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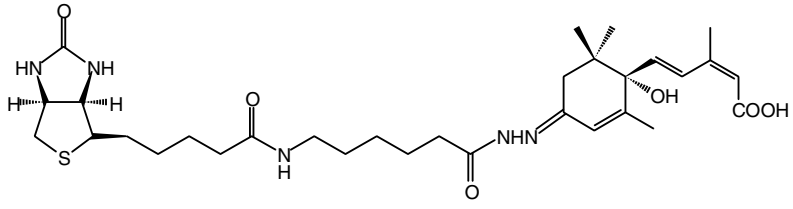
ARTICLES

Volsurf analysis of carbapenem antibiotics pp 3339–3349
Munikumar Reddy Doddareddy, Joo Hwan Cha, Yong Seo Cho, Hun Yeong Koh, Kyung Ho Yoo, Dong Jin Kim and Ae Nim Pae*

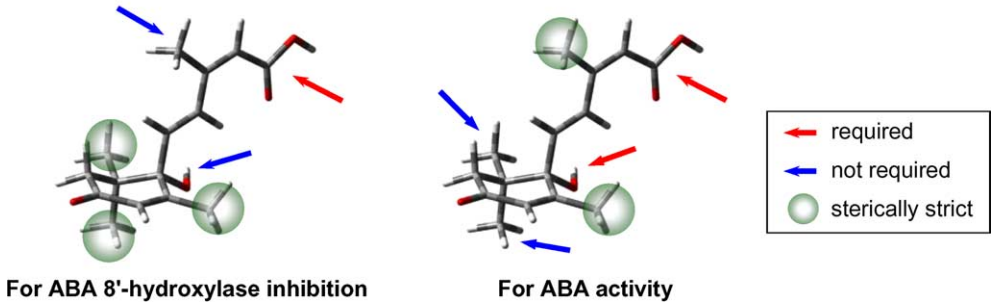
Classical Volsurf approach was applied to a set of 70 carbapenem compounds acting as antibiotics. Antibacterial activity of *Staphylococcus aureus* SG 511 and *Escherichia coli* 078 representing Gram positive and Gram negative bacteria, respectively, was used for the analysis. The score plots obtained from principal component analysis showed clustering of compounds according to the activity and their loading plots explained the Volsurf descriptors responsible for the separation or peculiar behaviour of these compounds. The generated models were validated by an external test set of 15 compounds.

Biotin-labeled abscisic acid as a probe for investigating abscisic acid binding sites on plasma membranes of barley aleurone protoplasts pp 3351–3358
Nobutaka Kitahata, Takeshi Nakano, Kazuyuki Kuchitsu, Shigeo Yoshida and Tadao Asami*

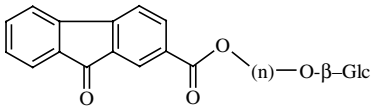


We synthesized bioABA, which possesses a biotin group at the 4′-position of ABA.

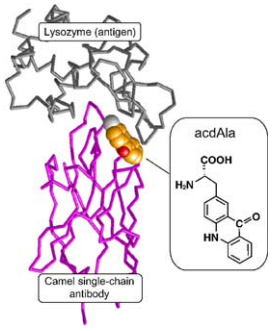
Differences between the structural requirements for ABA 8′-hydroxylase inhibition and for ABA activity pp 3359–3370
Kotomi Ueno, Yoshiharu Araki, Nobuhiro Hirai, Shigeki Saito, Masaharu Mizutani, Kanzo Sakata and Yasushi Todoroki*



Biocatalysed synthesis of β-*O*-glucosides from 9-fluorenon-2-carbohydroxyesters. Part 3: IFN-inducing and anti-HSV-2 properties pp 3371–3378
Stefano Alcaro, Adriana Arena, Rosaria Di Bella, Simonetta Neri, Rosaria Ottanà, Francesco Ortuso, Bernadette Pavone, Antonio Trincone and Maria Gabriella Vigorita*

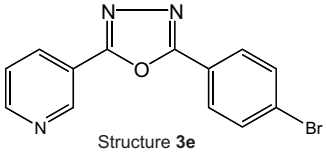


Position-specific incorporation of a highly photodurable and blue-laser excitable fluorescent amino acid into proteins for fluorescence sensing pp 3379–3384
Hiroyuki Hamada, Naoko Kameshima, Aneta Szymańska, Katarzyna Wegner, Leszek Łankiewicz, Hiroaki Shinohara, Masumi Taki and Masahiko Sisido*



2-Acridonylalanine (acdAla) can be incorporated into specific positions of proteins with high efficiency. The amino acid is highly fluorescent, highly photodurable, excitable with blue-lasers, and sensitive to environment. These properties make the acridonylalanine a promising fluorescent amino acid for sensing small molecules when incorporated into various proteins.

