Contents

Preface	xix
Message from the American Peptide Society President	xxi
20th American Peptide Society Symposium	
Committees	xxiii
Sponsors	xxvii
Exhibitors	XXIX
American Peptide Symposia	XXX1
"Experiment", pictorial retrospective from the first peptide bond to the 20th	
American Peptide Society Meeting	XXXIII
Portraits of the Pioneers of the American Peptide Society	xlix
Peptides of Life Teaching Peptide Science and Art in Elementary School	lxxi
The Merrifield Award Many designs through 50 Versus of Portide Foldered Traints	lxxv
Meandering through 50 Years of Peptide Folds and Twists Makineni Lecturer	lxxvii lxxxix
Stronger and (now) Longer Synthetic Collagen	xci
The Vincent du Vigneaud Award*	xcix
Peptide Society Travel Grants	ci
Bert L. Schram Young Investigator Mini Symposium Generously supported	CI
by the ESCOM Science Foundation	ciii
Young Investigator Poster Competition/Peptide Idol Generously	CIII
Supported by C.S. Bio and Amgen	ciii
Library Generation Analysis and Combinatorial Chemistry: dedicated to Bruce	
Merrifield	1
Bruce Merrifield	
Dynamic Combinatorial Assembly of Peptide-Rhenium Coordinates: Application	
to the Selection of hCyp-18 inhibitors from a Library of 12 × 16 Components	3
Demands Combinatorial Assembly of Bordida Blandon Conditions Condition	
Dynamic Combinatorial Assembly of Peptide-Rhenium Coordinates: Coordination Chemistry for Generating New Analogs of hCyp-18 Ligands	5
Chemistry for Generating New Analogs of heyp-16 Liganus	3
Oxorhenium-Mediated Cyclization and Self-Assembly of Peptides: A Combinatorial	
Approach for the Selection of New Ligands of the Human Cyclophilin hCyp-18	7
Thieno[3,2-e]diazepinediones and 3-Thienylimidazolidinediones Syntheses:	
Regio-Controlled Ring Opening of Thiaisatoic Anhydride by α-Amino Acids.	9
regio controlled King Opening of Thidisatole Thinyaride by a Thinho Telas.	
Solid-Phase Synthesis of Phosphinic Dipepetide Isosteres and β Amino Acids via	
Activated N-Terminal Acrylamides	11
Parallel Solid-Phase Synthesis of Macrocyclic Peptidomimetics Using	
Ru-Catalyzed Ring-Closing Metathesis and a New Application	
of Cross Metathesis	13
High Throughput Solid Phase Parallel Synthesis of Macrocyclic	1.5
Peptidomimetics	15
Development of an Efficient Solid-Phase Synthetic Methodology to Construct	
a Combinatorial Library of a Potent HDAC Inhibitor	17
A.N. alii da alii ada alii ada alii ada alii alii	
A Novel Hydrogel Functionalized with Specific Peptidomimetic Ligands for 2-D	10
and 3-D Cell Culture	19
Application of the "Libraries from Libraries" Concept to "One-bead	
One-compound" Combinatorial Chemistry	21
An Appreciation of the Scientific Life and Achievements of Bruce Merrifield	23
And Appropriation of the Scientific Eric and Achievements of Druce Mentilleid	23

