

## LULI STERN

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### Higher Education

1989-1996 Ph.D. Department of Molecular Microbiology and Biotechnology, Tel-Aviv University, Tel-Aviv, Israel

1986-1989 M.Sc. Department of Microbiology, Tel-Aviv University, Tel-Aviv, Israel

1983-1986 B.Sc. in Biology, Tel-Aviv University, Tel-Aviv, Israel

### Academic Ranks in Institutes of Higher Education

1999-present Faculty, lecturer (Research Associate). Department of Education in Technology and Science, Technion, Israel Institute of Technology, Haifa, Israel

1995-1999 Research Associate. Project 2061, American Association for the Advancement of Science (AAAS), Washington DC

### Scholarly Positions and Activities outside the University

#### Editorial Boards

2004-2006 Editorial member of the Editorial Board of the *Journal of Research in Science Teaching*

### Academic Activities

2000- present Project director. Research and development of two learning units that focus on biological evolution. The first is intended for high school biology students and the second is for high school science and technology in the society (MUTAV) students.

2003- present Member of the Committee for Developing the Science and Technology in the Society (MUTAV) Syllabus, appointed by the Ministry of Education, Israel.

2000- present Member of the National Committee for Science and Technology in the Society (MUTAV) Curriculum, appointed by the Ministry of Education, Israel Department of Education in Technology and Science, Technion-IIT, Haifa, Israel.

Summer 2001 Analysis of 6-12 student assessment tasks and development of a tool to design and revise standards-based assessment tasks. Project 2061, AAAS, Washington DC.

1998- 2001 Science curriculum materials evaluator. Project 2061, AAAS, Washington DC.

- 1998-1999 Member on the advisory board of an NSF-funded project focusing on integrated science at the high school level. Biological Sciences Curriculum Study (BSCS), Colorado Springs CO.
- 1998-1999 Member of a team that developed criteria to evaluate the effectiveness of students' assessment. Project 2061, AAAS, Washington DC.
- 1995-1999 Member of the group that developed and field-tested the Project 2061 tool to evaluate the alignment of curriculum materials to science standards. Project 2061, AAAS, Washington DC.

## **PUBLICATIONS**

### **A. DISSERTATION**

- M.Sc. Thesis. Comparative analysis of the gene coding for isopenicillin N synthase in *Streptomyces*, 1989, Tel-Aviv University. Advisor: Prof. Yair Aharonowitz. 94 pages (in Hebrew).
- Ph.D. Thesis. The interactions between the morbillivirus and the host cell, 1996, Tel-Aviv University. Advisor: Prof. Shmuel Rozenblatt. 89 pages (in Hebrew).

### **B. ARTICLES IN REFEREED JOURNALS**

- Bar-Lev Stern, L., Greenberg, M., Gershoni, J. M. & Rozenblatt, S. (1995). The Hemagglutinin envelope protein of Canine Distemper Virus (CDV) confers cell tropism as illustrated by CDV/Measles Virus complementation analysis. *J. Virol.*, 69, 1661-1668.
- Nussbaum, O., Broder, C. C., Moss, B., Bar-Lev Stern, L., Rozenblatt, S., & Berger, E. A. (1995). Functional and structural interactions between Measles Virus Hemagglutinin and CD46. *J. Virol.*, 69, 3341-3349.
- Stern, L. (1999). Can textbooks teach Earth science ideas? *Geotimes: News and Trends in the Geosciences*, 44, 28.
- Stern, L. & Roseman, J. (2001). Textbook alignment. *The Science Teacher*, 68 (3), 52-56.
- Stern, L. & Ahlgren, A. (2002) An analysis of students' assessments in middle school curriculum materials: Aiming precisely at benchmarks and standards. *Journal of Research in Science Teaching*, 39, 889-910.
- Stern, L. (2003). Reply: Analysis of students' assessments in curriculum materials: Fidelity to national standards. *Journal of Research in Science Teaching*, 40, 827-834.
- Stern, L. & Roseman, J. (2004). Can middle school science textbooks help students learn important ideas? Findings from Project 2061' curriculum evaluation study: Life science. *Journal of Research in Science Teaching*, 41, 538-568.
- Stern, L. (2004). Effective assessment: Probing students' understanding of natural selection. *Journal of Biological Education*, 39, 12-17.
- Stern, L. & Ben-Akiva, I. Tails' inheritance: Challenging secondary school students' ideas about the inheritance of acquired traits. *American Biology Teacher*. In Press.
- Stern, L., Barnea, N., & Shauli, S. The effect of a computerized molecular simulation on middle school students' understanding of the kinetic molecular theory. *Journal of Science Education and Technology*. In Press.

