

Gabor J. Szalai
CURRICULUM VITAE
September 2006

Education:

- 1992-1995 PhD in Immunogenetics; Technical University of Budapest (based on work at the Faculty of Veterinary Medicine, Bern Switzerland; and at Cornell University, Ithaca NY). Studies of the horse major histocompatibility complex DQ genes in relation to equine sarcoid and summer dermatitis.
- 1990-1992 MSc in Chemical Engineering; Technical University of Budapest.
Fermentation processes
- 1987-1990 BSc in Chemical Engineering; Technical University of Budapest.

Professional Experience:

- 2006-Present Research Assistant Professor and Associate Director of the Peromyscus Stock Center; University of South Carolina, Department of Biological Sciences
- 2002-2006 Postdoctoral Researcher; Medical University of South Carolina, Hollings Cancer Center and Department of Pathology. Control of megakaryopoiesis, senescence and carcinogenesis by Ets transcription factors using in vitro studies in concert with in vivo knockout and transgenic technologies.
- 1999-2001 Visiting Research Assistant Professor; University of South Carolina, Department of Biological Sciences, Columbia SC; Genetic structure of mouse alcohol dehydrogenase complex, cis-acting regulatory elements responsible for temporal and tissue specific expression of mouse alcohol dehydrogenase in transgenic mice.
- 1997-1998 Assistant Professor; Department of Biochemistry and Food Technology, Technical University of Budapest, Hungary; DNA based analytical methods in food analysis, focusing on food authenticity analysis based on starter culture DNA fingerprint in fermented products.
- 1995-1997 Postdoctoral scholar: Department of Biochemistry and Food Technology, Technical University of Budapest, Hungary; DNA based analytical methods in food analysis, focusing on food authenticity analysis based on starter culture DNA fingerprint in fermented products.
- 1986-1988 Computer programmer at the National Agency of Computing and Accounting, Budapest. Produced custom business software for bookkeeping and inventory, income tax software for government use, programmer utilities.

Publications:

1. **Szalai, G.**, LaRue, AC. and Watson, DK: Molecular mechanisms of megakaryopoiesis. *Cellular and Molecular Life Sciences*, in press, 2006.
2. Pang, L., Xue, H-H., **Szalai, G.**, Wang, X., Wang, Y., Watson, DK., Leonard, WJ., Blobel, GA., Poncz, M.: Maturation stage-specific regulation of megakaryopoiesis by pointed-domain Ets proteins. *Blood*, prepublished online, 2006.
3. Markiewicz M, Kubo M, Znoyko S, **Szalai G**, Watson DK, Trojanowska M: C-terminal domain of transcription factor Fli1 mediates repression of fibrillar collagen genes in mouse skin. *Molecular Cell Biology*, submitted, 2006.
4. Jackers P, **Szalai G**, Moussa O, Watson DK: Ets-dependent regulation of target gene expression during megakaryopoiesis. *Journal of Biological Chemistry*, 279: 52183-52190, 2004.
5. Moussa O, **Szalai G**, Abou-Elenin H, Bissada NK, Ghoneim MA, Watson DK: Detection of Chromosomal aberrations in Transitional Cell Carcinoma of the bladder by representational difference analysis. *Cancer Genomics and Proteomics*, 1:9-16, 2004.
6. **Szalai G**, Xie D, Wassenich M, Veres M, Ceci JD, Dewey MJ, Molotkov A, Duester G, Felder MR.: Distal and proximal cis-linked sequences are needed for the total expression phenotype of the mouse alcohol dehydrogenase 1 (Adh1) gene. *Gene*. 291(1-2):259-70, 2002.
7. **Szalai G**, Duester G, Friedman R, Jia H, Lin S, Roe B, Felder M: Organization of six functional mouse alcohol dehydrogenase genes on two overlapping bacterial artificial chromosomes. *European J Biochemistry*, 269(1):224-32, 2002.
8. Dolney D, **Szalai G**, Felder M: Differences in charge and kinetic properties of alcohol dehydrogenase 4 from C57BL/6 mice compared to other inbred strains are associated with a cysteine 120 to arginine 120 substitution. *Biochemical Genetics* 39(7-8):239-250, 2001.
9. Dolney D, **Szalai G**, Duester G, Felder M: Molecular analysis of genetic differences among inbred mouse strains controlling tissue expression pattern of alcohol dehydrogenase 4. *Gene* 267(2):145-156, 2001.
10. **Szalai G**, Ceci J, Dewey M, Felder M: Identification and expression of cosmids with an allelic variant of class I alcohol dehydrogenase in transgenic mice. *Chemico-Biological Interactions* 130-132(1-3): 481-490, 2001.
11. **Szalai G.**, Tóth Á., Lásztity R., Salgó A.: DNA-based analytical methods in food quality control. *Periodica Polytechnica Ser. Chem. Eng.* 40, 29-35. 1996.
12. Marti E, **Szalai G**, Antczak DF, Bailey E, Gerber H, Lazary S: The equine major histocompatibility complex. In: *The Major Histocompatibility Complex Region of Domestic Animal Species*, pg 245-267 (Eds. L.B. Schook and S.J. Lamont), CRC Press, Inc., 1996.