vi Contents

Folding, Recognition, and Catalysis: dedicated to Elkan Blout Wiley	27
The "Bip Method" for Spectroscopic Assignment of the Absolute Configuration of the Spin-Labelled, Cyclic $\beta^{2,3}$ -Amino Acids β -TOAC and POAC	29
Enzyme Mechanism and Function of a Novel Plant PDI Involved in the Oxidative Folding of Cystine Knot Defense Peptides	31
Biosynthesis of Siderophore-Peptides, A Class of Potent Antimicrobial Peptides from Enterobacteria, Requires Two Precursors	33
Post-Translational Modification and folding of A Lasso-Type Gene-Encoded Antimicrobial Peptide Require Two Enzymes only in <i>Escherichia coli</i>	35
Synthesis and 3D-Structure of Conformationally Controlled Nucleo-Peptides	37
Mixing Urea and Amide Bonds: Synthesis and Self-Organization of New Hybrid Oligomers	39
Optimizing the Fold Stability of Miniprotein Sequences	41
Antimicrobial Peptides Chelating Lanthanide Ions: the Case of Trichogin GA IV Analogues and Terbium(III)	43
Spectroscopic Characterization of the Fully-Extended, Planar, Peptide 2.0 ₅ -Helix Based on Chiral, C^{α} -Ethylated, α -Amino Acids	45
Monitoring Peptide Folding by Time-Resolved Spectroscopies: the Effect of a Single Gly to Aib Susbtitution	47
First Homo-Peptides Undergoing a Reversible 3_{10} -Helix to α -Helix Transition	49
Molecular Modeling Approach to Achieving Erythropoietin Mimetic Peptides	51
Conformation Analysis of Parathyroid Hormone Residues Critical for Bioactivity	55
Light-Switchable Folding/Unfolding of the Collagen Triple Helix with Azobenzene-Containing Model Peptides	57
Structural Studies of Parathyroid Hormone Analogue with C-Terminal Aldehyde Function	61
Synthesis and Conformational Studies of Novel, Side-Chain Protected, L-(α Me) Ser Homo-Peptides	63
Introduction of N-alkyl Residues in Proline-rich Peptides: Effect on SH3 Binding Affinity and Peptide Conformation	65
Thermodynamic Stability And Native-State Dynamics Of Porcine Pancreatic Phospholipase A ₂ Studied By ¹ H NMR Spectroscopic Measurements	67
The amyloidogenic domains of the human serum amyloid A protein -New Insights-	69
Quantitating Amino Acid β -Strand Preferences, Turn Propensities and Cross-Strand Interactions in a Designed Hairpin Peptide	71
Determinants of fold stabilizing aromatic-aromatic interactions in short peptides	73
Spectroscopic analysis of synthetic PrP helix2-binding peptide constructs	75
Unique Role of Clusters of Electrostatic Attractions in Controlling the Stability of Two-stranded α -Helical Coiled-Coils	77

The Energetics of Weakly Polar Interactions in Model Tripeptides	79
Peptidomimetic Ligands for the Tandem SH2 Domain of the Syk Protein Involved in Signal Transduction	81
Subtilisin Kexin Isozyme-1 (SKI-1): Production, purification, inhibitor design and biochemical applications	83
Effects of Antifreeze Protein Fragments on the Properties of Model Membranes	85
Fluorogenic Cyclooctapeptides and Metal Ion Sensing	87
The Impact of Aromatic Residues on the Tertiary Fold of Avian Pancreatic Polypeptide	89
Peptide, Protein, and Peptidomimetic Synthesis honoring Ralph Hirschmann Organic Letters	91
An Efficient Protocol for On-Resin, Vicinal Disulfide Formation: Applications to Thioredoxin Reductase	93
Potent and selective peptide agonists for human melanocortin receptor 5	95
Synthesis of a library of ψ -stylostatins with potential antibacterial activity	97
Mimicking natural globular structures with rigid scaffolds based on adamantane	99
Discovery and Optimization of a TRAIL R2 Agonist for Cancer Therapy	101
Novel reactive site loop derived mini-serpin inhibitors of recombinant Proprotein Convertase 4	105
Enzymatic ligation of peptides, peptide nucleic acids and proteins by means of sortase A	107
N-Methylated Cyclic Pentapeptides as Template Structures	109
Cyclic Dimers Of C-terminal γ_2 -MSH Analogs As Selective Antagonists Of The Human Sensory Nerve-Specific Receptor (SNSR-4)	111
Structure-Function Relationship Study of Parathyroid Hormone (1-11) Analogues Containing D-AA	113
Selective enzymatic hydrolysis of C-terminal tert-butyl esters of peptides	115
Peptide Ligation via the In-Situ Transformation of an Amide into a Thioester at a Cysteine Residue	117
Facile Synthesis of Glucagon-Like Peptide-1 (GLP-1) Mimetics	119
Synthetic Peptide Vaccines: The Quest to Develop Peptide Vaccines for Influenza, HIV and Alzheimer's Disease	121
Rational Design of Peptidomimetics for Class B GPCRs: Potent Non-Peptide GLP-1 Receptor Agonists	125
The depsipeptide technique for the solid phase peptide synthesis: from stepwise assembly to segment condensation	127

