

Abstracted/Indexed in SCOPUS®. Full text available on ScienceDirect®.

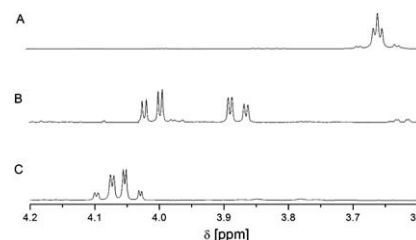
### Preliminary Communication

#### The synthesis and NMR investigation on novel boron derivatives of stavudine

pp 87–91

Tomasz Ruman,\* Karolina Długopolska, Agata Jurkiewicz, Katarzyna Rydel, Andrzej Leś and Wojciech Rode

Preparation and spectroscopic properties of novel boron-containing derivatives of anti-HIV agent stavudine are presented. The new compounds, (5'-O-(4,4,5,5-tetramethyl-1,3,2-dioxaboronate)-2'-3'-didehydro-2'-3'-dideoxythymidine and 5'-O-(di-hydroxyboronate)-2'-3'-didehydro-2'-3'-dideoxythymidine), were prepared by direct reaction between stavudine and reagents containing B–H moieties – pinacolborane and borane–dimethylsulfide complexes, respectively. The boron coordination equilibrium of those compounds was analyzed by water titration monitored by NMR. Results of the DFT calculations and NMR experiments pointed to structural and electronic similarity of tetrahedral boron complexes to phosphate group.



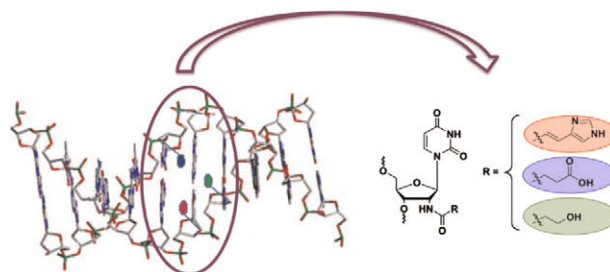
### Regular Articles

#### Surprising duplex stabilisation upon mismatch introduction within triply modified duplexes

pp 92–97

Mieke A. Catry, Vicky Gheerardijn and Annemieke Madder\*

Based on the serine-protease active site model, doubly and triply modified duplexes have been synthesized and tested for stability, considering different spatial distributions of functionalities.

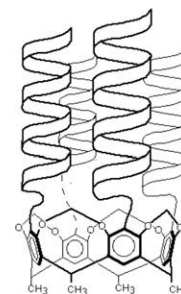


#### An investigation into the N- and C-capping effects of glycine in cavitand-based four-helix bundle proteins

pp 98–107

Heidi E.K. Huttunen-Hennelly\*

A template assembled synthetic protein (TASP), employing a cavitand template, was used as a model to investigate the effects of glycine caps on the structure and stability of such systems.

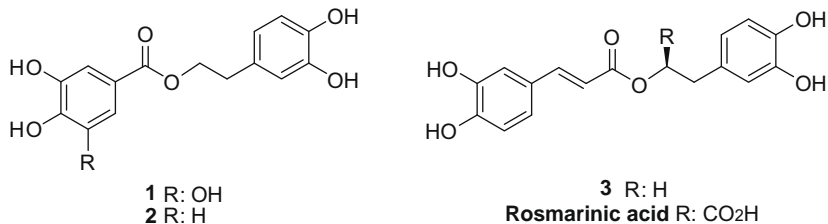


### Synthesis and evaluation of the platelet antiaggregant properties of phenolic antioxidants structurally related to rosmarinic acid

pp 108–114

Laura Chapado, Pablo J. Linares-Palomino, Sofía Salido, Joaquín Altarejos,\* Juan A. Rosado and Ginés M. Salido

Esters **1–3**, structurally-simplified analogs to rosmarinic acid, were prepared and their antioxidant activities and platelet antiaggregant properties evaluated. Antioxidants **1** and **3** might be useful for disorders involving oxidative stress.

