

Edith Mathiowitz

Curriculum Vitae

Education

- 1985 **Weizmann Institute of Science, Israel.** Ph.D. in Physical Chemistry. Thesis Advisor: Prof. M.D. Cohen, Head of the Structural Chemistry Department.
- 1979 **Weizmann Institute of Science, Israel.** M.Sc. in Physical Chemistry.
- 1973 **Tel Aviv University, Tel Aviv, Israel.** B.Sc. in Chemistry.

Awards

- 2015 **Fellow of the controlled Release Society**
- 2013 **Member of the National Academy of Inventors**
- 2000 **The Eurand Award for Excellence in Research in the Area of Oral Drug Delivery Systems.**
- 1997 **Fellow AIMBE**
- 1994 **Recognition Award for Excellence in Guiding Graduate Student Research.** Controlled Release Society - Procter & Gamble. Awarded in Nice, France.
- 1991-1993 **Whitaker Foundation Award.**
- 1985-1987 **Bantrell Postdoctoral Fellowship (MIT).**
A competitive award from MIT in the field of surface science.
- 1979-1984 **Feinberg Fellowship, Weizmann Institute of Science, Israel.** A competitive award conferred for graduate research students.
- 1982 **Delek Prize** for distinctive research work (Weizmann Institute of Science, Israel).
- 1973 **Distinction Prize for B.Sc. students** (Tel Aviv University, Israel).

Previous Positions and Professional Experience

1999- present	Professor of Medical Science and Engineering, Department of Molecular Pharmacology & Biotechnology, Director of Graduate Program, Biotechnology. Box B-G393, Providence, RI 02912. Tel (401) 863-1358. Fax (401) 863-1753.
2013 – present	Founder, Consultant, Perosphere Inc
2010 –2013	Founder, CSO, Perosphere Inc.
2008- 2009	Founder and CEO of Perosphere Inc.
2012-2015	CRS Board of Scientific Advisors (BSA)
2005- 2007	Founder, consultant, Spherics.
2004 - 2005	Board member, founder and consultant, Spherics.
1999-2004	Chair woman founder and consultant, Spherics.
1997-1999	President of a start up company, Spherics.
1994-1999	Associate Professor of Medical Science and Engineering, Department of Molecular Pharmacology & Biotechnology, Director of Graduate Program, Artificial Organs, Biomaterials and Cellular Technology. Box B-G393, Providence, RI 02912. Tel (401) 863-1358. Fax (401) 863-1753.
1994-Present	Joint appointment: Associate Professor of Engineering.
1991-1994	Assistant Professor of Medical Science, Director of Graduate Students, Division of Biology and Medicine, Section of Artificial Organs, Biomaterials and Cellular Technology.
1989-1991	Senior Research Scientist in Drug Delivery. In charge of microencapsulation and new polymer development. Enzytech, Inc. 763 Concord Avenue, Cambridge, MA 02138
1987-1991	Visiting Scientist at the Department of Chemical Engineering, MIT. Department of Chemical Engineering, Massachusetts Institute of Technology Cambridge, MA 02139
1987-1989	Research Associate at the Department of Surgery, Children's Hospital, Harvard Medical School.
1984-1986	Postdoctoral Fellow at the Department of Applied Biological Sciences, with Prof. R. Langer. Subject of research: "Development of erodible systems for drug delivery".

- 1985-1986 Lecturer, Pharmacological Engineering, course 20.S35, MIT
- 1979-1984 Research student at the Department of Structural Chemistry, Weizmann Institute of Science, with Prof. M.D. Cohen and the late Dr. A. Raziell. Subject: "Controlled photochemical rupture of microcapsules".
- 1975-1979 Research chemist at the Israel Institute of Biological Research, Nes Ziona, Israel, Polymer Department, in collaboration with the late Dr. A. Raziell, on applied polymer research.
- 1976-1979 M.Sc. degree as an external student at the Weizmann Institute of Science with Prof. M.D. Cohen and the late Dr. A. Raziell on "Release of the contents of microcapsules through controlled rupture by a photochemical method".
- 1973-1975 Army service in the Medical Corps (chemistry), as a lieutenant.
- 1973 Summer student at Prof. G. Navon's Laboratory, Tel Aviv University: "Energy transfer between rare earth metals and phenyl-alanine, in children with phenyl-ketouria".

Teaching Experience

- 1992-present Annual speaker in a short course entitled "Formulation Development of Therapeutic Proteins and Drug Delivery Systems For Peptides and Protein Drugs. Controlled Release Systems for Proteins." organized by the American Chemical Society. Chicago, Illinois.
- 1992- present Teaching Bio 211, "Biomaterials," graduate level course. Biomaterials course is an overview of materials considered biocompatible.
- 1991- present Teaching Bio 109, "Polymers for Artificial Organs" an undergraduate/graduate level course serving as an introduction to polymer science.
- 1990 Lecturer in course on microencapsulation. "Microencapsulation and Nanoencapsulation - Process and Pharmaceutical Applications", Sponsored by the Controlled Release Society, Boston, May 14-15, 1990.
- 1979-1981 Lecturer of chemistry at the "Reali" Gymnasium, Rishon Le Zion, Israel.

1974-1975 Physics and chemistry lecturer in an adult education program at Israel Institute of Biological Research, Ness Ziona, Israel.

Professional Organizations

- Controlled Release Society
- American Chemical Society (Polymer Division)
- American Association for the Advancement of Science
- Material Research Society
- Biomaterials Society
- American Society for Artificial Internal Organs (ASAIO)

Chair Positions

1. Session Chair, Annual Meeting of the Society for Biomaterials, May, 1991, Scottsdale, Arizona.
2. Session Chair, 38th Annual Meeting of the American Society for Artificial Internal Organs (ASAIO), May 1992, Nashville, Tennessee.
3. Session Chair, 19th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, July 1992, Orlando, Florida.
4. Session Chair, XI Congress of the International Society for Artificial Cells, Blood Substitutes, and Immobilization Biotechnology, July 24-27, 1994, Boston, Massachusetts.
5. Session Chair, 22nd International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, July 31-August 2, 1995, Seattle, Washington.
6. Session Chair. "The 24th International Symposium on Controlled Release of Bioactive Materials, Stockholm, Sweden, June 15-19, 1997.
7. Session Chair, "The second Annual Meeting of the Israeli Chapter of the Controlled Release Society", Oral Protein and Gene Delivery, September 18-19, 1997
8. Session Chair, "25th Int'l Symposium on Controlled Release of Bioactive Materials", Microparticles Session, June 20-26, 1998.
9. Session Chair, "45th Anniversary Conference of ASAIO" Trends/Developments in Drug Delivery, June 3-5, 1999, San Diego, CA.
10. Session Chair, CRS 2000, July 7-15, 2000, Paris, France.
11. Session Chair, MRS, Nov.27-29, 2000, Boston, MA.

12. Science chair persons (with two other members) for the Bioactive Sessions for the 32nd Annual Conference of the Controlled Release Society to be held in Miami from June 12 -18, 2005
13. Co-moderate the “Peptide and Protein Delivery” scientific session on Tuesday, July 23 - 10:30 - 12:00, at the 40th Annual Meeting & Exposition of the Controlled Release Society, July 21 – 24, 2013, in the Hawaii Convention Center in Honolulu, Hawaii. The 2013 Annual Meeting
14. Session Chair “Innovations in Oral Drug Delivery” on Monday, July 14 - 10:30 - 12:00, at the 41st Annual Meeting & Exposition of the Controlled Release Society, July 13 – 16, 2014, The Hilton Chicago, Chicago, Illinois, USA.
15. Member of the Non-invasive Macromolecule Consortium organized by Calalent Applied Drug Delivery Institute, lecturing and organizing a panel on oral delivery of proteins, San Diego June 22 2014

University Services

2006	Standing Appeals Committee Meeting
2002-2011	Awards@Benefits committee
1995-present	Biophysics Concentrator
2000-2002	Brown's Goldwater Scholarship Screening Committee
1991-present	Director of Graduate Students, ABC Section
1993	Member of Search Committee for new professor in Pharmacology
1994	Advisor for Sophomore Undergraduates
1995	Member of Search Committee for new professor in Pharmacology
1995	Member of the Materials Research Council
1996 - present	Hillel Advisor

Editorial Activities

- Member of the Editorial Board of the *Journal of Controlled Release* 1999-2014
- Editorial Board Member of our esteemed Journal, *Annals of Medicinal Chemistry and Research*. 2014
- Member of the Controlled Release Society 1996 Kyoto Scientific Programming and Abstract Review Committee
- Member of the Editorial Board of the *Journal of Biomaterials* 1996-2005
- Member of the Editorial Board of the *Journal of microencapsulation*-2000-2007
- Guest Editor for special issue on Drug Delivery Systems for *Journal of Reactive Polymers*
- Editing a book on bioadhesion 1999
- Editing the Encyclopedia of Controlled Drug Delivery Systems 1999

- Scientific Program and Abstract Review Committee Member for the Controlled Release Society, Inc.
- Review papers and books for the following Journals:
 1. *Journal of Controlled Release*
 2. *Biomaterials*
 3. *Journal of Polymers Science, Polymer Chemistry*
 4. *Pharmaceutical Research*
 5. *Biotechnology and Bioengineering*
 6. *American Institute of Chemical Engineering*
 7. *Journal of Physical Chemistry*
 8. *Journal of Pharmaceutics and Biopharmaceutics*
 9. *Nature Biotechnology*
 10. *Macromolecules*
 11. *Nature Medicine*
 12. *ASME Journal*
 13. *Microencapsulation*
 14. *JACS*

Other Activities:

Elected for the Board of Governors of the Controlled Release Society 1997-2001.

Elected for the Board of Governors of the Controlled Release Society 2012-2015

Other review Activities

1) Evaluate the 'New Frontiers' Symposia proposals for World Biomaterials Congress 2016 in Montreal (WBC2016).

National Institute of Health

1. Consultant to NIH Study Section on “Angiogenesis and Breast Cancer”, 1994.
2. Peer review of grant application for the National Heart, Lung and Blood Institute, 1995.
3. Special Study Sections of the National Institute of Diabetes and Digestive and Kidney Diseases: SBIR, March 1995.
4. Special Study Section Meeting: Scientific Review, SBIR, Diabetes and Digestive and Kidney Diseases, July 1995.
5. Special Study Section Meeting: Review of grant applications, Nov. 18-19, 1997
6. Panel of chemistry & related sciences, March 11-12, 1998
7. Special Study Section Meeting: Review of small business applications for drug Development and delivery, March 10-11, 1999
8. SB Study Section-Review of applications, June 13-15, 1999.
9. Biodefense, partnerships: vaccines, adjuvants, therapeutics, diagnostics, and resources. 2003/05 council ZA/1 HSD-M M3, 04/28/2003.
10. Microbicide Innovation Program IV (MIP IV) review. Scientific Review Program/DEA/NIAID/NIH/DHHS, 6700-B Rockledge Drive, Room 3130 Bethesda, MD 20817 Phone: 301 496-7966 Fax: 301 480-2408 2007.

11. Microbicide Innovation Program IV (MIP IV) review. Scientific Review Program/DEA/NIAID/NIH/DHHS, 6700-B Rockledge Drive, Room 3130 Bethesda, MD 20817 Phone: 301 496-7966 Fax: 301 480-2408 October 2008
12. Interdisciplinary Molecular Sciences and Training (IMST) IRG Center for Scientific Review (CSR) National Institutes of Health (NIH)/Department of Health and Human Services 6701 Rockledge Drive, MSC 7840 Rm 5136, Bethesda, MD 20892 20817 (fedex/courier) Telephone: 301-435 1024 (voice) Fax: 301-480 1988 binia@csr.nih.gov. F14 fellowship. July 2009.
13. National Institute of Allergy and Infectious Diseases (NIAID), peer review of grant applications received in response to RFA-AI-08-057: Integrated Preclinical/Clinical Program for HIV Topical Microbicides (IPCP-HTM) (U19) <<http://grants.nih.gov/grants/guide/rfa-files/RFA-AI-08-057.html>. June 2009
14. Scientific Review Officer Contractor/LTS Corporation) Immunology Review Branch DHHS, NIH, NIAID, DEA, SRP 6700-B Rockledge, Rm #3265, Drive MSC 7616 Bethesda, MD 20892-7616 ,Phone: 301-402-5023 ,Fax: 301-480-2310 Email: kantetipv@niaid.nih.gov

List of Publications

1. E. Mathiowitz, "Release of the contents of microcapsules through controlled rupture by a photochemical method," M.Sc. thesis, (1979), The Weizmann Institute of Science, Israel.
2. E. Mathiowitz, A. Raziel, M.D., Cohen, and E. Fischer, "Photochemical rupture of capsules, I. A model system," *Journal of Applied Polymer Science*, 26, 809-822 (1981).
3. E. Mathiowitz, "Controlled photochemical rupture of capsules," Ph.D. thesis, (1984), The Weizmann Institute of Science, Israel.
4. K. Leong, J. Kost, E. Mathiowitz, and R. Langer, "Polyanhydrides for controlled release of bioactive agents," *Biomaterials*, 7, 364-371 (1986).
5. E. Mathiowitz and R. Langer, "Polyanhydride microspheres as drug carriers. I. Hot melt microencapsulation." *Journal of Controlled Release*, 5, 13-22 (1987).
6. E. Mathiowitz, M.D. Cohen, and R. Langer, "Novel microcapsules for delivery systems," *Reactive Polymers*, 6, 275-283 (1987).
7. F.F. Ghodsian, L. Brown, E. Mathiowitz, D. Brandenburg, and R. Langer, "Enzymatically controlled drug delivery," *Proc. Nat. Acad. Sciences, USA*, 85, 2403-2406, (1988).

8. E. Mathiowitz, W.M. Saltzman, A. Domb, Ph. Dor, and R. Langer, "Polyanhydride microspheres as drug carriers. II. Microencapsulation by solvent removal," *Journal of Applied Polymer Science*, 35, 755-774 (1988).
9. E. Mathiowitz and M.D. Cohen, "Polyamide microcapsules for controlled release, I. Characterization of the membranes," *Journal of Membrane Science*, 40, 1-26 (1989).
10. E. Mathiowitz and M.D. Cohen, "Polyamide microcapsules for controlled release, II. Release characteristics of the microcapsules," *Journal of Membrane Science*, 40, 27-41 (1989).
11. E. Mathiowitz and M.D. Cohen, "Polyamide microcapsules for controlled release, III. Spontaneous release of azobenzene," *Journal of Membrane Science*, Vol. 40, 43-54. (1989).
12. E. Mathiowitz and M.D. Cohen, "Polyamide microcapsules for controlled release, IV. Effects of swelling," *Journal of Membrane Science*, 40, 55-65 (1989).
13. E. Mathiowitz and M.D. Cohen, "Polyamide microcapsules for controlled release, V. Photochemical release," *Journal of Membrane Science*, 40, 67-86 (1989).
14. C. Bindschaedler, K. Leong, E. Mathiowitz, and R. Langer. "Polyanhydride microspheres formulation by solvent extraction," *J. Pharm. Sci*, 77, No. 8, 696-698, (1989).
15. M. A. Howard III, A. Gross, M. S. Grady, R. Langer, E. Mathiowitz, H.R. Winn, M. R. Mayberg, "Intracerebral drug delivery in rats reverses lesion-induced memory deficits," *J. of Neurosurgery*, 71, 105-112, (1989).
16. E. Mathiowitz, Ph. Dor, C. Amato and R. Langer. "Polyanhydride microspheres as drug carriers. III Morphological characterization of microspheres by solvent removal," *Polymer*, 31, 547-555, 1990.
17. E. Mathiowitz, E. Ron, G. Mathiowitz and R. Langer, "Morphological characterization of bioerodible polymers. I. Crystallinity of polyanhydride copolymers." *Macromolecules*. 23, 3212-3218, 1990.
18. E. Mathiowitz, D Kline and R. Langer. "Morphology of polyanhydride microsphere delivery systems," *J. of Scanning Microscopy*, 4, 329-340, 1990.
19. M. Chasin, E. Ron, E. Mathiowitz, K. Leong, C. Laurencin, H. Brem, B. Grossman and R. Langer. "Polyanhydrides as drug delivery systems," in *Biodegradable Polymers as Drug Delivery Systems*. Eds., R. Langer and M. Chasin, (Marcel Dekker Inc., NY), pp.43-70, 1990.
20. E. Ron, E. Mathiowitz, G. Mathiowitz and R. Langer," NMR characterization of erodible copolymers." *Macromolecules*, 24, 2278-2282, 1991.