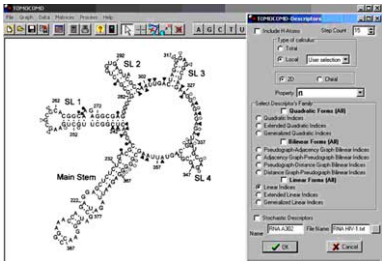
Structure–activity relationships of tyrosinase inhibitory combinatorial library of 2,5-disubstituted-1,3,4-oxadiazole analogues pp 3385–3395
Mahmud Tareq Hassan Khan,* Muhammad Iqbal Choudhary, Khalid Mohammed Khan and Mubeen Rani, Atta-ur-Rahman



Structure **3e**

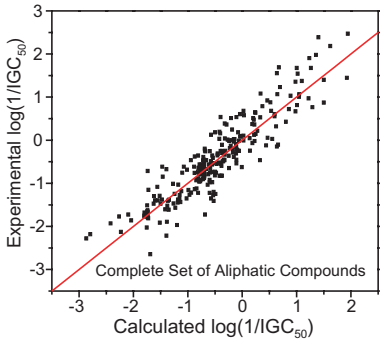
The tyrosinase inhibition studies of library of 26 analogues of the 2,5-disubstituted-1,3,4-oxadiazoles have been reported and their structure–activity relationships (SAR) also have been thrashed out. This library of tyrosinase inhibitors has been prepared under the microwave irradiation.

Linear indices of the 'macromolecular graph's nucleotides adjacency matrix' as a promising approach for bioinformatics studies. Part 1: Prediction of paromomycin's affinity constant with HIV-1 Ψ-RNA packaging region pp 3397–3404
Yovani Marrero Ponce,* Juan A. Castillo Garit and Delvin Nodarse

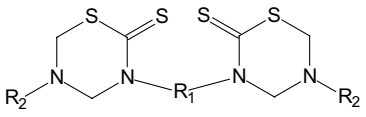


Electrophilicity as a possible descriptor for toxicity prediction **pp 3405–3412**
D. R. Roy, R. Parthasarathi, B. Maiti, V. Subramanian* and P. K. Chattaraj*

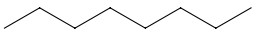
Electrophilicity is one of the prime chemical reactivity descriptors successfully employed in various reactivity studies and QSAR parlance. The application of this quantity in the modeling of toxicological properties has inspired us to perform a more exhaustive study in order to test and/or validate the application of the electrophilicity and its local counterpart. For this reason, the selection of a large data set (252 aliphatic compounds) on toxicity in the *Tetrahymena pyriformis* is commenced. This enabled us to model toxicity obtained by global and local electrophilicity values, which provide a reasonably good prediction of aliphatic toxicity.



Synthesis and antiprotozoan evaluation of new alkyl-linked bis(2-thioxo-[1,3,5]thiadiazinan-3-yl) carboxylic acids **pp 3413–3421**
Julieta Coro, Rolando Pérez,* Hortensia Rodríguez, Margarita Suárez, Celeste Vega, Miriam Rolón, David Montero, Juan José Nogal and Alicia Gómez-Barrio