viii Contents

A Novel Method for the Preparation of Peptide Thioester and its Application to Glycoprotein Synthesis	129
Synthesis of 4-arylmethyl-L-histidine analogues for structure-activity studies of position 10 of CGRP	131
Solid-phase synthesis of dipeptidic and pseudo-dipeptidic potential NOS inhibitors through a side-chain anchoring approach	133
Further Development of New Deprotection Chemistry for Cysteine and Selenocysteine Side Chain Protecting Groups	135
A New Synthesis of (+)-Negamycin and Its Derivatives as a Potential Therapeutic Agent for Duchenne Muscular Dystrophy Treatment	137
Design and Synthesis of Backbone Cyclic Phosphopeptides: The IkB Model	139
Synthesis of modified and hybrid protein derived biopolymers	141
SPPS of the Natural Product Chitinase Inhibitor Argifin: Library Generation and Biological Evaluation	143
Development of Chemokine Receptor CXCR4 Antagonists Using Bio-mimetic Strategy	145
Chemical Synthesis of the N-Terminal Cysteine-Rich Domain of Human OX40	147
Stereoselective Synthesis of Peptidomimetics Based on Acid-catalyzed Ring-opening of β -Aziridinyl- α , β -enoates	149
Development of a small molecule peptidomimetic affinity Ligand for efficient purification of the large protein Factor VIII	151
Expression and Characterization of Recombinant S2 Subunit of SARS-coronavirus S Fusion Protein	153
Synthesis of Biotinyl-TN14003, Anti-HIV Peptide Amide	155
Making double-minded peptides strong-willed? The side chain impact on the backbone conformation of <i>N</i> -methylated cyclic pentapeptides	157
Deprotection of N^{in} -Formyl Group on Tryptophan by Application of New Reagent, 1,2-dimethylethylendiamine in Aqueous Solution	159
Racemization-free segment condensation based on the <i>O</i> -acyl isopeptide method: Toward a chemical protein synthesis on solid support	161
Optimized Coupling Protocols for the Incorporation of Cys Derivatives during Fmoc-SPPS	163
Further studies on peptide synthesis at high temperature	165
Preparation of C-terminal modified peptides through alcoholysis and thiolysis mediated by metal ions	167
Synthesis and Biological Activity of Amino Acid Esters of Acyclovir	169
Poly-(Proψ[CH(OAc)CH ₂]Aib) ₃ a Protected Trimer of Pro-Aib Hydroxyethylene Isosteres	171

Contents ix

Fast Conventional Synthesis of Human B-Amyloid (1-42) on the Symphony and Prelude [™]	173
Side chain-to-Side chain Cyclization by Intramolecular Click Reaction - Building Blocks, Solid Phase Synthesis and Conformational Characterization	175
An Efficient Approach to Synthesize Multiple Peptides with Carboxyl C-termini	177
Synthesis and Biological Activity of Novel α-Conotoxin Analogues Incorporating Substituted Proline Derivatives	179
Application of Triethylsilane and Palladium-Charcoal-Induced Reductions in the Synthesis of Fmoc-Glutamic Acid Analogues	181
Synthesis of pyrrolo[3,2-e][1,4]diazepin-2-ones as potential γ-turn mimetics	183
Improvements in the Chemical Synthesis of Insulin-Like Peptides	185
Design And Parallel Synthesis Of New Bicyclic Small Molecules For Targeting The Melanocortin Receptors	187
Fully Automated Fast Fmoc Synthesis and On-Resin Disulfide Bridge Formation with Pseudoproline Dipeptides on the <i>Prelude</i> TM	189
Efficient Synthesis of Protected <i>L</i> -Phosphonophenylalanine (Ppa) Derivatives Suitable for Solid Phase Synthesis	191
ALLESSAN CAP - A Highly Versatile And Affordable Coupling Agent	193
Novel Analogues of Bifunctional Ligands for Opioid and Melanocortin 4 Receptor	195
Fmoc as a Probe in Peptide Purification	197
1,3,5-Triazepan-2,6-diones as Conformationally Constrained Dipeptide Mimetics. In Silico Guided Identification of sPLA2 Inhibitors	201
Proline-based diketopiperazine-scaffolds	203
Concept and Synthetic Approach for a Kilogram Scale Synthesis of Octa-D-Arginine Amide Nonahydrochloride Salt	205
Stereoselective Synthesis of (3 <i>S</i>)- and (3 <i>R</i>)-3-Hydroxy-3-(2,6-Dimethyl-4-Hydroxyphenyl) Propanoic Acid and its Incorporation into a Cyclic Enkephalin Analogue	207
Highly Selective Cyclic Hexapeptides Antagonist of GPIIb-IIIa by Multiple N-Methylation	209
Synthesis of N -Boc Protected Hydrazine Diacids as Key Structural Units for the Formation of α -Helix Mimics	211
Solid-Phase Synthesis of 1,3,5-Trisubstituted 1,4-Diazepin-2-one Peptide Mimic	213
General Solid-Phase Phosphopeptide Proteomis with Affinity Pull-Down	215
Synthesis and Peptide Coupling of Protected Pyrrolylalanine	217
Synthesis of aryl sulfamate and phenol small peptide derivatives using a multidetachable sulfamate linker strategy	219
Phe-Aib Hydroxyethylene Dipeptide Isostere Synthesis	221

