MICHAL SHAPIRA **Feb 2010**

CURRICULUM VITAE AND LIST OF PUBLICATIONS

Personal Details

Date and place of Birth	August 20, 1950, Tel - Aviv, Israel
Military Service	Jan. 1969 - Aug. 1970
Marital Status	Married + 3 children

Work

Dept. of Life Sciences
Ben Gurion University of the Negev
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Education

1970-1973	**B.Sc.** (Biology) The Hebrew University, Jerusalem
1973-1976	**M.Sc.** (Life Sciences) The Weizmann Institute of Science, Dept. Biochemistry. Advisor: Prof. Ada Zamir; Title of thesis: Affinity labeling of the peptidyl transferase active site of the 50S ribosomal subunit of *E. coli*.
1979-1984	**Ph.D.** (Life Sciences) The Weizmann Institute of Science; Dept. Chem. Immunol. Advisor: Prof. Ruth Arnon; Title of thesis: Synthetic vaccine for virus neutralization- A study with Influenza.

Employment History

2008-Present	Professor, Ben Gurion University of the Negev, Dept. Life Sciences
2001-2008:	Associate Professor, Ben-Gurion University of the Negev, Dept. Life Sciences
1995-2001	Senior Lecturer, The Ben-Gurion University of the Negev, Dept. Life Sciences. Tenured since May 1999
1995	Visiting Scholar, Duke Univ, Durham NC, with Profs. J Boynton and NW Gillham
1995	Associate Professor, Weizmann Institute of Science
1990-1995	Senior Researcher (= Senior Lecturer), Weizmann Institute of Science
1987-1990	Researcher (= Lecturer), Weizmann Institute of Science
1986	Research fellow - Weizmann Institute of Science, MacArthur Center for Molecular Parasitology, and Dept. Membrane Research&Biophysics
1984-1986	Post doctoral training, Dept. Human Genetics, Univ. of Michigan Medical School, Ann-Arbor Michigan, USA
1976-1979:	Biology Teacher in High-School (for matriculation certificate exams).

Administrative activities

2008-present	Head of the Marine Biol. & Biotechnol Program of the Dept. Life Sciences in Eilat
2008-present	Member of the Grant committee for the UCLA-BGU collaborative fund
2007-present	Member of BGU committee for Honorary PhDs, BGU
2004-2008	Head of M.Sc. Students Committee in the Faculty of Natural Sciences, BGU
2004-present	Head of equipment committee at the department of Life Sciences, BGU
2003-2004	Member of the Dozor Faculty committee for inviting distinguished lecturers, BGU

2002-2005 Member of the Advisory committee to the Faculty of Natural Sciences, BGU
2000-2001 Head of departmental M.Sc. Students Committee, BGU
2000-2008 Head of committee for recombinant DNA, BGU
1998-2001 Member of the Interdepartmental committee for biological services at BGU
1998-2002 Member of the Departmental committee for scientific development, BGU
1997-2001 Member of the Departmental M.Sc. Students Committee, BGU

Teaching Activity

1996-present Genetic Engineering - 2nd year, (100%), 130-150 students, BGU
2003-present Advanced laboratory course in Molecular Biotechnology (100%). ~30 students, BGU
1996-present Gene Expression and Developmental Processes, Advanced course - 3rd year & graduate students, (100%). ~ 40 students, BGU
1995-present Project students – Dept Life Sciences, Average of 2-3 students per year, BGU
2001-present Miniproject in Life Sciences for students in the Dept. Computer Sciences, BGU

Scientific Publications

Papers in Refereed Scientific Journals

1. Muller G., **Shapira M**. and Arnon R. (1982) Anti-influenza response achieved by immunization with a synthetic conjugate. Proc. Natl. Acad. Sci. USA.79, 569-573

