



ACADEMIC
PRESS

Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Bioorganic Chemistry 30 (2002) 461–466

**BIOORGANIC
CHEMISTRY**

www.elsevier.com/locate/bioorg

Subject Index for Volume 30

A

- Acetoacetic acid
 - decarboxylation, uncatalyzed and amine-catalyzed, analysis with No Barrier Theory, 32
- 5-Acetylisoxazolines
 - stereocontrolled reduction, effects of different strains of yeast, 350
- Acylation
 - site-selective reaction of imperfectly matched DNA with small molecules, application to mutation detection, 216
- (Acyloxy)alkoxy linker
 - synthesis of cyclic prodrug of RGD peptidomimetic using, 285
- Addition reactions
 - imperfectly matched DNA with small molecules, application to mutation detection, 216
- Adenine
 - permanganate oxidation of, spectroscopic study, 133
- (Sp)-Adenosine-3',5'-cyclic-S-(4-bromo-2,3-dioxobutyl)monophosphorothioate
 - inactivation of platelet cGMP-inhibited cAMP phosphodiesterase, 16
- S-Adenosyl-L-methionine
 - analogue of, hydrogen–deuterium exchange at 5'-position, 53
- 5,5'-Adenylyl pyrophosphoryl DNA
 - synthesis with T4 DNA ligase, 332
- Affinity labeling
 - cGMP-inhibited cAMP phosphodiesterase, with nonhydrolyzable reactive cAMP analog, 16
- Alkylation
 - site-selective reaction of imperfectly matched DNA with small molecules, application to mutation detection, 216
- Allylic stabilization
 - role in facile H–D exchange at 5'-position of S-adenosyl-L-methionine analogue, 53

- Amine catalysis
 - decarboxylation of acetoacetic acid, analysis with No Barrier Theory, 32
- α -Amino acid dehydrogenase
 - close-packed planar 4-atom motif with function as variable-pathway mechanistic switching device, 199
- 4-(4'-Aminobenzyl)-2-oxazolidinones
 - design, synthesis, and evaluation as inhibitors of cytochrome P450 enzyme aromatase, 315
- 6-Aminofulvene-2-aldimines
 - symmetry of O–H–O and N–H–N hydrogen bonds in, 3
- S-3',4'-Anhydroadenosyl-L-methionine
 - hydrogen–deuterium exchange at 5'-position, 53
- Antithrombic activity
 - cyclic prodrug of RGD peptidomimetic, 285
- Arginase
 - alternative substrates for, synthesis and evaluation, 81
- Aromatase
 - inhibition by 4-(4'-aminobenzyl)-2-oxazolidinones, 315
- AZT 5'-diphosphate
 - carbonylbisphosphonate and (diazomethylene)-bisphosphonate analogues, 383

B

- Bacteria
 - effects of N-diphenylphosphoryl-P-triphenylmonophosphazene-II and di(*o*-tolyl)phosphoryl-P-tri(*o*-tolyl)monophosphazene-III, 303
- Bacteriophage T4
 - DNA ligase, 5,5'-adenylyl pyrophosphoryl DNA synthesis with, 332
- Benzohydroxamic acid
 - inhibition of long chain hydroxy acid oxidase, 145
- Bicelles
 - in structure–function studies of membrane-associated proteins, 431

C

- CA-074
 analogues of, pH-dependent inactivation of cathepsin B by targeting of occluding loop, 264
- Candida albicans*
 effects of N-diphenylphosphoryl-P-triphenylmonophosphazene-II and di(*o*-tolyl)phosphoryl-P-tri(*o*-tolyl)monophosphazene-III, 303
- Candida krusei*
 stereocontrolled reduction of 5-acetylloxazolines, 350
- Carbodiimide
 site-selective reactions with imperfectly matched DNA, application to mutation detection, 216
- Carbonylbisphosphonate
 AZT 5'-diphosphate analogue, synthesis and spectroscopic and reactive properties, 383
- Cartilage
 degradation by stimulated neutrophils, role of elastase, 119
- Catalytic motifs
 close-packed planar 4-atom motif with function as variable-pathway mechanistic switching device, 199
- Cathepsin B
 occluding loop, inhibitors targeting, pH dependence, 264
- cGMP-inhibited cAMP phosphodiesterase
 platelet, inactivation by (Sp)-adenosine-3',5'-cyclic-S-(4-bromo-2,3-dioxobutyl)monophosphorothioate, 16
- Circular dichroism
 role of 1',4'-imino tautomer of thiamin diphosphate in catalysis by yeast pyruvate decarboxylase, 188
- Conformational lability
 ribosomal 50S subunits, demonstration using photolabile oligonucleotides, 163
- Cyclic AMP
 nonhydrolyzable reactive analog, inactivation of platelet cGMP-inhibited cAMP phosphodiesterase, 16
- Cyclic prodrug
 RGD peptidomimetic-derived, synthesis and cell membrane permeation improvement, 285
- Cytochrome P450 aromatase
 inhibition by 4-(4'-aminobenzyl)-2-oxazolidinones, 315
- Cytochrome P450_{BM-3}
 role of phenylalanine 87, analysis using kinetic isotope effect experiments, 107
- Cytosine
 permanganate oxidation of, spectroscopic study, 133