x Contents

Poly (vinyl alcohol)- <i>graft</i> -Poly (ethylene glycol) Supported Hydroxyproline: Synthesis and Application in the Enantioselective Aldol Condensation	223
Microwave-Assisted Synthesis of Rhodamine Fluorescent Tags	225
A novel family of diketopiperazines as a tool for the study of transport across the bloodbrain barrier (BBB) and their potential use as BBB-shuttles.	227
New Perspective in Peptide Chemistry by N-Alkylation	229
Peptide Materials Science	233
Interactions of peptides with single-walled carbon nanotubes	235
Stimuli-responsive Peptide Self-assembly into Well-organized Nanofibers	237
pH Controlled Aggregation Morphology of A β (16-22): Formation of Peptide Nanotubes, Helical Tapes and Amyloid Fibrils	239
Immobilization of Antimicrobial Peptides on Reverse Osmosis Polyamide Membranes: Potential Biofilm Inhibitors?	241
Synthesis of Polylactides with Side Chain Functionality: Ring-Opening Polymerimerization of a Homobislactone Prepared from Lysine	243
New Degradable Cationic Peptides for Modulated Gene Delivery	245
The Dcpm protecting group is a useful alternative to the Hmb residue	247
Development of a RGDS-peptide modified polyurethane for tissue regeneration	249
Modulating Collagen Triple-Helix Stability with 4-Chloro, 4-Fluoro, and 4-Methylprolines	251
Peptide-Chitosan Matrix: a New Multifunctional Biomaterial	253
Peptides for Youth, Unmet Medical Needs of Tomorrow IPSEN	257
Effect of phosphorylation on tau aggregation using model peptides and Circular Dichroism studies	259
Peptides for prolonging youth	263
The Synthesis of DAMGO-Based Potential Affinity Labels with High Mu Opioid Receptor Affinity and the Formation of Cyclic O-Alkyl Thiocarbamates	265
Amino acid Derivatives of Aporphinic Alkaloid Glaucine and their antioxidant activity	267
Synthesis of Cyclic Tetrapeptide CJ 15,208: A Novel Kappa Opioid Receptor Antagonist	269
Exploring the relationship between turn geometry and allosteric antagonism of peptide mimic ligands for the prostaglandin $F2\alpha$ receptor	271
Optimization of the bioconvertion of the Angiotensin I Converting Enzyme inhibitors IPP and VPP	275
Tailor made Pharmacokinetics of Peptides by Transient PEGylation	277
Design and Synthesis of Cyclic Arodyn Analogues by Ring-Closing Metathesis (RCM) for Kappa Opioid Receptor (KOP) Antagonists	279