21. E. Mathiowitz and R. Langer., "Polyanhydride microspheres as drug delivery systems," in *Microcapsules in Medicine and Pharmacy*, (M. Donbrow, ed), CRC, NY, p. 99-123, 1991.
22. Domb, E. Mathiowitz, E. Ron, S., Giannos and R. Langer, "Polyanhydrides IV. Unsaturated and crosslinked polyanhydrides," *Journal of Polymer Science*, 29, 571-579, 1991.
23. Staubli, E. Mathiowitz and R. Langer, "Characterization of hydrolytically degradable amino acid-containing poly(anhydride-co-imides)," *Macromolecules*, 24, 2283-2290, 1991.
24. Staubli, E. Mathiowitz and R. Langer, "Sequence distribution and its effect on glass transition temperatures of poly(anhydride-co-imides) containing asymmetric monomers," *Macromolecules*, 24, 2291-2298, 1991.
25. G. Mikos, E. Mathiowitz, R. Langer and N. Peppas, "The interaction of polymer microspheres with mucin gels as a means of characterizing polymer retention on mucous," *J. of Colloid and Interface Science*, 143, 366-373, 1991.
26. E. Edelman, E. Mathiowitz, R. Langer and M. Klagsbrum, "Controlled and modulated release of fibroblast growth factor," *Biomaterials*, 12, 619-626, 1991.
27. H. Bhagate, R. Mendes, E. Mathiowitz, H. Bhargava, . "A novel, self-correcting membrane coating technique," *Pharmaceutical Research*, vol. 8, 576-583, 1991.
28. E. Mathiowitz, H. Bernstein, Ph. Dor, T. Turek and R. Langer. "Polyanhydride microspheres as drug carriers. IV morphological characterization of microspheres by spray drying," *J. of Applied Polymer Science*, 45, 125-134, 1992.
29. D. Chickering, J.S. Jacob, A. Keung, T.A. Desai and E. Mathiowitz. "Attachment of Mucin Specific Lectins to Alginate for Use as Bioadhesives," *Proceedings of the Materials Research Society Fall Meeting: Biomaterials for Drug and Cell Delivery*, 1993, 331, pp. 67-71.
30. E. Mathiowitz, M. Kreitz and K. Pekarek. "Morphological characterization of bioerodible polymers. 2. Characterization of polyanhydrides by FTIR," *Macromolecules*, 26, 6749-6755, 1994.
31. E. Mathiowitz, J. Jacob, K. Pekarek and D. Chickering, "Morphological characterization of bioerodible polymers. 3. Characterization of the erosion and intact zones in polyanhydrides using scanning electron microscopy," *Macromolecules*, 26, 6756-6765, 1994.
32. Pekarek, J. Jacob and E. Mathiowitz "Double-walled Microspheres for Controlled Drug Release," *Nature*, 367, 258-260, January 20, 1994.

33. K. Pekarek, J. Jacob and E. Mathiowitz "One-step preparation of double-walled microspheres," *Advanced Materials*, 6, No. 9, 684-687, 1994.
34. D. Chickering, J. Jacob, and E. Mathiowitz. "Bioadhesive microspheres: II. Characterization and evaluation of bioadhesion involving hard, bioerodible polymers and soft tissue," *Reactive Polymers*, 25, 189-206, 1995.
35. D. Chickering, and E. Mathiowitz. "Bioadhesive microspheres: I. A Novel electrobalance-based method to study adhesive interactions between individual microspheres and intestinal mucosa," *J. Controlled Release*, 34, 251-261, 1995.
36. D. Chickering, W. P. Harris and E. Mathiowitz, "A Micro-Tensiometer for the Analysis of Bioadhesive Microspheres," *Bioinstrumentation and Technology*, Nov/Dec 501-512, 1995. This paper was the winner of the 1995 Spacelabs Medical Inc./AAMI Annual Meeting Research Manuscript Award.
37. D. Chickering, J. Jacob and E. Mathiowitz, "Poly(Fumaric-co-Sebacic) Microspheres as Oral Drug Delivery Systems," *Biotechnology and Bioengineering*, 52, 96-101, 1996.
38. K. Pekarek, M. Dyrud, K. Ferrer, Y. Jong, E. Mathiowitz, "In Vitro and *In Vivo* Degradation of Double-Walled Polymer Microspheres," *J. Controlled Release*, 40, 169-178, 1996.
39. Nair RE, Jong YS, Jones SA, Sharma A, Mathiowitz E, Egilmez NK. IL-12 + GM-CSF microsphere therapy induces eradication of advanced spontaneous tumors in her-2/neu transgenic mice but fails to achieve long-term cure due to the inability to maintain effector T-cell activity. *J Immunother*. 2006 Jan-Feb;29(1):10-20.
40. Y. Jong, J. Jacob, K. Yip, G. Gardner, E. Seitelman, M. Whitney, S. Montgomery, and E. Mathiowitz, "Controlled Release of Plasmid DNA," *J. Controlled Release*, In press, 1997.
41. D. Chickering, J. Jacob, T. Desai, M. Harrison, W. Harris, C. Morrell, P. Chaturvedi and E. Mathiowitz. "Bioadhesive Microspheres: III. An *In Vivo* Transit and Bioavailability Study of Drug-Loaded Alginate and Poly (Fumaric-co-Sebacic Anhydride) Microspheres," *J. Controlled Release*, vol.48 p 1-8, 1997.
42. M. Kreitz, W. Webber, P.M.Galletti, and E. Mathiowitz, "Controlled Delivery of Therapeutics from Microporous Membranes I. Fabrication and Characterization of Microporous Polyurethane Membranes Containing Polymeric Microspheres," *Biomaterials* 18, 597-603, 1997.
43. E. Mathiowitz, J. Jacob, Y. Jong, G. Carino, D. Chickering, P. Chaturvedi, C. Santos, K. Vijayaraghavan, S. Montgomery, M. Bassett and C. Morrell, "Biologically Erodable Microspheres as Potential Oral Drug Delivery Systems," *Nature* 386, 410-414, 1997.

44. Y. Jong, J. Jacob, K. Yip, G. Gardner, E. Seitelman, M. Whitney, S. Montgomery, and E. Mathiowitz, "Controlled Release of Plasmid DNA," *J. of Controlled Release* 47, 123-134, 1997.
45. K. Pekarek Leach, K. Noh, and E. Mathiowitz, "Effects of Manufacturing Conditions of the Formation of Double-walled Polymer Microspheres," *Microencapsulation*, 16, 2 153-167, 1999
46. K. Pekarek Leach, and E. Mathiowitz," Degradation of Double-walled Polymer Microspheres of PLLA and P(CPP:SA) 20:80.I.*In vitro* Degradation", *Biomaterials*, 19, 1973-1980, 1998
47. K. Pekarek Leach, S.Takahashi, and E. Mathiowitz, "Degradation of Double-walled Polymer Microspheres of PLLA and P(CPP:SA)20:80.II *In Vivo* degradation" *Biomaterials*, 19, 1981-1988, 1998
48. W. Webber, F. Lago, and E. Mathiowitz, "Characterization of Soluble Salt Loaded Degradable PLA/PG Films and Their Release of Tetracycline," *Biomedical Materials Research*, 41, 18-29, 1998
49. M.Kreitz, J.Domm, and E.Mathiowitz, "Controlled delivery of therapeutics from microporous membranes.II. *In Vitro* degradation and release of heparin-loaded poly(D, L-lactide-co-glycolide)"*Biomaterials*, 18 1645-1651, 1997
50. N.Egilmez, Y.Jong, J.Jacobs, C.Santos, E.Mathiowitz, Y.Iwanuma, R.Bankert, "Cytokine immunotherapy of cancer with controlled release biodegradable microspheres in a human tumor xenograft/SCID mouse model, *Cancer Immunology Immunotherapy*, 1998 Mar; 46(1):21-4.
51. C.Santos, B.Freedman, K.Leach, D.Press, M.Scarpulla, E.Mathiowitz, "Polytumaric-co-sebacic anhydride:A Degradation Study as Evaluated by FTIR, DSC, GPC, and X-ray Diffraction". *Journal of Controlled Release*, 60 (1), 11-22, 1999
52. Y.Jong, N.Egilmez, F-A.Chen, J.Jacob, L.Smith, T.Mottl, R.Bankert, E, Mathiowitz, "Evaluation of cytokine delivery systems for cancer immunotherapy", *Proceedings of the Material Research Society*, 1999
53. N.Egilmez, Y.Jong, F-A.Chen, J.Jacob, E.Mathiowitz, R.Bankert, "Cytokines delivered by biodegradable microspheres promote effective suppression of human tumors by human peripheral blood lymphocytes in the SCID/WINN model", *J Immunother.* 2000 Mar-Apr;23(2):190-5.

54. M.Kuriakose, F-A.Chen, N.Egilmez, Y.Jong, E.Mathiowitz, M.Delacure, “W.Hicks, T.Loree, R.Bankert, Interleukin-12 delivered by biodegradable microspheres promotes the antitumor activity of human peripheral blood lymphocytes in a human head and neck tumor xenograft/SCID mouse model”, *Head and Neck*. 2000 Jan;22(1):57-63.
55. G.Moodie, D.Ferris, B.Hertzog, C.Chen, E.Mathiowitz, R.Valentini, “Early osteoblast attachment, spreading, and focal adhesion on RGD coated surfaces” *Materials Research Society Symposium Proceedings*, 1999
56. E.Mathiowitz, D.Chickering, C-M Lehr, editors “Bioadhesive Drug Delivery Systems Fundamentals, Novel Approaches & Development” Marcel Dekker, Inc, 1999
57. E. Mathiowitz, editor “Encyclopedia of Controlled Drug Delivery” vol 1&11, John Wiley pub.1999
58. D.Chickering, C.Santos, E.Mathiowitz, “Adaption of a Microbalance to Measure Bioadhesive Properties of Microspheres”, E.Mathiowitz, D.Chickering, C-M Lehr, editors “Bioadhesive Drug Delivery Systems Fundamentals, Novel Approaches & Development” Marcel Dekker, Inc, 131-146,1999.
59. D.Chickering, E.Mathiowitz, “Definitions, Mechanisms, and Theories of Bioadhesion”, *Bioadhesive Drug Delivery Systems*, 1999 p 1-10.
60. B.Hertzog, E.Mathiowitz, “Novel Magnetic Technique to Measure Bioadhesion” *Bioadhesive Drug Delivery Systems*, 1999
61. G.Carino, J.Jacobs, C.J.Chen, C.Santos, B.Hertzog, E.Mathiowitz, “Bioadhesive, Bioerodible Polymers for Increased Intestinal Uptake” *Bioadhesive Drug Delivery Systems*, 1999
62. E.Mathiowitz, M.Kreitz, “Microencapsulation” *Encyclopedia of Controlled Drug Delivery*, 1999
63. E.Mathiowitz, D.Chickering, J.Jacob, C.Santos, “Bioadhesive Drug Delivery Systems” *Encyclopedia of Controlled Drug Delivery*, 1999
64. C.A.Santos, J.S.Jacob, B.A.Hertzog, B.D.Freedman, D.L.Press, P.Harnipicharnchai, E.Mathiowitz, “Correlation of two Bioadhesion assays: the everted sac technique and the CAHN Microbalance” *Journal of Controlled Release*, 1999
65. G.Carino, E.Mathiowitz, “Oral Insulin Delivery” *Advanced Drug Delivery Reviews*, 1999
66. B A Hertzog, CA Santos, P May, E Mathiowitz, “Tensile Testing of AxyaLoop™ Ultrasonically Welded Suture in Ligament Repair” *Axya Medical*, 1999

67. E. Mathiowitz, J. Jacob, Y. jong, T. M. Henkal, W. S. Spano, R. Guemonprez, A.M. Klibanov, R. Langer."Novel desiccants Based on Designed Polymeric Blends"*J. Applied Polymer Science*, 80,317-327,2001.
68. N.Egilmez, Y.Jong, M.Sabel, J.Jacob, E.Mathiowitz, R.Bankert, "In Situ Tumor Vaccination with Interleukin-12-encapsulated Biodegradable Microspheres:Induction of Tunor Regression and Patent Antitumor Immunity", *Cancer Research* 60, 3832-3837, July, 2000
69. M.Sandor, P.D Ensore, Weston, E.Mathiowitz, "Effect of protein molecular weight on release from micron-sized PLGA microspheres *Journal of Controlled Release* 7, 297-311, 2001
70. M.Sandor, NA Bailey, E Mathiowitz "Characterization of polyanhydride microsphere degradation by DSC," *Polymers*, 43/2, pp279-288, 2001
71. E Mathiowitz, JS Jacob, YS Jong, TM Hekal, W Spano, R Guemonprez, AM Klibanov, R Langer, "Novel Desiccants Based on Designed Polymeric Blends", *Journal of Applied Polymer Science*, 80, 317-327, 2001
72. M. Sandor, A Riechel, I Kaplan, E Mathiowitz, "Effect of Lecithin and MgCO₃ as additives on the enzymatic activity of carbonic anhydrase encapsulated in PLGA microspheres" *Biochemica et Biophysica Acta*,1570,1, 69-74.2002
73. J Godbee, P Weston, E Mathiowitz, "The effects of infiltration on protein release from multi-phase microspheres fabricated via solvent removal" accepted by *Journal of Microencapsulation*, 19,783-796, 2002.
74. NA Bailey, M Sandor, M Kreitz, E Mathiowitz, "Comparison of the Enthalpic Relaxation of Poly(Lactide-Co-Glycolide) 50:50 Nanospheres and Raw Polymer" *J Applied Polymer Science*, 86,1868-1872, 2002.
75. M. Sandor, J Harris, E Mathiowitz, "A Novel Polyethylene Depot Device for the Study of PLGA Microspheres *in Vitro* and *in Vivo*" *Biomaterials*, 23,4413-4423, 2002.
76. M. Sandor, S Mehta, J Harris, C Thanos, J Marshall, P Weston "Transfection of HEK Cells via DNA-leaded PLGA and P(FASA)" *J Drug Targeting*, 10, 497-506, 2002.
77. Hill HC, Conway TF Jr, Sabel MS, Jong YS, Mathiowitz E, Bankert RB, Egilmez NK. Free Full Text Cancer immunotherapy with interleukin 12 and granulocyte-macrophage colony-stimulating factor-encapsulated microspheres: coinduction of innate and adaptive antitumor immunity and cure of disseminated disease. *Cancer Res.* 2002 Dec 15;62(24):7254-63.
78. CA Santos, BD Freedman, S Ghosn, JS Jacob, M Scarpulla, DJ Ensore, E Mathiowitz, "Effect of Polyanhydride Microsphere Composition on Bioadhesion. Evaluation of anhydride oligomers" *Biomaterials*, 24,3571-3583,2003