D

- Decarboxylation
 acetoacetic acid, uncatalyzed and amine-catalyzed, analysis with No Barrier Theory, 32
- Deuterium
 exchange for hydrogen at 5'-position of S-3',4'-anhydroadenosyl-L-methionine, 53
- N,N'*-Diaryl-6-aminofulvene-2-aldimines
 symmetry of O–H–O and N–H–N hydrogen bonds in, 3
- (Diazomethylene)bisphosphonate
 AZT 5'-diphosphate analogue, preparation, 383
- Diethyl pyrocarbonate
 site-selective reactions with imperfectly matched DNA, application to mutation detection, 216
- N-Diphenylphosphoryl-P-triphenylmonophosphazene-II
 antimicrobial and biological effects on bacteria and yeast, 303
- Dithioates
 dithiophosphate backbone aptamers targeting NF- κ B, solution structure and design, 396
- N-Di(*o*-tolyl)phosphoryl-P-tri(*o*-tolyl)monophosphazene-III
 antimicrobial and biological effects on bacteria and yeast, 303
- DNA
 functioning, importance of phosphate groups, 62
 imperfectly matched, site-selective reactions with small molecules, application to mutation detection, 216
- DNA ligase
 T4, 5,5'-adenylyl pyrophosphoryl DNA synthesis with, 332

E

- E-64
 pH-dependent inactivation of cathepsin B by targeting of occluding loop, 264
- Editorial
 issues honoring Frank H. Westheimer, 1
- Elastase
 role in cartilage degradation by stimulated neutrophils, 119

F

- Flavoenzymes
 hydroxamates as substrates and inhibitors for, 145
- Free radicals
 glucose oxidase-catalyzed formation, mechanisms, 95

G

- Glucose oxidase
free radical formation catalyzed by, mechanisms, 95
- N-Glycosylation
zymogenic form of human matrix metalloproteinase-9, 356
- Glyoxal
site-selective reactions with imperfectly matched DNA, application to mutation detection, 216
- Guanine
permanganate oxidation of, spectroscopic study, 133

H

- Hammerhead ribozyme
reaction stereochemistry, metal ions and, 420
- Human immunodeficiency virus type 1
infection of monocytic THP-1 cells, inhibition by cloned secretory leukocyte protease inhibitor, 249
- reverse transcriptase, inhibition by prevention of binding to nucleic acids, 443
- Human T-cell leukemia virus type I
protease, cleavage of P19/24 substrates, effect of NaCl concentration, 138
- Hydrogen
exchange with deuterium at 5'-position of S-3',4'-anhydroadenosyl-L-methionine, 53
- Hydrogen bonds
in close-packed planar 4-atom motif with function as variable-pathway mechanistic switching device in enzymatic catalysis, 199
- O–H–O and N–H–N, symmetry in 6-hydroxy-2-formylfulvene and 6-aminofulvene-2-aldehydes, 3
- Hydrolysis
naproxen methyl ester, catalyzed by lipase, substrate–enzyme interaction in, NMR study, 276
- Hydroxamates
as substrates and inhibitors for FMN-dependent 2-hydroxy acid dehydrogenases, 145
- 2-Hydroxy acid dehydrogenases
FMN-dependent, hydroxamates as substrates and inhibitors for, 145
- 6-Hydroxy-2-formylfulvene
symmetry of O–H–O and N–H–N hydrogen bonds in, 3
- Hydroxylamine
site-selective reactions with imperfectly matched DNA, application to mutation detection, 216

 ω -Hydroxylation

- P450_{BM-3} activity for, role of Phe87, analysis using kinetic isotope experiments, 107
- Hydroxyl radical
reaction with melatonin, 371
- 2-Hydroxyphenyl acetohydroxamate
as substrate and inhibitor of FMN-dependent 2-hydroxy acid dehydrogenases, 145

I

- Imine formation
site-selective reaction of imperfectly matched DNA with small molecules, application to mutation detection, 216
- Isotopic perturbation
6-aminofulvene-2-aldehydes and 6-hydroxy-2-formylfulvene: symmetry of O–H–O and N–H–N hydrogen bonds, 3

K

- Kinetic isotope effects
in analysis of phenylalanine 87 role in P450_{BM-3}, 107

