Book Reviews

Liposomes. Rational Design. Andrew S. Janoff, Ed. Marcel Dekker, Inc., Cimarron Road, P. O. Box 5005, Monticello, NY 12701-5185, 1999. xxxi, 451 pp., illustrations. $185.00.

It is nice to review a well-edited book on the recent advances related to liposome drug delivery. This collection of review articles continues the high standards established by Marc Ostro in the Marcel Dekker series on Liposomes published in the 80's. The theme is the rational design of liposomes for pharmaceutical applications. The introductory chapter by Florence provides a concise update on the current commercial status of liposomal drug delivery and sets the stage for the chapters to follow.

As appropriate for this theme the early chapters deal with the most important recent advance in liposome drug delivery-steric stabilization. The steric stabilization technology incorporates the hydrophilic polymer-polyethylene glycol(PEG)-linked to a hydrophobic anchor into the bilayer surface. This water-soluble polymer forms a mushroom or brush polymeric envelope that protects the surface of the liposome form interactions with molecules in the aqueous phase and from interaction with other surfaces. The consequence of this PEG coating is that the liposome does not readily interact with plasma proteins or cell surfaces and therefore the PEG-modified liposome has a prolonged circulation time. This has enabled the production of a liposome encapsulated doxorubicin pharmaceutical that provides a passive targeting to solid tumors . This formulation is now commercialized as the DOXIL™ liposome product. This latter topic is nicely covered by the chapter(14) of Gabizon and Barenholz on Liposomal anthracyclines.

The introductory Chapter 1 written by Demetri Papahadjopoulos, prior to his untimely death, provides an overview to the steric stabilization concept and is an excellent entree to Chapter 2 by David Needham and colleagues on the surface chemistry of sterically stabilized PEG-liposomes. This second chapter is worth the price of the book and I highly recommend it. Needham and coworkers have provided a lucid review on how biophysical chemistry can provide insight into the mechanism of steric stabilization. The illustrations are excellent and the salient factors that are important for the steric effect of PEG are explained in a concise and logical manner. In their concluding remarks of their review they suggest how the liposome surface might be further engineered to exploit the properties of PEG-lipids by using a mixture of PEG-chain lengths. A topic that they didn't discuss involves methods to remove the PEG surface coating by environmentally triggers. This could be important in the drug release phase of the delivery process; the polymer coating impedes drug release and bilayer fusion, so that liposome encapsulated macomolecules such as DNA may be delivered to the vicinity of the target cell but may be unable to exit the liposome at appropriate rates to mediate a therapeutic effect.

Other timely chapters include Chapter 5 on the antitumor effects of ether lipids by Bittman and Arthur and one on the antitumor properties of ceramides (Chapter 6) by Perry and colleagues. Both of these areas of research, although long established and well developed in their own right, have not effectively brought to the attention of those working in the area of liposome drug delivery. The important point here is that delivery of these amphipathic compounds may require a bilayer system in order to minimize adverse effects such as red blood cell hydrolysis of these molecules. The juxtaposition of the chapter dealing with the properties of the ether lipids with those of steric stabilization provides fertile material that cries out for the reader to speculate on the suitability of targeted sterically stabilized formulations for delivery of the ether lipids.

It is also enlightening to read Chapter 10 by Perkins on the applications of liposomes with high capture volume. This is an area of liposomal drug delivery research that has not received as much attention as has that related to smaller diameter liposomes. This is because most of the delivery applications require parenteral administration. For the parenteral route, sterilization and the rapid elimination of the large diameter liposome are considered obstacles for their use in drug delivery. Perkins provides a concise review of the various techniques that are available for preparing liposomes with high capture volume, methods to analyze them and a number of intriguing possibilities for their use in drug delivery. Applications in the area of inhalation and topic drug formulations have been proposed in the past but for various reasons have never progressed to approved pharmaceutical products. Perkins also points out the potential for sterilizing liposomes under high pressure but relatively low temperatures. If this method is a widely applicable then a variety of sustained release parenteral products might be both scientifically and commercially feasible.

Finally, for those interested in the patent situation concerning liposomes, in Chapter 17 Bloom has provided a summary of many (but not all) of the patents that might impact the pharmaceutical industry in their development of liposomal formulations. I found it most amusing that the footnote to this chapter is a disclaimer that the author's views should not be construed as a legal opinion. Upon seeing this I started to worry about what footnote I should provide for my review of this book! Not to worry, because I think this book is a very useful addition to the liposome drug delivery literature. The editor has done a remarkable job in selecting the topics and choosing the authors. The volume includes an extensive index and a number of chapters provide the article title in the citation. I highly recommend this outstanding volume and have already passed it around to members of my group to bring them up to speed on the current concepts in liposomal drug delivery.