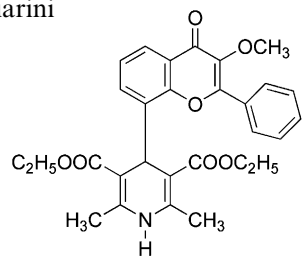


I, II

Series **I** R_1=  Series **II** R_1= 

R_2= Carboxyalkyl residues

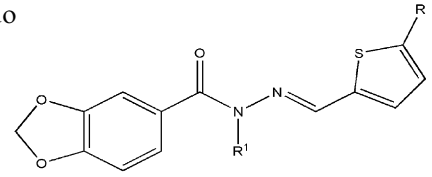
1,4-Dihydropyridine derivatives as calcium channel modulators: the role of 3-methoxy-flavone moiety **pp 3423–3430**
Roberta Budriesi, Alessandra Bisi, Pierfranco Ioan,* Angela Rampa, Silvia Gobbi, Federica Belluti, Lorna Piazzi, Piero Valenti and Alberto Chiarini



3b EC_{30} = 9.7 nM (c.l. 7.4 - 1.3)

The synthesis and negative chronotropic activity of 1,4-dihydropyridine derivative **3b** ($EC_{30} = 9.7$ nM) is reported.

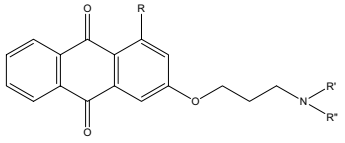
Synthesis and vasodilatory activity of new *N*-acylhydrazone derivatives, designed as LASSBio-294 analogues **pp 3431–3437**
Alexandre G. Silva, Gisele Zapata-Sudo,* Arthur E. Kummerle, Carlos A. M. Fraga, Eliezer J. Barreiro and Roberto T. Sudo



(LASSBio-294) R = R^1 = H : IC_{50} = 74.0 μM
(LASSBio-785) R = H; R^1 = CH_3 : IC_{50} = 10.2 μM

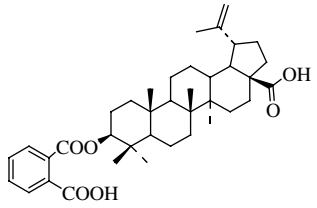
New derivatives of LASSBio-294 were designed and tested on the contractile response of vascular smooth muscle from Wistar rats. LASSBio-785 ($IC_{50} = 10.2$ μM) was seven times more potent than LASSBio-294 ($IC_{50} = 74$ μM) to produce an endothelium-independent vasodilator effect.

Design, synthesis and cytotoxic effect of hydroxy- and 3-alkylaminopropoxy-9,10-anthraquinone derivatives **pp 3439–3445**
Chi-Huang Teng, Shen-Jeu Won and Chun-Nan Lin*



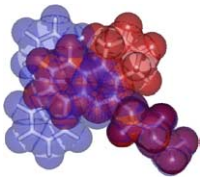
A series of 1-hydroxy-3-(3-alkylaminopropoxy)-9,10-anthraquinones and 3-(3-alkylaminopropoxy)-9,10-anthraquinones have been synthesized and their cytotoxicity were evaluated.

Synthesis of phthalates of betulinic acid and betulin with cytotoxic activity **pp 3447–3454**
Miroslav Kvasnica, Jan Sarek,* Eva Klinotova, Petr Dzubak and Marian Hajduch

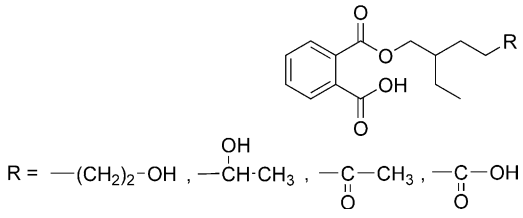


Synthesis of 3β-*O*-phthalic esters from betulinic acid and its esters and synthesis of phthalic esters from betulin and its monoacetates using classical acylation procedure with phthalic anhydride. The evaluation of cytotoxicity of the prepared compounds was using number of tumor cell lines in MTT test. It was discovered that hemiphthalic esters had better cytotoxicity than starting compounds as betulinic acid or quite inactive betulin.

