

RESUME

ID No. 06913690-1

Born July 26, 1954 in Casablanca, Morocco

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AMRAM MOR



ACADEMIC DEGREES

1983 B.A. State University of New York, USA.

1987 D.E.A. University of Paris VI, France.

1990 Ph.D. University of Paris VI, France.

ACADEMIC APPOINTMENTS

Since 2009: Full professor. Dept of Biotechnology & Food Engineering
Technion – Israel Institute of Technology.

2002-2009: Associate professor. Department of Biotechnology & Food Engineering.
Technion – Israel Institute of Technology, Haifa, Israel.

1997-2001: Head of the antimicrobial peptides laboratory (L.A.P.I.) at the Wolfson
Center for Structural Biology. The Hebrew University of Jerusalem, Israel.

1991-1996: Researcher at the Laboratoire de Bioactivation des peptides, Institut
Jacques Monod, University of Paris 6, France.

RESEARCH INTERESTS

Develop integrated multidisciplinary approaches to study the multifunctional **peptide function** in biological systems. This includes isolation of peptides of interest from their natural source, **mechanistic investigations** and design of structural analogs with improved properties. The lab's recent efforts focus on peptide-based **antimicrobials**. Past the isolation and structural characterization stages of a native family, the **dermaseptins**, we now investigate their mechanism of action through structure-activity relationships studies using rational **design** strategies for biological and chemical synthesis of structural analogs and mimetic systems. Our aim is to correlate *in-vitro* target site interactions (model membranes, proteins and nucleic acids) with *in-vivo* effects on pathogen and host cells. Most recent efforts focus on the development of a novel **drug delivery** system that challenges **drug-resistance** in culture and animal models.

TEACHING EXPERIENCE

2003 to date - Design and responsibility of three new courses:

I. Introduction to Biotechnology (undergrad. 064522)

II. Introduction to Molecular Biotechnology (undergrad. 064523)

III. Peptide Biotechnology (graduates 066524)

PUBLIC PROFESSIONAL ACTIVITIES

Editing Activity:

2003: Guest editor of a special issue on antimicrobial peptides.
PEPTIDES, International Journal (USA).

2008 to date: Member of the Editorial Board
The Journal of Probiotics and Antimicrobial Proteins (JPAAP-USA)

Activity as Reviewer:

Guest ad-hoc reviewer of research proposals for: The Israel Science Foundation (ISF); German-Israeli Foundation (GIF); US - Israel Binational Agricultural Research & Development Fund (BARD) and other foreign foundations.

Guest ad-hoc reviewer of manuscripts for international journals such as: Nature Biotech, Medicinal chemistry, Biochemistry, Eur J. biochem, Immunopharmacology, Antimicrob Agents & Chemother., FEBS, PEPTIDES, Regulatory peptides, The Journal of Infectious Diseases, ...

Participation to the elaboration of educational scientific films:

- 1996: "La rainette singe au secours de la therapeutique" Duration: 26 min.
Production SFRS-CNRS audiovisuel-University Paris 6.
- 2006: "Antibiotics of the Future" Duration: 20 min.
Production Dr Hana Gafni, Ramot Magazine. HOT Chanel 25, Israel

HONORS

- 1991: The PFIZER Prize of Opportunistic Mycology. Awarded during the "Congres de Mycologie Medicale" Institut Pasteur Paris, France
- 2005: The Doudi Ben Aharon Prize for research excellence
Technion – Israel Institute of Technology

GRADUATE STUDENTS

Completed Theses (MSc):

- 2004: Inna Vinogradov (MSc)
Title: Oligo Acyl-Q⁺ (OAQ): novel antimicrobial pseudo-peptides based on fatty acids and positively charged amino acids.
- 2005: Tali Rydlo (MSc)
Title: Antimicrobial properties of dermaseptin derivatives in food models
- 2005: Shahar Rotem (MSc)
Title: Essential biophysical requirements for potency and selectivity of AMPs
- 2005: Keren Marinka (MSc)
Title: SAR study of acylated dermaseptin derivatives
- 2006: Yaara Naveh-Porat (MSc)
Title: AMPs and Peptidomimetics for Controlling Oral Microflora
- 2007: Roey Mizrahi (MSc) Co-supervisor: Yuval Shoham
Title: Expression of dermaseptin derivatives in E. coli
- 2008: Dimitri Bourdetsky (MSc)
Title: Antiinflammatory properties of OAKs
- 2008: Hadar Feferovitch/Sarig (MSc)
Title: Structure-Activity Relationships study of short OAKs
- 2009: Ofra Nin Nun (MSc) Co-supervised with Pr. Yossi Miltz
Title: Use of peptides in antimicrobial films for packaging of Pastrami
- 2009: Tchelet Kovachi (MSc)
Title: Structure-Activity Relationships study of OAQs
- 2010: Liran Livne (MSc)
Title: Bacterial chemo- sensitization to antibiotics by OAQs
- 2010: Yair Goldfeder Hojman (MSc)
Title: Experimental conditions that enhance potency of antibacterial OAQs