Francis C. Szoka, Jr., Ph.D.
University of California-San Francisco
School of Pharmacy
513 Parnassus Ave.
San Francisco, CA 94143-0446

Nonprescription Product Therapeutics, W. Steven Pray, Lippincott Williams & Wilkins, A Wolters Kluwer Company 351 West Camden Street, Baltimore, MD 21201-2436., 1999 xiv, 815 pp., illustrations, paper. $85.00.

This textbook provides extensive coverage of the domain of nonprescription drugs and their appropriate use in self care

0724-8741/99/0800-1320$16.00/0

The concept of consumer self care continues to increase and the involvement of pharmacists within that component of pharmacy practice is crucial. This textbook is entirely appropriate for pharmacists intent on developing or further enhancing their knowledge base and skills in this important area. Further, as a textbook it is strongly suggested for consideration by health professional educators who teach nonprescription drugs within the professional curriculum. While the book is directed specifically at pharmacists, it can be used to help educate physicians and nurses, among others, who deal with patients likely to utilize nonprescription drugs.

The eleven main sections of the book employ the systems (e.g., oral and gastrointestinal conditions, respiratory conditions, dermatologic conditions) approach. Each main section then is subdivided into respective chapters germane to a specific disease entity that can be treated by nonprescription drugs (e.g., gastric distress, diarrhea, menstrual discomfort). Most chapters utilize standardized headings such as prevalence of the condition, epidemiology of the condition, etiology of the condition, transmission (when relevant such as in infectious processes), manifestations (i.e., signs and symptoms), specific considerations for the condition, prognosis, complications, treatment, and prevention. The first page of each chapter also provides an outline overview of its contents. Chapter contents are thoroughly referenced and allow the pharmacist to pursue additional information in the professional/scientific literature, if desired.

This book is very user friendly and assists the learner through a dimension of different learning opportunities/strategies. For example, in those chapters dedicated to specific nonprescription drug categories, case studies, titled, "At the Counter," focus on "real world" scenarios and provide a structured method to conduct patient triage, including either referral of the patient to a medical professional, helping the patient select a product, or recommending nondrug measures for the patient to follow. Patient assessment algorithms in these chapters allow the pharmacist to develop a reasoned approach to the triage decision, and help clearly identify those instances when to refer the patient to a health care professional, as well as to recommend specific nonprescription drug ingredients, doses, and/or dosage forms when appropriate.

Counseling the patient on the appropriate use of nonprescription drugs is central to the ability of the patient to effectively use these. The *Counseling Tips* section in each chapter highlights important information that the pharmacist should share during the counseling session. Often times in other textbooks and journal articles nonprescription drug information is provided and it is assumed that the reader (i.e., the pharmacist) will know what to extract and to share with the patient. But, in this text, the highlighted "Tip" logo found within the text helps the pharmacist/student identify important information to share. An innovative *Warning* section in each chapter provides information on dangerous or life-threatening ingredients, actions, and situations that a pharmacist might encounter consistent with the specific category being discussed. Further, a very creative *"Focus On"* section in each chapter presents specific detailed information germane to the topic, but extracted from the main text to enhance its delivery and readability and impact upon the learner.

Figures are used very effectively to enhance the reader's understanding of the medical condition and its treatment provided by the text. The medical illustrations and descriptions enhance the text and thereby increase learning and comprehension. Product tables are numerous throughout the text and provide a non-exhaustive listing of the more prominent nonprescription products for the specific chapter condition.

This book is a very authoritative, in-depth, yet very practical book on nonprescription drug therapy. Because of this and its user friendliness, it should be within the personal library of every pharmacist who practices, and especially found in the library/reference resources section in community and institutional pharmacies. Most importantly, it should be considered by academic pharmacy faculty who teach the very important content area on nonprescription drug therapy and self care.

Nicholas G. Popovich, Ph.D.
Professor and Associate Head
Department of Pharmacy Practice
Purdue University
School of Pharmacy and Pharmacal Sciences
West Lafayette, IN 47907-1335

Aerosol Processing of Materials, Toivo T. Kodas and Mark J. Hampden-Smith. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012., 1999. xxx, 680 pp., illustrations. $175.00.

