

Curriculum Vitae

Ilya Serebriiskii
Fox Chase Cancer Center
7701 Burholme Avenue, Philadelphia PA 19111
e-mail: IG_Serebriiskii@fccc.edu
Tel.: (215) 728-3885

Residence status: Russian citizen, permanent resident of USA

Residence: 7930 Barnes Str., apt. B6
Philadelphia PA 19111, USA
Tel.: (215) 745-3814

Education: M.S. in Biotechnology, 1984-1986
Moscow Institute of Chemical Technology, USSR

Ph.D. in Biology, 1989-1992
Institute of Genetics and Selection of
Industrial Microorganisms, Moscow, Russia.

Thesis: "Genetic study of biotin biosynthesis in the obli-
gate methylotroph *Methylobacillus flagellatum*"

Professional Experience:

September 1995-current

Laboratory of Dr. E.Golemis

Staff Scientist (previously Postdoctoral, then Research Associate) at Fox Chase Cancer Center, Philadelphia. Human-yeast genetic complementation strategies to identify oncogenic signalling modulators; development of second generation yeast two-hybrid system ("Dual Bait"); construction and maintenance of a two-hybrid Web resource; development of gene therapy strategy based on hybrid cell cycle-regulated and tissue-specific transcriptional activation.

January 1995-July 1995

Laboratory of Prof. G. Leblon

Visiting scientist, Institute of Genetics and Microbiology, University of Paris-Sud, in collaboration with ORSAN Biorecherche, Orsay, France. Study of the metabolic pathways involved in the *C. glutamicum* response to osmotic stress.

July 1993-January 1995

Laboratory of Prof. Y.Tsygankov

Researcher, head of the biotin research group, Institute of Genetics & Selection of Industrial Microorganisms, Moscow. Construction of biotin overproducing strains of *E.coli* and *M. flagellatum*; genetic mapping of *M.flagellatum*.

October 1992-June 1993

Laboratory of Prof. G. Leblon

Visiting scientist, Institute of Genetics and Microbiology, University of Paris-Sud, Orsay, in collaboration with ORSAN Biorecherche, France. Establishment of functional links between lysine and proline biosynthetic pathways. Study of the metabolic pathways involved in the *C. glutamicum* response to osmotic stress.

April 1986-October 1992

Laboratory of Prof. Y.Tsygankov

Researcher, Institute of Genetics and Selection of Industrial Microorganisms, Moscow. Development of gene transfer systems for *M. flagellatum* and *Brevibacterium methylicum*. Genetic study of biotin biosynthesis in the *M. flagellatum*.

Experimental Skills

- cultivation and genetic manipulation of yeast; yeast strain construction
- yeast two-hybrid system
- cultivation of aerobic bacteria (G^+ and G^-)
- genetic manipulation of bacteria; mutagenesis, gene disruptions
- interrupted bacterial mating; in vivo cloning on R' plasmids
- basic phage techniques
- basic cell culture techniques (mammalian and insect)
- isolation of phage, plasmid and chromosomal DNA
- recombinant DNA techniques; PCR
- bacterial and yeast vector construction
- oligonucleotide directed in vitro mutagenesis
- Southern and Northern blot hybridization
- protein gel electrophoresis, Western blotting, immunofluorescence
- basic enzymology techniques
- DNA sequencing (manual and automated)
- DNA/protein analysis software: GCG package (UNIX), DNA-SUN (PC), DNA Strider, MacVector, Sequencher (Macintosh)
- WWW site construction

Teaching experience

NIH: 3 day training course "Two-hybrid selection: identification and characterization of protein-protein interaction", Bethesda, USA. Feb. 1998 -current (2-3 times a year). Director.

Mediterranean Agronomic Institute of Chania (MAICh): a part of a course "Applications of plant biotechnology", Chania, Greece. May 23-29, 2000.

Russian Medical University and Shemyakin-Ovchinnikov Institute for Bioorganic chemistry: joint 3 day class "Two-hybrid system in theory and in the lab", Moscow, Russia. Oct. 15-18, 2000.

FCCC: supervising undergraduate and graduate students; supervising two-hybrid projects in other labs (12 projects).