Contents

Switch-Peptides as Folding Precursors in Self-Assembling Peptides and Amyloid Fibrillogenesis	281
Peptides and Membrane Proteins: A Session Dedicated to Miklos Bodansky Abbott Laboratories, IPSEN and Synthetech	283
BioShuttle mediated Plasmid Transfer – a Way to new genetic Intervention	285
Incorporation of a Novel, Fluorescent and Helicogenic α -Amino Acid Into Peptaibols: Trichogin Ga IV	287
Seeking for $\alpha\text{-Helical}$ Propensity in a Receptor-Bound Conformation of Glucagon-Like Peptide-1	289
Conformational Analysis and Folding of Transmembrane and Matrix Peptide Segments of the Mitochondrial Uncoupling Proteins: A Comparative Study	291
Dynamics study on single and multiple β -sheets	293
Homotrimeric Collagen Peptides As Model Systems For Cell Adhesion Studies	295
Cyclic Peptide Analogs of Laminin Active Sequences Enhance the Biological Activity	297
Hydrophobic Peptide Segments in Soluble Proteins Competent For Membrane Insertion: Role in Amyloidogenesis	299
Construction and Characterization of Melanocortin-2 and -4 Receptor Chimeras	301
Expression of Double Transmembrane Domain GPCR Fragments for Biophysical Analysis	303
Peptide and Non-Peptide Mimetics Utilize Different Pathways for Signal Transduction	305
Structural Studies on Large Fragments of G Protein Coupled Receptors	309
Isolation of the Influenza A HA2 C-terminal segment by combination of nonionic detergents	311
Molecular Imaging and Orientational Changes of Antimicrobial Peptides in Membranes	313
Glycated-CD59 antigen: exploration of synthetic approaches	317
A combination of ligand SAR and receptor site-directed mutagenesis reveals requirements for antagonist activity at the melanocortin-3 receptor	319
Conformational Effects of Cyclic Hexapeptides for Ion Channel Properties	321
Synthesis and Biological Activities of Cyclic Peptide, Hymenamide Analogs	323
Monitoring Glucagon and Glucagon Antagonist-Mediated Internalization: A Useful Approach to Study Glucagon Receptor Pharmacology	325
Semi-Synthetic Strategies to Obtain Glucosylated MOG to Identify Antibodies as Biomarkers in Multiple Sclerosis Disease	327
Photoprobe Peptides to Map the Interactions of Angiotensin II with its Receptor AT ₁	329

xii Contents

Synthesis and Biological Activity of Transmembrane Peptides Derived from FPR Family Receptors	331
Incorporation of the Unnatural Amino Acid <i>p</i> -benzoyl- <i>L</i> -phenylalanine (Bpa) into a G Protein-coupled Receptor in its Native Context	333
Ion Channel Formation of Dimeric Peptide Enhanced by Electrostatic Inter-Helical Interactions	337
Temperature-induced Ligand Contact Point Variations of the hAT ₁ Receptor and of the Constitutively Active Mutant N111G-hAT ₁	339
Structural changes in the binding pocket of the liganded angiotensin II receptor AT1 during activation.	341
Peptides and Immunity	343
Vaccine delivery utilizing liposaccharides	345
Vaccine Delivery: Synthesis and Investigation of a Highly Pure, Multi-Epitopic Lipopeptide Vaccine Candidate	347
Synthesis of Mannosylated Glycopeptides as Components for Synthetic Vaccines	351
Bradykinin Analogues Acylated On Their N-terminus – Some Recent Development	353
Rationally-designed Multivalent Architectures for Mimicking Homotrimers of CD40L, a Member of the TNF Superfamily	355
A Strategy for Selectively Shielding Portions of a Peptide/Protein from Immune Response while Maintaining Immunogenicity of Contiguous Epitopes	359
Synthesis of Peptide-Based Vaccines	361
A Peptide Vaccine Based on Retro-Inverso β-Amyloid Sequences Fails to Elicit a Cross-reactive Immune response	363
Synthesis and Application of (Z)-Alkene- and (E)-Fluoroalkene-Dipeptide Isosteres as cis -Amide Equivalents	365
Gadd45β dimerization does not affect MKK7 binding	367
A Glycopeptide-based Technique for Selective Antibody Purification	369
C-Terminal Amidation On Aryl Hydrazine Resin	371
Peptides and Infectious Disease	373
Synergy Between a Lead Proline-rich Antibacterial Peptide Derivative and Small Molecule Antibiotics	375
Natural mutants of HIV CTL epitopes with enhanced immunogenicity as potential vaccine candidates	379
Lipodepsipeptide antibiotic fusaricidin and its analogues. Total solid-phase and biological activity.	383
Progress toward Total Solid-Phase Synthesis of Depsipeptide Antibiotic Katanosin B	385
Determination of the minimal fusion peptide of HIV, SIV and BLV fusion glycoproteins	387