Completed Theses (PhD):

- 2008: Inna Radzishovsky (PhD)
Title: Oligo Acyl-Q⁺ (OAQ): novel antimicrobial pseudo-peptides based on fatty acids and positively charged amino acids.
- 2008: Shahar Rotem (PhD)
Title: Essential biophysical requirements for potency and selectivity of AMPs

- 2009 Vicki Held-Kuznetsov (PhD)
Title: Anticancerous OAKs
- 2009 Lior Zisserman (PhD) co-supervisor with Pr. D. Danino
Title: Biological and Physicochemical Properties of Antimicrobial Peptidomimetics
- 2012 Hadar Feferovitch/Sarig (PhD)
Title: Antimicrobial properties of short OAKs in-vitro and in-vivo

Theses in Progress (MSc Students)

- Goldberg Keren (Expected graduation 2013)
Title: Chemo-sensitization of Gram-negative bacteria to antibiotics by OAQs
- Marjeh Ibrahim (Expected graduation 2013)
Title: OAQ-based bacterial capture
- Meir Ohad (Expected graduation 2014)
Title: De-novo design of antibacterial OAQs
- Ohana Dafna (Expected graduation 2014)
Title: OAQ-based cochleates
- Joanna Jammal (Expected graduation 2014)
Title: SAR studies with short OACs

Theses in Progress (PhD Students)

- Kaneti Galoz (Expected graduation 2015)
Title: Chemo-sensitization of Gram-positive bacteria to antibiotics by OAQs

RESEARCH GRANTS

- 1995 – 1996: IntraBiotics Inc. USA. (100,000 USD).
Title: Peptides for therapeutic applications
- 1996 – 1997: Agence Nationale pour la Recherche Scientific (700,000FF)
Title: Modulation of the immune system by dermaseptins
- 1997 – 1998: Misrad haklita (60,000 NIS).
Title: Peptide-based antibiotics
- 1997 – 2001: MAGNET, Ministry of Commerce and Trade (1,000,000 USD).
Title: Peptide-based antimicrobials
- 1998 – 2001: Israel Science Foundation. (330,000 NIS)
Title: Dermaseptin derivatives for improved antimalarial activity
- 1999 – 2000: MAGNETON collaboration with BioMediCom Ltd (400,000 USD)
Title: Dermaseptin-based antimicrobials
- 2003-2004: US Federal CDC Grant (50,000 USD)
Title: Applied research on antimicrobial resistance (PA01066)
- 2003-2007: Israel Science Foundation (220,000 USD + 60,000 USD equipment)
Title: Mechanistic and functional studies of dermaseptins derivatives
- 2004-2005: IADR/GSK Innovation in Oral Care Award (14,000 USD)
Title: Antimicrobial peptides affecting dental biofilms & oral diseases
- 2006-2008: BioLineRx Ltd. Jerusalem, Israel (330,000 USD)
Title: Development of novel antimicrobial pseudo-peptides based on fatty acids and positively charged amino acids (OAQs)
- 2007-2008: Elias Fund for Medical Research (10,000 USD)
Title: Development of novel therapeutics against lung and oral cancers
- 2008-2009: BioLineRx Ltd. Jerusalem, Israel (200,000 USD)
Title: Development of novel antimalarial agents
- 2008-2011: Israel Science Foundation (280,000 USD + 30,000 USD equipment)
Title: Design and investigation of antimicrobial peptide-mimetics
- 2011: RBNI Technion (300,000 USD) equipment: LC/MS/MS

- 2011-2012: RBNI Technion (40,000 USD) co-PI: Dr Ester Segal
Title: Optical detection of bacteria via peptide-mimetic antimicrobial compounds tethered to nanostructured porous Si hybrids
- 2011-2012: Abbott (55,000 USD) co-PI: Pr Hezi Kashi
Title: Development of concepts for preanalytical bacterial concentration
- 2011-2013: ERA-NET Matera+ (100,000 €)
Title: Antimicrobial peptides
- 2012-2016: Israel Science Foundation (260,000 USD)
Title: Fighting antibiotic resistant bacteria with chemical mimics of host defense peptides

RESEARCH STATEMENT

For over 20 years, my main research program has focused on studying the multiform peptide function in biological systems. Past the isolation and design stages of natural and chemical mimics, we now aim to understand their mechanism of action namely towards enhancing their therapeutic potential.