L

- Lipase
naproxen methyl ester hydrolysis catalyzed by, substrate–enzyme interaction in, NMR study, 276
- Liquid chromatography–mass spectrometry
perchloric acid-induced transformations of 7-oxygenated steroids, 233
- Long chain hydroxy acid oxidase
hydroxamates as substrates and inhibitors for, 145
- Low-barrier hydrogen bonds
O–H–O and N–H–N in 6-hydroxy-2-formylfulvene and 6-aminofulvene-2-aldehydes, 3

M

- Magnesium ions
influence in stereochemistry of ribozyme reactions, 420
- Mass spectrometry
N-glycosylation patterns of zymogenic form of human matrix metalloproteinase-9, 356
- Matrix metalloproteinase-9
human, zymogenic form, N-glycosylation patterns of, 356
- Melatonin
reaction with hydroxyl radical, 371

- Membrane-associated proteins
 - structure–function studies, bicelles in, 431
- Membranes
 - permeation, synthesis of cyclic prodrug of RGD peptidomimetic for, 285
- Metal ions
 - influence in stereochemistry of ribozyme reactions, 420
- Methamphetamine
 - neurotoxicity, effects of melatonin, 371
- Methoxylamine
 - site-selective reactions with imperfectly matched DNA, application to mutation detection, 216
- Methyl-1,4-benzoquinone
 - free radical formation from, catalyzed by glucose oxidase, mechanisms, 95
- 1-Methyl-4-phenyl-1,2,3,6-tetrahydropyridine
 - neurotoxicity, effects of melatonin, 371
- Monocytic cells
 - THP-1, infection by HIV-1, inhibition by cloned secretory leukocyte protease inhibitor, 249
- Mutations
 - detection via site-selective reactions of imperfectly matched DNA with small molecules, 216

N

- Naproxen methyl ester
 - lipase-catalyzed hydrolysis, substrate–enzyme interaction in, NMR study, 276
- Neutrophils
 - stimulated, cartilage degradation by, role of elastase, 119
- NF- κ B
 - dithiophosphate backbone aptamers targeting, solution structure and design, 396
- 1-Nitro-3-guanidinobenzene
 - analogs of, synthesis and evaluation as alternative substrates for arginase, 81
- p*-Nitroso-*N,N*-dimethylaniline
 - free radical formation from, catalyzed by glucose oxidase, mechanisms, 95
- No Barrier Theory
 - uncatalyzed and amine-catalyzed decarboxylation of acetoacetic acid, 32
- Nonterrean life
 - search for, implications of phosphate importance for genetic molecule functioning, 62
- Nuclear magnetic resonance
 - 6-aminofulvene-2-aldehydes and 6-hydroxy-2-formylfulvene: symmetry of O–H–O and N–H–N hydrogen bonds, 3
 - cartilage degradation by stimulated neutrophils, 119

- membrane-associated proteins, use of bicelles in, 431
- solution structure of dithiophosphate backbone aptamers targeting NF- κ B, 396
- substrate–enzyme interaction in lipase-catalyzed hydrolysis of naproxen methyl ester, 276
- Nucleic acids
 - binding to HIV-1 reverse transcriptase, inhibition, 443
- Nucleotide analogues
 - carbonylbisphosphonate and (diazomethylene)-bisphosphonate analogues of AZT 5'-diphosphate, 383
- Nucleotide bases
 - permanganate oxidation of, spectroscopic study, 133

O

- Oligonucleotides
 - photolabile, in demonstration of large-scale motions within ribosomal 50S subunits, 163
- Osmium tetroxide
 - site-selective reactions with imperfectly matched DNA, application to mutation detection, 216
- Oxidation
 - site-selective reaction of imperfectly matched DNA with small molecules, application to mutation detection, 216
- 7-Oxo-dehydroepiandrosterone
 - perchloric acid-induced transformations, bioanalytical applications and LC–MS study, 233
- 7-Oxygenated steroids
 - perchloric acid-induced transformations, bioanalytical applications and LC–MS study, 233

P

- Perchloric acid
 - induction of transformations of 7-oxygenated steroids, bioanalytical applications and LC–MS study, 233
- Performance constant
 - application and usefulness, 211
- Permanganate
 - oxidation of free nucleotide bases, spectroscopic study, 133
- pH effects
 - HTLV-I protease cleavage of P19/24 substrates, 138
 - inhibitors targeting occluding loop of cathepsin B, 264
 - long chain hydroxy acid oxidase activity with mandelate and its hydroxamate, 145