Development of a Novel Fusion Inhibitor against T-20-resistant HIV-1	389
e-Peptide Chimeras as Novel Antimicrobials	393
Chemical modifications of short antimicrobial peptides from insects and vertebrates to fight multi-drug resistant bacteria	395
Proteomics and Peptidomics	397
Isolation of Peptides From Rat Tissues: Peptidomics vs. Degradomics	399
Peptides as Diagnostics, Probes, and Biomarkers	401
Multivalent peptidomimetics for tumor targeting	403
Comparison of [18F]FBA and [18F]FPyMe as peptide radio-labeling agents of PEPHC1 for PET imaging of EGFRvIII	405
Carbohydrated [^{99m} Tc(CO) ₃](N ^α His)Ac-Bombesin(7-14) analogs	409
A Synthetic Peptide Approach for Elucidating the Points of Natural Auto-Antibody Reactivity to Proteolytic Fragments of Human IgG	411
Heterobivalent Ligands Crosslink Multiple Cell-Surface Receptors – A Step Towards Personal Medicine	413
Development of Polyvalent Peptide-Conjugated Magnetic Nanoparticles for Targeted In-Vivo Imaging of Micro-Thrombi	415
Design, Selection and Binding Mechanism of Bivalent Miniproteins Targeting Human Γhrombin	417
Quenched Fluorescent Peptide Substrates as Tools for the Discovery of Novel Cardiovascular Disease Biomarkers	419
Solid Phase Synthesis and Analysis of Amadori Peptides	423
Design of Hetero-Bivalent Polypeptides as Kinetics-Based Sensors for High-Sensitivity Detection of Weak Molecular Interactions	425
Monitoring of native chemical ligation by surface plasmon resonance	427
Studies for Identification of the Minimal Epitope(s) mimicked by the Synthetic Glucopeptide CSF114(Glc)	431
Synthesis of Bivalent MSH Ligands and Evaluation of their Binding to hMC4R using MSH Lanthaligand	433
Synthesis Of Organometallic Glycopeptides And Electrochemical Studies To Detect Autoantibodies In Multiple Sclerosis Patients' Sera.	435
Tumor Imaging With Tetrabranched Neurotensin	437
A new and selective radiolabeled $\alpha_V \beta_3$ peptide antagonist as tracer in tumor diagnosis	439
Ribose Building Block For The Synthesis Of Glycopeptides For Fishing Out Antibodies In Autoimmune Diseases	441
Design, Synthesis and Pharmacological Characterization of Fluorescein-Derived Endothelin Antagonists Bq-123 And Bq-788	443

xiv Contents

Peptide Antagonists of the PED-hPLD1 Binding	445
<i>In vivo</i> Imaging Using Tissue Specific Near Infrared fluorescent Peptide Conjugate, c[RGDyK(HiLyte Fluor TM 750)]	447
Photoinduced Intramolecular Covalent Bond Formation in Structurally Rigid -Bpa-(spacer)-Met Hexapeptides	449
Evaluation of chemically and enzymatically prepared cross-linked BNP fragments	451
Monitoring of MMPs activity <i>in vivo</i> , non-invasively, using solubility switchable MRI contrast agent	453
^{99m} Tc-labeled Ac-DEVD Peptides as a Substrate for Measuring Caspase Activity	455
Peptides Leads to the Drugs of Tomorrow Senn Chemicals	457
PepLook: An innovative in silico tool for determination of structure, polymorphism and stability of peptides	459
The Effects of the EW - Peptide Optical and Chemical Isomers on the Hemopoietic Stem Cells in Intact and Irradiated Mice	461
N-(Fluorenyl-9-methoxycarbonyl)amino Acid Amide Derivatives as a New Class of Anti-cancer Agents	465
Opportunities and Challenges of Developing Peptide Drugs in the Pharmaceutical Industry	467
Inhibition of pathogenically-related morphologic transition in <i>Candida albicans</i> by disrupting Cdc42 binding to its effectors	471
Synthesis and Pharmacological Evaluation of Highly Potent [Dmt ¹]DALDA Analogs	473
Protease-resistant glucagon like peptide-1 analogs with long-term anti-diabetes type 2 activity	475
The discovery and development of a natural combinatorial peptide template: the cyclotides	477
Cyclic peptides as VEGF receptor antagonist	479
Facile Synthesis of Hydrocarbon-Stapled Peptides	481
Isolation of angiotensin I converting enzyme inhibitory peptides from a fish by-products hydrolysate Tensideal [®]	483
Novel Melanocortin-4 Receptor Agonists That Decrease Food Intake and Body Weight	485
GHS-1a Agonists That Effectively Stimulate Food Intake and Body Weight Gain	487
Conformation-activity relationships of <i>cyclo</i> -constrained μ/δ opioid agonists derived from the N-terminal tetrapeptide segment of dermorphin/deltorphin	489
Deltorphin analogs restricted via a urea bridge: structure and opioid activity	491
Synthesis and Characterization of Dimeric Venom Peptides	493
Glycosyl-Enkephalins: Synthesis and Binding at the Mu, Delta & Kappa Opioid Receptors. Antinociception in Mice	495