My laboratory has developed multidisciplinary approaches that exploit the advantages of peptide chemistry to enable wholesome investigation of peptides of interest while eventually improving their properties. This resulted in the identification and optimization of several novel neuropeptides (Mor et al., PNAS 1994; Trends Biochem. Sci. 1992) and antimicrobial peptides (Nicolas & Mor. Annual Rev Microbiol 1995). The latter peptides were among the first descriptions of host defense peptides (HDPs) nearly three decades ago, meanwhile, interest in this type of peptides has drastically grown to become a field of research of its own rights (Mor Peptides 2003). Thus, along with a handful of pioneers, we contributed to establish a breakthrough notion, though well accepted today, on the major role of HDPs as an integral part of the innate immune system of practically all living species.

Our subsequent structure-activity relationships (SAR) studies contributed to shed light into the peptides biological activities and modes of action (Rotem & Mor. Biochimica et Biophysica Acta 2009; Mor, FEBS J. 2009). These studies have contributed to establish peptide-based antimicrobials as a powerful investigative tool, portraying a highly manageable synthetic system that can target a wide spectrum of pathogens and is moreover, likely to significantly escape drug resistance mechanisms.

Our more recent work is focused on implementation of our findings through de-novo design of peptidomimetics including of a novel family of compounds: Oligomers of Acylated Cations (OACs) presenting advantages over natural/conventional HDPs (Radzishovsky et al., Nature Biotechnology 2007; Chem&Biol 2008; Sarig et al., FASEB 2010; Livne et al., FASEB 2010), particularly in terms of potential applications in systemic treatment of infectious diseases and tumors (Mor, In *Antimicrobial Peptides: Discovery, Design and Novel Therapeutic Strategies*, CABI: Wallingford Oxfordshire, UK, 2010).

PUBLICATIONS

Theses

1. Mechanism-based inactivation of Serine proteases.
DEA thesis (1987) University of Paris 6, France. Advisor: Pr Michele Reboud
2. Study of the biosynthesis of two opioid peptides containing D-aminoacids: Dermorphin and Dermenkephalin.
PhD thesis (1990) University of Paris 6, France. Advisor: Pr Pierre Nicolas

Refereed papers in professional journals

Published papers:

1. A.Mor, M. Reboud-Ravaux, J.P. Mazaleyrat & M. Wakselman. Susceptibility of plasminogen activators to suicide inactivation.
Thrombosis research (1988) 8:35-44.
2. M. Amiche, S.Sagan, A.Mor, A.Delfour & P.Nicolas. Characterization of receptor binding profile of [3H]-Dermorphin in rat brain.
Int. J. Pept. Protein Res. (1988) 32: 506-11.
3. A.Mor, A. Delfour, C.Sagan, M.Amiche, P.Pradelles, J.Rossier, P.Nicolas. Isolation of Dermenkephalin from amphibian skin, a high affinity, δ -selective opioid peptide, containing a D-aminoacid.
FEBS Lett. (1989) 255: 269-274.
4. S. Sagan, M.Amiche, A.Delfour, A.Mor, A.Camus & P.Nicolas. Molecular determinants of receptor affinity and selectivity of natural opioid agonist, Dermenkephalin.
J. Biol. Chem. (1989) 264:17100-06.
5. S.Sagan, M.Amiche, A.Delfour, A.Camus, A.Mor & P.Nicolas. Differential contribution of Dermorphin and Dermenkephalin's C-terminal regions to opioid sites selection.
Biochem. Biophys. Res. Commun. (1989) 163: 726-732.
6. M.Amiche, S.Sagan, A.Mor, A.Delfour, P.Nicolas. Dermenkephalin (Tyr-D.Met-Phe-His-Leu-Met-Asp-NH₂) a potent and specific agonist for the delta opioid receptor.
Mol. Pharmacol. (1989) 35: 774-779.
7. A.Mor, A.Delfour, Amiche, S.Sagan, P.Nicolas, J.Grassi, P.Pradeles. Dermorphin and related peptides in rat tissues.
Neuropeptides (1989) 13: 51-57.
8. M. Amiche, S. Sagan, A.Mor, J.J. Montagne, A. Delfour & P. Nicolas. Dermorphin, a naturally occurring peptide containing a D-aminoacid, is specific agonist for μ -receptor.
Peptides (1989) 174: 503-507.
9. A.Mor, P.Pradelles, A. Delfour, J.Montagne, M.Conrath & P.Nicolas. Evidence for prodermorphin processing products in rat tissues.
Biochem. Biophys. Res. Commun. (1990) 170:30-38.
10. M.Amiche, S.Sagan, A. Mor, D.Pelaprat, W.Rostene & P.Nicolas. Characterization & visualization of dermorphin binding to μ -opioid receptors in rat
Eur. J. Biochem. (1990) 189: 625-635.
11. A. Mor, J. Maillard, C. Favreau & M. Reboud-Ravaux. Reaction of proteinases of the fibrinolytic system with a mechanism-based inhibitor.
Biochim. Biophys. Acta (1990) 1038:119-124.
12. A. Mor, A. Delfour & P. Nicolas. Identification of a D-alanine containing precursor for peptide opioid, dermorphin.
J. Biol. Chem. (1991) 266: 6264-70.
13. A.Mor, V.H.Nguyen, A. Delfour, D. Migliore & P. Nicolas. Isolation, aminoacid sequence & synthesis of dermaseptin, a novel AMP of the amphibian skin.
Biochemistry (1991) 30: 8824-8830.
14. A. Mor, V.H. Nguyen & P. Nicolas. Antifungal activity of dermaseptin, a vertebrate skin peptide.

