

# Curriculum Vitae

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## Limor Minai

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## Education:

- 1991-1994      B.Sc. in Biology  
The Hebrew University of Jerusalem, Jerusalem, Israel.
- 1994-1996      M.Sc. in Biology, Department of Plant Sciences,  
The Hebrew University of Jerusalem, Jerusalem, Israel.
- 1996-2001      Ph.D., Department of Plant Sciences,  
Theses title: The assembly of PsdD, a peripheral stromal-facing subunit, into the  
photosystem I complex. Supervisor: Prof. Rachel Nechushtai.  
The Hebrew University of Jerusalem, Jerusalem, Israel.

## Academic Experience:

- 2008-todate    Research fellow  
  
Lab manager  
  
At Prof. Dvir Yelin's lab, Department of Biomedical Engineering, Technion-Israel  
Institute of Technology, Haifa, Israel.
- 2006-2007      Post-doctoral research fellow. Research theme: Characterization of the human fetal  
respiratory chain in different stages of gestation. INSERM U781, Hôpital Necker-  
enfant malade, 149 rue de Sèvres, 75015 Paris, France. Group: Mitochondria.  
Head of unit: Prof. Arnold Munnich. Group leader: Dr. Agnès Rötig.
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- 2004-2006 Post-doctoral research fellow. Research theme: Looking for a possible involvement of a member of the Striatin family in the MAP kinase pathway. Inserm U528, Institut Curie, 26 rue d'Ulm, 75248 Paris cedex 05, France. Groupe d'Analyse des Réseaux de Transduction. Head of unit: Dr. Jean de Gunzburg. Group leader: Dr. Jacques Camonis.
- 2001-2004 Post-doctoral research fellow. Research theme: Mechanisms involved in the biogenesis of the Photosystem II complex. CNRS/UPR1261 Institut de Biologie Physico-Chimique, 13 rue Pierre et Marie Curie, 75005 Paris, France. Head of unit: Dr. Francis-André Wollman.

### **Teaching activities**

- 2011-todate Adjunct lecturer under the frame of the Nano-program. Department of Biomedical Engineering, Technion-Israel Institute of Technology, Haifa, Israel.
- 2003 Teaching assistant, Université Paris 6, Paris, France. Maitrise de Biologie Cellulaire et Physiologie. Course: Molecular and cellular physiology of plants.
- 1996-2001 Teaching assistant, Department of Plant Sciences, The Hebrew University of Jerusalem, Jerusalem, Israel.

### **Awards:**

- 1996 Polack Award for Outstanding M.Sc. Students.

### **Fellowships:**

- 2002-2003 The Marie Curie fellowship.  
2004 The Chateaubriand fellowship.

### **Invited talks:**

The French society of photosynthesis, Journées photosynthèse. The Role of the CES Process in the Biogenesis of the Photosystem II complex: Hierarchical Synthesis of the Different Subunits of the Complex. June 2003, Paris, France.