Structure–affinity relationship studies on arylpiperazine derivatives related to quipazine as serotonin transporter ligands. Molecular basis of the selectivity SERT/5HT$_3$ receptor **pp 3455–3460**
Andrea Cappelli,* Germano Giuliani, Andrea Gallelli, Salvatore Valenti, Maurizio Anzini, Laura Mennuni, Francesco Makovec, Aroldo Cupello and Salvatore Vomero

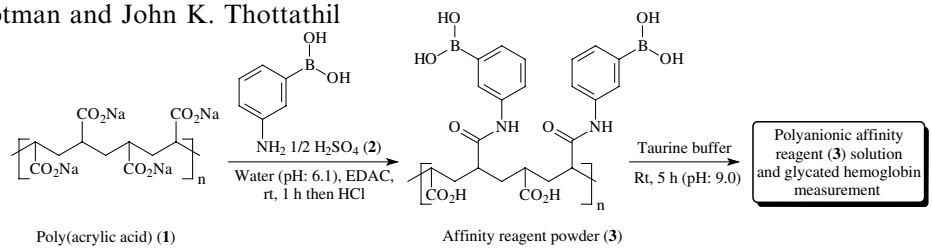


Synthesis of DEHP metabolites as biomarkers for GC–MS evaluation of phthalates as endocrine disrupters **pp 3461–3465**
Francesca Nuti, Sibylle Hildenbrand,* Mario Chelli, Roman Wodarz and Anna Maria Papini*



An efficient preparation of polyanionic affinity agent and its evaluation for the measurement of glycated hemoglobin pp 3467–3473

Rajarathnam E. Reddy,* You Pan, Donald D. Johnson, Yon-Yih Chen, Saul A. Datwyler, Michelle S. Hauptman and John K. Thottathil

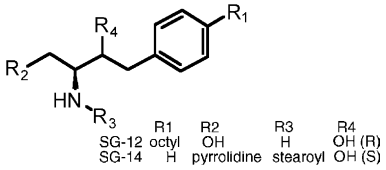


Poly(acrylic acid) (**1**) Affinity reagent powder (**3**)

An efficient method was developed for the preparation of polyanionic affinity agent (**3**) and its application in the measurement of glycated hemoglobin was evaluated.

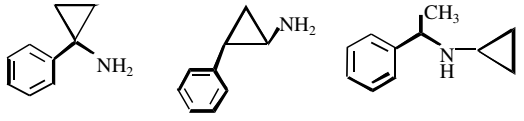
Synthesis and evaluation of sphingoid analogs as inhibitors of sphingosine kinases pp 3475–3485

Jin-Wook Kim, Yong-Woo Kim, Yuichi Inagaki, You-A Hwang, Susumu Mitsutake, Yeon-Woo Ryu, Won Koo Lee, Hyun-Joon Ha, Chang-Seo Park and Yasuyuki Igarashi*



Mutation of surface cysteine 374 to alanine in monoamine oxidase A alters substrate turnover and inactivation by cyclopropylamines pp 3487–3495

Ana Paula B. Vintém, Nigel T. Price, Richard B. Silverman and Rona R. Ramsay*

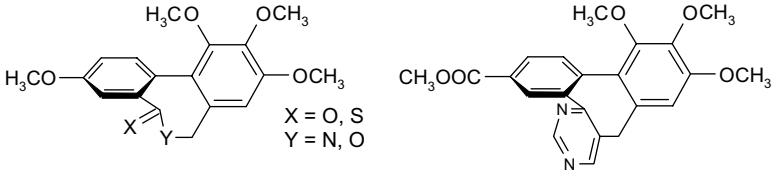


1 **2** **3**

The Cys374Ala mutant of monoamine oxidase A has 30% less activity than the wild-type but *N*-cyclopropyl-α-methylbenzylamine (**3**) still modified the mutant enzyme. A revised inactivation mechanism proposes generation of an α,β-unsaturated iminium ion, which escapes the active site because of the lack of an appropriate nucleophile to react with it.

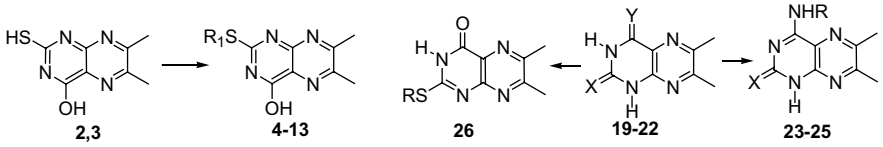
Two novel series of allocolchicinoids with modified seven membered B-rings: design, synthesis, inhibition of tubulin assembly and cytotoxicity pp 3497–3511

Frank Büttner, Silke Bergemann, Daniel Guénard, Ronald Gust, Gunther Seitz* and Sylviane Thoret



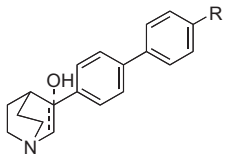
NCME modifications with substituted oxepine and azepine B-ring structures and allocolchicine variants with B-ring annulated heterocycles were synthesized and evaluated for their antimicrotubule and cytotoxic activities.