- J. Mycol. Med.** (1991) 1: 5-10.
15. C. Hernandez, A.Mor, F. Dagger, P. Nicolas, A. Hernandez, L. Benedetti & I. Dunia. Functional and structural damages in *L. mexicana* exposed to dermaseptin.
Eur. J. Cell Biol. (1992) 59: 414-24.
16. Y. Pouny, D. Rapaport, A.Mor, P. Nicolas & Y. Shai. Interaction of antimicrobial dermaseptin and its fluorescently labeled analogs with phospholipid membranes.
Biochemistry (1992) 31: 12416-12423.
17. A. Mor, M.A. Rouffaud, J.J. Montagne, V.H. Nguyen & P. Nicolas. Natural and synthetic dermaseptins: large spectrum AMPs.
J. Mycol. Med. (1993) 3, 137-143.
18. A. Mor, K. Hani & P. Nicolas. The vertebrate peptide antibiotics dermaseptins have overlapping structural features but target specific microorganisms.
J. Biol. Chem. (1994) 269, 31635-31641.
19. A.Mor, N. Chartrel, H. Vaudry & P. Nicolas. Skin Peptide YY (SPYY) a novel member of the pancreatic polypeptide family: Isolation, structure, synthesis and endocrine activity.
Proc. Natl. Acad. Sci. USA (1994) 91, 10295-9.
20. J. Strahilevitz, A. Mor, P. Nicolas & Y. Shai. Spectrum of antimicrobial activity and assembly of dermaseptin b and its precursor form in phospholipid membranes.
Biochemistry (1994) 33, 10951-10961.
21. M. Amiche, F. Ducancel, A. Mor, J.C. Boulain, A. Menez & P. Nicolas. Precursors of vertebrate peptide antibiotics, dermaseptin b and adenoregulin exhibit extensive sequence identities with precursors of opioid dermorphins.
J. Biol. Chem. (1994) 269, 17847-52.
22. A. Mor, M. Amiche & P. Nicolas. Structure, synthesis and activity of dermaseptin b a novel vertebrate defensive peptide from frog skin.
Biochemistry (1994) 33, 6642-6650.
23. A. Mor & P. Nicolas. Isolation and structure of novel defensive peptides from frog skin.
Eur. J. Biochem. (1994) 219, 145-154.
24. A. Mor & P. Nicolas. The N-terminal alpha-helical domain 1-18 of dermaseptin is responsible for antimicrobial activity.
J. Biol. Chem. (1994) 269, 1934-9.
25. K. Haled, P. Nicolas & A.Mor. Structure-function relationships of antimicrobial dermaseptins.
Peptides (1995) 23, 47-49.
26. I. Vouldoukis, Y. Shai, P. Nicolas & A. Mor. Antimicrobial properties of skin-PYY.
FEBS Lett. (1996) 380, 237-240.
27. J. Gosh, D. Shaool, P. Guillaud, L. Ciceron, D. Mazier, I. Kustanovich, Y. Shai & A. Mor. Selective cytotoxicity of dermaseptin S3 towards intraerythrocytic *P. Falciparum*
J. Biol. Chem. (1997) 272, 31609-31616.
28. T. Jouenne, A.Mor, H. Bonato & G.A. Junter. Antibacterial activity of synthetic dermaseptins against growing and nongrowing *Escherichia coli* cultures.
J. Antimicrobial Chemotherapy (1998) 42, 87-90.
29. B. Ammar, A. Perianin, A. Mor, G. Sarfati, M. Tissot, P. Nicolas, JP. Giroud, MR. Arveiller. Dermaseptin, a peptide antibiotic, stimulates microbicidal activities of PMN leukocytes
Biochem. Biophys. Res. Commun. (1998) 247, 870-5.
30. N. BarNun, A.Mor & A. M. Mayer. A cofactor requirement for polygalacturonase from *Cuscuta campestris*.
Phytochemistry (1999) 52, 1217-1221.
31. J. Gosh, I. Kustanovich, Y. Shai & A.Mor. Selective cytotoxicity of dermaseptins.
Peptide Science-Present&Future. Shimonishi Y. Ed. (1999) 725-7
32. M. Krugliak, R. Feder, V. Zolotarev, L. Gaidukov, A. Dagan, H. Ginsburg, A.Mor Antimalarial activity of dermaseptin S4 derivatives.
Antimicrobial Agents & Chemotherapy (2000) 44, 2442-51.