13. Bucher K, **Szalai G**, Marti E, Pauli U, Lazary S: The tumour suppressor gene p53 in the horse: identification, cloning and sequencing; its possible role in the pathogenesis of equine sarcoid. *Research in Veterinary Science* 61:114-119, 1996.
14. Marti E, **Szalai G**, Dobbelaere D, Gerber H, Lazary S: Partial sequence of the equine immunoglobulin Epsilon heavy chain cDNA. *Veterinary Immunology and Immunopathology* 47:363-367, 1995.
15. **Szalai G**, Antczak DF, Gerber H, Lazary S: Molecular cloning and characterization of horse DQB cDNA. *Immunogenetics* 40:458, 1994.
16. **Szalai G**, Antczak DF, Gerber H, Lazary S: Molecular cloning and characterization of horse DQA cDNA. *Immunogenetics* 40:457. 1994.
17. Lazary S, Marti E, **Szalai G**, Gaillard C, Gerber H: Studies on the frequency and associations of ELA antigens in sarcoid and summer dermatitis. *Animal Genetics* 25, Supplement 1:75-80, 1994.
18. **Szalai G**, Bailey E, Gerber H, Lazary S: DNA sequence analysis of serologically detected ELA class II haplotypes at the equine DQb locus. *Animal Genetics* 24:187-190, 1993.

Oral Presentations:

Szalai, G.: Current and future efforts to shed light on the function (KO experiments) and site of action (ChIP experiments) of the Fli1 gene. *Annual retreat of the Laboratory of Cancer Genomics, Medical University of South Carolina*, November 7, 2002.

Szalai, G.: Use of PCR Techniques in food quality control. *Jubilee Symposium of the Department of Biochemistry and Food Technology, Technical University of Budapest, Hungary, June 17-18, 1996*. Abstract published in *Per. Pol. Chem. Eng.*, 40/1-2, 101-104, 1996.

Szalai, G.: Immunogenetic aspects of certain horse diseases. *9th Conference on animal Biotechnology, Mosonmagyaróvár, Hungary, October 12-13, 1993*.

Poster presentations:

Szalai, G., Moussa, O., Feldman, R., Turner, D. and Watson, DK.: The ETS transcription factor PDEF is a context-dependent transcriptional activator and repressor. *Fifth Annual Research Retreat of the Hollings Cancer Center, Medical University of South Carolina, November 18, 2005*.

Szalai, G., Jackers, P., Moussa, O. and Watson, DK.: Ets-dependent regulation of target gene expression during megakaryopoiesis. *Fourth Annual Research Retreat of the Hollings Cancer Center, Medical University of South Carolina, November 19, 2004*.

Markiewicz M., Kubo M., Znoyko S., **Szalai G.**, Watson DK. and Trojanowska M.: Development of Skin Fibrosis and Microvessel Injury in Mice with Reduced Levels of Fli1 (Fli1^{+/-}). *Scleroderma Workshop on Scleroderma Research* in Cambridge, England, Summer 2004.