### C. ARTICLES SUBMITTED FOR PUBLICATION

- Stern, L. & Di-Nur, N. Teaching evolution to science non-majors. Submitted to *Learning and Instruction*.
- Stern, L. & Hagay, G. Considering alternatives to the idea of common descent. Submitted to the *American Biology Teacher*.
- Stern, L. Challenging middle school students' ideas regarding the inheritance of acquired traits using an episode from the history of science followed by a guided discussion. Submitted to the *Journal of Research in Science Teaching*.

### D. CHAPTERS IN BOOKS

- Roseman, J. & Stern L. (2003). Toward ecology literacy: Contributions from Project 2061 science literacy reform tools. In: A. R. Berkowitz, C. H. Nilon, & K. S. Hollweg (Eds.), *Understanding urban ecosystems: A new frontier for science and education* (Chapter 16, pp. 261-281). New York: Springer.
- Stern, L. & Roseman, J. (2005). Alignment of national standards, curriculum, and students' assessment. In: D. W. Sunal & E. Wright (Eds.), *The impact of state and national standards on K-12 science teaching, The Book Series: Research in science education*. (Chapter 11). Information Age Publishing.
- Schwartz, Y. & Stern, L. (2005). Scientific literacy: Paradigm change in science education. In: Lazarowitz, R. & Hofstein, A. (Eds.), *Teaching Science for All in Israel: A guide for high schools*. Technion-IIT. In Press. (In Hebrew).

### E. OTHER PUBLICATIONS

- Cwiklinski A., Czapla B., & Stern, L (1996). Books to help teachers achieve science literacy. *Science Books & Films* (AAAS) 32, 97-100.
- Roseman J., Kesidou S., Stern L., & Caldwell, A. (1999). Heavy books light on learning: *AAAS Project 2061 evaluates middle grades science textbooks Science Books & Films* (AAAS) 35, 23-26.

### F. REPORTS

- American Association for the Advancement of Science (2003). *Middle Grades Science Textbooks Evaluation* (technical reports and summaries available on <http://www.project2061.org/tools/textbook/mgsci/INDEX.HTM>).
- American Association for the Advancement of Science (2003). *High School Biology Textbooks Evaluation* (summaries available on [www.project2061.org](http://www.project2061.org)).

### G. BOOKS AND CDS

- American Association for the Advancement of Science (1997). *Resources for science Literacy: Professional development*. New York, NY: Oxford University Press [a book and a CD] (144 pp.). Contributor.
- Biological Sciences Curriculum Study (2000). *Making sense of integrated science. A guide for high schools*. CO: BSCS (243 pp.). Contributing writer and advisor.
- American Association for the Advancement of Science (2001). *Atlas for science literacy*. New York: Oxford University Press (176 pp.). Reviewer.

American Association for the Advancement of Science (2001). *Designs for science literacy*. New York: Oxford University Press (312 pp.). Reviewer.

American Association for the Advancement of Science (2001). Project 2061 AAAS *science textbook conference* [CD]. Washington, DC: Project 2061. Contributor.

American Association for the Advancement of Science, *Resources for science literacy: Curriculum materials evaluation*. New York, NY: Oxford University Press (To be published in 2005). Contributing writer and reviewer.

