

CONTENTS

In Memoriam: Alois Niederwieser (1935 - 1987)

H.-Ch. Curtius.....	1
---------------------	---

SECTION A: CHEMISTRY AND ANALYSIS OF PTERINS

Homogeneous Catalytic Hydrogenation of L-Biopterin: Influence of the Chirality of the Side Chain and the Catalyst on its Diastereoselective Induction

S. Antoulas, M. Viscontini	7
----------------------------------	---

Synthesis of D-Neopterin-3'-Phosphates

B. Zagalak, F. Neuheiser, R. Bosshard, U. Redweik	13
---	----

5-Alkyl-5,6,7,8-Tetrahydrobiopterins

A. Kaiser	23
-----------------	----

Mass Spectrometric Investigations of Pteridines

Th. Kuster, A. Niederwieser	31
-----------------------------------	----

The Structural Characterization of 6-Pyruvoyl Tetrahydropterin by Fast Atom Bombardment Mass Spectrometry with One- and Two-Dimensional Mass Analysis (FAB/MS and FAB/MSMS)

W.J. Richter, F. Raschdorf, R. Dahinden, Th. Kuster, A. Niederwieser, W. Leimbacher, H.-Ch. Curtius	39
--	----

SECTION B: BIOCHEMISTRY AND METABOLISM OF PTERINS

Tetrahydrobiopterin: Other Physiological Roles in Addition to Aromatic Amino Acid Hydroxylation?	
S. Milstien	49
¹H-NMR Studies with Tetrahydrobiopterins, Evidence for the Structure of 6-Pyruvoyl Tetrahydropterin, an Intermediate in the Biosynthesis of Tetrahydrobiopterin	
S. Ghisla, P. Steinerstauch, Th. Hasler, N. Blau, H.-Ch. Curtius ..	67
Purification of 6-Pyruvoyl Tetrahydropterin Synthase from Salmon Liver	
Th. Hasler, A. Niederwieser, H.-Ch. Curtius	81
Purification of 6-Pyruvoyl Tetrahydropterin 2'-Keto Reductase from Human Liver	
H.-Ch. Curtius, P. Steinerstauch, W. Leimbacher, U. Redweik, Sh.-I. Takikawa, S. Ghisla	89
Human GTP Cyclohydrolase I: Purification and Preparation of Monoclonal Antibodies	
G. Schoedon, A. Niederwieser, H.-Ch. Curtius	99
Dihydromonapterin Triphosphate: Occurrence, Analysis, and Effect on Tetrahydrobiopterin Biosynthesis <u>in vivo</u> and <u>in vitro</u>	
N. Blau, P. Steinerstauch, U. Redweik, K. Pfister, G. Schoedon, L. Kierat, A. Niederwieser	105
Biosynthesis of Pteridines and Deaza Flavins in Methanogenic Bacteria	
B. Schwarzkopf, Q. Le Van, W. Eisenreich, P.J. Keller, H.G. Floss, A. Bacher	117
Tetrahydrobiopterin Biosynthesis and Pteridine Metabolism in Cells of the Blood System, Lymphoid Tissues and in Biological Fluids	
B. Andondonskaja-Renz, H.-J. Zeitler	125

Modified Pteridine Synthesis in Transformed Cell Lines and during Heat Shock	
J. Seidl, M. Przybylski, Ch. Meinschad, I. Ziegler	137

SECTION C: PTERINS IN IMMUNOLOGY

Disease Associated Alterations of Pterin Biosynthesis: Enhancement in Inflammatory Disease, Hemopoietic Regeneration and Endotoxemia	
Ch. Huber, M. Herold, J. Troppmair, H. Rokos	149

Metabolism of Pterins in the Cellular Immune System of Man and Mouse	
G. Schoedon, A. Niederwieser, H.-Ch. Curtius, A. Fontana, J. Troppmair, Ch. Huber	161

Tetrahydrobiopterin Synthesis is Triggered by Interleukin 2 Binding and Modulates Receptor Affinity	
I. Ziegler	169

Kinetics of Production and Release of Neopterin. Comparison of Human PBMC with the Permanent Monocytic Cell Line U937 and its Subclones	
K. Rokos, R.O.F. Kunze, M.A. Koch, H. Rokos, K. Nilsson	177