Syntheses of novel heterocycles as anticancer agents **pp 3513–3518**
Prem M. S. Chauhan, Cristina J. A. Martins and David C. Horwell*

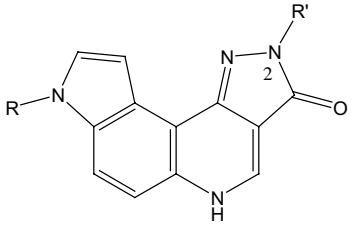


Several pteridine analogues **4**–**13**, **23**–**26** have been synthesized and tested in vitro against three cancer cell lines, MCF7 (breast), NCI-H460 (lung) and SF-268 (CNS).

Biphenylquinuclidines as inhibitors of squalene synthase and growth of parasitic protozoa **pp 3519–3529**
Silvia Orenes Lorente, Rosario Gómez, Carmen Jiménez, Simon Cammerer, Vanessa Yardley, Kate de Luca-Fradley, Simon L. Croft, Luis M. Ruiz Perez, Julio Urbina, Dolores Gonzalez Pacanowska and Ian H. Gilbert*

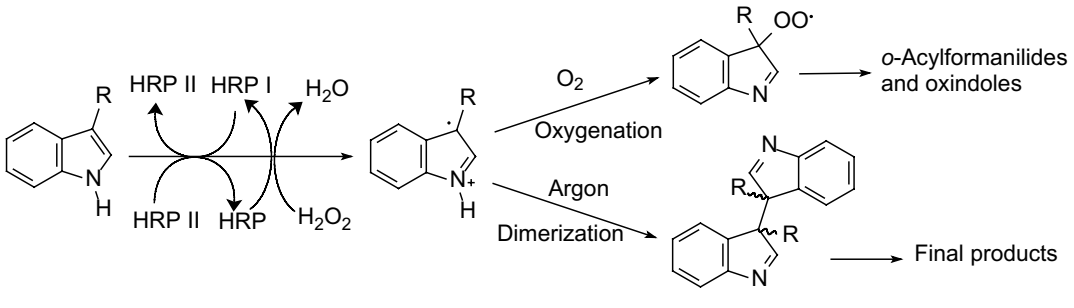


Novel anellated pyrazoloquinolin-3-ones: synthesis and in vitro BZR activity **pp 3531–3541**
Maria Grazia Ferlin,* Gianfranco Chiarelotto, Stefano Dall'Acqua, Elisabetta Maciocco, Maria Paola Mascia, Maria Giuseppina Pisu and Giovanni Biggio

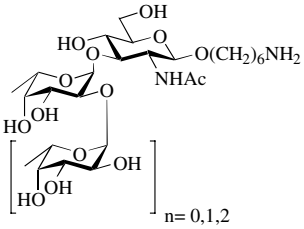


New pyrazolopyrroloquinolinones were synthesized and showed high affinity for central BZRs acting as antagonists. None turned out to be active in inhibiting binding of [^{3}H]PK 11195.

Horseradish peroxidase-mediated aerobic and anaerobic oxidations of 3-alkylindoles **pp 3543–3551**
Ke-Qing Ling and Lawrence M. Sayre*

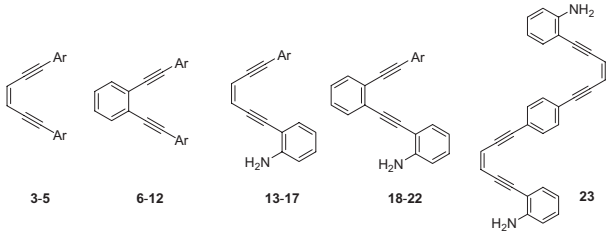


Synthesis and antibody-binding studies of a series of parasite fuco-oligosaccharides **pp 3553–3564**
Anne-Marie M. van Roon, Begoña Aguilera, Francisco Cuenca, Alexandra van Remoortere, Gijsbert A. van der Marel, André M. Deelder, Herman S. Overkleeft and Cornelis H. Hokke*