Despite the title being a little difficult to digest, this text elaborates on the principles and practice of aerosol science and is directed toward inorganic materials and engineering science. Pharmaceutical aerosols get little mention, not a consequence of neglect, more a reflection on the size of the field of aerosol science. In general, the book is well written and nicely illustrated with the chapters logically arranged and individually referenced. All nomenclature is defined at the beginning, although somewhat inconsistently used with equations. Several of the chapter titles are quite "dry". For example, chapter 12, "Overall Qualitative Behavior of Liquid-to-Liquid and Solid-to-Solid Conversion Processes" does not immediately conjure up an appreciation for or urge to read the subject matter. Many have minimal relevance to pharmaceutical processes and the chapters toward the end of the book on film formation, deposition, etching and sintering are rather dull. The introductory chapter defines the book and a nice summary of recommended books in each of the fields that are touched upon is provided. To emphasize the extent that the text goes beyond traditional pharmaceutics, the topics include sintering, reactor design, chemical vapor deposition and clusters. The authors provide the not unexpected introductory chapters on particle size distribution and transport processes. The subsequent chapter on particle growth, evaporation and nucleation has significant pharmaceutical relevance but the discussion on evaporation was disappointing and rather cursory. A more detailed, although indirect examination to this process is given in chapter 12. Useful information can be gleaned from the topic on coagulation and collision. For example, the influence of coagulation on particle size distribution and the concept of self-preserving size distributions are introduced. A short chapter is devoted to intraparticle transport processes which has significance to spray-drying of drugs and proteins where we are only beginning to understand the distribution of molecules within dried droplets. Subsequent

chapters on models, chemistry, nanostructures and gas-to-particle conversion processes have minimal bearing on Pharmaceutics. Chapter 13 discusses the technologies used to generate powders. Unfortunately, spray drying receives only 2 pages of attention compared to the 22 pages devoted to spray pyrolysis, again signifying where the authors' attention is directed.

Overall, although the book has virtually no direct link to pharmaceuticals, the authors compose a completely different perspective on aerosols and thus a careful read of selected chapters will reward the pharmaceutical engineer or aerosol scientist with gems of information that can be applied to their own studies.

Ralph W. Niven, Ph.D.
Vice President of Development
Advanced Inhalation Research, Inc.
840 Memorial Drive
Cambridge, MA 02139

Introduction to the Principles of Drug Design and Action, H. John Smith, Ed., Amsteldijk 166, 1st Floor, 1079 LH Amsterdam, The Netherlands. 1998. xiii, 554 pp., illustrations, paper. $29.00.

Medicinal Chemistry, Pharmaceutics and Clinical Pharmacy have evolved as three distinct and separate fields of pharmaceutical science. This partitioning of subject matter has probably led to information barriers regarding the design of new drugs in a current environment where new technologies, like computer-assisted drug design, offer the most when they can traverse these artificial subject matter constraints. The chapters of this book span all three of these fields of pharmaceutical science. As such this treatise fills the important niche of providing a continuum of reference materials across the three disciplines. This book should be a very useful reference and teaching text in any course designed to survey the drug discovery process from compound synthesis through to evaluation in man.

The book is a composite of chapter contributions from different groups of authors. Often such a collection of chapters leads to a choppy, if not disjoint, theme and manner of presentation. This is not the case for this book. The chapters are presented in an overall common format with respect to organization, tone, and assumed level of knowledge. There is a minimal extent of "shifting of gears" from chapter to chapter.

Computer-assisted drug design is covered explicitly in two chapters and is touched upon in several other chapters. As such, the book does indeed project a strong rational drug design theme. Unfortunately, the two drug design chapters focus on what might be viewed as the two extremes in computer-assisted molecular design—classic two-dimensional QSAR analysis on the one end of the spectrum, and structure-based design using receptor geometry on the other. There is not too much attention given to general techniques and methods of molecular modeling, or to approaches to performing three-dimensional QSAR analysis. In addition, a chapter on biostatistics might have been useful to support and complement the computer-assisted drug design, clinical trial analysis and drug delivery chapters.

The chapters on the design of drug delivery systems, prodrugs and drug chirality are particularly timely and interesting to read. These chapters should be read by medicinal chemists as should the chapter on bio-inorganic chemistry. The contents, concepts and findings reported in these chapters provide the medicinal chemist a larger perspective on what should go into the planning of a drug-candidate compound as compared to targeting only endpoint biopotency. The medicinal chemist, however, will be probably surprised not to find a chapter on combinatorial chemistry and/or molecular diversity. The chapter on recombinant DNA does present a glimpse of molecular diversity through biological, as opposed to, chemical routes.