79. CG C Thanos, Z Liu, J Reineke, E Edwards and E Mathiowitz, *Improving Relative Bioavailability of Dicumarol by Reducing Particle Size and Adding the Adhesive Poly (Fumaric-co-Sebacic) Anhydride*. *Pharmaceutical Research*. Volume 20, Number 7, July 2003; 1093-1100.
80. C Thanos, Z Liu, M Goddard, J Reineke, N Bailey, M Cross, R Burrill and E Mathiowitz, *Enhancing the Oral Bioavailability of the Poorly Soluble Drug Dicumarol with a Bioadhesive Polymer*. *Journal of Pharmaceutical Sciences*. Volume 92, Issue 8, May 2003; 1677-89.
81. Hess SD, Egilmez NK, Bailey N, Anderson TM, Mathiowitz E, Bernstein SH, Bankert RB. "Human CD4+ T cells present within the microenvironment of human lung tumors are mobilized by the local and sustained release of IL-12 to kill tumors in situ by indirect effects of IFN-gamma." *J. Immunol.* Jan 1;170(1):400-412, 2003.
82. J.J. S, M. Edith, A Novel Mechanism for Spontaneous Encapsulation of Active Agents: Phase Inversion Nanoencapsulation, in: ACS Symposium Series CY , American Chemical Society, Washington, DC, 2011: pp. 214–223–223.
83. J. Godbee, E. Scot, P. Pattamunuch, S. Chen AND E. Mathiowitz "The role of solvent/non-solvent ratio on microsphere formation using the solvent removal method" *Microencapsulation*, Vol. 21, p 151-160, 2004.
84. M. S. Sabel, J. Skitzki, L. Stoolman, N.K. Egilmez, E. Mathiowitz, N. Baily, W.J. Chang and A.E. Chang "Intratumoral IL-12 and TNF-a Loaded Microspheres leads To regression of Breast cancer and Systemic Anti –Tumor Immunity". *Annals of Surgical Oncology*, 11(2), 147 –156 2003
85. Claudia Carvalho-Queiroz¹, Rosemary Cook¹, Ching C. Wang², Rodrigo Correa-Oliveira¹, Nicola A. Bailey⁴, Nejat K. Egilmez¹, Edith Mathiowitz⁴ and Philip T. LoVerde^{1*} *Schistosoma mansoni* cytosolic superoxide dismutase, a vaccine candidate that targets adult worms: cross-reactivity with host superoxide dismutase and identification of parasite-specific B epitopes. *Infection and Immunity (IAI)*. 2004 May;72(5):2635-47.
86. J. Godbee, P. Pattamunuch, E. Scott, and E. Mathiowitz. Degradation of Multi-phase Microspheres Fabricated via Solvent Removal. *Journal of Microencapsulation*. 21(3) 2004: 331-352.
87. CG Thanos, K-P. Yip, and E. Mathiowitz Intestinal Uptake of Polymeric Microspheres In The Rabbit Studies With Confocal Microscopy. *Journal of Bioactive and Compatible Polymers*, Vol. 19, July 2004: 247-266.
88. N.A. Rahman, E. Mathiowitz. Localization of bovine serum albumin in double-walled microspheres. *Journal of controlled release*. 94,163-175, 2004.

89. Sharma A, Harper CM, Hammer L, Nair RE, Mathiowitz E, Egilmez NK. Abstract Characterization of cytokine-encapsulated controlled-release microsphere adjuvants. *Cancer Biother Radiopharm.* 2004 Dec;19(6):764-9.
90. Ciombor DM, Jaklenec A, Liu Z, Thanos C, Rahman N, Wetson P, Aaron R, Mathiowitz E. *Encapsulation of BSA using a modified W/O/O emulsion solvent removal method.* *J Microencapsulation* 2006 March; 23(2): 183-194.
Jaklenec A, Mallet, V, Fu K, Lotan N, Langer R. *Heparin - poly(lactic acid-co-glycolic acid) hybrid: a multifunctional biomaterial.* *J Biomed Mater Res, Part A.*
91. Arora A, Su G, Mathiowitz E, Reineke J, Chang AE, Sabel MS. Neoadjuvant intratumoral cytokine-loaded microspheres are superior to postoperative autologous cellular vaccines in generating systemic anti-tumor immunity. *J Surg Oncol* 2006;94:403-12
92. M Sabel, A Arora, J Skitzki, G Su, E Mathiowitz, J Reineke, L Stoolman and A Chang, *Synergistic Effect of Intratumoral IL-12 and TNF- α Microspheres: Systemic Anti-Tumor Immunity is Mediated by the Induction of a CD8+ CTL Response.* *Journal of Immunotherapy.* *Ann Surg Oncol.* 2004 Feb;11(2):147-56.
93. Arora A, Su G, Mathiowitz E, Reineke J, Chang AE, Sabel MS. Neoadjuvant intratumoral cytokine-loaded microspheres are superior to postoperative autologous cellular vaccines in generating systemic anti-tumor immunity. *J Surg Oncol* 2006;94:403-12
94. L Broderick, S Yokota, J Reineke, E Mathiowitz, C Stewart, M Barcos, R Kelleher and R Bankert, *Human CD4+ Effector Memory T Cells Persisting in the Microenvironment of Lung Cancer Xenografts are Activated by Local Delivery of IL-12 to Proliferate, Produce INF-g, and Eradicate Tumor Cells.* *Journal of Immunology.* Volume 174, 2005; 898-906.
95. Aaron RK, Ciombor DM, Lysaght M, Mathiowitz E, Ehrlich MG. Regenerative medicine for limb trauma. *Med Health R I* 2007;90:6-9.
96. Morello AP, 3rd, Burrill R, Mathiowitz E. Preparation and characterization of poly(methyl methacrylate) - iron (III) oxide microparticles using a modified solvent evaporation method. *J Microencapsul* 2007;24:476-91.
97. Morello AP, 3rd, Forbes N, Mathiowitz E. Investigating the effects of surfactants on the size and hydrolytic stability of poly(adipic anhydride) particles. *J Microencapsul* 2007;24:40-56.
98. Sabel MS, Arora A, Su G, Mathiowitz E, Reineke JJ, Chang AE. Synergistic effect of intratumoral IL-12 and TNF- α microspheres: systemic anti-tumor immunity is mediated by both CD8+ CTL and NK cells. *Surgery.* 2007 Nov;142(5):749-60.

99. Sabel MS, Arora A, Su G, Griffith KA, Mathiowitz E, Reineke JJ, Chang AE. Generation of a tumor-specific systemic response after intratumoral injection of IL-12 and IL-18-loaded polylactic acid microspheres. *J Immunother*. 2007 Nov-Dec;30(8):808-16.
100. Mathiowitz E. Drug delivery systems. *Toxicol Pathol*. 2008; (2): 185-192. Jacklenec A, Wan E, Murray ME, Mathiowitz E. Novel scaffolds fabricated from protein-loaded microspheres for tissue engineering. *Biomaterials* 2008;(2):185-92.
101. Furtado S, Abramson D, Burrill R, Olivier G, Gourd C, Bubbers E, Mathiowitz, E. Oral delivery of insulin loaded poly(fumaric-co-sebacic) anhydride microspheres. *Int J Pharm*. 2008;347(1-2):149-55.
102. Stacia Furtado, Danielle Abramson, Liat Simhkay, Daniel Wobbekind, Edith Mathiowitz, Subcutaneous delivery of insulin loaded poly(fumaric-co-sebacic anhydride) microspheres to type 1 diabetic rats *European Journal of Pharmaceutical and biopharmaceutics*, Volume 62 , June 2006, Pages 229–236
103. Jacklenec A, Hinkfuss A, Bilgen B, Ciombor DM, Aaron R, Mathiowitz E. Sequential release of bioactive IGF-I and TGF-beta(1) from PLGA microsphere-based scaffolds. *Biomaterials* 2008; (10): 1518-25.
104. Laulicht B, Cheifetz P, Mathiowitz E, Tripathi A. Evaluation of continuous flow nanosphere formation by controlled microfluidic transport. *Langmuir*. 2008 Sep 2;24(17):9717-26. 2008 Aug 6.
105. Mathiowitz E. Drug delivery systems. *Toxicol Pathol*. 2008;36(1):16-20.
106. Laulicht, B., et al., Are in vivo gastric bioadhesive forces accurately reflected by in vitro experiments? *J Control Release*, 2009. 134(2): p. 103-10.
107. Laulicht, B., Nicholas J Gidmark, Anubhav Tripathi, and Edith Mathiowitz., Understanding gastric forces calculated from high-resolution pill tracking. *Proc Natl Acad Sci U S A*, 2010. 107(18): p. 8201-6.
108. Bryan Laulicht, Nicholas J Gidmark, Anubhav Tripathi, and Edith Mathiowitz., Localization of magnetic pill. *Proc Natl Acad Sci U S A*, 2011, 108(6): 2252-57
109. R. Patel*, D. Cho*, C. Tian, A. Chang, K. Estrellas, D. Lavin, S. Furtado, and E. Mathiowitz. Doxycycline delivery from PLGA microspheres prepared by a modified solvent removal method. *Journal of Microencapsulation*, 29(4): 344-52, 2012.
110. Lavin DM, Harrison MW, Tee LY, Wei KA, Mathiowitz E., “A novel wet extrusion technique to fabricate self-assembled microfiber scaffolds for controlled drug delivery”., *J Biomed Mater Res A*. 100(10):2793-802, 2012

111. Lavin DM, Harrison, R. MW, Tee LY, Wei KA, Mathiowitz E., “Multifunctional polymeric microfibers with prolonged drug delivery and structural support capabilities”. *Acta Biomaterialia*, 8(5):1891-1900, 2012
112. Patel RS, Cho DY, Tian C, Chang A, Estrellas KM, Lavin D, Furtado S, Mathiowitz E. “Doxycycline delivery from PLGA microspheres prepared by a modified solvent removal method.” *J Microencapsul.* 2012;
113. Lavin DM, Zhang L, Furtado S, Hopkins RA, Mathiowitz E. “Effects of protein molecular weight on the intrinsic material properties and release kinetics of wet spun polymeric microfiber delivery systems.” *Acta Biomater.* 2013 Jan;9(1):4569-78. doi: 10.1016/j.actbio.2012.08.005. Epub 2012 Aug 16.
114. Laulicht B, Mancini A, Geman N, Cho D, Estrellas K, Furtado S, Hopson R, Tripathi A, Mathiowitz E. “Bioinspired bioadhesive polymers: dopa-modified poly(acrylic acid) derivatives”. *Macromol Biosci.* 2012 Nov;12(11):1555-65. doi: 10.1002/mabi.201200179. Epub 2012 Sep 24.
115. Lavin DM, Hopkins, E. Mathiowitz,” Effects of protein molecular weight on the intrinsic material properties and release kinetics of wet spun polymeric microfiber delivery” *Acta Biomaterialia*, 9(1): 4569-78, 2013.
116. Jingxuan Shan, Shoba DSousza, Sasha Bakhru, Eman Al-Azwani, Maria Ascierito, Konduru, Sastry, Shahinaz Bedri, Dhanya Kizhakayil, Idil, Aigha, Joel Malek, Issam Al-Bozom, Salah, Gehani, *Stacia Furtado*, Edith Mathiowitz, EnaWang, Francesc Marincola, and Lotfi Chouchane. TNRC9 down-regulates BRCA1 expression and promotes breast cancer aggressiveness. *Cancer Research.* 2013
117. J. Reineke, D.Y. Cho, Y.L. Dingle, P. Cheifetz, B. Laulicht, D. Lavin, S.Furtado, E. Mathiowitz, “Can bioadhesive nanoparticles allow for more effective particle uptake from the small intestine. *JCR Volume 170, Issue 3, 28 September 2013, Pages 477–484*
118. Mathiowitz E, Lavin DM, Hopkins RA. Wet-spun microfibers: potential in the design of controlled-release scaffolds. *Ther. Deliv.* 4(9), 1075–1077 (2013).
119. Joshua J. Reineke, Daniel Y. Cho, Yu-Ting Dingle, A. Peter Morello III, Jules Jacob, Christopher G. Thanos, Edith Mathiowitz a Unique insights into the intestinal absorption, transit, and subsequent biodistribution of polymer-derived microspheres. *PNAS*, vol. 110 no. 34, 13803–13808, 2013
120. Sasha H Bakhru, Stacia Furtato, A. Peter Morello, Edith Mathiowitz., Oral delivery of proteins by biodegradable anoparticles., *Advanced drug delivery reviews ADDR Volume 65, Issue 6, 15 June 2013, Pages 811–821.*

121. Allen Y. Chung, Qingsheng Li, Sarah J. Blair, Magdia De Jesus, Kristen L. Dennis, Charles LeVea, Jin Yao, Yijun Sun, Thomas F. Conway, Lauren P. Virtuoso, Nicholas G. Battaglia, Stacia Furtado, Edith Mathiowitz, Nicholas J. Mantis, Khashayarsha Khazaie and Nejat K. Egilmez *Cancer Res October 1, 2014 74:5377-5385*; *Published Online First September 16, 2014*; doi:10.1158/0008-5472.CAN-14-0918 Oral Interleukin-10 Alleviates Polyposis via Neutralization of Pathogenic T-Regulatory Cells. *Cancer research* 2014, **74**(19): 5377-5385
122. Oral Delivery Of Particulate Transforming Growth Factor Beta 1 And All-Trans Retinoic Acid Reduces Gut Inflammation In Murine Models Of Inflammatory Bowel Disease. Thomas F. Conway, Laura Hammer, Stacia Furtado, Edith Mathiowitz, Ferdinando Nicoletti, Katia Mangano, Nejat K. Egilmez, Dominick L. Auci. Doi: 10.1093/Ecco-Jcc/Jjv089

