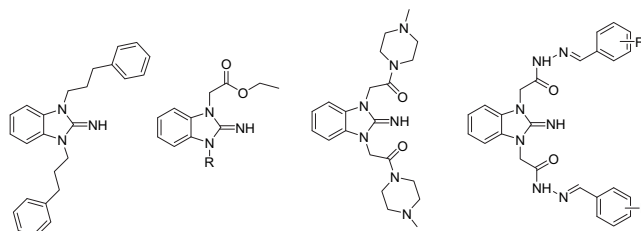
R₁, R₂ = H, CH₃; R = H, OCH₃, Cl, F; n = 2–4

Synthesis, characterization and cytotoxicity of some novel 1,3-disubstituted-2,3-dihydro-2-iminobenzimidazoles

pp. 3362–3367

Anelia Ts. Mavrova*, Diana Wesselinova, Nikolay Vassilev and Jordan A. Tsenov

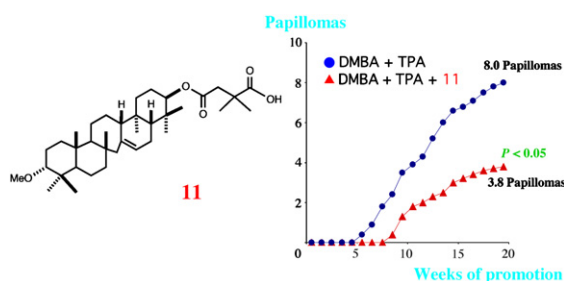
Novel derivatives of 2,3-dihydro-2-iminobenzimidazoles were synthesized and evaluated for their cytotoxicity. High cytotoxicity was ascertained in test *in vitro* against HT-29, MDA-MB-231 cells and a general stimulating effect on normal spleen cells.



Conjugates of 3 α -methoxyserrat-14-en-21 β -ol (PJ-1) and 3 β -methoxyserrat-14-en-21 β -ol (PJ-2) as cancer chemopreventive agents

pp. 3368–3375

Reiko Tanaka*, Hiroko Tsujii, Takeshi Yamada, Tetsuya Kajimoto, Harukuni Tokuda, Takanari Arai, Nobutaka Suzuki, Junya Hasegawa, Yoshio Hamashima and Manabu Node

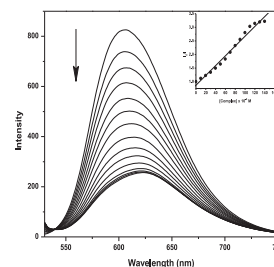


Evaluation of DNA binding, DNA cleavage, protein binding and *in vitro* cytotoxic activities of bivalent transition metal hydrazone complexes

pp. 3376–3387

P. Krishnamoorthy, P. Sathyadevi, Alan H. Cowley, Rachel R. Butorac and N. Dharmaraj*

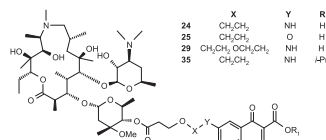
Synthesis, structural elucidation and interaction with DNA, protein, cytotoxicity studies were carried out on biologically important transition metal hydrazone complexes.



Synthesis, activity and pharmacokinetics of novel antibacterial 15-membered ring macrolones

pp. 3388–3397

Andrea Fajdetić*, Adrijana Vinter, Hana Čipčić Paljetak, Jasna Padovan, Ivana Palej Jakopović, Samra Kapić, Sulejman Alihodžić, Darko Filić, Marina Modrić, Nada Košutić-Hulita, Roberto Antolović, Zrinka Ivezić Schoenfeld, Stjepan Mutak, Vesna Eraković Haber and Radan Spaventi