Three chapters deal with specific therapeutic areas and one chapter focuses on enzyme inhibitors as drugs. The general concern arises that such chapter topics may be too limiting in scope for inclusion in a general treatise, particularly when each chapter has been written by a different set of authors. To some extent this concern is valid for this book, but each chapter also contains useful general ideas, principles, considerations and findings which provide general utility to understanding current practices in drug discovery. The chapter on enzyme inhibitors is particularly well-done regarding an overview of what needs to be considered from the molecular level of binding and kinetics, through to therapeutic fate in man, in order to realize an enzyme inhibitor as an effective drug.

Overall, this is a solid, well-organized collection of chapters each covering important topics in modern pharmaceutical science. The book should become a general reference to practicing pharmaceutical scientists, and could be adopted as the text for any graduate course spanning the fields of research and development employed in the drug discovery process.

A. J. Hopfinger, Ph.D.
University of Illinois at Chicago
Department of Medicinal Chemistry
and Pharmacognosy
College of Pharmacy
833 South Wood Street
Chicago, IL 60612-7231

Books Received

Biomaterials

Biomaterials Regulating Cell Function and Tissue Development. Robert C. Thomson, David J. Mooney, Kevin E. Healy, Yoshito Ikada, and Antonios G. Mikos, Eds. Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086, 1998. vii, 119 pp., illustrations. $79.00.

Concise Polymeric Materials Encyclopedia, Joseph C. Salamone, Ed., CRC Press LLC, 2000 Corporate Blvd. N.W., Boca Raton, FL 33431, 1999. 1663 pp., illustrations, $195.00.

Polyurethanes in Biomedical Applications. Nina M.K. Lamba, Kimberly A. Woodhouse, and Stuart L. Cooper. CRC Press LLC, 2000 Corporate Blvd. N.W., Boca Raton, FL 33431, 1998. ix, 277 pp., illustrations. $139.95.

Surface-Controlled Nanoscale Materials for High-Added-Value Applications, Materials Research Society, Symposium Proceedings, Vol. 501, Kenneth E. Gonslaves, Marie-Isabelle Baraton, Rajiv Sigh, Heinrich Hofmann, Jerry X. Chen, Joseph A. Akkara, Eds., Materials Research Society, 506 Keystone

drive, Warrendale, PA 15086, 1998. xiii, 412 pp., illustrations. $68.00.

Drugs and Drug Discovery

Apoptosis and Cancer Chemotherapy. John A. Hickman and Caroline Dive, Eds. Humana Press, 999 Riverview Drive, Suite 208, Totowa, New Jersey 07512, 1999. xv, 342 pp., illustrations, $99.50.

(Selected topics includes: (1) Function of the p53 gene family; (2) c-Abl tyrosine kinase in apoptotic response; (3) Bcl-2 family proteins; (4) Bax, a death effector molecule; (5) Role of CD95 (APO-1/Fas) systems in chemotherapy; and (6) Central mechanisms of apoptosis).

Combinatorial Chemistry and Molecular Diversity in Drug Discovery. Eric M. Gordon and James F. Kerwin, Jr., Eds. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1998. xxiv, 516 pp., illustrations. $89.95.

Iminosugars as Glycosidase Inhibitors. Norjirimycin and Beyond, Arnold E. Stütz, Ed., John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, 1999. xiv, 397 pp., illustrations, $220.00.

Lincoff & Topol, Platelet Glycoprotein IIb/IIIa Inhibitors in Cardiovascular Disease, A. Michael Lincoff, MD and Eric J. Topol, Eds., Humana Press Inc., 999 Riverview Drive, Suite 208, Totowa, New Jersey 07512., 1999. xiv, 367 pp., illustrations, $125.00.

The Cross Name Index to Medicinal Plants. Anthony R. Torkelson. CRC Press LLC, 2000 Corporate Blvd., N.W., Boca Raton, Florida 33431, 1999. x, 1876 pp. $350.00.

Pharmaceutics

Applied Biopharmaceutics & Pharmacokinetics, Fourth Edition, Leon Shargel and Andrew Yu, Appleton & Lange, Four Stamford Plaza, PO Box 120041, Stamford, Connecticut 06912-0041, 1999. xiv, 738 pp., illustrations, $62.75.