**Refereed  
Publications:**

1. L. Minai, M. Hamra, D. Yelin. Plasmonic targeting of cancer cells in a three-dimensional natural hydrogel. *Nanoscale*. 10, 17807-17813. DOI: 10.1039/c8nr03391a. (2018).
2. L. Minai, A. Zeidan, D., Yehezkely-Hayon, S. Yudovich, I. Kviatkovsky, D. Yelin. Experimental proof for the role of nonlinear photoionization in plasmonic phototherapy. *Nano Letters* 16(7): 4601-4607 (2016).
3. L. Minai, D. Yehezkely-Hayon, D. Yelin. High reactive oxygen species levels in gold nanoparticle-targeted cancer cells following femtosecond pulse irradiation. *Scientific Reports*. 3:2146. doi:10.1038/srep02146. (2013).
4. D. Yehezkely-Hayon, L. Minai, L. Golan, Eldad J. Dann, D. Yelin. Optically induced cell fusion using bispecific nanoparticles. *Small*. DOI: 10.1002/sml.201300696. (2013).
5. L. Golan, D. Yehezkely-Hayon, L. Minai, D. Yelin. High-speed interferometric spectrally encoded flow cytometry. *Optics letters*. 37(24): 5154-5156. (2012)
6. G., Bisker, D. Yehezkely-Hayon, L. Minai, D. Yelin. Controlled release of Rituximab from gold nanoparticles for phototherapy of malignant cells. *J. controlled release*. 162(2): 303-309. (2012).
7. L. Golan, D. Yehezkely-Hayon, L. Minai, E. J. Dann, and D. Yelin. Noninvasive imaging of flowing blood cells using label-free spectrally encoded flow cytometry. *Biomedical Optics Express*. 3(6): 1455-1464 (2012).
8. G. Bisker. L. Minai, D. Yelin. Controlled fabrication of gold nanoparticle and fluorescent protein conjugates. 2012, DOI: 10.1007/s11468-012-9349-1.
9. L. Minai, D. Yehezkely-Hayon. L. Golan, G. Bisker, E. Dann. Optical Nano-Manipulations of Malignant Cells: Controlled Cell Damage and Fusion. *Small* 8(11): 1732-1739 (2012).
10. A. Abramov, L. Minai, D. Yelin. Spectrally encoded spectral imaging. *Opt Express*. 19(7):6913-6922 (2011).
11. O. Warshavski, L. Minai, G. Bisker, D. Yelin. Effect of single femtosecond pulses on gold nanoparticles. *J. Phys. Chem. C*, 115 (10), 3910–3917 (2011).
12. A. Abramov, L. Minai, D. Yelin. Multiple-channel spectrally encoded imaging. *Opt Express*. 18(14):14745-14751 (2010).
13. E. Leshinski-Silver, A.S. Lebre, L. Minai, A. Saada, J. Steffann, S. Cohen, A. Rötig, A. Munnich, D. Lev, T. Lerman-Sagie. NDUFS4 mutations cause Leigh syndrome with predominant brainstem involvement. *Mol. Genet. Metab*. 97 (3):185-189 (2009).
14. L. Minai, J. Martinovic, D. Chrétien, F. Dumez, F. Razavi, A. Munnich, A. Rötig. Mitochondrial respiratory chain complex assembly and function during human fetal development. *Mol. Genet. Metab*. 94(1):120-126 (2008).

15. S. Lebon, L. Minai, V. Serre, J. Corcos, N. Kadhon, J. Steffann, J.-Y. Pauchard, A. Rötig, A. Munnich, J.-P. Bonnefont. A novel mutation of the NDUFS7 gene leads to activation of a cryptic exon and impaired assembly of mitochondrial complex I in a patient with Leigh syndrome. *Mol. Genet. Metab.* 92:104-108 (2007).
16. A. Bourdon, L. Minai, V. Serre, J.-P. Jais, E. Sarzi, S. Aubert, D. Chrétien, P. de Lonlay, V. Paquis, H. Arakawa, Y. Nakamura, A. Munnich, A. Rötig. Mutation of RRM2B, encoding p53-controlled ribonucleotide reductase (p53R2) causes severe mitochondrial DNA depletion. *Nat. Genet.* 39:776-780, (2007).
17. L. Minai, K. Wostrikoff, F.-A. Wollman, Y. Choquet. Chloroplast biogenesis of Photosystem II cores involves a series of assembly-controlled steps that regulate translation. *Plant Cell*, 18:159-75 (2006).
18. L. Minai, A. Fish, M. Darash-Yahana, Lilya Verchovsky and R. Nechushtai, The assembly of the PsaD subunit into the membranal photosystem I complex occurs via an exchange mechanism. *Biochemistry*, 40, 12754-12760 (2001).
19. F. Baymann, F. Zito, R. Kuras, L. Minai, W. Nitschke, P. Joliot and F.-A. Wollman, Functional characterization of *Chlamydomonas* mutants defective in cytochrome *f* maturation. *J. Biol. Chem.* 274, 22957-22967 (1999).
20. F.-A. Wollman, L. Minai and R. Nechushtai, The biogenesis and assembly of photosynthetic proteins in thylakoid membranes. *Biochim. Biophys. Acta.* 1411, 21-85 (1999).
21. L. Minai, Y. Cohen, P.R. Chitnis and R. Nechushtai. The precursor of PsaD assembles into the photosystem I complex in two steps. *Proc. Natl. Acad. Sci. USA.*, 93, 6338-6342 (1996).