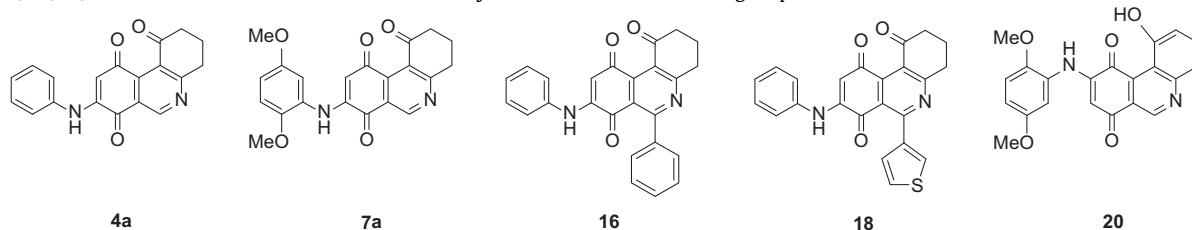
| Cpd | CL mL/min/kg | IV Vd L/kg | $t_{1/2}$ h | PO Oral F % |
|-----|-----------------|------------------|----------------|-------------------|
| 24 | 26.3 | 19.2 | 8.4 | 3.1 |
| 25 | 18.6 | 16.7 | 10.4 | <1 |
| 29 | 13.2 | 10.7 | 9.1 | 10.7 |
| 35 | 9.0 | 20.7 | 26.6 | 10.7 |

Studies on quinones. Part 47. Synthesis of novel phenylaminophenanthridinequinones as potential antitumor agents

pp. 3398–3409

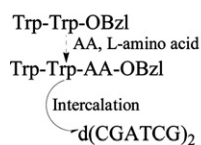
Jaime A. Valderrama*, Andrea Ibacache, Jaime A. Rodriguez, Cristina Theoduloz and Julio Benites

A variety of novel phenylaminophenanthridinequinones were synthesized to evaluate their antitumor activity. Among the members of the series, quinones **4a**, **7a**, **16**, **18** and **20** exhibited similar or better activity to that of the reference drug etoposide.

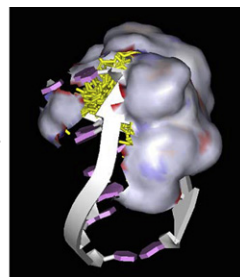
**A class of Trp-Trp-AA-OBzl: Synthesis, *in vitro* anti-proliferation/*in vivo* anti-tumor evaluation, intercalation-mechanism investigation and 3D QSAR analysis**

pp. 3410–3419

Xiaoyi Zhang, Yifan Yang, Ming Zhao**, Liu Liu, Meiqing Zheng, Yuji Wang, Jianhui Wu and Shiqi Peng*



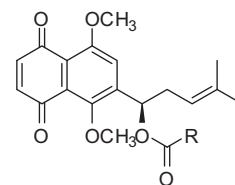
Twenty novel Trp-Trp-AA-OBzls were explored as DNA intercalators for the first time

**Semi-synthesis and antitumor activity of 6-isomers of 5, 8-O-dimethyl acylshikonin derivatives**

pp. 3420–3427

Wen Zhou, Xu Zhang, Ling Xiao, Jing Ding, Quan-Hua Liu and Shao-Shun Li*

A series of the 6-isomers of 5, 8-O-dimethyl acylshikonin derivatives were synthesized and evaluated for their cytotoxicities. The *in vivo* antitumor activities of two corresponding isomers were also compared.

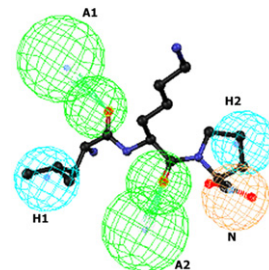


Angiotensin-I-converting enzyme inhibitory peptides: Chemical feature based pharmacophore generation

pp. 3428–3433

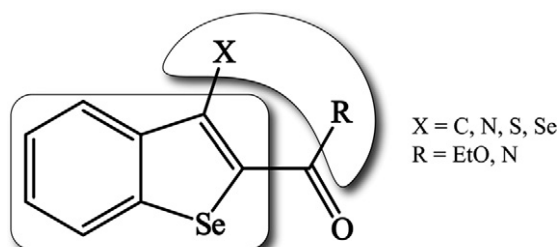
Zhanli Wang, Saisai Zhang, Hongwei Jin, Wei Wang, Jianxin Huo, Lishe Zhou, Yongfu Wang, Fengqin Feng* and Liangren Zhang**

3D pharmacophore model for ACE inhibitory peptides was generated.