- Phenylalanine
Phe87 role in P450_{BM-3}, analysis using kinetic isotope effect experiments, 107
- Phosphate groups
2',3'-cyclic phosphate formation during ribozyme reactions, metal ions and, 420
importance to functioning of genetic molecules, 62
- Phospholipase A₂
structure–function studies, bicelles in, 431
- Photolabile oligonucleotides
in demonstration of large-scale motions within ribosomal 50S subunits, 163
- Pichia farinosa*
stereocontrolled reduction of 5-acetylisoxazolinines, 350
- Platelets
cGMP-inhibited cAMP phosphodiesterase, inactivation by (Sp)-adenosine-3',5'-cyclic-S-(4-bromo-2,3-dioxobutyl)monophosphorothioate, 16
- Polyelectrolyte structure
in genetic molecules, implications for search for nonterrestrial life, 62
- Potassium permanganate
site-selective reactions with imperfectly matched DNA, application to mutation detection, 216
- Protease
HTLV-I, cleavage of P19/24 substrates, effect of NaCl concentration, 138
- Pseudorotation
in 2',3'-cyclic phosphate formation during ribozyme reactions, metal ions and, 420
- Pyruvate decarboxylase
yeast, catalytic activity, role of 1',4'-imino tautomer of thiamin diphosphate, spectroscopic studies, 188

R

- Radical stabilization
role in facile H–D exchange at 5'-position of S-adenosyl-L-methionine analogue, 53
- Rate constants
uncatalyzed and amine-catalyzed decarboxylation of acetoacetic acid, 32
- Reverse transcriptase
HIV-1, inhibition by prevention of binding to nucleic acids, 443
- RGD peptidomimetic
cyclic prodrug of, synthesis and cell membrane permeation improvement, 285
- Ribosomes
50S subunits, large-scale motions within, demonstration with photolabile oligonucleotides, 163

- Ribozymes
reaction stereochemistry, metal ions and, 420
- RNA
functioning, importance of phosphate groups, 62

S

- Saccharomyces cerevisiae*
effects of N-diphenylphosphoryl-P-triphenylmonophosphazene-II and di(o-tolyl)phosphoryl-P-tri(o-tolyl)monophosphazene-III, 303
stereocontrolled reduction of 5-acetylisoxazolinines, 350
- Saccharomyces* sp.
stereocontrolled reduction of 5-acetylisoxazolinines, 350
- Secretory leukocyte protease inhibitor
cloned, inhibition of HIV-1 infection of monocytic THP-1 cells, 249
- Site-selective reactions
imperfectly matched DNA with small molecules, application to mutation detection, 216
- Sodium chloride
concentration of, effect on HTLV-I protease cleavage of P19/24 substrates, 138
- Solution structure
dithiophosphate backbone aptamers targeting NF- κ B, 396
- Solvent exchange
hydrogen with deuterium at 5'-position of S-3',4'-anhydroadenosyl-L-methionine, 53
- Specificity constant
application and usefulness, 211
- Spectroscopy
permanganate oxidation of free nucleotide bases, 133
- Stereochemistry
ribozyme reactions, metal ions and, 420
- Steroids
7-oxygenated, perchloric acid-induced transformations and their bioanalytical applications, LC–MS study, 233
- Structure–activity relationship
substrate–enzyme interaction in lipase-catalyzed hydrolysis of naproxen methyl ester, 276
- Structure–function studies
membrane-associated proteins, bicelles in, 431
- Substitution reactions
imperfectly matched DNA with small molecules, application to mutation detection, 216
- Sulfate conjugates
7-oxygenated steroids, perchloric acid-induced transformations, 233

Sulfones

analogs of genetic molecules, in study of role of phosphates, 62

Sulfonium compounds

analogue of *S*-adenosyl-L-methionine, hydrogen–deuterium exchange at 5'-position, 53

T

Temperature

effect on HTLV-I protease cleavage of P19/24 substrates, 138

7,7,8,8-Tetracyano-quinodimethane

free radical formation from, catalyzed by glucose oxidase, mechanisms, 95

Thiamin diphosphate

1',4'-imino tautomer, role in catalysis by yeast pyruvate decarboxylase, spectroscopic studies, 188

Thioarginine

analogs of, synthesis and evaluation as alternative substrates for arginase, 81

Thymine

permanganate oxidation of, spectroscopic study, 133

U

Ultraviolet absorption spectroscopy

role of 1',4'-imino tautomer of thiamin diphosphate in catalysis by yeast pyruvate decarboxylase, 188

Uracil

permanganate oxidation of, spectroscopic study, 133

V

Vitamin E

effects on *Saccharomyces cerevisiae*, comparison with monophosphazenes, 303

W

Westheimer, Frank H.

issues honoring, introduction, 1

Y

Yeast

effects of N-diphenylphosphoryl-P-triphenylmonophosphazene-II and di(*o*-tolyl)phosphoryl-P-tri(*o*-tolyl)monophosphazene-III, 303
stereocontrolled reduction of 5-acetylisoxazolines, 350

Z

Zymogen activation

human matrix metalloproteinase-9, 356