## Conference Proceedings

1. L. Minai and R. Nechushtai, The assembly of the peripheral PsaD subunit into the photosystem I complex of different organisms. Proceedings of the 12<sup>th</sup> International Congress of Photosynthesis, August 2001.
2. L. Minai, Y. Cohen, M. Dalla-Chiesa, P. Chitnis and R. Nechushtai. Proceeding of the Assembly and biogenesis of PSI. *Workshop: Domain Organization in Membranes: Biological Implications*. Jerusalem, Israel 1998.
3. L. Minai, Y. Cohen, M. Dalla-Chiesa, P. Chitnis and R. Nechushtai. Proceedings of the Assembly and biogenesis of PSI. *Workshop: Domain Organization in Membranes: Biological Implications*. Jerusalem, Israel 1998.
4. L. Minai, Y. Cohen, M. Dalla-Chiesa, P.R. Chitnis and R. Nechushtai. Proceeding of Assembly and biogenesis of PSI. *ESF Workshop on PSI Type Reaction Centers: Structure, Biochemistry and Function*. Munzingen, Germany 1996.
5. L. Minai, Y. Cohen, P. Chitnis, M. Dalla Chiesa and R. Nechushtai. Proceeding of The assembly of pre-PsaD/PsaD into the chloroplast thylakoid membranes. *The Annual Meeting of the Israeli Societies of Botany and of*

- Plant Molecular Biology and Tissue Culture*. Ben-Gurion University, Beer-Sheva, Israel 1996.
6. L. Minai and R. Nechushtai. Electrostatic interactions are involved in the assembly of Psal into photosystem I. In: *Photosynthesis: From Light to Biosphere*, (Mathis P., ed.) Kluwer Academic Publishers; vol III. pp. 807-810 (1995).
  7. L. Minai, Y. Cohen, P.R. Chitnis and R. Nechushtai. The assembly of Psal, a peripheral subunit of photosystem I. *The Xth International Photosynthesis Congress*. Montpellier - 1995; published in: *Photosynthesis Research*, 34, P-15-16-019, p. 157 (1995).
  8. L. Minai, Y. Cohen, S. Yalovsky, Z.-Y. He, D. Michaeli and R. Nechushtai. Proceeding of The assembly of photosynthetic proteins into the chloroplast thylakoid membranes. *The 2nd Poland - Israel Conference on Peptides*. The Weizmann Institute and The Hebrew University, Jerusalem, Israel 1995.
  9. L. Minai, Y. Cohen, D. Michaeli and R. Nechushtai. Proceedings of the Assembly of photosystem I. *The Israeli-Hungarian Conference on Plants and the Environment*. The Weizmann Institute, Rehovot, Israel 1995.
  10. L. Minai, Y. Cohen and R. Nechushtai. Proceedings of The assembly of Psal, a peripheral subunit of photosystem I, into the thylakoid membranes. *The Annual Meeting of the Israeli Societies of Botany and of Plant Molecular Biology and Tissue Culture*. Technion, Haifa, Israel 1995.
  11. Y. Cohen, L. Minai, D. Michaeli and R. Nechushtai. The integration and organization in the thylakoid membranes of Psal - a stromal-facing peripheral subunit of photosystem I. *The 2nd Robert Hill Conference on Photosynthesis*. London, England 1994.
  12. Y. Cohen, Z.Y. He, S. Yalovsky, L. Minai, D. Michaeli and R. Nechushtai. Proceeding of The biogenesis and assembly of the antennae complex of photosystem II (LHCIIb chlorophyl-protein complex) in higher plants. *The Annual Meeting of the Israeli Societies of Botany and of Plant Molecular Biology and Tissue Culture*. Rehovot, Israel 1994.

## **Conference Presentations:**

1. L. Minai, M. Hamra, D. Yelin. Plasmonic eradication of malignant cells in a three dimensional culture. Photonics West, LASE, Frontiers in ultra-fast optics: Biomedical, Scientific and Industrial applications XVIII: 10522-6. San Francisco CA, USA, January-February 2018.
2. L. Minai, D. Yelin. Plasmonic targeting of cancer cells in a three-dimensional environment. SPIE/OSA. European conferences on biomedical engineering. Medical laser applications and laser-tissue interaction; 2716137. Munich, Germany. June 2017.
3. L. Minai, D. Yelin. The effect of femtosecond pulses on nanoparticle-targeted cells in a three-dimensional culture. Photonics West, LASE, Frontiers in ultra-fast optics: Biomedical, Scientific and Industrial applications XVII; 10094-17. San Francisco CA, USA, January-February 2017.