**Synthesis, structure and cytotoxicity of 3-C, N, S, Se substituted benzo[b]selenophene derivatives**

pp. 3434–3443

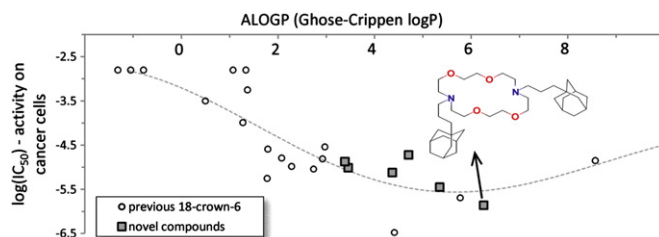
Pavel Arsenyan*, Edgars Paegle, Sergey Belyakov, Irina Shestakova, Elina Jaschenko, Ilona Domracheva and Juris Popelis

**Could LogP be a principal determinant of biological activity in 18-crown-6 ethers? Synthesis of biologically active adamantane-substituted diaza-crowns**

pp. 3444–3454

Fran Supek, Tatjana Šumanovac Ramljak, Marko Marjanović, Maja Buljubašić, Goran Kragol, Nataša Ilić, Tomislav Šmuc, Davor Zahradka, Kata Mlinarić-Majerski** and Marijeta Kralj*

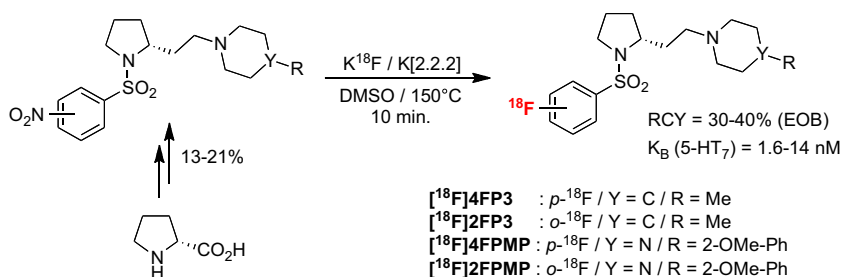
Among a variety of molecular descriptors tested, the logP was found to have the prominent role in determining biological activity of oxa-, monoaza- and diaza-18-crown-6 ether derivatives. Six novel adamantane-substituted compounds had logP values close to the optimum of 5.5 and were accordingly highly active against cancer cell lines.

**Synthesis and biological evaluation of potential 5-HT₇ receptor PET radiotracers**

pp. 3455–3461

Julien Andries, Laetitia Lemoine, Didier Le Bars, Luc Zimmer and Thierry Billard*

Four radioligands of 5-HT₇ receptors, labelled with fluorine-18, have been designed and synthesized. Their studies as potential PET radiotracers were discussed.

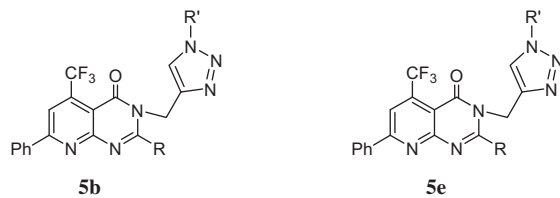


Synthesis of novel alkyltriazole tagged pyrido[2,3-d]pyrimidine derivatives and their anticancer activity

pp. 3462–3468

C. Kurumurthy, P. Sambasiva Rao, B. Veera swamy, G. Santhosh kumar, P. Shanthan Rao, B. Narsaiah*, L.R. Velatooru, R. Pamanji and J. Venkateswara Rao

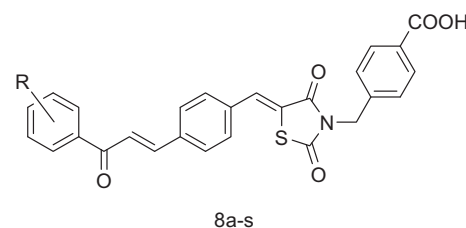
A series of novel alkyltriazole tagged pyrido[2,3-d]pyrimidine derivatives **5** and **6** was prepared, screened for anticancer activity against three cancer cell lines and identified promising compounds **5b** and **5e**.