Patents and patent applications

1. Anticoagulant reversal agents WO 2013082210 A1
 Publication number US20140271931 A1
 Publication type Application
 Application number US 14/206,523
 Publication date Sep 18, 2014
 Filing date Mar 12, 2014
 Priority date Mar 12, 2013
 Inventors Edith Mathiowitz, Bryan E. Laulicht, Sasha H. Bakhru, Solomon S. Steiner
 Original Assignee Perosphere Inc.
2. Rapid acting injectable formulations comprising a peptide and a vasodilatory agent WO 2015031709 A1
 Publication number WO2015031709 A1
 Publication type Application
 Application number PCT/US2014/053332
 Publication date Mar 5, 2015
 Filing date Aug 29, 2014
 Priority date Aug 30, 2013
 Also published as US20150065423
 Inventors Bryan E. Laulicht, Sasha H. BAKHRU, Solomon S. Steiner
 Applicant Perosphere, Inc.
3. Anti-Acne Topical Films
 US 20140271931 A1
 Publication number US20140271931 A1
 Publication type Application
 Application number US 14/206,523
 Publication date Sep 18, 2014
 Filing date Mar 12, 2014
 Priority date Mar 12, 2013

Inventors Edith Mathiowitz, Bryan E. Laulicht, Sasha H. Bakhru, Solomon S. Steiner
Original Assignee Perosphere Inc.
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Patent Citations (5), Non-Patent Citations (1), Classifications (12), Legal Events (1)

4. Concentrated felbamate formulations for parenteral administration
WO 2013025442 A3
Publication number WO2013025442 A3
Publication type Application
Application number PCT/US2012/050148
Publication date Apr 25, 2013
Filing date Aug 9, 2012
Priority date Aug 12, 2011
Also published as CA2844907A1, 4 More »
Inventors Sasha H. BAKHRU, Bryan E. Laulicht, Edith Mathiowitz, Solomon S. Steiner
Applicant Perosphere Inc.
5. Bioadhesive Drug Delivery Compositions
US 20140120162 A1
Publication number US20140120162 A1
Publication type Application
Application number US 14/124,040
PCT number PCT/US2012/041120
Publication date May 1, 2014
Filing date Jun 6, 2012
Priority date Jun 6, 2011
Also published as EP2717861A1, WO2012170547A1
Inventors Edith Mathiowitz, Solomon S. Steiner, Bryan E. Laulicht, Sasha Bakhru
Original Assignee Perosphere Inc.
6. Methods And Compositions For Enhancing The Bioadhesive Properties Of Polymers
Inventor: Mathiowitz Edith (US); Jacob S (US)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/00m18d; A61k9/16h2; (+6)
Ipc: A61k9/16; A61k9/00; A61k9/50 (+7)
Publication Info: DE69736888d - 2006-12-14
7. Compositions, methods and kits for therapeutic treatment with wet spun microstructures.
Inventors: Danya Lavin, Richard Hopkins
Assignee: Brown University
US 13/836,560
8. Methods and devices for encapsulating cells
Inventors: Jeffrey Morgan, Peter Chai, Anthony Napolitano, Edith Mathiowitz, Dylan

1/28/16 Edith Mathiowitz

Dean Assignee: Brown University
US 13/749,267

9. Method of Encapsulating a Material Using Solvent Removal Technique, and Microspheres/Nanospheres/Matrix Made Therefrom Having Sustained Release Properties
Inventors: Edith Mathiowitz, Daniel Y. Cho, Roshni Rainbow
Assignee: Brown University

10. Polymeric Drug Delivery System For Hydrophobic Drugs
Inventor: Jacob Jules S (US); Bassett Michael (US); (+8)
Applicant: Spherics Inc (US)
Ec: A61k9/00m18f; A61k9/16h6d; (+1)
Ipc: A61k9/20; A61k9/00; A61k9/28 (+3)
Publication Info: EP1729741 - 2006-12-13

11. Drug Delivery Formulations For Targeted Delivery
Inventor: Morello Arthur Peter Iii (US); Reineke Joshua (US); (+3)
Applicant: Univ Brown Res Found (US); Morello Arthur Peter Iii (US); (+4)
Ec:
Ipc: A61k9/20; A61k9/20
Publication Info: WO2006125074 - 2006-11-23

12. Microencapsulated Fluorinated Gases For Use As Imaging Agents
Benstein Howard (US); Straub Julie A (US); (+3)
Applicant: Acusphere Inc (US)
Ec: A61b8/00d; A61k49/22p4
Ipc: A61k47/06; A61b8/00; A61k49/00 (+6)
Publication Info: TW246426b - 2006-01-01

13. Bioadhesive Polymers With Catechol Functionality
Inventor: Schestopol Marcus A (US); Jacob Jules S (US); (+5)
Applicant: Spherics Inc (US)
Ec: A61k9/0014; A61k9/00m18d; (+7)
Ipc: C09j201/06; A61k9/00; A61k9/20 (+16)
Publication Info: EP1697481 - 2006-09-06

14. Nanoparticulate Therapeutic Biologically Active Agents
Inventor: Jacob Jules S (US); Jong Yong S (US); (+5)
Applicant: Spherics Inc (US); Univ Brown Res Found (US)
Ec: A61k9/14; A61k9/16p2; (+2)
Ipc: A61k9/14; A61k9/16; A61k9/50 (+11)
Publication Info: EP1675571 - 2006-07-05

15. Bioadhesive Microspheres And Their Use As Drug Delivery And Imaging Systems
Inventor: Mathiowitz Edith (US); Chickering Donald (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16k
Ipc: A61k9/14; A61k47/32; A61k9/16 (+15)
Publication Info: DE69333838t - 2006-04-27
16. Controlled Regional Oral Delivery
Inventor: Mathiowitz Edith (US); Nangia Avinash (US); (+3)
Applicant: Spherics Inc (US); Mathiowitz Edith (US); (+4)
Ec: A61k9/16h6d; A61k9/20h6d; (+1)
Ipc: A61k9/28; A61k9/28
Publication Info: WO2006039022 - 2006-04-13
17. Multi-Layer Tablets And Bioadhesive Dosage Forms
Inventor: Nangia Avinash (US); Jacob Jules (US); (+3)
Applicant: Spherics Inc (US); Nangia Avinash (US); (+4)
Ec: A61k9/20k4; A61k9/20k4b
Ipc: A61k9/28; A61k9/28
Publication Info: WO2006031420 - 2006-03-23
18. Oral Administration Of Poorly Absorbed Drugs, Methods And Compositions Related Thereto
Inventor: Mathiowitz Edith (US); Nangia Avinash (US); (+4)
Applicant: Spherics Inc (US); Mathiowitz Edith (US); (+5)
Ec: A61k9/00z6; A61k9/51
Ipc: A61k9/51; A61k9/51
Publication Info: WO2006026592 - 2006-03-09
19. Controlled Regional Oral Delivery
Inventor: Jacob Jules S (US); Mathiowitz Edith (US); (+3)
Applicant: Spherics Inc
Ec:
Ipc: A61k31/74; A61k31/74
Publication Info: US2006045865 - 2006-03-02
20. Bioadhesive Polymers With Catechol Functionality
Inventor: Schestopol Marcus (US); Jacob Jules (US); (+5)
Applicant: Spherics Inc
Ec:
Ipc: A61k31/74; A61k31/74; (Ipc1-7): A61k31/74
Publication Info: US2005201974 - 2005-09-15

21. Methods For Micronization Of Hydrophobic Drugs
Inventor: Mathiowitz Edith (US); Thanos Christopher (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/14; A61k9/51; (+1)
Ipc: A61k9/14; A61k9/51; B01j13/06 (+8)
Publication Info: US2005100595 - 2005-05-12
22. Bioadhesive Drug Delivery System With Enhanced Gastric Retention
Inventor: Jacob Jules S (US); Mathiowitz Edith (US); (+2)
Applicant: Spherics Inc (US)
Ec: A61k9/00m18f
Ipc: A61k9/16; A61k9/20; A61k9/48 (+12)
Publication Info: US2005064027 - 2005-03-24
23. Nanoparticulate Therapeutic Biologically Active Agents
Inventor: Jacob Jules S (US); Jong Yong S (US); (+5)
Applicant: Univ Brown Res Found
Ec:
Ipc: A61k9/14; A61k38/28; A61k48/00 (+6)
Publication Info: US2005181059 - 2005-08-18
24. Methods For Progenitor Cell Recruitment And Isolation
Inventor: Mathiowitz Edith (US); Ferris Diana M (US)
Applicant: Univ Brown (US); Mathiowitz Edith (US); (+1)
Ec: A61k9/00m5d; A61k9/16h6d4; (+3)
Ipc: A61k9/00; A61k9/16; A61k35/12 (+14)
Publication Info: WO2005074836 - 2005-08-18
25. Methods For Micronization Of Hydrophobic Drugs
Inventor: Mathiowitz Edith (US); Thanos Christopher (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/14; A61k9/51; (+1)
Ipc: A61k9/14; A61k9/51; A61k9/52 (+11)
Publication Info: US2004166168 - 2004-08-26
26. Nanoparticulate Bioactive Agents
Inventor: Kreitz Mark R; Jong Yong S; (+3)
Applicant: Spherics Inc (US)
Ec: A61k9/51; A61k31/20; (+2)
Ipc: A61k9/51; A61k31/20; A61k31/202 (+5)
Publication Info: WO2004098570 - 2004-11-18

27. Nanoparticulate Bioactive Agents
Inventor: Kreitz Mark R (US); Jong Yong S (US); (+3)
Applicant: Spherics Inc (US)
Ec: A61k9/51; A61k31/20; (+2)
Ipc: A61k9/51; A61k31/20; A61k31/202 (+10)
Publication Info: US2004220081 - 2004-11-04

28. Polymeric Gene Delivery System
Inventor: Mathiowitz Edith (US); Jong Yong Shik (Kr); (+1)
Applicant:
Ec: A61k9/127b2; A61k9/16h6d4; (+2)
Ipc: A61k9/127; A61k9/16; A61k9/20 (+6)
Publication Info: US2004126884 - 2004-07-01

29. Process For Preparing Microparticles Through Phase Inversion Phenomena
Inventor: Mathiowitz Edith (US); Chickering Donald (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16p4; A61k9/50p; (+4)
Ipc: A61k9/16; A61k9/50; A61k9/51 (+11)
Publication Info: US2004070093 - 2004-04-15

30. Short Chain Polymer For Enhancing The Bioadhesiveness Of Polymers On Mucosal Membrane
Inventor: Santos Camilla A; Jacobs Jules S; (+3)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16k; A61k31/165; (+1)
Ipc: A61k9/50; A61k9/16; A61k9/51 (+28)
Publication Info: WO03097015 - 2003-11-27

31. Bioadhesive Drug Delivery System With Enhanced Gastric Retention
Inventor: Jacob Jules (US); Mathiowitz Edith (US); (+2)
Applicant: Spherics Inc (US); Jacob Jules (US); (+3)
Ec: A61k9/50k
Ipc: A61k9/30; A61k9/50; A61k9/52 (+21)
Publication Info: WO03051304 - 2003-06-26

32. Liquid Crystalline Polymers
Inventor: Mathiowitz Edith (US); Jacob Jules S (US); (+3)
Applicant: Univ Brown Res Found (US)
Ec: B29c55/00; B29c55/18; (+1)
Ipc: A61k9/40; B29c55/00; B29c55/18 (+7)
Publication Info: US2003228367 - 2003-12-11

33. Methods For Micronization Of Hydrophobic Drugs
Inventor: Mathiowitz Edith; Thanos Christopher; (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/14; A61k9/51; (+1)
Ipc: A23p1/02; A23p1/06; A61k9/14 (+16)
Publication Info: WO03013683 - 2003-02-20
34. Methods And Compositions For Enhancing The Bioadhesive Properties Of Polymers Using Organic Excipients
Inventor: Santos Camilla A (US); Jacob Jules S (US); (+3)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16h6d4; (+2)
Ipc: A61k9/16; A61k9/51; A61k9/16 (+3)
Publication Info: US2003077317 - 2003-04-24
35. Micronized Freeze-Dried Particles
Inventor: Mathiowitz Edith (US); Jong Yong S (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16p4; A61k9/51
Ipc: A61k9/16; A61k9/51; A61k9/16 (+3)
Publication Info: US2003104068 - 2003-06-05
36. Delayed Message Systems Using Polymeric Membranes
Inventor: Mathiowitz Edith (US); Jacob Jules S (US); (+1)
Applicant: Univ Brown Res Found (US); Mathiowitz Edith (US); (+2)
Ec: B41m3/00h
Ipc: B41m3/00; B41m3/00; (Ipc1-7): B41m3/00
Publication Info: WO0249856 - 2002-06-27
37. Process For Preparing Microparticles Through Phase Inversion Phenomena
Inventor: Mathiowitz Edith (US); Chickering Donald (US); (+2)
Applicant:
Ec: A61k9/16p4; A61k9/50p; (+4)
Ipc: A61k9/16; A61k9/50; A61k9/51 (+10)
Publication Info: US2001042932 - 2001-11-22
38. Polymeric Gene Delivery System
Inventor: Mathiowitz Edith (US); Jong Yong Shik (Kr); (+1)
Applicant:
Ec: A61k9/127b2; A61k9/16h6d4; (+2)
Ipc: A61k9/127; A61k9/16; A61k9/20 (+7)
Publication Info: US2001020011 - 2001-09-06

39. Bioadhesive Microspheres And Their Use As Drug Delivery And Imaging Systems
Inventor: Mathiowitz Edith (US); Chickering Donald E (US); (+1)
Applicant:
Ec: A61k9/16h6d; A61k9/16k
Ipc: A61k9/16; A61k9/16; (Ipc1-7): A61k9/14 (+2)
Publication Info: US2001016210 - 2001-08-23
40. Micronized Freeze-Dried Particles
Inventor: Mathiowitz Edith; Jong Yong S; (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16p4; A61k9/51
Ipc: A61k9/19; A61k9/16; A61k9/50 (+18)
Publication Info: WO0151032 - 2001-07-19
41. Methods And Products For Tumor Immunotherapy Using Cytokines
Inventor: Mathiowitz Edith; Egilmez Nejat K; (+3)
Applicant: Univ Brown Res Found (US); Health Reasearch Inc (US)
Ec: A61k9/16h6d4; A61k38/19a; (+3)
Ipc: A61k9/16; A61k38/19; A61k38/20 (+16)
Publication Info: WO0147546 - 2001-07-05
42. Methods And Products For Tumor Immunotherapy
Inventor: Mathiowitz Edith (US); Jong Yong S (US); (+3)
Applicant:
Ec: A61k9/16h6d4; A61k38/19a; (+3)
Ipc: A61k9/16; A61k38/19; A61k38/20 (+8)
Publication Info: US2001043914 - 2001-11-22
43. Methods And Products For Tumor Immunotherapy Using Cytokines
Inventor: Mathiowitz Edith (US); Jong Yong S (US); (+3)
Applicant: Health Research Inc (US)
Ec: A61k9/16h6d4; A61k38/19a; (+3)
Ipc: A61k9/16; A61k9/52; A61k38/19 (+11)
Publication Info: US2002110538 - 2002-08-15
44. Methods And Compositions For Enhancing The Bioadhesive Properties Of Polymers
Using Organic Excipients
Inventor: Santos Camila A (US); Jacob Jules S (US); (+3)
Applicant:
Ec: A61k9/16h6d; A61k9/16h6d4; (+1)
Ipc: A61k9/16; A61k9/51; A61k9/16 (+4)
Publication Info: US2001000142 - 2001-04-05