33. R. Feder, A. Dagan & A.Mor. SAR study of dermaseptin showing the consequences of oligomerization on cytotoxicity.
J. Biol. Chem. (2000) 275, 4230-4238.
34. R. Feder, R. Nechushtai & A.Mor. Affinity driven molecular transfer from erythrocyte membrane to target cells.
Peptides, (2001) 22: 1683-1690.
35. S. Navon-Venezia, R. Feder, L. Gaidukov, Y. Carmeli, & A. Mor. Antibacterial properties of short dermaseptin S4 derivatives with in vivo activity.
Antimicrobial Agents & Chemotherapy (2002) 46, 689-694.
36. I. Kustanovich, D.E. Shalev, L. Gaidukov & A.Mor. Structural requirements for potent versus selective cytotoxicity for antimicrobial peptides dermaseptin S4 derivatives.
J. Biol. Chem. (2002) 277, 16941-16951.
37. A. Dagan, L. Efron, L. Gaidukov, A. Mor & H. Ginsburg. In-Vitro Antiplasmodium Effects of Dermaseptin S4 Derivative.
Antimicrobial Agents & Chemotherapy (2002) 46, 1059-66.
38. E. Hariton; K. Fineberg; R. Feder; A.Mor; A. Graessmann; R. Brack-Werner; C. Gilon & A. Loyter. Targeting of nonkaryophilic cell-permeable peptides into the nuclei of intact cells by covalently attached nuclear localization signals.
Biochemistry (2002) 41:9208-14.
39. L. Efron, A. Dagan, L. Gaidukov, H. Ginsburg & A. Mor. Direct Interaction of Dermaseptin S4 Aminoheptanoyl Derivative with Intraerythrocytic Malaria Parasite Leading to Increased Specific Antiparasitic Activity in Culture.
J. Biol. Chem. (2002) 277:24067-72.
40. DE. Shalev, A.Mor & I. Kustanovich. Structural consequences of carboxyamidation of dermaseptin S3.
Biochemistry (2002) 41:7312-7.
41. L. Gaidukov, A. Fish & A.Mor. Analysis of membrane-binding properties of dermaseptin analogues: relationships between binding and cytotoxicity.
Biochemistry (2003) 42:12866-74.
42. Sima Yaron, Tali Rydlo, Dina Shahar & A.Mor. Activity of dermaseptin K4-S4 against foodborne pathogens.
Peptides (2003) 24:1815-1821.
43. Balaban, N., Gov, Y., Giacommetti, A., Cirioni, O., Ghiselli, R., Mocchegiani, F., Orlando, F., D'amato, G., Saba, V., Scalise, G., Bernes, S. & Mor, A.
A chimeric peptide composed of a dermaseptin derivative and an RNA III-inhibiting peptide prevents graft-associated infections by antibiotic-resistant staphylococci.
Antimicrobial Agents & Chemotherapy (2004) 48:2544-2550.
44. I. Radzishovsky, S. Rotem, F. Zaknoon, L. Gaidukov, A. Dagan & A.Mor
Effects of acyl versus aminoacyl conjugation to antimicrobial peptides.
Antimicrobial Agents & Chemotherapy (2005) 49:2412-20
45. S. Rotem, I. Radzishovsky, R. Inouye, M. Samore & A.Mor.
Identification of AMPs Derived from Genomic Sequences of Phage Lysins.
Peptides (2005) 27: 18-26
46. T. Rydlo, S. Rotem & A.Mor. Antibacterial Properties of Dermaseptin Derivatives Under Extreme Incubation Conditions.
Antimicrobial Agents & Chemotherapy (2006) 50: 490-497
47. D. Shalev, S. Rotem, A. Fish & A.Mor. Consequences of N-Acylation on Structure and Membrane Binding Properties of Dermaseptin Derivative K4S4(1-13).
J. Biol. Chem. (2006) 281:9432-8
48. Shahar Rotem, I. Radzishovsky, Amram Mor. Physicochemical Properties that Enhance Discriminative Bactericidal Activity of Short Dermaseptin Derivatives
Antimicrobial Agents & Chemotherapy (2006) 50: 2666-72
49. Altman H, Steinberg D., Porat Y, Mor A, Fridman D, Friedman M, Bachrach G

In vitro assessment of AMPs as potential agents against several oral bacteria.

J. Antimicrob. Chemother. (2006) 58: 198-201

50. Joseph Miltz, Tali Rydlo, Amram Mor, and Vladimir Polyakov. Potency Evaluation of a Dermaseptin S4 Derivative for Antimicrobial Food Packaging Applications.