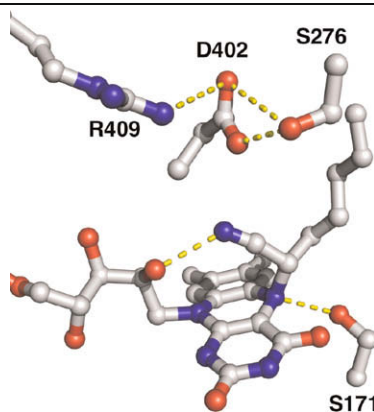


### Characterization of active site residues of nitroalkane oxidase

pp 115–119

Michael P. Valley, Nana S. Fenny, Shah R. Ali and Paul F. Fitzpatrick\*

The effects of mutating the putative catalytic residues Ser171, Cys397, and Tyr398 in nitroalkane oxidase are described.

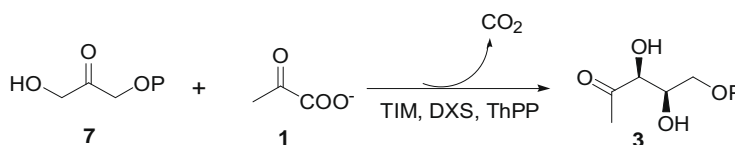


### Optimized enzymatic preparation of 1-deoxy-D-xylulose 5-phosphate

pp 120–123

Yue-Fei Zhou, Zhe Cui, Heng Li, Jie Tian and Wen-Yun Gao\*

1-deoxy-D-xylulose 5-phosphate was prepared in a one-pot method under optimized condition with more than 80% yield and high purity (>95%).

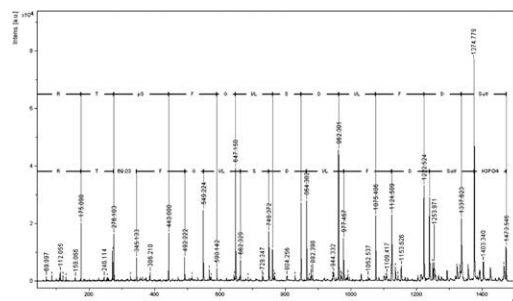


### Phosphorylation of thymidylate synthase from various sources by human protein kinase CK2 and its catalytic subunits

pp 124–131

Tomasz Frączyk, Konrad Kubiński, Maciej Małyk, Joanna Cieśla, Ulf Hellman, David Shugar and Wojciech Rode\*

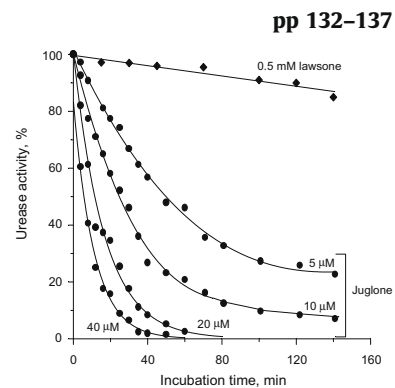
Thymidylate synthase (TS) was a substrate for human CK2 catalytic subunits. MALDI-TOF MS analysis of sulfonated protein digest led to identification of phosphorylated Ser<sup>124</sup> in human TS, within a sequence LGFS<sup>124</sup>TREEGD.



**5-Hydroxy-1,4-naphthoquinone (juglone) and 2-hydroxy-1,4-naphthoquinone (lawsone) influence on jack bean urease activity: Elucidation of the difference in inhibition activity**

Mirosława Kot,\* Waldemar Karcz and Wiesława Zaborska

The study elucidated reasons of difference in urease inhibition by 5-hydroxy-1,4-naphthoquinone (juglone) and 2-hydroxy-1,4-naphthoquinone (lawsone). Lawsone inhibition inability is an effect of a low  $H_2O_2$  generation and its irreactivity with urease thiols.



\* Corresponding author