2. Arnon R., **Shapira M**., and Jacob C.O. (1983) Synthetic vaccines. J. Immunol.Methods 61, 261-273

3. **Shapira M**., Jibson M., Muller G., and Arnon R. (1984) Immunity and protection against influenza virus by synthetic peptide corresponding to antigenic sites of the hemagglutinin. Proc. Natl. Acad. Sci. USA. 81, 2461-2465

4. **Shapira M**., Misulovin Z., and Arnon R. (1985) Specificity and cross-reactivity of synthetic peptides derived from a major antigenic site of influenza hemagglutinin. Mol. Immunol. 22, 23-28

5. **Shapira M**., Jolivet M., and Arnon R. (1985) A synthetic vaccine against influenza with built-in adjuvanticity. J. Int. Immunopharmacol. 7, 719-723

6. **Shapira M**., Homa F.L., Glorioso J.C., Levine M. (1987) Regulation of the herpes simplex virus type 1 late glycoprotein C gene: Sequences between base pairs -34 to +29 control transient expression and responsiveness to transactivation by the products of the immediate early (a) 4 and 0 genes. Nucleic Acids Research, 15, 3097-3111

7. **Shapira M**., McEwen, J.G. and Jaffe, C.L. (1988) Temperature effects on molecular processes which lead to stage differentiation in *Leishmania.* EMBO J. 7, 2895-2901

8. **Shapira, M**. and Pinelli, E. (1989) Heat shock protein 83 of *Leishmania mexicana amazonensis* is an abundant cytoplasmic protein with a tandemly repeated genomic arrangement. Eur. J. Biochem. 185, 231-236

9. **Shapira, M**. and Pedraza, G. (1990) Heat shock protein 83 of *Leishmania mexicana amazonensis*, Sequence analysis and transcriptional activation. Mol. Biochem. Parasitol. 42, 247-256

10. Pinelli, E. and **Shapira, M**. (1990) Temperature induced expression of proteins in *Leishmania mexicana amazonensis*: A 22 kDa is possibly localized to the mitochondrion. Eur. J. Biochem. 194, 685-691

11. Agami, R. and **Shapira, M**. (1992). Sequence analysis of the spliced leader RNA from *Leishmania mexicana amazonensis*. Nucleic Acids Res., 20, 1804.

12. Michaeli,S., Agami,R. and **Shapira, M**. (1993) *Leishmania mexicana amazonensis*, effect of heat shock on the spliced leader RNA and its ribonucleoprotein particle SL RNP. Exp. Parasitol. 76, 59-67

13. Aly, R., Argaman,M., Agami, R., Pinelli, E. and **Shapira, M**. (1993) Intergenic sequences from the hsp83 gene cluster in *Leishmania mexicana amazonensis* promote and regulate gene expression in transfected parasites. Gene 127, 155-167

14. Argaman, M., Aly,R. and **Shapira,M**. (1994) Expression of the hsp83 gene in the protozoan parasite *Leishmania amazonensis* is regulated post transcriptionally. Mol. Biochem. Parasitol. 64, 95-110

15. Agami, R., Aly, R. Halman, S. and **Shapira, M**. (1994) Functional analysis of *cis* acting elements that regulate expression of the spliced leader RNA gene in *Leishmania amazonensis*. Nucl. Acids Res. 22, 1959-1965

16. Aly, R., Argaman, M. and **Shapira, M.** (1994) A regulatory role for the 5' and 3' untranslated regions in differential expression of hsp83 in *Leishmania*. Nucl. Acids Res. 22, 2922-2929

17. Zilberstein D. and **Shapira, M**. (1994) The role of pH and temperature in the development of *Leishmania* parasites. Ann. Rev of Microbiol. Vol 48. 449-470

18. Aly, R., Argaman, M. and **Shapira, M.** (1995) The hsp83 intergenic region in *Leishmania:* conservation of sequence and function across two species. Exp. Parasitology 80. 159-162

19. Siman-Tov, M. Aly, R. **Shapira, M.** and Jaffe C.L. (1996) Cloning and regulation of a stage specific protein kinase A gene from *Leishmania* Mol. Biochem. Parasitol. 77, 201-215