45. Multiwall Polymeric Microcapsules From Hydrophilic Polymers
Inventor: Mathiowitz Edith (US); Jacob Jules S (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16h6f; (+3)
Ipc: A61k9/16; A61k9/50; B01j13/04 (+4)
Publication Info: US6528035 - 2003-03-04
46. Method For Gene Therapy Using Nucleic Acid Loaded Polymeric Microparticles
Inventor: Mathiowitz Edith (US); Jong Yong S (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16p4; (+5)
Ipc: A61k9/16; A61k9/50; A61k9/51 (+12)
Publication Info: US6677313 - 2004-01-13
47. Methods And Compositions For Enhancing The Bioadhesive Properties Of Polymers
Inventor: Jacob Jules S (US); Mathiowitz Edith (US)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/00m18d; A61k9/16h2; (+6)
Ipc: A61k9/00; A61k9/16; A61k9/51 (+10)
Publication Info: US6368586 - 2002-04-09
48. Process For Preparing Microparticles Through Phase Inversion Phenomena
Inventor: Mathiowitz Edith (US); Chickering Donald E Iii (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16p4; (+5)
Ipc: A61k9/16; A61k9/50; A61k9/51 (+13)
Publication Info: US6235224 - 2001-05-22
49. Preparation Of Multiwall Polymeric Microcapsules From Hydrophilic Polymers
Inventor: Mathiowitz Edith; Jacob Jules S; (+2)
Applicant: Univ Brown Res Found (US)
Ec: B01j13/06; B01j13/12
Ipc: C12n15/09; A61k9/50; A61k47/32 (+12)
Publication Info: WO0032307 - 2000-06-08
50. Polymeric Gene Delivery
Inventor: Mathiowitz Edith (US); Jong Yong Shik (Kr); (+1)
Applicant:
Ec: A61k9/127b2; A61k9/16h6d4; (+2)
Ipc: A61k9/127; A61k9/16; A61k9/20 (+8)
Publication Info: US2001051608 - 2001-12-13

51. Monolithic Polymer Composition Having A Water Absorption Material
Inventor: Hekal Ihab M (US); Langer Robert S (US); (+2)
Applicant: Capitol Specialty Plastics Inc (US)
Ec: B01j20/28; B29c45/16; (+8)
Ipc: B01j20/28; B29c45/16; B65d81/26 (+23)
Publication Info: US6174952 - 2001-01-16
52. Methods And Compositions For Enhancing The Bioadhesive Properties Of Polymers Using Organic Excipients
Inventor: Santos Camila A (US); Jacob Jules S (US); (+3)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16h6d4; (+1)
Ipc: B82b1/00; A61k9/16; A61k9/51 (+6)
Publication Info: US6156348 - 2000-12-05
53. Modulated Release From Biocompatible Polymers
Inventor: Mathiowitz Edith (US); Webber Wendy L (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h2; A61k9/16h6d4; (+1)
Ipc: A61k9/16; A61k9/70; A61k9/20 (+8)
Publication Info: US6531154 - 2003-03-11
54. Preparation Of Multiwall Polymeric Microcapsules From Hydrophilic Polymers
Inventor: Mathiowitz Edith (US); Jacob Jules S (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16h6f; (+5)
Ipc: A61k9/16; A61k9/50; B01j13/04 (+7)
Publication Info: US6511749 - 2003-01-28
55. Polymeric Gene Delivery System
Inventor: Mathiowitz Edith (US); Jong Yong Shik (Kr); (+1)
Applicant: Brown University Research Foundation (US)
Ec: A61k9/127b2; A61k9/16h6d4; (+2)
Ipc: A61k9/127; A61k9/16; A61k9/20 (+9)
Publication Info: US6262034 - 2001-07-17
56. Erythropoietin Drug Delivery System
Inventor: Bernstein Howard; Mathiowitz Edith; (+2)
Applicant: Alkermes Inc
Ec: A61k9/00m5; A61k9/16h2; (+6)
Ipc: A61k9/00; A61k9/16; A61k9/50 (+25)
Publication Info: AU4275597 - 1998-01-15

57. Erythropoietin Drug Delivery System
Inventor: Bernstein Howard; Mathiowitz Edith; (+2)
Applicant: Alkermes Inc
Ec:
Ipc: A61k9/16; A61k38/17; A61k47/12 (+9)
Publication Info: AU698016b - 1998-10-22
58. Bioadhesive Microspheres And Their Use As Drug Delivery And Imaging Systems
Inventor: Mathiowitz Edith (US); Chickering Iii Donald (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16k
Ipc: A61k9/16; A61k9/16; (Ipc1-7): A61k9/14 (+1)
Publication Info: US6235313 - 2001-05-22
59. Microencapsulated Fluorinated Gases For Use As Imaging Agents
Inventor: Bernstein Howard; Straub Julia Ann; (+3)
Applicant: Acusphere Inc
Ec: A61b8/00d; A61k49/22p4
Ipc: A61b8/00; A61k49/22; A61b8/00 (+2)
Publication Info: ZA9701812 - 1998-11-03
60. Microencapsulated Fluorine Gases For Use As Imaging Means
Inventor: Bernstein Howard (US); Straub Julie Ann (US); (+3)
Applicant: Acusphere (US)
Ec:
Ipc: A61k49/00; A61k49/22; A61k49/00 (+2)
Publication Info: PL328690 - 1999-02-15
61. Microencapsulated Fluorinated Gases For Use As Imaging Agents
Inventor: Bernstein Howard (US); Brush Henry T (US); (+3)
Applicant:
Ec:
Ipc: A61k49/00; A61k49/00; (Ipc1-7): A61k49/00
Publication Info: HU9902897 - 2000-01-28
62. Microspheres Comprising Polymer And Drug Dispersed There Within
Inventor: Mathiowitz Edith (US); Mullon Claudy J P (US); (+2)
Applicant: Massachusetts Inst Technology (US)
Ec: A61k9/50h6d; B01j13/02
Ipc: A61k9/50; B01j13/02; A61k9/50 (+4)
Publication Info: US5718921 - 1998-02-17

63. Process For Preparing Microparticles Through Phase Inversion Phenomena
Inventor: Mathiowitz Edith (US); Chickering Donald Iii (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16p4; (+5)
Ipc: A61k9/16; A61k9/50; A61k9/51 (+13)
Publication Info: US6143211 - 2000-11-07
64. Method For Gene Therapy Using Nucleic Acid Loaded Polymeric Microparticles
Inventor: Mathiowitz Edith (US); Jong Yong S (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/51; (+1)
Ipc: A61k9/16; A61k9/51; A61k48/00 (+5)
Publication Info: US6248720 - 2001-06-19
65. Spray Dried Polymeric Microparticles Containing Imaging Agents
Inventor: Mathiowitz Edith; Jacob Jules S; (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k49/22p4
Ipc: A61k49/22; A61k49/22; (Ipc1-7): A61k49/00
Publication Info: WO9640277 - 1996-12-19
66. Method For Producing Protein Microspheres
Inventor: Mathiowitz Edith (US); Bernstein Howard (US); (+2)
Applicant: Alkermes Inc (US)
Ec: A61k9/16h6d4; A61k9/16h6h; (+1)
Ipc: A61k9/16; A61k9/50; A61k47/42 (+9)
Publication Info: GR3018939t - 1996-05-31
67. Preparation Of Multiwall Polymeric Microcapsules From Hydrophilic Polymers
Inventor: Mathiowitz Edith (US); Jacob Jules S (US); (+2)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16h6f; (+3)
Ipc: A61k9/16; A61k9/50; A61k9/52 (+8)
Publication Info: US5985354 - 1999-11-16
68. Protein Microspheres And Methods Of Using Them
Inventor: Bernstein Howard (US); Morrel Eric (US); (+3)
Applicant: Alkermes Inc (US)
Ec: A01n25/28; A61k9/16h6h; (+2)
Ipc: A01n25/28; A61k9/16; A61k9/52 (+7)
Publication Info: US5679377 - 1997-10-21

69. Hydroxamic Acid Polymers Formed From Primary Amide Polymers
Inventor: Domb Abraham J (US); Langer Robert S (US); (+4)
Applicant: Cytex Tech Corp (US)
Ec: C08f8/32
Ipc: C08f8/32; C08f8/00; (Ipc1-7): C08f20/56
Publication Info: US6262183 - 2001-07-17
70. Bioadhesive Drug Delivery Systems Comprising Poly(Fumaric-Co-Sebacic Acid)
Inventor: Mathiowitz Edith (US); Chickering Donald (US); (+1)
Applicant: Univ Brown Res Found (US)
Ec: A61k9/16h6d; A61k9/16k
Ipc: A61k9/16; A61k9/16; (Ipc1-7): A61k9/14 (+1)
Publication Info: EP1518550 - 2005-03-30
71. Multiwall Polymeric Microspheres
Inventor: Mathiowitz Edith (US); Langer Robert S (US)
Applicant: Massachusetts Inst Technology (US)
Ec: A61k9/16p4; A61k9/50p
Ipc: A61k9/16; A61k9/50; A61k9/52 (+5)
Publication Info: US5912017 - 1999-06-15
72. Method For Producing Protein Microspheres
Inventor: Mathiowitz Edith (US); Bernstein Howard (US); (+2)
Applicant: Alkermes Inc (US)
Ec: A61k9/16h6d4; A61k9/16h6h; (+1)
Ipc: A61k9/16; A61k9/50; A61k9/16 (+5)
Publication Info: US5271961 - 1993-12-21
73. Protein Microspheres And Methods Of Using Them
Inventor: Berstein Howard (US); Morrel Eric (US); (+3)
Applicant: Enzytech Inc (US)
Ec: A01n25/28; A61k9/16h6h; (+2)
Ipc: A01n25/28; A61k9/16; A61k9/50 (+13)
Publication Info: WO9106287 - 1991-05-16
74. Controlled Release Systems Containing Heparin And Growth Factors
Inventor: Edelman Elazer R (US); Langer Robert S (US); (+2)
Applicant: Massachusetts Inst Technology (US)
Ec: A61k9/16k; A61k9/50h6f; (+2)
Ipc: A61k9/16; A61k9/50; A61k38/18 (+7)
Publication Info: WO8912464 - 1989-12-28

75. Polymer Composite For Controlled Release Or Membrane Formation
Inventor: Mathiowitz Edith (US); Langer Robert S (US); (+2)
Applicant: Massachusetts Inst Technology (US)
Ec: A01n25/34; A61k9/16h6d; (+5)
Ipc: A01n25/34; A61k9/16; A61k9/20 (+8)
Publication Info: WO8907935 - 1989-09-08
76. Method Of Making Hydroxamic Acid Polymers From Primary Amide Polymers
Inventor: Domb Abraham J (US); Langer Robert S (US); (+4)
Applicant: Massachusetts Inst Technology (US)
Ec: C08f8/32
Ipc: C08f8/32; C08f8/00; (Ipc1-7): C08f8/30
Publication Info: US5128420 - 1992-07-07
77. One Step Preparation Of Poly(Amide-Anhydride)
Inventor: Domb Abraham J (US); Langer Robert S (US); (+4)
Applicant: Massachusetts Inst Technology (US)
Ec: C08g67/04; C08g69/08; (+1)
Ipc: C08g67/04; C08g69/08; C08g69/10 (+3)
Publication Info: US4933431 - 1990-06-12
78. One-Step Polymerization Of Polyanhydrides
Inventor: Domb Abraham J (II); Langer Robert S (US); (+4)
Applicant: Massachusetts Inst Technology (US)
Ec: C08g67/04; C08g69/08; (+1)
Ipc: C08g67/04; C08g69/08; C08g69/10 (+6)
Publication Info: WO8901005 - 1989-02-09
79. Multiwall Polymeric Microcapsules
Inventor: Mathiowitz Edith (US); Langer Robert S (US)
Applicant: Massachusetts Inst Technology (US)
Ec: A61k9/16p4; A61k9/50p
Ipc: A01n25/28; A61k8/00; A61k8/18 (+27)
Publication Info: CA1336068 - 1995-06-27
80. Polymere Mikrokapseln Mit Mehreren Waenden
Inventor: Mathiowitz Edith; Langer Robert S
Applicant: Massachusetts Inst Technology (US)
Ec:
Ipc: A61k9/50; A61k9/58; B01j13/02 (+9)
Publication Info: AT99169t - 1994-01-15

81. Hydroxamic Acid Polymers Formed From Primary Amide Polymers
Inventor: Domb Abraham J (US); Langer Robert S (US); (+4)
Applicant: Massachusetts Inst Technology (US)
Ec: C08f8/32
Ipc: A61133/00; C08f8/20; C08f8/30 (+7)
Publication Info: CA1332996 - 1994-11-08
82. Hydroxamidsaeure-Polymere Aus Primaeren Amidpolymeren
Inventor: Domb Abraham J (US); Langer Robert S (US); (+4)
Applicant: Massachusetts Inst Technology (US)
Ec:
Ipc: C08f8/32; C08f8/00; (Ipc1-7): C08f8/32 (+1)
Publication Info: DE3869404d - 1992-04-23
83. Hydroxamidsaeure-Polymere Aus Primaeren Amidpolymeren
Inventor: Domb Abraham J; Langer Robert S; (+4)
Applicant: Massachusetts Inst Technology (US)
Ec:
Ipc: C08f8/32; C08f8/00; (Ipc1-7): C08f8/32 (+1)
Publication Info: AT73829t - 1992-04-15
84. Controlled Drug Delivery High Molecular Weight Polyanhydrides
Inventor: Langer Robert S (Us); Mathiowitz Edith (US); (+2)
Applicant: Massachusetts Inst Technology (Us)
Ec: A61117/10; A61127/18; (+2)
Ipc: A61117/10; A61127/18; A61127/58 (+5)
Publication Info: US4888176 - 1989-12-1
85. Process for Preparing Microparticles through Phase Inversion Phenomena
7/19/1996 9/29/2009
Chickering III, Donald, Mathiowitz, Edith (PI), Jacob, Jules, Jong, Yong
Issued and CA 2,227, 284 2,227, 284, 077042-00046, Licensed, National
86. Micronized Freeze-Dried Particles
1/12/2001 3/31/2010
Chickering III, Donald , Mathiowitz, Edith (PI), Jacob, Jules, Jong, Yong
National Nationalized EP 01902059.3, 1246609 BU111 EP
87. Micronized Freeze-Dried Particles
(PI) 3/31/2010, 3/31/2010
Chickering III, Donald, Mathiowitz, Edith, Jacob, Jules, Jong, Yong
Issued and CH 1246609 1246609 BU-111CH
Licensed, National