SECTION D: PTERINS IN DIFFERENT DISEASES

Variations of Neopterin, Dihydroneopterin and Immunological Parameters during Physical Exercise (Jogging)	
H. Rokos, K. Rokos, R.O.F. Kunze	187

Biopterin and Neopterin in Plasma and Lympho-Mononuclear Biopterin in Graft versus Host Disease and Infection after Bone Marrow Transplantation

- M. Fink, V. Nüssler, K. Demtröder, E. Höniges, H.J. Kolb,
I. Ziegler 197

Effects of Pirenzepine, Aciclovir and Trimethoprim on Pterins in Blood Cells and Plasma

- M. Fink, V. Nüssler, K. Demtröder, E. Höniges, M. Goldberg 207

SECTION E: TETRAHYDROBIOPTERIN DEFICIENCIES

Heterogeneity of Tetrahydrobiopterin Deficiency

- J.-L. Dhondt 219

Prenatal Diagnosis of Tetrahydrobiopterin Deficiency

- N. Blau, A. Niederwieser, H.-Ch. Curtius, W. Leimbacher, L. Kierat,
A. Matasovic, W. Staudenmann, I. Ozalp 237

Sepiapterin Reductase in Human Amniocytes, Skin Fibroblasts, Chorionic Villi and Stimulated Mononuclear Blood Cells

- J. Ferré, E.W. Naylor 247

Impaired Biopterin Synthesis in a Patient with Mild Hyperphenylalaninemia. A New Variant?

- J.L. Dhondt, G. Forzy, J.M. Hayte, P. Guibaud, M.O. Rolland,
C. Dorche, S. Andre 257

Dihydropteridine Reductase Activity in Fetal Tissues

- G. Bracco, A. Iavarone, S. Pagliardini, F. Levis, O. Guardamagna,
S. Ferraris, A. Ponzzone 265

Molecular Analysis of Human Dihydropteridine Reductase and Dihydropteridine Reductase Deficiency

- R.G.H. Cotton, W.M. Hutchison, S. Wake, I.G. Jennings, W.J. McAdam,
D.M. Danks, H.-H.M. Dahl 275

Fate of Peripherally Administered Tetrahydrobiopterin in Congenital Tetrahydrobiopterin Deficiency	
S. Ferraris, O. Guardamagna, G. Bonetti, G. Bracco, L. Leone, A. Ponzzone, A. Niederwieser	283
6-Pyruvoyl-Tetrahydropterin Synthase Deficiency: Therapeutic Trial with Two Different Synthetic Pterin Analogues in Three Patients	
D. Leupold, H. Lehmann, H.-Ch. Curtius, A. Niederwieser	293
Placental Barrier in Mother-to-Fetus Transfer of Tetrahydrobiopterin in Humans	
A. Ponzzone, S. Ferraris, S. Biasetti, I. Dianzani, O. Guardamagna, L. Kierat, A. Niederwieser	303
 SECTION F: MONOAMINE NEUROTRANSMITTERS AND ENZYMES	
Therapeutic Potential of Tetrahydrobiopterin Therapy in Neurological and Psychiatric Illness	
R.A. Levine	315
Organization of the Catalytic and Regulatory Sites of Rat Liver Phenylalanine Hydroxylase	
M. Parniak	327
Immunochemical Studies of Phenylalanine Hydroxylase	
R.G.H. Cotton, I.G. Jennings, W. McAdam, S. Smith	339
Influence of Substrates and Cofactors on Tyrosine Hydroxylase	
D. Kuhn	343
Mechanism of Activation of Tryptophan 5-Monooxygenase by Mercaptides	
H. Hasegawa, A. Ichiyama	353

Effects of Tetrahydropterins on DOPA Production in vitro and in vivo	
M. Bräutigam, W. Pfeleiderer	359
Pterins and Monoamine Metabolites in Cerebrospinal Fluid	
J.L. Dhondt, G. Forzy, J.M. Hayte, J.P. Farriaux, C. Largilliere ..	367
AUTHOR INDEX	375
SUBJECT INDEX	379
LIST OF PARTICIPANTS	393