Packaging Technology & Science(2006)19:345-54

51. Porat Y, Marinka K, Tam A, Steinberg D & Mor A. Acyl-substituted Dermaseptin S4 Derivatives with Improved Bactericidal Properties on Oral Microflora

Antimicrobial Agents & Chemotherapy (2006)50: 4153–60

52. Keren Marynka, S. Rotem, I. Portnaya, U. Cogan, A. Mor. In vitro discriminative anti-pseudomonal properties resulting from acylation of truncated dermaseptin S4 derivatives

Chemistry & Biology (2007) 14: 75–85

53. I. Radzishvsky, M.Krugliak, H.Ginsburg, & A.Mor

Antiplasmodial Activity of Lauryl-Lysine Oligomers

Antimicrobial Agents & Chemotherapy (2007) 51:1753-9

54. I. Radzishvsky, R.Shahar, D.Bourdetsky, S.Venezia, Y.Carmeli, A.Mor

Improved antimicrobial peptides based on acyl-lysine oligomers.

Nature Biotechnology (2007) 25:657-9.

55. O.Benny, SK.Kim, K.Gvili, I.Radzishvsky, A.Mor, L.Verduzco, L.G.Menon, P. M.Black, M.Machluf, R. S.Carroll. In vivo fate and therapeutic efficacy of PF-4/CTF microspheres in an orthotopic human glioblastoma model

FASEB J 2008 22:488-99.

56. Bachrach G, Altman H, Kolenbrander PE, Chalmers N, Gabai-Gutner M, Mor A, Friedman M & Steinberg D. Resistance of *P. gingivalis* to direct killing by antimicrobial peptides is protease independent

Antimicrobial Agents & Chemotherapy (2008) 52:638-642.

57. I.Radzishvsky, T.Kovachi, Y.Porat, L.Ziserman, D.Danino & A.Mor

Structure-Activity Relationships of Antibacterial Acyl-Lysine Oligomers

Chemistry & Biology (2008) 15:354-62.

58. S. Rotem, I. Radzishvsky, D.Bourdetsky, S.Venezia, Y.Carmeli, A.Mor

Analogous oligo-acyl-lysines with Distinct Antibacterial Mechanisms

FASEB J (2008) 22:2652-61.

59. Duvshani-Eshet, M., H. Keren, S. Oz, I. S. Radzishvsky, A. Mor, M. Machluf. Effect of peptides bearing NLS on therapeutic ultrasound mediated gene delivery.

J Gene Med (2008) 10:1150-9.

60. L.Chen, M.Hainrichson, D.Bourdetsky, A.Mor, S.Yaron, T.Baasov.

Structure-toxicity relationship of aminoglycosides: Correlation of 2'-amine basicity with acute toxicity in pseudo-disaccharide scaffolds.

Bioorganic & Medicinal Chemistry, (2008) 16(19):8940-51.

61. H.Sarig, S.Rotem, L.Ziserman, D.Danino & A.Mor. Impact of self-assembly properties on antimicrobial activity of short acyl-lysine oligomers.

Antimicrobial Agents & Chemotherapy, (2008) 52(12):4308-14.

62. R. Epand, S. Rotem, A. Mor, B. Berno, R. Epand

Bacterial membranes as a predictor of antimicrobial potency

JACS (2008) 130(43):14346-52.

63. F.Zaknoon, H. Sarig, S. Rotem, L. Livne, A. Ivankin, D. Gidalevitz, A. Mor.

Antibacterial properties and mode of action of a short acyl-lysyl oligomer

Antimicrobial Agents & Chemotherapy (2009) 53(8):3422-9.

64. Morris O. Makobongo, T. Kovachi, H. Gancz, A. Mor and D. Scott Merrell.

In Vitro Anti-bacterial Activity of OAKs against *Helicobacter pylori*

Antimicrobial Agents & Chemotherapy (2009) 53(10):4231-9.

65. Epand RF, Sarig H, Mor A, Epand RM. Cell-wall interactions and the selective bacteriostatic activity of a miniature oligo-acyl-lysyl.

Biophys J. (2009) 97:2250-7.