88. Micronized Freeze-Dried Particles
3/31/2010 3/31/2010
Chickering III, Donald, Mathiowitz, Edith (PI), Jacob, Jules, Jong, Yong
Issued and IE 1246609 1246609 BU-111IE
Licensed National
89. Micronized Freeze-Dried Particles
Chickering III, Donald (PI) 3/31/2010 3/31/2010
Mathiowitz, Edith, Jacob, Jules, Jong, Yong
Issued and DE 1246609 60141680.5 BU-111DE
Licensed, National
90. Micronized Freeze-Dried Particles
3/31/2010 3/31/2010
Chickering III, Donald, Mathiowitz, Edith (PI) Jacob, Jules Jong, Yong
Issued and FR 1246609 1246609 BU 111FR
Licensed, National
91. Micronized Freeze-Dried Particles
3/31/2010 3/31/2010
Chickering III, Donald, Mathiowitz, Edith (PI), Jacob, Jules, Jong, Yong
Issued and GB 1246609 1246609 BU 111GB
Licensed, National
92. Micronized Freeze-Dried Particles
3/31/2010 3/31/2010
Chickering III, Donald, Mathiowitz, Edith (PI), Jacob, Jules, Jong, Yong
Issued and LU 1246609 1246609 BU111LU
Licensed National
93. Micronized Freeze-Dried Particles
3/31/2010 3/31/2010
Chickering III, Donald, Mathiowitz, Edith(PI), Jacob, Jules, Jong, Yong
Issued and MC 1246609 1246609 BU111MC
Licensed National
94. Micronized Freeze-Dried Particles
1/12/2001 12/2/2008
Chickering III, Donald , Mathiowitz, Edith (PI), Jacob, Jules, Jong, Yong
Issued and CA 2,397,404 2,397,404 BU111 CA
Licensed, National
95. Micronized Hydrophobic Agents/Drugs for Superior Performance Medical and
Otherwise Method for Micronization of Hydrophobic Drugs
Mathiowitz, Edith (PI)
Utility Issued US 12/140,701 6/17/2008 8,524,829 9/3/2013 077042-00045

96. Methods For Micronization Of Hydrophobic Drugs
Liu, Alex 8/2/2002 10/2/2013
Thanos, Christopher, Mathiowitz, Edith (PI), Liu, Alex
National Nationalized EP 02794680.5 1423175 077042-00044
97. Methods for Micronization of Hydrophobic Drugs
8/2/2002 10/18/2011
Thanos, Christopher Mathiowitz, Edith (PI)
National Issued CA 2,456,806 2,456,806 077042-00044
98. Methods For Progenitor Cell Recruitment & Isolation
6/5/2007 7/16/2013
James (formerly Ferris), Diana, M.Mathiowitz, Edith (PI)
Utility Issued US 10/587,884 8,486,438 077042-00043
99. Cell Aggregation & Encapsulation Device & Method
7/17/2008 3/12/2014
Napolitano, Anthony 7/17/2008 3/12/2014
Morgan, Jeffrey (PI), Dean, Dylan, Mathiowitz, Edith, Chai, Peter
National Nationalized EP 07762405.4 1976972 2670.2007-005
100. Cell Aggregation & Encapsulation Device & Method
7/17/2008 1/29/2013,
Napolitano, Anthony 7/17/2008 1/29/2013
Morgan, Jeffrey (PI), Dean, Dylan, Mathiowitz, Edith, Chai, Peter
Issued and US 12/087,937 8,361,781 2670.2007-004
Licensed Utility
101. Cell Aggregation & Encapsulation Device & Method
7/17/2008 6/2/2015
Napolitano, Anthony, Morgan, Jeffrey (PI), Dean, Dylan,, Mathiowitz, Edith, Chai,
Peter
Issued and CA 2,637,663 2,637,663 2670.2007-006
Licensed, National
102. Cell Aggregation & Encapsulation Device & Method
7/22/2008 7/13/2012
Napolitano, Anthony, Morgan, Jeffrey (PI), Dean, Dylan, Mathiowitz, Edith, Chai,
Peter
Issued and JP 2008-551486 5039715 2670.2007-008
103. Compositions & Methods for Loop Diuretics with Consistent Bioavailability
8/25/2011 4/1/2014
Mathiowitz, Edith (PI) , Laulicht, Bryan
Utility Issued US 13/217,764 8,685,947 02268-017

104. Innovative Real-Time Magnetic Targeting in the Gastrointestinal Tract for Enhanced Drug
105. Methods and Systems for Prolonged Localization of Drug Delivery
8/25/2011 7/15/2014
Mathiowitz, Edith (PI), Laulicht, Bryan
Utility Issued US 13/217,883 8,776,802 02268-018
106. Methods and systems for prolonged localization of drug delivery
12/21/2011 10/20/2015
Mathiowitz, Edith (PI) , Laulicht, Bryan
Continuation-in-Part Issued US 13/333,014 9,165,703 02268-0025
107. Nanoparticle Compositions and Methods for Improved Oral Delivery of Active Agents
7/8/2011 3/18/2014
Mathiowitz, Edith (PI) 7/8/2011 3/18/2014, Cho, Daniel, Reineke, Joshua, Laulicht, Bryan
Utility Issued US 13/179,205 8,673,359 077042-00045
108. Compositions, Methods and Kits for Therapeutic Treatment with Wet Spun Microstructures
3/15/2013 1/19/2016
Mathiowitz, Edith (PI) , Lavin (formerly Decoteau), Danya, Hopkins, Richard A.
Utility Issued US 13/836,560 9,238,011 02268-051

Conference Proceedings and Abstracts

1. A. Raziell, E. Mathiowitz, and R. Corett, "Reinforced nylon microcapsules carriers of chemical reagents," Paper presented at the XXIVth IUPAC Symposium on Macromolecules, Jerusalem, Israel, July 1975.
2. E. Mathiowitz, A. Raziell, and M.D. Cohen, "Microcapsules: Controlled photochemical rupture," Presented at the 47th convention of the Israel Chemical Society, The Weizmann Institute of Science, Israel, Sept. 29-30, 1980.
3. E. Mathiowitz, K. Leong, and R. Langer, "Macromolecular drug release from biodegradable polyanhydride microspheres," Proceedings of the 12th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, Geneva, Switzerland, p. 70, July 1985.
4. R. Langer, K. Leong, J. Kohn, E. Mathiowitz, M. Wheatley, A. Domb, J. Kost, H. Yu, and C. Laurencin, "Novel biodegradable polymers," Symposium on the Controlled Release of Bioactive Materials, Norfolk, VA, August 3-8, 1986.
5. E. Mathiowitz, M.D. Cohen, and R. Langer, "Novel microcapsules for delivery systems," 3rd International Conference on Polymer-supported Reaction in Organic Chemistry, Jerusalem, Israel, July 6-11, 1986.
6. E. Mathiowitz, W.M. Saltzman, A. Domb, Ph. Dor, H. Lin, J. Song and R. Langer, "Developments in Polyanhydride Micro-spheres," Proceedings of the 14th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, Toronto, Canada, August 1987.
7. E. Mathiowitz, C. Amato and R. Langer. "Morphological characterization of polyanhydride delivery systems," Material Research Society (MRS), Reno, NV, April 1988.
8. E. Ron, E. Mathiowitz, G. Mathiowitz, L. Doh, C. Amato and R. Langer, "Copolymer composition and microstructure of polyanhydrides," Proceedings of the 15th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, Basel, Switzerland, August 1988.
9. E. Mathiowitz, "Science and Technology of Microencapsulation," the 19th Annual Meeting of the Fine Particle Society, 1988 Particulate/Powder Technology, Santa Clara, CA. (invited), July 19-22, 1988.
10. E. Mathiowitz, E. Ron, N. Shepherd, C. Amato and R. Langer. "Surface morphology of bioerodible polyanhydrides," Material Research Society (MRS), Boston, MA, Fall, 1988.

11. E. Mathiowitz, Steven Giannos, Liz Albert, Ang Mi Kim, Lori Keneipp, Frank Gutterman and Robert Langer. "Morphological Characterization of Polyanhydride Microspheres," Presented at the Gordon Research Conferences-Drug Carriers in Medicine & Biology, July 1988.
12. E. Mathiowitz, "Morphology of polyanhydride microsphere delivery systems," Scanning Microscopy, Salt Lake City, UT. (Invited), May 1989 meeting.
13. E. Mathiowitz, E. Ron, G. Mathiowitz, C. Amato and R. Langer. "Surface morphology of bioerodible polyanhydrides," ACS meeting, Dallas, TX, April 1989. *Polymer Preprints*, vol. 30.1, 460-461.
14. E. Ron, E. Mathiowitz, G. Mathiowitz and R. Langer. "A computerized approach to predict degradation rate of new biodegradable copolymers," ACS meeting, Dallas, TX, April 1989. *Polymer Preprints*, vol. 30, 1, 162-163.
15. E., Ron, T. Turek, E. Mathiowitz, M. Chasin and R. Langer, "Polypeptides release from polyanhydrides implants," 16th International Symposium on Controlled Release of Bioactive Materials, Controlled Release Society, Chicago, IL, August 1989.
16. Edelman, E., Mathiowitz, E., Langer, R., and Klagsburn, M., "Controlled and modulated release of fibroblast growth factor," 16th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, Chicago, IL, August 1989.
17. Mathiowitz, E., Bernstein, H., and Langer, R., "Morphological approaches to determine surface erosion," 16th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, Chicago, IL, August 1989.
18. E. Ron, T. Turek, E. Mathiowitz, M. Chasin and R. Langer, "The effects of polymers hydrophobicity on the release of polypeptides," AIChE, San Francisco, CA, November 1989.
19. E. Mathiowitz, G. Mathiowitz, N. Sheppard and R. Langer, "Photochemically controlled delivery systems," AIChE, San Francisco, CA, November 1989.
20. A. Staubli, E. Mathiowitz, and R. Langer, "Correlation between structural characteristic and materials properties of poly(anhydride-co-imides)," AIChE, San Francisco, November 1989.
21. R. Langer, M. Chasin, E. Ron, E. Mathiowitz and H. Brem. "Novel biodegradable polyanhydrides," 198th ACS National Meeting, Miami Beach, FL, September, 1989.
22. E. Mathiowitz. "Photochemically controlled polyamide microcapsules," ACS meeting, Boston, MA, April 1990. *Polymer Preprints*, vol. 31, 1, 226-227, (1990).
23. E. Mathiowitz A. Staubli, and R. Langer. "Morphology of bioerodible polyanhydrides," ACS meeting, Boston, MA, April 1990. *Polymer Preprints*, vol. 31, 1, 431-432, (1990).

24. A. Staubli, E. Mathiowitz. "Analysis of structure and degradation mechanism of novel poly(anhydride -co- imides)," ACS meeting, Boston, MA, April 1990. *Polymer Preprints*, 31, 1, 572-573, (1990).
25. D. Chickering, J. Jacob, G. Panol and E. Mathiowitz. "Evaluation of bioadhesive forces between individual microspheres and intestinal mucosa," The Forth World Biomaterials Congress, Berlin, FRG, April 24-28, 1992.
26. E. Mathiowitz, R. Langer, D. Chickering, A. Parhizgar, R. Moresky, J. Tseng. "Evaluation and characterization of composite drug delivery systems," ACS meeting, San Francisco, CA, April 1992.
27. D. Chickering, J. Jacob, G. Panol and E. Mathiowitz. "A tensile technique to evaluate the interaction of bioadhesive microspheres with intestinal mucosa," 19th International Symposium on the Controlled Release of Bioactive Materials, Controlled Release Society, Orlando, FL, July 1992.
28. E. Mathiowitz, D. Chickering and J. Jacob. "Mechanism study on the interaction of bioadhesive microspheres with intestinal mucosa," Surface in Biomaterials Symposium, Minneapolis, MN, October 14-16, 1992.
29. D. Chickering, J. Jacob, A. Keung, T. Desai, and E. Mathiowitz. "Attachment of mucin specific lectins for use as bioadhesives," Materials Research Society 1993 Fall Meeting, Boston, MA, November 29-December 3, 1993.
30. K. Pekarek, J. Jacob, and E. Mathiowitz. "Double-walled microspheres for drug delivery," Materials Research Society 1993 Fall Meeting, Boston, MA, November 29-December 3, 1993.
31. M. Kreitz, K. Pekarek and E. Mathiowitz. "Characterization of polyanhydrides by FTIR," Materials Research Society 1993 Fall Meeting, Boston, MA, November 29-December 3, 1993.
32. D.E. Chickering, J.S. Jacob, and E. Mathiowitz. "Enhanced Bioadhesion Through Surface Degradation of Polyanhydride Microspheres," 21st International Symposium on Controlled Release of Bioactive Materials, Nice France, June 27-30, 1994, pp. 776-777
33. E. Mathiowitz, D.E. Chickering, J.S. Jacob, P. Campbell, E. Ron, L. Roth and K. Berrigan. "Release of Heparin from Polycaprolactone Films for Intravascular Stents," 21st International Symposium on Controlled Release of Bioactive Materials, Nice France, June 27-30, 1994, pp. 272-273.
34. E. Mathiowitz, D.E. Chickering, J.S. Jacob, M. DiBiase, H. Bernstein, K. Gunn and M. Sherman. "GI Transit of Hydrophobic Protein Microspheres," 21st International Symposium on Controlled Release of Bioactive Materials, Nice, France, June 27-30, 1994, pp. 27-26.

35. K.J. Pekarek, J.S. Jacob, and E. Mathiowitz. "Effects of Manufacturing Conditions on Double-Walled Microspheres," Controlled Release Society, Inc., Nice, France, June 27-30, 1994, pp. 620-621.
36. Hertzog, D. Chickering, and E. Mathiowitz. "A Novel Remote-Sensing, Electromagnetic Force Transducer for the Quantification of Bioadhesive Interactions Between Polymer Microspheres and Living Tissue," Controlled Release Society, Inc. 1995.
37. K.J. Pekarek, K. Ferrer, M.J. Dyrud, and E. Mathiowitz. "In Vitro Degradation of Double-Walled Polymer Microspheres," Controlled Release Society, Inc. 1995.
38. G. Carino, C. Santos, C.J. Chen, and E. Mathiowitz. "A Radiographic Study of Intestinal Transit Times of Various Spray-dried Polymer Microspheres," Controlled Release Society, Inc. 1995.
39. A. Chickering, J. Jacob, B. Harris, C. Morrell, and E. Mathiowitz. "Bioavailability of Bioadhesive Polyanhydride Delivery Systems," Controlled Release Society, Inc. 1995.
40. M.R. Kreitz, W.L. Webber, P.M. Galletti and E. Mathiowitz. "Incorporation of Polymer Microspheres in Porous Polyurethane Vascular Grafts," Controlled Release Society, Inc. 1995.
41. Jong, Y.S., M. Whitney, S. Montgomery, and E. Mathiowitz. "Polymer Implants for Controlled Release of Plasmid DNA," Cambridge Healthtech Institute: Artificial Self-Assembling Systems for Gene Transfer, Wakefield, 1995.
42. Y. Jong, G. Gardner, E. Seitelman and E. Mathiowitz. "Release of Plasmid DNA for Gene Transfer," 22nd International Symposium on Controlled Release of Bioactive Molecules, Seattle, 1995.
43. D.E. Chickering, J.S. Jacob, W.P. Harris, C.N. Morrell, E. Mathiowitz. "Bioavailability of Bioadhesive Polyanhydride Delivery Systems," 22nd International Symposium on Controlled Release of Bioactive Materials, Seattle, WA, July 30-August 4, 1995.
44. D.E. Chickering, W.P. Harris, E. Mathiowitz. "A Micro-Tensiometer for the Analysis of Bioadhesive Microspheres," AAMI 13th Annual Meeting and Exposition, Anaheim, CA, May 20-24, 1995.
45. E. Mathiowitz. "Bioadhesive Drug Delivery Systems," Engineering Foundation Conference, BIOCHEMICAL ENGINEERING IX: Interdisciplinary Foundations for Creating New Biotechnology in Davos, Switzerland, May 21-26, 1995.
46. E. Mathiowitz. "Bioadhesive Microspheres as Oral Delivery Systems," 22nd International Symposium on Controlled Release of Bioactive Materials, Seattle, WA, July 30-August 4, 1995.