Biopharmaceutical Drug Design and Development, Susanna Wu-Pong and Yongyut Rojanasakul, Eds., Humana Press, 999 Riverview Drive, Suite 208, Totowa, New Jersey 07512, 1999. xii, 435 pp., illustrations, $69.50.

(This book contains a wide array of information related to the development of protein drugs ranging from molecular biology and biotechnology to issues related to formulation and delivery of protein drugs).

Coloring of Food, Drugs, and Cosmetics, Gisbert Otterstätter, Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. xi, 385 pp., illustrations, $185.00.

Coated Pharmaceutical Dosage Forms. Kurt H. Bauer, Klaus Lehmann, Hermann P. Osterwald, and Gerhart Rothgang. medpharm GmbH Scientific Publishers, Birkenwaldstr. 44, D-70191 Stuttgart, Germany, 1998. 280 pp., illustrations. $129.95.

Emulsions and Nanosuspensions for the Formulation of Poorly Soluble Drugs. Rainer H. Müller, Simon Benita, and Bernhard H.L. Böhm, Eds. medpharm GmbH Scientific Publishers, Birkenwaldstr. 44, D-70191 Stuttgart, Germany, 1998. 396 pp., illustrations. Paper. $79.95.

Novel Cosmetic Delivery Systems. Shlomo Magdassi and Elka Touitou, Eds. Marcel Dekker, Inc., Cimarron Road, P.O. Box 5005, Monticello, NY 12701-5185, 1999. xi, 357 pp., illustrations. $165.00.

Pharmaceutical Excipients Characterization by IR, Raman, and NMR Spectroscopy, David E. Bugay and W. Paul Findlay. Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. xii, 699 pp., illustrations, $250.00.

Polymorphism in Pharmaceutical Solids, Harry G. Brittain, Ed., Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016., 1999. ix, 427 pp., illustrations, $185.

(This book summarizes the major issues pertaining to the pharmaceutical aspects of polymorphism and the effects of solvate formation. This is an excellent reference book dealing with principles, analytical methods, practical pharmaceutical concerns, and consequences of the existence of polymorphism and solvate formation).

Pathophysiology

Cerebral Ischemia Molecular and Cellular Pathophysiology, Wolfgang Walz, Ed., Humana Press, 999 Riverview Drive, Suite 208, Totowa, New Jersey 07512, 1999. vi, 262 pp., illustrations, $125.00.

Chemokines and Cancer. Barrett J. Rollins, MD., Ph.D., Ed. Humana Press, 999 Riverview Drive, Suite 208, Totowa, New Jersey 07512, 1999. xii, 320 pp., illustrations, $125.00.

(Recent advances in our understanding of inflammation and immunology are already helping to elucidate the complicated relationship between tumor and host. *Chemokines and Cancer* attempts to assess the current state of knowledge about chemokines as it applies to the cancer problem-from Preface).

Pediatric Asthma, Shirley Murphy and H. William Kelly, Eds., Marcel Dekker, Inc., P.O. Box 5005, Monticello, NY 12701-5185, 1999. xvi, 579 pp., illustrations, $195.00.

Pharmacy Practice

A Practical Guide to Contemporary Pharmacy Practice, Judith E. Thompson, Lippincott Williams & Wilkins, A Wolters Kluwer Company, 12105 Insurance Way, Hagerstown, MD 21740-5176, 1998. x, $32.95.

European Blue List, Karl Feiden, Ed., CRC Press LLC, 2000 Corporate Blvd.,N.W., Boca Raton, Florida 33431, 1999. 1296 pp. 2 ringbinders, illustrations, $348.00.

PharmaSource Dictionary of Pharmacological Agents on CD-ROM with PDR®Generics™. Chapman & Hall/CRCnetBASE, 2000 N.W. Corporate Blvd., Boca Raton, FL 33431, 1999. CD-ROM. $1,595.00.

Kinam Park
Book Review Editor
Purdue University
School of Pharmacy
West Lafayette, IN 47907

Errata

Use of Truncated Areas to Measure Extent of Drug Absorpton in Bioequivalence Studies: Effects of Drug Absorption Rate and Elimination Rate Variability on this Metric. By Jahnavi Kharidia, Andre J. Jackson and Larry A. Ouderkirk. *Pharm. Res.* **16**:130–134 (1999).

There was an error in Table 1 (page 132) for the Danazol data set (top of table) at AUC36. The ratio T/R is given as 1.00, the correct number is 0.91.