66. Viki Held, Shahar Rotem, Yehuda Assaraf, Amram Mor
Mimics of Host-Defense Peptides as a Platform for Novel Anticancer Drugs
FASEB J (2009) 23:4299-307
67. Liran Livne, Tchelet Kovachi, Hadar Sarig, Raquel F. Epanand, Fadia Zaknoon, Richard M. Epanand and Amram Mor. Design and characterization of a broad-spectrum bactericidal acyl-lysyl oligomer
Chemistry & Biology (2009) 16:1250-8.
68. Hadar Sarig, Liran Livne, Victoria Held-Kuznetsov, Fadia Zaknoon, Andrey Ivankin, David Gidalevitz, Amram Mor. A miniature mimic of host defense peptides with systemic antibacterial efficacy
FASEB J. (2010) 24:1904-13.
69. Shahar Rotem, Nili Raz, Yehezkel Kashi, Amram Mor
Bacterial capture by peptide-mimetic oligo acyl-lysine surfaces
Appl Environ Microbiol (2010) 76:3301-7.
70. Yair Goldfeder, Fadia Zaknoon, Amram Mor.
Experimental conditions that enhance potency of an antibacterial OAK
Antimicrob. Agents & Chemother (2010) 54:2590-5.
71. Liran Livne, Raquel Epanand, Brigitte Sternberg, Richard Epanand, Amram Mor. OAK-based cochleates as a novel approach to overcome MDR in bacteria.
FASEB J. (2010) 24:5092-101.
72. Andrey Ivankin, Anastasia Antipova, Liran Livne, Amram Mor, Gregory Caputo, William DeGrado, Mati Meron, Binhua Lin, David Gidalevitz. Role of conformational rigidity in de novo design of biomimetic antibacterial compounds
Angew. Chem. Int Ed Engl. (2010) 49:8462-5.
73. Hadar Sarig, Yair Goldfeder, Shahar Rotem, Amram Mor. Bactericidal properties of a broad-spectrum oligo-acyl-lysyl interfering with either membrane or DNA functions.
Antimicrob. Agents & Chemother. (2011) 55:688–695.
74. Ziserman, Lior; Lee, Hee-Young; Raghavan, S; Mor, Amram; Danino, Dganit. Unraveling the Mechanism of Nanotube Formation by Chiral Self-Assembly of Amphiphiles.
J Am Chem Soc. (2011) 133(8):2511-7.
75. R.Epanand, H. Sarig, D. Ohana, B. Papahadjopoulos, A. Mor, R.Epanand. Physical properties affecting cochleate formation and morphology using antimicrobial OAKs and mixtures mimicking composition of bacterial membranes in absence of divalent cations.
J Phys.Chem. B (2011) 115, 2287–2293.
76. Lior Ziserman, Amram Mor, Daniel Harries and Dganit Danino
Curvature instability in chiral amphiphile self-assembly.
Physical Review Letters. (2011) 106 (23):238105.
77. Zaknoon F, Sharon Wein, Miriam Krugliak, Ohad Meir, Shahar Rotem, Hagai Ginsburg, Henri Vial, Amram Mor. Antiplasmodial properties of acyl-lysyl oligomers in culture and animal models of malaria.
Antimicrob. Agents & Chemother. (2011) 55(8):3803-11.
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2. A. Mor, M. Amiche & P. Nicolas. Enter a new post-translational modification: D-

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 4. A.Mor. Peptides: biological activities of small peptides.
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 5. H.Vaudry, N.Chartrel, L.Desrur, L.Galas, S.Kikuyama, A.Mor, P.Nicolas, MTonon. The pituitary-skin connection in amphibians. Reciprocal regulation of melanotrope cells and dermal melanocytes.
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 6. A.Mor. Peptide-based antibiotics: a potential answer to raging antimicrobial resistance.
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 7. A.Mor. Antimicrobial peptides.
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 8. T.Rydlo, J.Miltz & A.Mor. Peptide-based Antimicrobials: Promises & Premises in Food Safety.
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 9. S.Rotem & A.Mor. AMP mimics for improved therapeutic properties.
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 10. A.Mor. Multifunctional host defense peptides: antiparasitic activities.
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 11. Raquel F. Eband, Amram Mor & Richard M. Eband
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Patents:

- 1995 Peptide permettant de modifier l'activite du systeme immunitaire.
French patent N° 9507831 (A. Mor, I. Vouldoukis, P. Nicolas)
- 1999 Multi-functional Antimicrobial Peptides.
US Patent application N° 09/371,388 (A. Mor).
Divisional (N° 09/614,060) and PCT (N° WO 01/10887) in 2001
- 2002 Peptides for the activation of the immune system in humans and animals.
US Patent N° 08574701 (A. Mor, I. Vouldoukis, P. Nicolas)
- 2002 Dermaseptin-derived peptides and their use in delivery systems.
Israeli Patent Application N° 150087 (A.Loyter, C.Gilon, A.Graessman, A. Mor, E.Hariton). US Patent Application N° 10/455,698 (2003)
- 2003 Antimicrobial medical implants and uses thereof.
US Provisional Patent Application N° 60/487,956 (A. Mor) PCT 27971
- 2004 Antimicrobial agents (A.Mor & I. Radzishvsky).
Provisional app 60/612,778 (2004); Patent No. US 7,504,381 B2 (2009)
- 2005 Fatty acid modified polylysines as antibacterial agents.
US Patent N° WO2006035431 (A.Mor & I. Radzishvsky)
PCT (2005); CIP (2007)
- 2006 Compositions and methods for concentrating and depleting
Microorganisms. (A.Mor, S.Rotem, N.Raz, Y.Kashi); US Provisional 60/874,725;
PCT/IL2007/001544 (2007)
- 2007 Novel antibacterial agents (A.Mor & I. Radzishvsky)
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- 2007 Anticancerous polymeric agents
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- 2008 Antibiotic-potentiator OAKs
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- 2009 Boosting immunity with chemical mimics of host defense peptides to overcome infectious diseases
US Provisional App. (A.Mor)