## H. TEXTBOOKS

Stern, L., Hagay, G., Tsur, C., & Reisfeld, S. (2005) Predicting the future, reconstructing the past. A curricular unit for high school biology students on biological evolution. Student's text. Department of Education in Technology and Science, Technion-IIT. In Press (130 pages). Funded by The National Center for Science Education (MALAM). In Press. [In Hebrew]

Stern, L., Hagay, G., Tsur, C., & Reisfeld, S. (2005) Predicting the future, reconstructing the past. Teacher's guide. Department of Education in Technology and Science, Technion-IIT. In Press (150 pages). Funded by The National Center for Science Education (MALAM). In Press. [In Hebrew]

Stern, L., Reisfeld, S. & Di-Nur, N. Evolution & genetics. A curricular unit for high school Science and Technology in the Society students. Student's text. (Expected publication date: August 2005). Funded by The National Center for Science Education (MALAM). [In Hebrew]

Stern, L., Reisfeld, S. & Di-Nur, N. Evolution & genetics. Teacher's guide (Expected publication date: August 2005). Funded by The National Center for Science Education (MALAM). [In Hebrew]

## Research Grants

2000-2004	The National Center for Science Education (MALAM), Israel. Development of a learning unit on evolution for high school biology students. 100,000\$.
2000-2005	The National Center for Science Education (MALAM), Israel. Development of a learning unit on evolution and genetics for high school Science and Technology in the Society students. Totaling 100,000\$.
2004-2005	The National Center for Science Education (MALAM), Israel. Development of a course for leading Science for All teachers. 15,000\$.

## Teaching

### A. Courses

1999-current	Department of Education in Technology and Science, Technion-IIT. Graduate courses: <ol style="list-style-type: none"><li>1. Curriculum evaluation in biology (218110)</li><li>2. Development of research in biology education (218116)</li><li>3. Nature of science in the secondary school (218326)</li><li>4. Project-development of biology curriculum (218135)</li></ol>
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Undergraduate courses:

1. Biological aspects in multidisciplinary teaching in middle school (214507)
2. Problems and issues in biology education (1 & 2) (214506 & 214505)
3. The laboratory in biology education (214508)

1996-1998 Project 2061, AAAS, Washington DC: Developing and presenting workshops for various audiences (A three-week summer course for high school biology teachers, Philadelphia, PA, 1997; A five-day training session for an expert group on Project 2061's procedure to evaluate curriculum materials, Washington DC, 1998)

1989-1994 Teaching Assistant, Department of Molecular Microbiology and Biotechnology, Tel-Aviv University.  
Undergraduate course:

- Genetics

1988-1994 Developing and instructing courses in microbiology and genetics for science oriented youth, Unit of Youth Activities, Tel-Aviv University.

1986-1989 Teaching Assistant, Department of Biotechnology, Tel-Aviv University.  
Graduate course:

- Laboratory in Biotechnology

Undergraduate course:

- Laboratory in Microbiology

***B. Graduate students***

Department of Education in Technology and Science, Technion, IIT.

***M.Sc.***

- Shauli Sofia The effect of a computerized dynamic simulation on middle school students' understanding of the kinetic molecular theory. Secondary supervisor: Dr. Nitza Barnea. Graduated 2002.
- Di-Nur Nirit Making evolutionary ideas plausible for high school students. Expected graduation: January, 2005.
- Tzimerman Ifat Meaningful assessment of evolutionary ideas among high school biology students. Expected graduation: January, 2005.
- Hagay Galit High school students understanding of speciation and the idea of common descent. Expected graduation: June, 2005.
- Duek Oshra Middle school students' ideas related to theory, hypothesis, and experimentation. Expected graduation: January, 2006.