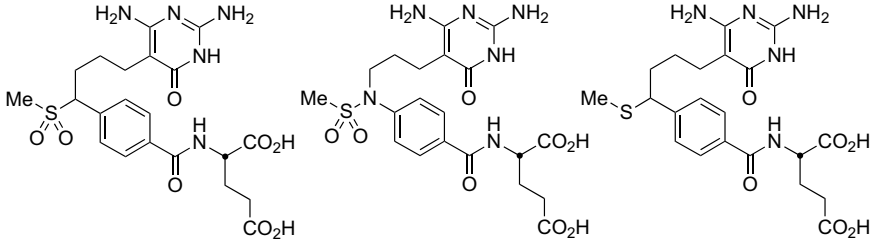


Several linear fucose-containing oligosaccharides have been synthesized, conjugated to BSA and were used to screen a library of anti-schistosome monoclonal antibodies.

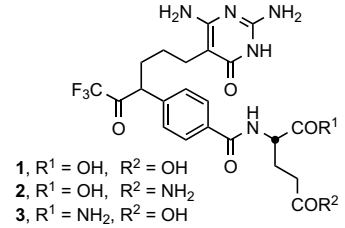
Cytotoxicities, cell cycle and caspase evaluations of 1,6-diaryl-3(*Z*)-hexen-1,5-diynes, 2-(6-aryl-3(*Z*)-hexen-1,5-diynyl)anilines and their derivatives **pp 3565–3575**
Chi-Fong Lin, Yu-Hsiang Lo, Ming-Chu Hsieh, Yi-Hua Chen, Jeh-Jeng Wang and Ming-Jung Wu*



Design, synthesis, and biological evaluation of 10-methanesulfonyl-DDACTHF, 10-methanesulfonyl-5-DACTHF, and 10-methylthio-DDACTHF as potent inhibitors of GAR Tfase and the de novo purine biosynthetic pathway **pp 3577–3585**
Heng Cheng, Youhoon Chong, Inkyu Hwang, Ali Tavassoli, Yan Zhang, Ian A. Wilson, Stephen J. Benkovic and Dale L. Boger*



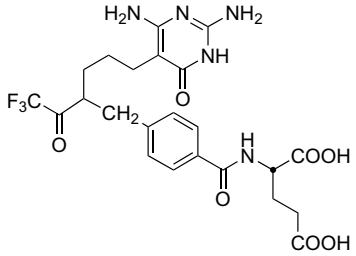
Synthesis and biological evaluation of α- and γ-carboxamide derivatives of 10-CF_3CO-DDACTHF **pp 3587–3592**
Youhoon Chong, Inkyu Hwang, Ali Tavassoli, Yan Zhang, Ian A. Wilson, Stephen J. Benkovic and Dale L. Boger*



1, R^1 = OH, R^2 = OH
2, R^1 = OH, R^2 = NH_2
3, R^1 = NH_2, R^2 = OH

Synthesis and biological evaluation of *N*-{4-[5-(2,4-diamino-6-oxo-1,6-dihydropyrimidin-5-yl)-2-(2,2,2-trifluoroacetyl)pentyl]benzoyl}-L-glutamic acid as a potential inhibitor of GAR Tfase and the de novo purine biosynthetic pathway **pp 3593–3599**

Heng Cheng, Inkyu Hwang, Youhoon Chong, Ali Tavassoli, Michael E. Webb, Yan Zhang, Ian A. Wilson, Stephen J. Benkovic and Dale L. Boger*



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*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

2005: Human liver glycogen phosphorylase A (HLGPa) is an attractive target enzyme for discovering anti-type 2 diabetes drugs. This picture shows the interaction model for a series of indole-2-carboxamides to HLGPa derived from molecular docking simulations [Liu, G.; Zhang, Z.; Luo, X.; Shen, J.; Liu, H.; Shen, X.; Chen, K.; Jiang, H. *Bioorg. Med. Chem.* **2004**, *12*, 4147–4157].

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