4. L. Minai, A. Zeidan, D. Yeheskely-Hayon, D. Yelin. Femtosecond radiation therapy by plasmonic photoionization. Oasis 5; Non-linear optics. Tel Aviv, Israel, March 2015.
5. L. Minai, A. Zeidan, D. Yeheskely-Hayon, D. Yelin. Femtosecond-pulse plasmonic ionization kills cancer cells. Photonics West, BIOS. Optical interactions with tissue and cells XXVI; 9355-11. San Francisco CA, USA, February 2015.
6. L. Minai, D. Yeheskely-Hayon, L. Golan, D. Yelin. ROS-mediated plasmonic killing of malignant cells using femtosecond laser pulses. Photonics West, BIOS. Plasmonics in biology and medicine X; 8597-29. San Francisco CA, USA, February 2013.
7. L. Minai, D. Yeheskely-Hayon, L. Golan, G. Bisker, D. Yelin. Plasmonic targeting of cancer cells using single femtosecond pulses. SPIE/OSA European conferences on biomedical optics, 8092-43. Munich, Germany. May 2011.
8. L. Minai, D. Yeheskely-Hayon, L. Golan, G. Bisker, D. Yelin. Damaging cancer cells using femtosecond laser pulses and gold nanospheres. Photonic West, BIOS, 7944-20, San Francisco CA, USA, January 2011.

## Other Presentations:

1. D. Yelin, L. Minai, A. Zeidan, D. Yehekely-Hayon. Plasmonic photoionization for nanometric-scale radiation therapy (Invited Paper). SPIE/OSA European conferences on biomedical optics. Medical laser applications and laser tissue interactions VII, 9542-1. Munich, Germany. June 2015.
2. D. Yehekely-Hayon, L. Minai, D. Yelin. Optically generated hybridoma using bispecific gold nanoparticles. Interaction of nanoparticles with cells. Photonics West, BIOS. Colloidal nanoparticles for biomedical applications X; 9338-58. San Francisco CA, USA, February 2015.
3. D. Yelin, D. Yehekely-Hayon, L. Minai. Specific manipulations of cancer cells using gold nanoparticles and femtosecond pulses. Photonics West, BIOS. Frontiers in Ultrafast Optics: Biomedical, Scientific, and Industrial Applications XIV; 8972-10. San Francisco CA, USA, February 2014.
4. D. Yehekely-Hayon, G. Bisker, L. Minai, D. Yelin. Controlled release of rituximab from gold nanoparticles for phototherapy of malignant cells. Photonics West, BIOS. Plasmonics in biology and medicine X; 8597-31. San Francisco CA, USA, February 2013.
5. D. Yehekely-Hayon, L. Minai, L. Golan, E. J. Dann, D. Yelin. Selective cell coupling and fusion using gold nanoparticles and femtosecond pulses. Photonics West, BIOS. Plasmonics in biology and medicine X; 8597-33. San Francisco CA, USA, February 2013.
6. L. Golan, D. Yehekely-Hayon, L. Minai, D. Yelin. High-speed high-resolution noninvasive microscopy of blood. Photonics West, BIOS. Endoscopic microscopy; 8575-10. San Francisco CA, USA, February 2013.
7. D. Yelin, D. Yehekely-Hayon, L. Minai, L. Golan, G. Bisker. Spatiotemporal confinement of light for nano-manipulations of cells, Focus on Microscopy 2012, WE-MO1-PAR-A, Singapore, April 2012.
8. D. Yelin, L. Minai, D. Yehekely-Hayon, L. Golan, G. Bisker. Optical nano-manipulations of malignant cells. Photonics West, BIOS, Frontiers in ultrafast optics, 8247-04, San Francisco CA, USA, January 2012.
9. D. Yehekely-Hayon, L. Minai, L. Golan, G. Bisker, D. Yelin. Specific cell fusion using femtosecond pulses and gold nanoparticles. Photonics West, BIOS, 8234-43, San Francisco CA, USA, January 2012.
10. L. Golan, D. Yehekely-Hayon, L. Minai, D. Yelin. Spectrally encoded flow cytometry for high-resolution microscopy of flowing blood cells *in vivo*. Photonics West, Endoscopic Microscopy VII, 8217-06, San Francisco CA, USA, January 2012.
11. G. Bisker, L. Minai, D. Yelin. Plasmonic manipulations of fluorescent proteins using single femtosecond pulses. SPIE/OSA European conferences on biomedical optics, 8092-20. Munich, Germany. May 2011.
12. L. Golan, L. Minai, and D. Yelin. Flow cytometry of blood using spectrally encoded confocal microscopy. Photonics West, BIOS, 7906-02, San Francisco CA, USA, January 2011.