**Scholarships and Awards**

1999-2002 Rashi fellowship award for promoting science education in the universities, awarded by The Council for Higher Education in Israel and the Rashi Foundation

- 1994 Ben-Gurion scholarship for Ph.D. students, awarded by The Ministry of Science and the Arts
- 1994 The Katzir Foundation scholarship for Ph.D. students
- 1993, 1991 Dean's Award for Ph.D. students, Faculty of Life Sciences, Tel Aviv University, Israel

### **Active Participation in Scholarly Conferences (lectures)**

- Bar-Lev Stern, L., Greenberg, M., & Rozenblatt, S. Functional complementation between the envelope glycoproteins of Measles Virus and Canine Distemper Virus in the fusion process. Paper presented at the Ninth International Conference on Negative Strand Viruses, Estoril, Portugal. October, 1994.
- Roseman, J., Kesidou, S., & Stern, L. Identifying curriculum materials for science literacy: A Project 2061 evaluation tool. Paper presented at the National Research Council meeting: Using the *National Science Education Standards* to guide the evaluation, selection, and adaptation of instructional materials, Washington, DC, USA. October, 1996.
- Stern, L. Linking curriculum materials to science literacy goals. Presented at the Annual Meeting of the National Science Teachers Association (NSTA), Las Vegas, NV, USA. April, 1998.
- Stern, L. Evaluation of comprehensive curriculum materials for alignment with benchmarks and standards: The case of *SciencePlus*. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), San-Diego, CA, USA. April, 1998.
- Stern, L. Evaluating and selecting standard-based curriculum materials. Paper presented at the Annual Meeting of the National Association of Biology Teachers (NABT), Reno, NV, USA. November, 1998.
- Stern, L. Are you really testing for science literacy? Aiming precisely at benchmarks and standards. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), Boston, MA, USA. March, 1999.
- Stern, L. & Roseman, J. Findings from the middle school curriculum study: Life science. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), New Orleans, LA, USA. April, 2000.
- Caldwell A. & Stern, L. Findings from the middle school curriculum study: Earth science. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), New Orleans, LA, USA. April, 2000.
- Stern, L. How does resistance to antibiotics develop in bacteria? The use of benchmarks and national standards to evaluate assessment tasks aimed at natural selection ideas. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), St. Louis, MO, USA. March, 2001.
- Stern, L. Using the history of science to challenge middle-school students' ideas about the inheritance of acquired traits. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), New Orleans, LA, USA. April, 2002.
- Stern, L. Challenging middle school students' ideas about the inheritance of acquired traits using a history of science case study and guided discussions. Paper presented at the Third European Symposium on Conceptual Change (EARLI), Turku, Finland. June, 2002.

- Stern, L. Using the history of science in secondary schools. Presented at the colloquium: Turning to the history and philosophy of science in teaching science: A meeting of science researchers and teachers, sponsored by The Hebrew University of Jerusalem, Jerusalem, Israel. October, 2002.
- Stern, L. & Mokady O. Will dinosaurs ever appear again? University biology students' conceptions of determinism in nature. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), Vancouver, Canada. April, 2004.
- Roseman, J., Kurth, L., Kesidou, S., & Stern, L. Mapping for Curriculum Coherence. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (NARST), Vancouver, Canada. April, 2004.
- Stern, L. & Di Nur, N. Changes in high school students' conceptions about evolution by natural selection: A case study. Paper presented at the Fourth European Symposium on Conceptual Change (EARLI), Delphi, Greece. May, 2004.

### **Colloquium Talks and other Invited Addresses**

- Oct. 1996      Linking curriculum materials to science literacy goals (workshop). Presented at the National Research Council meeting: Using the *National Science Education Standards* to guide the evaluation, selection, and adaptation of instructional materials, National Academy of Sciences, Washington DC
- Feb. 2000      Heavy books light on learning. A colloquium given at the Science Education Department, Weizmann Institute of Science, Israel.
- Oct. 2001      Science education for all in secondary schools. Presented at a Joint Colloquium of the Science Academies of France and of Israel on "Science Literacy in a changing World," Tourtour, France.
- July 2004      Evaluation and Design of effective curriculum materials. Presented at the National Task Force for the Advancement of the Education System in Israel (Dovrat Committee; appointed by the Ministry of Education), Tel Aviv, Israel