47. J. Chen, J. A. Gardella, Jr., E. Mathiowitz, C. A. Santos. "ESCD Detection of Surface Group Concentration of Polyanhydrides," Materials Research Society 1995 Fall Meeting, Nov. 27 - Dec 1, 1995, Boston, MA.
48. E. Mathiowitz. "Bioadhesive Drug Delivery Systems," American Chemical Society, Conference on Formulations and Drug Delivery Systems, Boston, MA, October 10-13, 1995.
49. B. Hertzog, T. Mottl, D. Yim, K. Bradford, and E. Mathiowitz. "Microspheres for Use in a Novel Electromagnetic Biadhesion Testing System," First International Conference on the Scientific and Clinical Applications of Magnetic Carriers. Germany. September 5-7, 1996
50. E. Mathiowitz. "Bioadhesive Microspheres for Increased Bioavailability," The 24th International Symposium on Controlled Release of Bioactive Materials, Stockholm, Sweden, June 15-19, 1997.
51. Y. Jong, G. Gardner, and E. Mathiowitz. "A Matrix-type Delivery System for In Vivo Gene Transfer," The 24th International Symposium on Controlled Release of Bioactive Materials, Stockholm, Sweden, June 15-19, 1997.
52. W. Webber and E. Mathiowitz. "Modulating Tetracycline Release From PLA/ PG Films," The 24th International Symposium on Controlled Release of Bioactive Materials, Stockholm, Sweden, June 15-19, 1997.
53. C. Chen, J. Jacob, A.B. Klein, T. Chayapruks, and E. Mathiowitz. "Bioadhesive Polymers For Stomach Targeted Drug Delivery," The 24th International Symposium on Controlled Release of Bioactive Materials, Stockholm, Sweden, June 15-19, 1997.
54. C. Santos, J. Jacob, B. Freedman, D. Press, P. Harnpicharnchai, E. Mathiowitz. "Correlation of Two Bioadhesion Assays," The 24th International Symposium on Controlled Release of Bioactive Materials, Stockholm, Sweden, June 15-19, 1997.
55. C. Santos, J. Jacob, B. Freedman, D. Press, P. Harnpicharnchai, E. Mathiowitz. "Quantification of the Bioadhesive Forces Between Poly (anhydride) Microspheres and Mucosal Tissue Using Two Assays," XIth World Congress of the International Society for Artificial Organs, Providence, RI, June 29- July 1, 1997.
56. W. L. Webber, F. Lago and E. Mathiowitz. "Tetracycline Release Fro Degradable PLA/PG Films To Treat Periodontal Disease," XIth World Congress of the International Society for Artificial Organs, Providence, RI, June 29- July 1, 1997.
57. G.Carino, J. Jacob and E. Mathiowitz. "Uptake of Biodegradable, Bioadhesive Polyanhydrides for Drug Delivery," XIth World Congress of the International Society for Artificial Organs, Providence, RI, June 29- July 1, 1997.

58. C.J. Chen, J. Jacob, A.B. Kleinn, E. Mathiowitz. "Bioadhesive Polymer Carriers For Targeting Anti-Ulcer Drugs To The Stomach Mucosa," XIth World Congress of the International Society for Artificial Organs, Providence, RI, June 29-July 1, 1997.
59. K. Leach and Edith Mathiowitz, "In Vitro and In Vivo Degradation of Multi-layered Polymer Microspheres of Poly(L-Lactide) and Poly(1, 3-Bis(p-Carboxyphenoxy Propane)-Co(sebacic Anhydride)20:80" XIth World Congress of the International Society for Artificial Organs, Providence, RI, June 29-July 1, 1997.
60. E. Mathiowitz, J. Carino, J. Jacob and C. Santos. "Intestinal Uptake of Biodegradable Particles of Differing Size and Composition," 23rd Annual Meeting of the Society of Biomaterials, New Orleans, La, April 30-May 4, 1997.
61. G. Carino, J. Jacob, C. Santos, and E. Mathiowitz, "Uptake of Two Biodegradable Polymers: Poly (Lactide-Co-Glycolide) and Poly(Fumaric-Co-Sebacic)Anhydride" Proceed. Int'l Symp. Control Rel. Bioact. Mater., 1998.
62. B.A. Hertzog, T.S. Mottl, F. Chan, and E. Mathiowitz, "Magnetic and Microbalance Techniques for the Evaluation of Bioadhesive Microspheres: A Comparison" Proceed. Int'l Symp. Control Rel. Bioact. Mater., 1998.
63. G. Carino, J. Jacob, C. Santos, C.J. Chen, B. Hertzog, and E. Mathiowitz, "Bioadhesive Properties of Polymers Affect Intestinal Uptake" Proceed. Int'l Symp. Control Rel. Bioact. Mater., 1998.
64. C. Santos, B. Freedman, and E. Mathiowitz, "Can Low MW Additives Really Increase Bioadhesion", Proceed. Int'l Symp. Control Rel. Bioact. Mater., 1998.
65. M.R. Kreitz, T. Pan, J. Domm and E. Mathiowitz, "Optimizing the Controlled Release of Heparin from Small-Diameter Synthetic Vascular Grafts", Society for Biomaterials, San Diego, CA. April 22-26, 1998
66. C. Thanos, M. Sandor, Y. Jong, J. Jacob, K-P Yip, J. Harper, C. Morrell, J. Scherer, and E. Mathiowitz, "Interspecies Uptake of Polymeric Microspheres", MRS Meeting, Boston, MA. Nov 30-Dec 4, 1998.
67. G. Moodie, D. Ferris, B. Hertzog, C. Chen, E. Mathiowitz, "Early Osteoblast Attachment, Spreading, and Focal Adhesions on RGD Coated Surface, MRS Society Proceedings, Boston, MA Nov 30-Dec 4, 1998.
68. C. A. Santos, B. A. Hertzog, F. W. Chan, and E. Mathiowitz, "The Effect of Contract and Degradation Time of Poly(anhydride) Microspheres on Bioadhesion to Intestinal Tissue", 25th Annual Society For Biomaterials, Providence, RI. April 28-May 2, 1999.
69. E. Mathiowitz, J. Jacob, Y. Jong, G. Carino, C. Santos, "Development of Oral Delivery Of Protein and Genes", 9th Int'l Symposium on Recent Advances in Drug Delivery, Feb. 22-25, 1999.

70. C.Thanos, Msandor, J.Jacob, Y.Jong, K-P Yip, J.Harper, “Intestinal Uptake of Biodegradable Polymeric Microspheres”, the 26th Int’l Symposium on Controlled Release of Bioactive Materials, Boston, MA, June 1999.
71. M.Sandor, C.Thanos, E.Edwards, J.Jacob, Y.Jong, K-P.Yip, J.Scherer, J.Harper, E.Mathiowitz, “Delivery of Large Proteins to the Small Intestine”, the 26th Int’l Symposium on Controlled Release of Bioactive Materials, Boston, MA, June 1999.
72. B.Hertzog, N.Rahman, J.Godbee, C.Wheeler, R.Lin, E.Mathiowitz, “Characterization Of the shell and core layers in double walled polymer microspheres”, the 26th Int’l Symposium on Controlled Release of Bioactive Materials, Boston, MA, June 1999.
73. D.Abramson, A.Ayer, E.Mathiowitz, “Subcutaneous administration of insulin loaded microspheres for sustained delivery”, MRS, Boston, MA, Nov, 2000.
74. J.Godbee, D.Vazquez, E.Mathiowitz, “Protein release from multi-layered polymer Microspheres fabricated via solvent removal”, MRS, Boston, MA, Nov, 2000.
75. M.Sandor, J.Harris, E.Mathiowitz, “A Novel Polyethylene depot device for the study of PLGA nanospheres in vivo, MRS, Boston, MA, NOV, 2000.
76. C.Thanos, E.Mathiowitz, “A quantitative technique for determining the extent of Polymer uptake, MRS, Boston, MA, Nov, 2000.
77. E.Edwards, E.Mathiowitz, “High-pressure induced liquid crystal phases maintained In non-mesogenic polymers at ambient temperature and pressure”, MRS, Boston, MA, Nov, 2000.
78. N.Rahman, E.Mathioiwitz, “Phase composition determination in PLLA-PLGA Double-walled microspheres”, MRS, Boston, MA, Nov, 2000.
79. S. Furtado, D. Abramson, E. Mathiowitz. "Oral Insulin Delivery Using Bioadhesive Microspheres" Diabetes Technology Society, Atlanta, October. 2002
80. D.M. Ferris and E. Mathiowitz. “Utilization of HUVEC Culture to Assess the Bioactivity of an rhVEGF165 Delivery Systems”. AAPS Pharmaceutics and Drug Delivery Conference. April 22-24, 2002, Arlington, VA, USA, 2002.
81. J. Godbee, P. Cheifetz, E. Scott, P. Weston and E. Mathiowitz. “Antide Release from Composite Polymer Microspheres” AAPS Pharmaceutics and Drug Delivery Conference. April 22-24, 2002, Arlington, VA, USA, 2002.
82. N. Rahman and E. Mathiowitz. “Localization of Particles in Double Walled Microspheres”. AAPS Pharmaceutics and Drug Delivery Conference. April 22-24, 2002, Arlington, VA, USA, 2002.

83. D.M. Ferris and E. Mathiowitz. "Local recruitment of endothelial progenitor-like cells using protein microencapsulation" Vascular Cell Biology Gordon Conference. January 26-31, 2003, Ventura, CA, USA.
84. Joshua Reineke, Christopher Thanos, Haitao Qian and Edith Bioadhesive Poly(Fumaric-co-Sebacic) Copolymers for Improved Bioavailability, Mathiowitz. Brown University Providence, RI 02912, AAPS 2003, Denver, CO.
85. Ferris, D.M. and Mathiowitz, E. Directed endothelial and progenitor cell proliferation, orientation and migration through sustained release of rhVEGF165 *in vitro* and *in vivo*. Podium presentation, 30th Annual Meeting of the Controlled Release Society, Glasgow, Scotland, United Kingdom, July 19-23, 2003.
86. J Reineke, H Qian and E Mathiowitz, *Bioadhesive Poly (Fumaric-co-Sebacic) Acid Copolymers for Improved Bioavailability*. Student Poster Session, American Association for the Advancement of Science Annual Meeting, Denver, Colorado 2003
87. Stacia Furtado, Emily Bubbers, Paula Weston, Haitao Qian, Roxanne Burrill, Jules Jacob and Edith Mathiowitz. Oral Delivery of Insulin Using Bioadhesive Microspheres. Glasgow, Scotland, United Kingdom, July 19-23, 2003.
88. Joshua Reineke, Christopher Thanos, Stephen Chen and Edith Mathiowitz. Enhanced Oral Delivery of Hydrophobic Drugs Encapsulated by Poly [Fumaric-co-Sebacic] Anhydride Department of Molecular Pharmacology, Physiology and Biotechnology Brown University, Providence, RI USA 2004.
89. J Reineke, C Thanos, S Chen and E Mathiowitz, *Enhanced Oral Delivery of Hydrophobic Drugs Encapsulated by Poly (Fumaric-co-Sebacic) Anhydride*. Student Poster Session, Controlled Release Society Annual Meeting, Honolulu, Hawaii 2004.
90. Morello, A.P., Bailey. N., Godbee, J., Mathiowitz, E. Predicting the relative stability of a protein-loaded drug delivery system using enthalpic relaxation. Controlled Release Society, 31st Annual Meeting, (194), June 2004.
91. Quantitative Biodistribution of Microsphere Drug Delivery Systems: Delivery Vehicle versus Encapsulated Compound A. Peter Morello III, Joshua Reineke, Paula Weston, Marcus Schestopol2, Edith Mathiowitz, Controlled Release Society Miami, Florida, 2005
92. J Reineke, A Morello, P Weston, T Ricketts, M Schestopol and E Mathiowitz, *Quantitative Biodistribution of Microsphere Drug Delivery Systems: Delivery of Vehicle versus Encapsulated Compound*. Nanotechnology Session Podium, Controlled Release Society Annual Meeting, Miami, Florida 2005.

93. Oral Delivery of Insulin Microspheres to Type 1 Diabetic Dogs Stacia Furtado, Roxanne Burrill, Josh Reineke, A. Peter Morello, Michael Harrison, Gloria Olivier, Celinda Gourd, Haitao Qian, and Edith Mathiowitz. Controlled Release Society Miami, Florida, 2000.
94. Morello, A.P., Reineke, J., Weston, P., Ricketts, T. Schestopol, M., Mathiowitz, E. Quantitative Biodistribution of Microsphere Drug Delivery Systems: Delivery Vehicle versus Encapsulated Compound. Controlled Release Society, 32nd Annual Meeting, (137), June 2005.
95. Furtado, S., Burrill, R., Reineke, J., Morello, A.P., Harrison, M., Olivier, G., Gourd, C., Qian, H., Mathiowitz, E. Oral Delivery of Insulin Microspheres to Type I Diabetic Dogs. Controlled Release Society, 32nd Annual Meeting, (115), June 2005.
96. Stacia Furtado, Ana Jaklenec, Avram Robbins, Gloria Olivier, Haitao Qian, and Edith Mathiowitz. Method to Investigate the Stability of Poly(Fumaric-co-sebacic anhydride) (p(FASA)) Microspheres, Controlled Release Society Miami, Florida, 2005.
97. Michael Harrison, Ih-Ming Chan, Paul Yang Edith Mathiowitz Characterization of Heparin Loaded Composite Porous Polyurethane Vascular Grafts, and. Controlled Release Society Miami, Florida, 2005.
98. Michael Harrison, Karen Wei,, and Edith Mathiowitz Fabrication and Characterization of Heparin loaded Poly (D,L-lactide-co-glycolide) Microspheres via Modified Solvent Removal Method,. Controlled Release Society Miami, Florida, 2005.
99. Peter M Cheifetz, Gail Chan, Camilla A Santos 1, Edith Mathiowitz., Comparisons of two in vitro bioadhesion assays: Cahn and texture analyzer Controlled Release Society Miami, Florida, 2005.
100. Qian, Haitao; Mathiowitz, Edith. " (Aliphatic Poly(anhydride-ester)s----Synthesis and Characterization" 32nd Annual Meeting & Exposition of the Controlled Release Society, Miami, Florida, 2005
101. S Furtado, R Burrill, J Reineke, A Morello, M Harrison, G Olivier, C Gourd, H Qian and E Mathiowitz, *Oral Delivery of Insulin Microspheres to Type I Diabetic Dogs*. Student Poster Session, Controlled Release Society Annual Meeting, Miami, Florida 2005.
102. Ana Jaklenec' Angela Sherw, in Ming Pei Roy Aaron , Deborah M. Cimbor Edith Mathiowitz. Controlled Release Society Miami, Florida, 2005.
103. J Reineke, Y Liu and E Mathiowitz, *Nanosphere Carriers for Oral Drug Delivery: Measurement of Efficiency, Mechanism, Kinetics and Biodistribution*. Poster Session, Brown University Nanomedicine Showcase, Providence, Rhode Island 2006.