13. L. Golan, L. Minai, and D. Yelin. Imaging of flowing blood cells using spectrally encoded confocal microscopy. Photonics West, BIOS, 7893-16, San Francisco CA, USA, January 2011.
14. G. Bisker, L. Minai, and D. Yelin. Plasmonic manipulations of biomolecular targets using single femtosecond pulses. Photonics West, BIOS, 7944-19, San Francisco CA, USA, January 2011.
15. O. Warshavski, L. Minai, and D. Yelin. The Effect of Single Femtosecond Pulses on Gold Nanoparticles in an Aqueous Environment. European Conferences on Biomedical Optics, WB4, Munich, Germany, June 2009.



**Poster  
Presentations:**

1. L. Minai, M. Hamra, D. Yelin. Plasmonic targeting of malignant cells in a three dimensional culture. Lasers in medicine and biology. Bates college, 2E Andrews road, Lewiston, ME, USA. July 2018.
2. L. Minai, A. Zeidan, A. Sender, I. Kviatkovsky, D. Yeheskely-Hayon, D. Yelin. The effect of pulse duration in plasmonic targeting of malignant cells. Gordon research conferences: Lasers in medicine and biology. Holderness school, Holderness, NH, USA, July 2014.
3. L. Minai, D. Chrétien, F. Razavi, A. Munnich, A. Rötig. Mitochondrial respiratory chain assembly and function during human fetal development. American Society of Human Genetics, San Diego California. October 2007.
4. L. Minai, D. Chrétien, A. Munnich, F. Encha-Razavi, J. Martinovic-Bourriell, H. Etchevers, C. Esculpavit, T. Attie-Bitach, A. Rötig. Characterization of the mitochondrial respiratory chain during human fetal development. European Human Genetics Conference, Nice, France, June, 2007.
5. L. Minai, D. Chrétien, A. Munnich, A. Rötig. Characterization of the foetal respiratory chain in time and place. FEBS advanced course: Mitochondria in life, death and disease. Aussois, France, April 2007.
6. L. Minai, F.-A. Wollman, Y. Choquet. The Role of the CES Process in the Biogenesis of the Photosystem II complex: Hierarchical Synthesis of the Different Subunits of the Complex. Gordon research conference. *Mitochondria and Chloroplast*. Kimball Union Academy, Meriden, NH. USA. 2004.
7. L. Minai, F.-A. Wollman, Y. Choquet. Characterization of the CES process in the biogenesis of the Photosystem II complex in the green algae *Chlamydomonas reinhardtii*. *Journées de la société Française de Photosynthèse*. Paris, France. 2004.
8. L. Minai, A. Fish, M. Darash-Yahana, Lilya Verchovsky and R. Nechushtai. The assembly of the peripheral PsaD subunit into the photosystem I complex of different organisms. *International Conference on Sequence, Structure and Function in Membrane Protein Systems*. Zichron Ya'acov, Israel 2001.
9. L. Minai, A. Fish. and R. Nechushtai. The peripheral PsaD subunit assembles into the photosystem I complex via an exchange mechanism. *Jaques Monond Conference*, Roscoff, France 2000.
10. M. Darash-Yahana, L. Minai, Y. Cohen and R. Nechushtai. The assembly and organization of PsaD, a peripheral stromal-facing subunit of photosystem I. *The 2nd Congress of the Federation of the Israel Societies of Experimental Biology*, Eilat, Israel 1998.
11. D. Michaeli, L. Verchovski, Z.-Y. He, Z. Zhong, R. Velupillaimani, L. Minai, A. Fish, M. Darash-Yahana, A. Lushi and R. Nechushtai. Transfer and organization of photosystem I subunits in the thylakoid membranes. *The 2nd Congress of the Federation of the Israel Societies of Experimental Biology*, Eilat, Israel 1998.