Other publications:

1. A.Mor. Introduction to a special issue on antimicrobial peptides. **Peptides** (2003) 24:1645.
2. A.Mor. Chemical Mimics with Systemic Efficacy. In **Antimicrobial Peptides: Discovery, Design and Novel Therapeutic Strategies**, Wang, G., Ed.; CABI: Wallingford Oxfordshire, UK, 2010.

CONFERENCES

Invited talks:

1990. Processing of pro-dermorphin generates two new D-aa containing peptides.
The J. Monod Conference. La Londe-les-Maures, France
1991. Dermaseptine, peptide antifongique isolé de *Phyllomedusa* sauvagii.
Congrès de Mycologie. Tours, France.
1992. Dermaseptine et analogues: peptides antimicrobiens modèles.
Congrès de Mycologie. Paris, France.
1994. Structure-Function Relationships of Antimicrobial Dermaseptins
23rd European Peptide Symposium. Braga, Portugal.
1995. Les Peptides antimicrobiens des batraciens.
Cours de Chimie et Biochimie des Substances Naturelles.
Museum National d'Histoire Naturelle, Paris.
1995. Nouvelles perspectives de traitement contre les Leishmanioses avec des peptides.
Congrès de la Société Française de Parasitologie. Châtenay-Malabry, France.
1996. Peptides and Biotechnology.
Consortium DA'AT, The Hebrew University of Jerusalem, Israel.
1997. Antimicrobial Peptides of Vertebrates.
Consortium DA'AT, The Hebrew University of Jerusalem, Israel.
2000. Dermaseptin-based antimicrobials.
Beith Israel Deaconess Hospital, Boston MA, USA.
2001. Peptide-based antimalarial drugs.
34th Annual Meeting of the Society for Invertebrate Pathology. Noordwijkerhout, the Netherlands.
2002. Animal-derived antimicrobial peptides.
Annual Meeting of the Israel Society for Microbiology, Jerusalem.
2003. Dermaseptin-based antimicrobials.
R&D and Business conference around the theme "Partenair du Technion pour l'innovation" Paris, France
2005. Consequences of N-acylation on 3D structure, binding and cytolytic properties of antimicrobial peptides.
9th International Congress on Amino Acids and Proteins. Vienna
2006. Novel Antimicrobial Peptidomimetics Composed of Acylated Charged Amino Acids.
Natural Peptides to Drugs - NP2D. 2nd Int. Congress, Zermatt-Switzerland

2007. Design of Novel Antimicrobial Peptidomimetics.
Gordon Research Conference on AMPs. Il Chiocco - Italy
2007. Design of Antimicrobial Agents based on Acyl-Lysine Oligomers that Mimic Structure and Function of Host Defense Peptides.
IDDSST. Xi'an - China
2008. Biological Assessment and Mechanism of Action of Novel Antimicrobial Peptidomimetics: Oligo Acyl-Lysines.
Natural Peptides to Drugs - NP2D. 3rd Int. Congress, Zermatt-Switzerland
2009. Consequences of unsaturated acyl substitution on biophysical properties of a short OAK with in-vivo antibacterial activity.
Gordon Research Conference on AMPs. Ventura - USA
2009. Oligomers of acylated lysines (OAKs): mimics of host defense peptides with systemic antibacterial efficacy.
2nd International Symposium on AMPs. Saint-Malo, France
2009. A new chemical mimic of host defense peptides with systemic efficacy in murine infection models.
ACS 238th National Meeting. Washington DC
2012. Chemo-Sensitization of Gram Negative Bacteria by Targeting the Membrane Potential.
The Peptide Chemistry Conference, Mexico

SPECIAL PROFESSIONAL ACTIVITIES

Scientific Advisor to Biotechnology Companies & Research Groups:

- 1995-1996: IntraBiotics Pharmaceuticals Inc., Ca., USA.
- 1999-2001: BioMediCom Ltd. Jerusalem, Israel
- 2002-2005: CDC Grant (M.H. Samore) University of Utah, USA
- 2006-2008: BioLineRx Ltd. Jerusalem, Israel