20. **Shapira, M. ,** Lers, A., Irihimovitz, V., Heifetz, P., Osmond, B., N. W. Gillham and J. E. Boynton (1997) Differential Regulation of Chloroplast Gene Expression in *Chlamydomonas reinhardtii* during Photoacclimation: Light Stress Transiently Suppresses Synthesis of the Rubisco LSU Protein while Enhancing Synthesis of the PS II D1 Protein. Plant Mol Biol. 33, 1001-1011

21. Garlapati, S., Aly, R. and **Shapira, M.** (1998) *Leishmania amazonensis*, Genus-specific expression from the SL RNA promoter of *Leishmania amazonensis*. Exp. Parasitol. 89, 266-270

22. Oxman, T., Arad, M., **Shapiro, M.,** Klein, R., Elazar, E., Avezov, N. and Rabinowitz, B. (1998) Can the type of short-term ischemia determine the antiarrhythmic effect of preconditioning in the isolated rat heart? Exp. Clin. Cardiology. 3, 17-22

23. Garlapati, S., Dahan, I., and **Shapira, M.** (1999) Effect of acidic pH on heat shock gene expression in *Leishmania* . Mol. Biochem. Parasitol. 100, 95-101

24. Lapidot, M., Raveh, D., Sivan, A. Arad-Malis, S. and **Shapira, M.** (1999) Molecular analysis of the AHAS gene from *Porphyridium* sp. (Rhodophyta) and from its SMM resistant mutant. J. Phycol. 35, 1233-1236

25. Oxman, T. **Shapira, M**. Diver, A. Klein, R. and Rabinowitz, B. (2000) Long-Term Cardioprotection - Mechanisms of Adaptation to Ischemia. American J. Physiol.: Heart and Circulatory Physiology. 278, H1717-H1724

26. Irihimovitz, V. and **Shapira, M.** (2000) Glutathione Redox Potential Modulated by Active Oxygen Species Regulates Translation of Rubisco LSU in the Chloroplast J. Biol. Chem. 275, 16289-16295

27. Oxman, T., **Shapira, M.,** Klein, R., Avazov, N., Rabinowitz, B. (2001) Oral administration of lactobacillus induced cardioprotection. J. Alternative and Complementary Medicine 7, 345-354

28. **Shapira, M.,** Zilka, A., Garlapati, S., Dahan, E. Dahan, I. and Yavelski, V. (Nov 2001) Post Transcriptional Control of Gene Expression in *Leishmania.* Medical Microbiol. Immunol.190, 23-26

29. Zilka, A., Garlapati, S., Dahan, E. and Yavelski V.and **Shapira, M.** (Dec 2001) Developmental regulation of HSP83 in *Leishmania*: 3' processing and mRNA stability control transcript abundance and translation is directed by a determinant in the 3' untranslated region. J. Biol. Chem. 276, 47922–47929

30. Lapidot, M., Raveh, D., Sivan, A., Arad, S. and **Shapira, M.** (2002) Stable chloroplast transformation of the unicellular red algae *Porphyridium* sp. Plant Physiol. 129, 7-12.

31. Yosef, I. [§], Irihimovitch, V. [§], Dahan, I., Cohen,I., Knopf,Y., Nahum, E., Keasar, C., and **Shapira, M.** (2004) RNA Binding Activity of Rubisco Large Subunit from *Chlamydomonas reinhardtii.* J.Biol. Chem. 279, 10148–10156 ([§] - Equal contribution)

32. Lewdorowicz, M., Yoffe, Y., Zuberek, J., Jemielity, J., Stepinski, J., Kierzek,R., Stolarski, R., **Shapira, M.** and Edward Darzynkiewicz. (2004) Chemical synthesis and binding activity of the trypanosomatid cap-4 structure. RNA, 10, 1469-1478