**5b)** R = H, R' = CH₃-(CH₂)₈-CH₂-**5e)** R = CH₃, R' = CH₃-(CH₂)₈-CH₂-**Synthesis of new chalcone derivatives bearing 2,4-thiazolidinedione and benzoic acid moieties as potential anti-bacterial agents**

pp. 3469–3473

Xiao-Fang Liu, Chang-Ji Zheng, Liang-Peng Sun, Xue-Kun Liu and Hu-Ri Piao*

A series of new chalcone derivatives bearing 2,4-thiazolidinedione and benzoic acid moieties were synthesized, characterized, and evaluated for their anti-bacterial activity.

**8-Aryl- and alkyloxycaffeine analogues as inhibitors of monoamine oxidase**

pp. 3474–3485

Belinda Strydom, Jacobus J. Bergh and Jacobus P. Petzer*

The synthesis of 8-aryl- and alkyloxycaffeine analogues (**5**) with enhanced MAO-B inhibition potencies compared the lead compound, 8-benzyloxycaffeine (**2**).

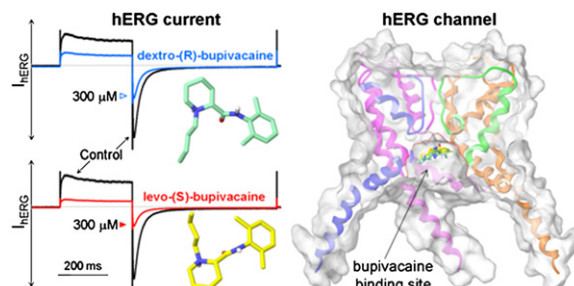
| | R | IC ₅₀ MAO-B (human) μM |
|-----------|---|-----------------------------------|
| 2 | C ₆ H ₅ CH ₂ - | 1.77 |
| 5a | C ₆ H ₅ (CH ₂) ₃ - | 0.615 |
| 5i | C ₆ H ₅ OCH ₂ CH ₂ - | 0.383 |
| 5k | (CH ₃) ₂ CH(CH ₂) ₄ - | 0.381 |

Block of the hERG channel by bupivacaine: Electrophysiological and modeling insights towards stereochemical optimization

pp. 3486–3498

Liliana Sintra Grilo, Pierre-Alain Carrupt, Hugues Abriel and Antoine Daina*

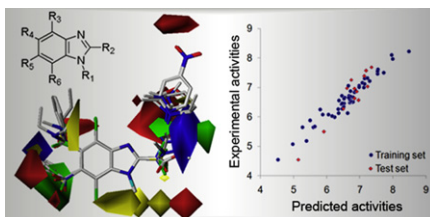
Block of the hERG channel by drugs may increase the risk of arrhythmias. This study strives to understand the principles underlying stereoselective block through mutagenesis analyses and molecular modeling simulations.



Comparative molecular field analysis (CoMFA) and comparative molecular similarity indices analysis (CoMSIA) of some benzimidazole derivatives with trichomonocidal activity

pp. 3499–3508

Jaime Pérez-Villanueva, José L. Medina-Franco, Thomas R. Caulfield, Alicia Hernández-Campos, Francisco Hernández-Luis, Lilián Yépez-Mulia and Rafael Castillo*

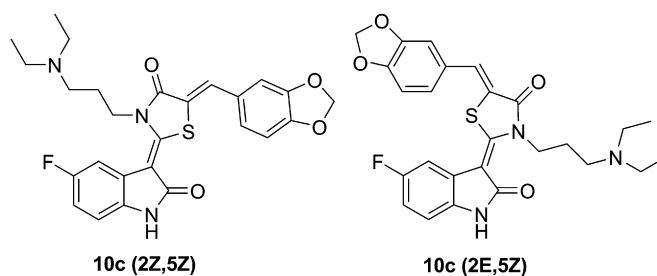


Design, synthesis and biological evaluation of novel 4-thiazolidinones containing indolin-2-one moiety as potential antitumor agent

pp. 3509–3518

Shuobing Wang, Yanfang Zhao, Guogang Zhang, Yingxiang Lv, Ning Zhang and Ping Gong*

The cytotoxic activity of 4-thiazolidinone and indolin-2-one hybrid compound **10c** (IC_{50} = 0.025 μ M, 0.075 μ M, 0.77 μ M, 1.95 μ M) was significant against HT-29, H460, MDA-MB-231 and SMMC-7721 cancer cell line, respectively.