Languages

Russian (native), English (fluent), German (fluent), French (fluent)

Referees:

1. Dr. Erica Golemis, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111. Tel. (215) 728-2860, Fax (215) 728-3616, e-mail EA_Golemis@fccc.edu

2. Dr. Jonathan Chernoff, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111. Tel. (215) 728-5319, Fax (215) 728-3616, e-mail J_Chernoff@fccc.edu

3. Prof. Gerard Leblon, Institute of Genetics and Microbiology, University of Paris-Sud, Orsay, France. Tel. (1) 69 41 62 81, Fax (1) 69 41 78 08

4. Prof. Yuri Tsygankov, Institute of Genetics and Selection of Industrial Microorganisms, Moscow, Russia. Tel. (095) 315-0047, Fax (095) 315-0501

Publications

1. Y. Tsygankov, A. Chistoserdov, and **I. Serebrijski**. New approaches in studying the genetics of methylotrophic bacteria. In: Proceeding of All-Union Symposium on Biochemistry and Genetics of methylotrophs, Puschino, 1988, pp.98-115 (in Russ.)
2. **I. Serebrijski**, S. Kazakova, and Y. Tsygankov. Construction of Hfr-like donors of the obligate methanol- oxidizing bacterium *Methylobacillus flagellatum* KT. FEMS Microbiol. Lett. 1989, 59: 203-206
3. Y.D. Tsygankov, S.M. Kazakova, and **I.G. Serebrijski**. Genetic mapping of the obligate methylotroph *Methylobacillus flagellatum*: characteristics of R' plasmids and mapping of the chromosome in time-of-entry units. J. Bacteriol. 1990, 172: 2747-2754
4. Y.Tsygankov, M.Gomelsky, G.Marchenko, and **I.Serebrijski**. Genetics of methylotrophs. In: Proc. 6th Intl Symposium on Genetics of Industrial Microorganisms, Strasbourg, 1990, pp.645-656
5. J.Nesvera, M.Patek, J.Hochmannova, E.Chibisova, **I.Serebrijski**, Y.Tsygankov, and A.Netrusov. Transformation of the new Gram-positive methylotroph *Brevibacterium methylicum* by plasmid DNA. Appl. Microbiol. Biotechnol., 1991, 35:777-780.
6. **Serebrijski, I.** , and Tsygankov, Y.D. Genetic study of biotin biosynthesis in the obligate methanol-oxidizing bacterium *Methylobacillus flagellatum*. Microbiology 1995, 141:1723-1729.
7. **I. Serebrijski**, F.Wojcik, O.Reyes and G.Leblon. Multicopy suppression by *asd* gene and osmotic stress-dependent complementation by heterologous *proA* in *proA* mutants. J.Bact. 1995, 177:7255-7260
8. **Serebrijski, I.** , Reyes, O., & Leblon, G. Corrected gene assignments of *Escherichia coli* PrO mutations. J.Bacteriol. 1995, 177:7261-7264
9. S. Ankri, **I. Serebrijski**, O. Reyes, and G.Leblon. Mutations in the *Corynebacterium glutamicum* proline biosynthetic pathway: a natural bypass of the *proA* step. J.Bacteriol. 1996, 178:4412-19
10. **I.G. Serebrijski**, V.M. Vasin, and Y.D. Tsygankov. Two new members of the BioB superfamily: cloning, sequencing and expression of *bioB* genes of *Methylobacillus flagellatum* and *Corynebacterium glutamicum*. Gene, 1996, 175:15-22
12. **Serebriiskii, I.**, Estojak, J., Sonoda, G., Testa, J.R., and Golemis, E.A. Association of Krev-1/rap1a with Krit1, a novel ankyrin repeat-containing protein encoded by a gene mapping to 7q21-22. Oncogene 1997, 13: 1043-49
13. **I.Serebriiskii**, M.Gomelsky, E.Bashkirova and Y. Tsygankov. Refined genetic map of the obligate methylotroph *Methylobacillus flagellatum*. Molecular and General Genetics 1998, 258: 133-138
14. **Serebriiskii, I.**, Khazak, V., and Golemis, E. A. A two-hybrid dual bait system to discriminate specificity of protein interactions. J. Biol. Chem. 1999, 274(24):17080-87
15. **Serebriiskii, I.**, Estojak, J., Berman, M, and Golemis, E. Approaches to detecting false positives in yeast two-hybrid systems. Biotechniques 2000, 28(2): 328-336 ([journal's cover](#))
16. **Serebriiskii, I.**, G.Toby, and Golemis, E. Streamlined yeast colorimetric reporter activity assays, using scanners and plate readers. Biotechniques, 2000, 28(8):278-288
17. Sahoo, T., Goenaga-Diaz, E., **Serebriiskii, I.G.**, Thomas, J.W., Kotova, E., Cuellar, J.G., Peloquin, J.M., Golemis, E., Green, E., Beitinjaneh, F., Green, E.D., Johnson, E.W., and Marchuk, D.A. Computational and experimental analyses reveal previously undetected coding exons of the KRIT1 (CCM1) gene. Genomics, 2001:123-126
- (18.) **I. Serebrijski**, V. Vassin and Y.D. Tsygankov. Biotin biosynthetic genes of the obligate methylotroph *Methylobacillus flagellatum*. J. Bacteriol., submitted
- (19.) **I. Serebriiskii**, V.Khazak, G.Toby, E.Kotova, M.Berman, O.Mitina and E.Golemis. A highly versatile Dual Bait two-hybrid system allows modification of interaction readout. NAR, submitted.