33. Yoffe, Y., Lewdrowicz, M. Zeira, Z., Keasar, C., Orr-Dahan, I., Joanna Zuberek, J. Darzynkiewicz, E. and **Shapira M.** (2004) Cap binding activity of an eIF4E homologue from *Leishmania.* RNA, 10, 1764-1775

34. Yosef, I. Bloushtain, N., **Shapira, M.** and Qimron, U. (2004) Restoration of Gene Function by Homologous Recombination: From PCR to Gene Expression in One Step. Applied and Environmental Microbiology, 70, 7156-7160

35. Cohen, I., Knopf J.A., Irihimovitch, V. and **Shapira, M.** (2005) A proposed mechanism for the inhibitory effects of oxidative stress on Rubisco assembly and subunit expression. Plant Physiol. 137, 738-746. **This paper was recommended by the "Faculty of 1000"**

36 Knopf, J. and **Shapira, M**. (2005) Degradation of Rubisco SSU during oxidative stress triggers the aggregation of Rubisco in vivo, in *Chlamydomonas reinhardtii*. Planta, 222, 787-93

37. Cohen, I, Sapir, Y. and **Shapira, M.** (2006) A conserved mechanism controls translation of Rubisco large subunit in different photosynthetic organisms. Plant Physiology, 141, 1089-1097. **This paper was recommended by the "Faculty of 1000"**

38. Yoffe Y., Zuberek J., Lerer, A., Lewdorowicz, M., Stepinski, J., Altmann, M., Darzynkiewicz, E., and **Shapira, M.** (2006) eIF4E isoforms of *Leishmania* – binding specificities and potential roles. Eukaryotic Cell, 5, 1969-79

39. Avihoo, A.§, Gabdank, I.§, Shapira, M. and Barash, D. (2006) In Silico Design of Small RNA Switches. IEEE Transactions in Nanobiosciences, 6, 4-11. (§ Equal Contribution).

40. Clayton, C. and Shapira, M. (2007) Post-transcriptional regulation of gene expression in trypanosomes and leishmanias. (Review article) Mol. Biochem. Parasitol, 156:93-101.

41. Lewdorowicz, M., Jemielity, J., Kierzek, R., **Shapira, M.,** Stepinski, J. and Darzynkiewicz, E. (2007) Solid supported synthesis of 5' –mRNA cap-4 from trypanosomatides. Nucleosides Nucleotides Nucleic Acids. 26:1329-1333

42. Lewdorowicz, M., Stepinski, J., Kierzek, R., Jemielity, J., Zuberek, J., Yoffe, Y., **Shapira, M,** Stolarski R. and Darzynkiewicz, E. (2007) Synthesis of *Leishmania* cap-4 intermediates, cap-2 and cap-3. Nucleosides Nucleotides Nucleic Acids. 26:1339-48

42. Bocobza, S., Adato, A., Mandel, T., **Shapira, M.,** Nudler, E. and Aharoni, A. (2007) Riboswitch-dependent gene regulation and its evolution in the Plant Kingdom. Genes and Development. 21:2874-2879

43. Computational identification of three-way junctions in folded RNAs: a case study in Arabidopsis. (2008) Cohen, A., Bocobza, S., Veksler, I., Gabdank, I., Barash, D. Aharoni, A., **Shapira, M.** and Kedem, K. In Silico Biol. 8:105-20

44. Yoffe, Y., Leger, M., Zinoviev, A., Zuberek, J., Darzynkiewicz, E. Wagner, G. and **Shapira, M.** (2009) Evolutionary adaptation of the *Leishmania* eIF4F complex to cap-4 binding involves changes in the eIF4E-eIF4G interactions. Nucleic Acids Res. 37:3243-53

45. Raveh-Amit H, Maissel A, Poller J, Marom L, Elroy-Stein O, Shapira M, Livneh E. Translational control of protein kinase Ceta by two upstream open reading frames. Mol Cell Biol. 2009 22:6140-8.