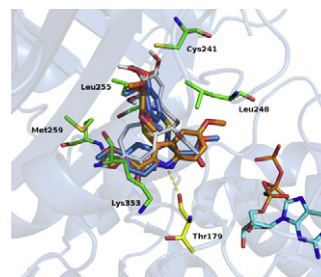


Molecular modelling studies on Arylthioindoles as potent inhibitors of tubulin polymerization

pp. 3519–3525

Antonio Coluccia*, Davide Sabbadin and Andrea Brancale

Molecular modelling studies on the binding of Arylthioindoles to tubulin colchicine site.



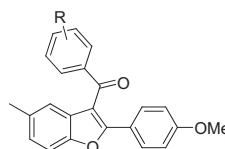
SHORT COMMUNICATIONS

Synthesis and antimicrobial evaluation of new benzofuran derivatives

pp. 3526–3530

Xizhen Jiang, Wenlu Liu, Wei Zhang, Faqin Jiang, Zhe Gao, Hao Zhuang and Lei Fu*

Synthesis, characterization, antibacterial and antifungal properties of some novel benzofurans have been described.



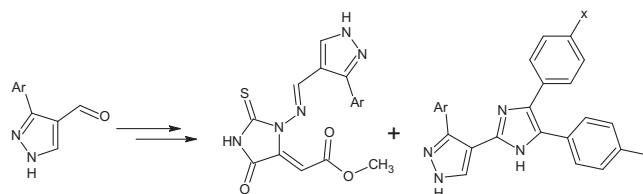
Minimum Inhibitory Concentration (μ g/mL)

| R | <i>E. coli</i> | <i>S. aureus</i> | MRSA | <i>B. subtilis</i> |
|------------|----------------|------------------|------|--------------------|
| 4-OH | 0.78 | <0.39 | 0.78 | 0.78 |
| 4-OH-3-Me | 0.78 | 0.78 | 0.78 | 1.56 |
| 3-OH-5-OMe | 0.78 | <0.39 | 0.78 | 0.78 |
| 4-OH-3-I | 3.12 | 0.78 | 0.78 | 1.56 |

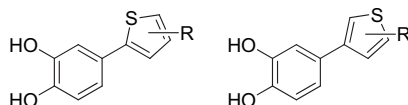
Synthesis, characterization and antimicrobial studies of some new pyrazole incorporated imidazole derivatives**pp. 3531–3536**

A.M. Vijesh, Arun M. Isloor*, Sandeep Telkar, S.K. Peethambar, Sankappa Rai and Nishitha Isloor

Two series of novel substituted imidazole derivatives containing substituted pyrazole moiety were synthesized, characterized and their antimicrobial studies were performed.

**PRELIMINARY COMMUNICATION****Growth inhibition of *Escherichia coli* and methicillin-resistant *Staphylococcus aureus* by targeting cellular methionine aminopeptidase****pp. 3537–3540**

Sergio C. Chai, Wen-Long Wang, De-Rong Ding and Qi-Zhuang Ye*



Antibacterial methionine aminopeptidase inhibitors

CORRIGENDUM**Corrigendum to “Viral surface glycoproteins, Gp120 and Gp41, as potential drug targets against HIV-1: Brief overview one quarter of a century past the approval of zidovudine, the first anti-retroviral drug” [Eur. J. Med. Chem. 46(4) (2011) 979–992]****p. 3541**

Cátia Teixeira, José R.B. Gomes, Paula Gomes* and François Maurel

COVER

An evaluation of hsp90 inhibitors chemical diversity has been performed. 2D-molecular descriptors, principal component analysis and fragment-based approach have been used to explore their chemical space. 45/5, P2000-2009 by Davide Audisio, Samir Messaoudi, Ismail Ijjaali, Elodie Dubus, François Petit, Jean-François Peyrat, Jean-Daniel Brion, Mouâd Alami © 2010 Published by Elsevier Masson SAS

* Corresponding authors.



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