Solicited reviews and protocol chapters:

1. Golemis, E.A., **Serebriiskii, I.**, and Law, S. Adjustment of Parameters in the yeast two-hybrid system: criteria for detecting physiologically significant protein-protein interactions. p. 11-28 In: Current Innovations in Molecular Biology: Gene Cloning and Analysis, ed. B. Schaefer, Horizon Scientific Press, 1997.
reprinted in:
Curr. Issues Mol. Biol. 1999, 1 (1): 31-46
2. Golemis, E., **Serebriiskii, I.**, Gyuris J. and Brent, R. Interaction Trap/ Two-Hybrid Systems to Identify Interacting Proteins. Unit 20.1.1-20.1.28 In: Current Protocols in Molecular Biology, ed. Ausubel, F.M., et al., John Wiley & Sons, NY, 1997.
updated and reprinted in:
Current Protocols in Protein Science, 1998
Current Protocols in Neuroscience, 1999
Current Protocols in Cell Biology, 2001
3. Golemis, E.A. and **Serebriiskii, I.** Two-hybrid approaches to analysis of protein-protein interaction. In Cells: a Laboratory Manual, eds. D.L. Spector, R. Goldman, and L. Leinwand, Cold Spring Harbor Laboratory Press, 1997.
updated and reprinted in:
3rd edition of Molecular Cloning: a Laboratory Manual, ed. J. Sambrook, 2000.
4. Golemis, E.A. and **Serebriiskii, I.** Recent developments in two hybrid technology. In the 3rd edition of Molecular Cloning: a Laboratory Manual, ed. J. Sambrook. CSHL Press, 2000.
5. **Serebriiskii, I.**, and Golemis, E.A.. Two hybrid system and false positives. Approaches to their detection and elimination. In " Methods in Molecular Biology. Two Hybrid Systems: Methods and Protocols", ed. P.MacDonald. Humana Press, 2000, 177:123-134.
6. **Serebriiskii, I.**, G.Toby, R.L. Finley, and E.A.Golemis. Genomic analysis utilizing the yeast two-hybrid system. In: " Methods in Molecular Biology: Genomic Protocols", ed. M. Starkey. Humana Press, 2000, 175:415-454.
7. Fashena, S. J., **Serebriiskii, I.**, and Golemis, E.A. LexA based two hybrid systems. In "Methods in Enzymology: Chimeric Genes and Proteins", ed. J.Abelson, M.Simon, S.Emr, J.Thorner. Academic Press, 2000, 328:14-26
8. **Serebriiskii, I.**, Mitina, O., Chernoff, J. , and E.A.Golemis. Use of a two-hybrid dual bait system to discriminate specificity of protein interactions in small GTPases. In "Methods in Enzymology: Ras Regulators and Effectors", ed. C.J. Der. Academic Press, 2000, 332:277-300.
9. Fashena, S. J., **Serebriiskii, I.**, and Golemis, E.A. The continued evolution of two-hybrid screening approaches in yeast: How to outwit different preys with different baits. Gene, 2000, 250:1-14.
10. **Serebriiskii, I.**, and Golemis, E.A. Uses of lacZ to study gene function: evaluation of -galactosidase assays employed in the yeast two-hybrid system. Anal. Biochem., 2000, 285:1-15.
11. **Serebriiskii, I.**, Khazak, V., and Golemis, E.A., Redefinition of the yeast two-hybrid system in dialogue with changing priorities in biological research. BioTechniques, 2001, 30:634-640.
- (12.) **Serebriiskii, I.**, and Keith, J., Yeast and Bacterial Two-Hybrid Selection Systems for Studying Protein-Protein Interactions. In "Protein Interactions", ed. J. Sambrook. CSHL Press, 2001. Submitted.

Patents:

- Golemis, E.A., **Serebriiskii, I** and Khazak, V. An improved yeast interaction trap assay. U.S.A. patent, pending.
- Watt, P., Hopkins, R., Golemis, E.A., **Serebriiskii, I.** Improved reverse N hybrid screening method. U.S.A. patent, pending.

WWW page: <http://www.fccc.edu/research/labs/golemis/InteractionTrapInWork.html>
(analysis of reported library screenings using Interaction Trap and supporting information)