Contents xv

7
9
1
3
5
7
9
1
3
5
7
9
1
3
5
7
9
1
3
5
7
9
1

xvi Contents

Model of Intermolecular Interactions between High Affinity Phosphopeptides and Stat3	543
Inhibition of Stat3 by Cell-Permeable Peptidomimetic Prodrugs Targeted to its SH2 Domain	545
Synthesis and Biological Activity of Conformational Restricted Galanin Fragments	547
Interaction of membrane mimetic vesicles with the antimicrobial peptide gomesin and its analogues	549
Limited Structure-Activity Relationships for Carboxy and AminoTerminal Substitutions of Peptide YY 25-36	551
Cysteine Based PNA (CPNA): Design and Synthesis of Novel CPNA Monomers	553
Synthesis and Biological Activity of Nicotianamine and Analogues	555
The active site specificity of angiotensin II converting enzyme 2 investigated through single and multiple residue changes and β -amino acid substrate analogs.	559
Effects of net charge and the number of positively charged residues on the biological activity of amphipathic α -helical cationic antimicrobial peptides	561
Action of Bauhinia-derivated compounds on Callosobruchus maculatus development	563
Positively charged gramicidin A based peptides form two types of membrane channels	565
Effects of Tumor-Associated Mutations in the p53 Tetramerization Domain on Oligomerization State and Transcriptional Activity	567
Self-association regions in the CARD of Bcl-10	569
GHRP-2 Attenuates Burn-Induced Dysfunctions in Rodents	571
Peptides binding the type E immunoglobulins	573
Evolution of the Synthetic Process to Prepare the Tripeptide Segment of ABT-510	575
Retrocyclin-2: a potent anti-HIV θ -defensin that forms a cyclic cystine ladder structural motif	577
Isothermal Titration Calorimetry and Inhibition of Platelets Aggregation by [D-Phe/(<i>Trans</i> cinnamoyl)-Pro-D-Arg-P1'-CONH2] Peptides Inhibitors of Thrombin	579
Trypsin Stability of Lysine-Peptoid Hybrids	581
Workshop: Production and Formulation of Peptide Drugs Senn Chemicals	583
A Comparative Examination of two Fmoc Removal Reagents for Process Improvement to Produce Peptide Drugs	585
Bicyclic Organo-Peptides as Models for Carbohydrate Binding Proteins	593
Impurity Rejection in the Crystallization of ABT-510 as a Method to Establish Starting Material Specifications	595
Spatially Defined Peptide-Polymer Biotherapeutic Synthesis on Novel Cross-linked Beads with 'Spatially Tunable' and 'Isolated' Functional Sites	597

Contents	xvii
Workshop: Delivery: Peptide Drug to Physiological Target Amylin	601
Supramolecular Aggregates derivatized by CCK8 Peptide as Selective Nanocarriers for Drug Delivery	603
The role of Cell Penetrating Peptides (CPPs) in membrane lipid phase behavior: a novel aspect elucidating peptide-mediated delivery	605
Factors that influence oral bioavailability; A cathepsin K inhibitor for human studies	607
Injectable Biodegradable Polymer Depots For Minimally Invasive Delivery Of Peptides and Proteins	611
Author Index	615
Subject Index	627