Prediction of Membrane Permeability to Peptides from Calculated Dynamic Molecular Surface Properties. By Patric Stenberg, Kristina Luthman and Per Artursson. *Pharm. Res.* **16**:205–212 (1999).

Due to an error, the sections in Table I in the above mentioned manuscript were out of order. The correct table is reproduced below.

Table I. Epithelial Permeability, Structural and Physico-Chemical Properties of the Oligopeptide Derivatives Investigated in this Study

Compound[a]	log P_{app}[b] (cm/s)	$NPSA_d$[c] vacuum (Å^2)	PSA_d[c] vacuum (Å^2)	V_d[c] vacuum (Å^3)	$NPSA_d$[c] water (Å^2)	PSA_d[c] water (Å^2)	V_d[c] water (Å^3)	Ha[c]	Hd[c]	Ht[c]	$logP_{o/wh}$[b]	$\Delta logP$[d]	$logP_{h/eg}$[d]
AcHN-D-ala-phenethylamide	−4.60	257.4	53.9	300.9	266.5	58.8	303.9	6	2	8	0.76	4.29	−4.40
AcHN-D-cha-phenethylamide	−4.26	365.4	52.0	416.4	365.1	56.3	419.0	6	2	8	3.13	4.03	−3.41
AcHN-gly-phenethylamide	−4.65	233.3	57.5	277.8	245.0	61.7	280.1	6	2	8	0.48	4.21	−5.00
AcHN-D-leu-phenethylamide	−4.32	321.4	52.1	367.3	320.5	56.5	368.6	6	2	8	2.03	4.17	−3.69
AcHN-D-phe-phenethylamide	−4.26	341.0	50.7	392.7	346.8	56.7	394.2	6	2	8	2.32	4.32	−3.70
AcHN-D-val-phenethylamide	−4.45	300.1	50.8	344.5	304.5	54.6	346.5	6	2	8	1.59	4.23	−3.77
AcHN-D-ala-D-phe-NHMe	−6.60	291.5	77.8	359.9	296.2	87.5	362.8	9	3	12	−0.06	6.20	−5.83
AcHN-D-cha-D-phe-NHMe	−5.05	402.1	75.0	476.7	404.5	85.0	478.7	9	3	12	2.40	5.81	−5.03
AcHN-gly-D-phe-NHMe	−6.85	273.2	84.6	337.2	275.3	90.9	340.4	9	3	12	−0.30	6.00	−6.17
AcHN-D-leu-D-phe-NHMe	−5.82	358.2	75.1	426.4	359.8	85.2	429.6	9	3	12	1.24	5.85	−5.43
AcHN-D-phe_2-NHMe	−5.55	377.2	75.8	450.8	385.0	85.2	454.0	9	3	12	1.44	5.59	−5.34
AcHN-D-val-D-phe-NHMe	−6.05	335.5	74.4	402.7	338.1	83.5	405.5	9	3	12	0.66	5.99	−5.79
Ac-D-phe-NH_2	−5.10	202.1	69.6	251.7	199.4	75.6	252.6	6	3	9	0.05	4.97	−5.46
Ac-D-phe_2-NH_2	−5.70	333.7	88.0	423.6	340.7	97.3	426.5	9	4	13	1.19	6.48	−6.52
Ac-D-phe_3-NH_2	−5.64	443.9	108.0	599.2	455.1	116.9	603.8	12	5	17	2.30	7.32	−7.10
Ac-D-phe_2-(NMe-D-phe)-NH_2	−5.17	492.9	93.2	623.2	473.2	109.4	621.6	12	4	16	2.63	6.83	−6.28
Ac-D-phe-(NMe-D-$phe)_2$-NH_2	−4.92	492.7	94.3	645.8	485.0	103.4	644.9	12	3	15	2.53	5.63	−5.14
Ac-(NMe-D-$phe)_3$-NH_2	−4.58	510.7	87.8	665.7	510.0	92.0	671.5	12	2	14	2.92	4.59	−4.20
Ac-(NMe-D-$phe)_3$-NHMe	−4.49	552.5	74.0	692.2	554.5	78.4	694.4	12	1	13	3.24	3.93	−2.86

[a] See Figure 1 for compound structures
[b] Data were obtained from (15).
[c] Structural descriptors were determined as described in the methods section.
[d] Data were obtained from (15) except for those pertaining to the D-Phe oligomers which were obtained from (9).

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