104. J Reineke, Y Liu and E Mathiowitz, *Quantitative Resident Time Analysis of Microsphere Drug Delivery Systems*. Student Poster Session, American Association for the Advancement of Science Annual Meeting, St. Louis, Missouri 2006.
105. Morello, A.P., Conway, T., Egilmez, N., Mathiowitz, E. The fabrication and release kinetics of poly(adipic anhydride)-poly(ethylene glycol) nanoparticles loaded with GLP-1 for the treatment of Type 2 diabetes. Nanomedicine and Drug Delivery Symposium - NanoDDS'06, 4th Annual Meeting, October 2006.
106. Shawgo, R.S., Kundakovic, L., Farinelli, W., Echague, A.V., Tannous, Z., Morello, A.P., Mathiowitz, E., Anderson, R.R., Flotte, T.J. In vivo evaluation of pigments engineered for removal. American Society for Laser Medicine and Surgery, 26th Annual Meeting, April 2006.
107. Paek HJ, Jaklenec A, Campaner AB, Morgan JR, Mathiowitz E, Lysaght MJ, Aaron RK, and Ciombor DM. *In situ delivery of growth factors for a bioartificial cartilage*. 12th Annual Research Celebration, Rhode Island Hospital, Providence, RI. October 2004.
108. Ciombor DM, Pei M, Paek J, Jaklenec A, Lysaght M, Mathiowitz E and Aaron R. *Engineered Cartilage – A Developmental Approach*. Annual Hilton Head Workshop, Sea Pines Plantation, Hilton Head, SC. March 2005.
109. Jaklenec A, Sherwin A, Pei M, Aaron R, Cimbor DM and Mathiowitz E. *Latent release of IGF-I from PLGA microspheres for tissue engineering applications*. 32nd Controlled Release Society Meeting, Miami Beach, FL. June 2005.
110. Jaklenec A, Wan E and Mathiowitz E. *Novel scaffold fabrication method from protein loaded microspheres*. Celebrating Thirty Years of Robert Langer's Science Conference, Cambridge, MA. July 2006.
111. Jaklenec A, Wan E, Murray ME, Walls K and Mathiowitz E. *Multiple growth factor releasing scaffolds for tissue engineering*. 33rd Controlled Release Society Meeting, Vienna, Austria. July 2006.
112. Haitao Qian and Edith Mathiowitz*. Acyl chloride-facilitated condensation polymerization for the synthesis of heat-sensitive poly(anhydride-ester)s, *Journal of Polymer Science Part A: Polymer Chemistry* Volume 45, Issue 24, pages 5899–5915, 15 December 2007.
113. Qian and Edith Mathiowitz, "Trimethylsilyl)ethoxyacetylene as a dehydrating agent for polyanhydride synthesis" *Macromolecules*, 2007, vol. 40, n^o22, pp. 7748-7751.
114. Jaklenec A, Beswick D, Wan E, Murray M, Ciombor DM, Aaron R and Mathiowitz E. *Modulating IGF-I release from PLGA scaffolds for cartilage tissue engineering*. 53rd Orthopaedic Research Society Meeting, San Diego, CA. Feb 2007.

115. Bryan Laulicht, Peter Cheifetz, Edith Mathiowitz, Anubhav Tripathi Conference: November 17, 2008 AICHE in Philadelphia, PA
116. J. Reineke, D.Cho, Y. Liu, E. Mathiowitz. Quantitative and Mechanistic Analysis of Bioadhesive Microparticle Uptake for Oral Drug Delivery. Brown University MD/PhD Program Retreat. Providence, RI. September 2009.
117. J. Reineke, D. Cho, P. Cheifetz, Y. Liu, E. Mathiowitz. Bioadhesion of Microspheres Correlates with *In Vivo* Intestinal Uptake. 36th Annual Meeting and Exposition of the Controlled Release Society. Copenhagen, Denmark. July 2009
118. J. Reineke, A. Morello, Y. Liu, D. Cho, E. Mathiowitz. Microsphere Uptake Kinetics and Biodistribution from Isolated Intestinal Regions. 36th Annual Meeting and Exposition of the Controlled Release Society. Copenhagen, Denmark. July 2009.
119. D.Y. Cho, K.M. Estrellas, C. Tian, J.J. Reineke, E. Mathiowitz. A Novel Method for the Fabrication of Double-Walled Nanospheres by Sequential Phase Inversion Nanoencapsulation. 37th Annual Meeting and Exposition of the Controlled Release Society. Portland, Oregon. July 2010.
120. D.Y. Cho, C. Tian, K.M. Estrellas, E. Mathiowitz. Effect of Encapsulation Method on Protein Loaded Nanospheres Fabricated by Phase Inversion Nanoencapsulation. 37th Annual Meeting and Exposition of the Controlled Release Society. Portland, Oregon. July 2010.
121. R. Patel, D.Y. Cho, C. Tian, A. Chang, J. Morgan, E. Mathiowitz. A Novel W/O/O Double Emulsion Solvent Removal Method for the Nanoencapsulation of Doxycycline. 37th Annual Meeting and Exposition of the Controlled Release Society. Portland, Oregon. July 2010.
122. D.Y. Cho, J.J. Reineke, E. Mathiowitz. Quantitative analysis of bioadhesive nanoparticle uptake from the small intestine for oral drug delivery applications. American Society of Clinical Investigators/American Association of Physicians 2010 Joint Meeting; The 6th Annual Meeting of the American Physician Scientist Association. Chicago, Illinois. April 2010.
123. D. Decoteau¹, A. Navarro-Olmo², L. Zhang¹, R. Stefani¹, R. Perez², E. Mathiowitz¹, and R. Hopkins³ Drug delivery sutures for the prevention of fibrocalcifications in tissue-engineered cardiovascular constructs 4th Biennial Heart Valve Biology and Tissue Engineering Meeting, March 7-10, 2010.
124. D. Decoteau, R. Stefani, L. Zhang, M. Harrison, R. Hopkins, and E. Mathiowitz. *Encapsulation, In Vitro Drug Release, pH Changes and Tensile Strength Characteristics of Wet Spun Poly(L-lactic acid) Microfibers* The 37th Annual Meeting & Exposition of the Controlled Release Society, July 10-14, 2010
125. C6 Ceramide As Potential Novel Therapy For Pancreatic Cancer. Authors: Apurva Limaye, Edith Mathiowitz, Wayne D. Bowen, Harold Wanebo. Doi: 10.1158/1538-7445.Am2015-3797.

Invited lectures

1. "Novel microcapsules for delivery systems" at Eastman Kodak, Rochester, NY, summer 1985.
2. "Polymeric drug composites: Structure-property relationships for novel delivery systems", Dept. of Material Sciences, MIT, March 1987.
3. "Photochemically controlled delivery systems", Du Pont & Co., R&D Division, Wilmington, Delaware, 1987.
4. "Structure property relationships for novel polymeric delivery systems". Department of Pharmaceutical Chemistry School of Pharmacy, University of California, San Francisco, April 8, 1988.
5. "Morphological characterization of microparticles". Presented in a course on microencapsulation. "Microencapsulation and Nanoencapsulation - process and Pharmaceutical Applications", Sponsored by the Controlled Release Society, Boston, May 14-15, 1990.
6. "Microencapsulation and drug delivery" Panel Chairman, annual Meeting of the society for Biomaterials, Scottsdale, Arizona, May 1991.
7. "Morphological characterization of biomaterials using X-Ray, DSC and SEM." Eastern Analytical Symposium, Inc., Somerset, NJ, November 1991.
8. "Evaluation and characterization of composite drug delivery systems." American Chemical Society (ACS) meeting, San Francisco, CA, April 1992.
9. "Bioadhesive microspheres as drug delivery systems" Invited lecture at the 38th Annual meeting of the American Society for Artificial Internal Organs (ASAIO), Nashville, TN, May 1992.
10. "Mechanism study on the interaction of bioadhesive microspheres with intestinal mucosa." Invited lecture at the Surface of Biomaterials Symposium, Minneapolis, MN, October 1992.
11. "Drug delivery systems" Panel Chairman, Annual Meeting at the 39th Annual meeting of the American Society of Artificial Internal Organs (ASAIO), New Orleans, LA, May 1993.
12. "Microspheres as drug delivery systems." Invited lecture at the Surgical Research Seminar, The Miriam Hospital, Department of Surgery, Providence, RI, September, 1992.

13. "The mechanism of bioadhesion between hydrogels, thermoplastics and intestinal mucosa." Invited lecture at the PPST Research Seminar, Departments of Chemical Engineering and of Material Science at the Massachusetts Institute of Technology, Cambridge, MA, October 1992.
14. "Controlled and Sustained Release Formulations Designed for Protein Drugs Pt. I & II. Speaker in short course "Formulation Development of Therapeutic Proteins and Drug Delivery Systems for Peptide and Protein Drugs," American Chemical Society Short Course, Chicago, IL, 1992-present.
15. "Drug delivery systems." Invited lecture at Morehouse College, Atlanta, Georgia, February 25, 1993.
16. "Mucus Epithelia." Invited lecture at the Keystone Symposia Conference, Hilton Head Island, South Carolina, January 7-13, 1994.
17. "Novel Double-Walled Microspheres For Oral Or Parental Administration." Invited lecture at XI Congress of the International Society For Artificial Cells, Blood Substitutes, and Immobilization Biotechnology, Boston, Massachusetts, July 24-27, 1994.
18. "Bioadhesive microspheres as drug delivery systems." Invited lecture at Alza, Palo Alto, California, September 8, 1994.
19. "Bioadhesive microspheres as drug delivery systems." Invited lecture at Cygnus Therapeutics Systems, Redwood City, California, September 9, 1994.
20. "The Proprietary Dilemma - Bridging the Information Gap Between Academia and Practice," Annual Congress of the Association of Faculties of Pharmacy of Canada, Montreal, Canada, May 11, 1995.
21. "Bioadhesive Drug Delivery Systems". Invited lecture at Engineering Foundation Conference, BIOCHEMICAL ENGINEERING IX: Interdisciplinary Foundations for Creating New Biotechnology, in Davos, Switzerland, May 21-26, 1995.
22. "Hydrophobic Polymer Microspheres for Oral Delivery of DNA, Proteins, Peptides, and Small Molecules in the Small Intestine." Invited lecture at VRI Virus Research Institute, 61 Moulton Street, Cambridge, MA 02138 April 1997.
23. "Hydrophobic Polymer Microspheres for Oral Delivery of DNA, Proteins, Peptides, and Small Molecules in the Small Intestine." Invited lecture at Eli Lilly and Co., Indianapolis, IN, May 8, 1997.
24. "Hydrophobic Polymer Microspheres for Oral Delivery of DNA, Proteins Peptides", Ares Services, 15 bis, Ch. des Mines, CH-1202 Geneva, Switzerland, June 1997.

25. "Hydrophobic Polymer Microspheres for Oral Delivery of DNA, Proteins Peptides" Amgen Corporation, 1900 Oak Terrace Lane, Thousand Oaks, CA 91320, July 1997.
26. "Bioadhesive Polymers as Oral delivery Systems", Affymax Research Institute, 3410 Central Expressway, Santa Clara, California 95051, July, 1997.
27. "Hydrophobic Polymer Microspheres for Oral Delivery of DNA, Proteins Peptides", Bristol-Myers Squibb, Pharmaceutical Research Institute, P.O.Box 191, New Brunswick, NJ 08903-0191, July 1997.
28. "New Opportunities in Drug Delivery Systems", Corporate Research and Technology, Hoechst Celanese Corporation, R.L. Mitchell Technical Center, 86 Morris Avenue, Summit, NJ 07901 July 1997.
29. "Bioadhesive Microspheres as Oral Delivery Systems for Proteins and Genes" Enzon, Inc. Piscataway, NJ, August 1997.
30. "Bioadhesive Microspheres as Oral Delivery Systems for Proteins and Genes", the 4th US-Japan Symposium on Drug Delivery Systems, Kauai, Hawaii, December, 1997.
31. "Characterization of Drug Delivery Polymers using DSC and FT-IR" Thermal Analysis Fall Seminar Series, Westborough Marriott, 5400 Computer Drive, Westborough, MA, November, 1997.
32. "Bioadhesive Polymers for Oral DNA Delivery", Keystone Symposia, Silverthorne, CO, January 1998.
33. "Bioadhesive Polymers for Oral DNA Delivery", Roswell Park Cancer Center, Buffalo, NY, Jan.27, 1998.
34. "Drug Carriers in Biology and Medicine", Gordon Research Conference, Ventura, CA. February, 1998.
35. "Bioadhesive Microspheres as Oral Delivery Systems for Proteins and Genes", Micrologix Biotech, Inc. Vancouver, B.C. February, 1998
36. "Drug Carriers in Biology and Medicine", UCSF, Dept.of Pharmaceutical Chemistry, San Francisco, CA. March 1998.
37. "Development of Oral Delivery of Proteins and Genes", 9th Int'l Symposium on Recent Advances in Drug Delivery Systems, Feb.22-25, 1999.
38. "Oral Delivery of Protein and Genes:Reality or Myth?", CRS Annual Meeting, Boston, MA, June 24, 1999.

39. “Bioavailability Testing of Insulin-Loaded Microspheres”, “The Effect of Protein Molecular Weight on Release from PLGA Nanospheres”, “Solvent Removal for Protein Encapsulation”, “Biodegradable Nanosphere Uptake in the Rabbit Jejunum”, New England Pharmacy Conference, Providence, RI, Feb, 2000.
40. “Enhanced Oral Delivery of Macromolecules using Bioadhesive Microspheres”. AAPS Pharmaceutics and Drug Delivery Conference. April 22-24, 2002, Arlington, VA, USA, 2002.
41. Mechanism for Spontaneous Encapsulation of Active Agents: Phase Inversion Nanoencapsulation The ACS Division of Colloid and Surface Science, Colloidal Drug Delivery, Co-sponsored by American Association of Pharmaceutical Science (AAPS). Orlando, FL, April 7-11, 2002.
42. On oral delivery of proteins. 32nd Annual Conference of the Controlled Release Society to be held in Miami from June 12 -18, 2005.
43. *From drug delivery to tissue engineering, MIT, Chemical Engineering. 2007*
44. *From drug delivery to tissue engineering, BU, Biomedical Engineering, Boston, 2007*
45. *The Pathway to Drug Delivery Systems and Tissue Engineering Lessons from Transformational Biotechnologies. Society of Toxicological Pathology (STP) 2007 Annual Meeting, Puerto Rico, Westin Rio Mar hotel, June 10 -14, 2007*
46. *The Pathway to Drug Delivery Systems Lessons from Transformational Biotechnologies, Bidel, CN 2008*
47. Advances in Polymer Micro- and Nano- Encapsulated Biomacromolecules for Drug Delivery and Tissue Engineering.
48. “Feasibility Studies Toward Development and Optimization of an Oral Delivery Formulation for the GI” A series of 4 lecture Braintree Laboratories, inc. 2011
49. “From Drug Delivery to Nanomedicine and Tissue Engineering” a series of 4 lectures at Takeda Pharmaceuticals 2013-2014