46. David, M., Gabdank, I., Ben David, M., Zilka, A., Barash, D. and **Shapira, M.** (2010) Preferential translation of Hsp83 in *Leishmania* requires a thermosensitive polypyrimidine-rich element in the 3' UTR and involves scanning of the 5' UTR. RNA, 16:364–374.

Chapters in Books

1. Arnon R., Jibson M., Muller G., and **Shapira M**. (1983) Anti-influenza response induced with synthetic antigen. In: Advances in Immunopharmacology 2. Ed., Hadden J.W., et al., Permagon Press. pp. 421-427

2. **Shapira M**. (1987). The synthetic approach towards anti-influenza vaccination. In: Synthetic Vaccines. Ed., R. Arnon. CRC Press, Inc., Vol. II p. 51-63

3. Arnon R., **Shapira M**. and Jacob C.O. (1987) Synthetic peptides as a basis for anti-influenza and anti-cholera vaccines in: Vaccines, New Concepts and Developments. eds. Kohler, H. and Loverde, P.T. Longman Scientific & Technical, U.K. pp. 333-340

4. **Shapira M**. (2000) *Leishmania*. In: Encyclopedia of Stress. Eds. Fink, G., Cox, T., de Kloet, R. E., McEwen, B, S., Rose, N. R., Rothwell, N. J., Rubin, R. T., Steptoe, A. & Swanson, L. W. Academic Press. Vol. 2, pp. 612-618 (Invited chapter)

5. **Shapira, M**. (2006) *Leishmania* In: Encyclopedia of Stress second edition. Editor in Chief Fink, J. Academic Press, Oxford, 2007, Vol 1, pp 579-583
ISBN: 978-0-12-088503-9 (Invited chapter)

Proceedings of Conferences

1. Arnon R., **Shapira M**., Muller G. (1981) Anti-influenza response induced with synthetic antigen. In: Genetic Variation Among Influenza Viruses. ICN-UCLA Symposia on Molecular and Cellular Biology. Ed., Nayak, D.P. Vol. XXI, pp. 653-662

2. Arnon R., Jacob C.O., and **Shapira M**. (1983) Synthetic vaccines. In: Progress in Immunology. Academic Press, Japan Inc. pp. 1327-1341

3. Arnon R., and **Shapira M**. (1984) Anti-influenza synthetic vaccine. In: Modern Approaches to Vaccines. Cold Spring Harbor Laboratory, N.Y. Eds., Chanock R., and Lerner R. pp. 109-113

4. **Shapira M**., and Arnon R. (1986) Anti-influenza immune response induced by synthetic peptides. In: Options for the control of influenza, UCLA Symposia on Molecular and Cellular Biology. New Series. Vol. 36 Alan R. Liss, Inc. New York, NY. pp. 391-406

5. **Shapira M**., McEwen, J.G. and Jaffe, C.L. (1989) *In vitro* and *in vivo* differentiation of *Leishmania mexicana* - Hsp 70 gene expression and regulation. In: *Leishmaniasis*: The Current Status and New Strategies for Control. Plenum Press. ed. Hart, D.T. Vol. 163, 575-579

6. **Shapira, M.** and Irihimovitch, V. (1998) In: Photosynthesis: Mechanisms and Effects Vol V. Proceedings of the XI International Congress on Photosynthesis, Ed. Garab, G.; Kluwer Academic Publishers. Active oxygen species transiently suppress the synthesis of the chloroplast encoded Rubisco LSU. 3367-3370

7. Adaya N. Cohen, Klara Kedem, **Michal Shapira,** Danny Barash. (2005) Integration of RNA Search Methods for Identifying Novel Riboswitch Patterns in Eukaryotes. CSB Workshops 2005: 193-195

Research Interests

The stress response and stage differentiation in *Leishmania*

Translation regulation in *Leishmania*: The general and gene-specific translation machinery

Redox regulation of chaperone activity and protein synthesis in the chloroplast