Markiewicz, M., Kubo, M., Znoyko, S., **Szalai, G.**, Watson, DK and Trojanowska, M.: Fli1 regulates collagen synthesis in mouse skin in vivo. *Society for Matrix Biology Meeting*, San Diego, CA, Fall 2004.

Szalai, G., Ceci, J., Dewey, M. and Felder, M.: Identification and expression of cosmids with an allelic variant of class I alcohol dehydrogenase in transgenic mice 10th Conference of Carbonyl Metabolism, Taos, NM, July 1-5, 2000. Abstract published in *Enzymology and molecular biology of carbonyl metabolism* Vol. 10, 2001.

Tardy E.P., **Szalai G.**, Gustavsson I., Hassanane M., Lindblad K., Kovács A., Házás G., Tóth A. and Dohy J. 1998. First results of sexing bovine spermatozoa by FISH in Hungary. *13th European colloquium on cytogenetics of domestic animals*, Budapest, Hungary, 02-05 June 1998. Abstract published in *Hungarian Journal of Animal Production* 48(1):128–129, 1999.

Szalai, G., Gerber, H. and Lazary, S.: DNA Sequence analysis of the second exon of the equine DQ-alpha gene. *The 24th Conference of the International Society for Animal Genetics (ISAG)*, Prague, Czech Republic, July 23–29, 1994. Abstract published in *Animal Genetics* 25, Supplement 2, 1994.

Marti, E., **Szalai, G.**, Dobbelaere, D., Gerber, H. and Lazary, S.: Partial sequence of the equine Immunoglobulin epsilon heavy chain cDNA. *The 24th Conference of the International Society for Animal Genetics (ISAG)*, Prague, Czech Republic, July 23–29, 1994. Abstract published in *Animal Genetics* 25, Supplement 2, 1994.

Bucher, K., **Szalai, G.**, Marti, E., Gerber, H. and Lazary, S.: An investigation on tumor suppressor gene p53. *The 24th Conference of the International Society for Animal Genetics (ISAG)*, Prague, Czech Republic, July 23–29, 1994. Abstract published in *Animal Genetics* 25, Supplement 2, 1994.

Conference attendance (without presentation):

Comparative Gene Mapping in Terrestrial and Aquatic Vertebrates, Oslo, Norway, February 7-11, 1994.

Published abstracts:

Kovács, A., Nagy, Sz., Dohy, J., Iváncsics, J., Gergácz, E., Szász, F., Merész, L., **Szalai, G.**, Révay, T., P. Tardy, E., Tóth, A., Gustavsson, I. and Lindblad, K.: Experiments on producing sex-oriented semen of guaranteed degree *Hungarian Journal of Animal Production* 48(6):654–655, 1999.

Other publications:

Ámulatba ejtő valóság, published by Reader's Digest Kft. Budapest, 2003. ISBN: 9638475757. Hungarian Translation of *Reader's Digest Book of Amazing Facts (ISBN: 0276425588)* by: Ásmány, L, **Szalai, G.**, Szieberth, Á.

Patent:

Heyman, J., **Szalai, G.**, Felder, M.: Topoisomerase linker-mediated amplification methods.
U.S. Patent Application number: 20010044137
European Patent Application number: 01916175.1-2405-US0105745

Commercial Products Developed:

"TOPO-Walker Kit" available from Invitrogen Corporation, USA – Cat. Number K8000-01.

Teaching (Technical University of Budapest, 1995-1998):

1. Graduate Student Degrees (Major Professor)
 - Toth, Agnes; MS (Food Analysis); Thesis entitled "Identification of starter culture DNA in fermented products", 1997.
 - Janoshazy, Rita; MS (Food Analysis); Thesis entitled "DNA based food authenticity analysis in fermented products", 1999.
 - Nyerki, Peter; MS (Bioengineering); Thesis entitled "Detection of papillomavirus DNA in horse sarcoid tumors", 1999
 - Revay, Tamas, PhD (Bioengineering); Thesis entitled "Detection of the X- and Y-chromosomes of different Bovinae species by fluorescence in situ hybridization, studied in the context of their evolution and separation of X- and Y-bearing spermatozoa", 2003.
2. Lecture courses
 - Advanced Biochemistry (2 semesters)
 - Nucleic Acids in Chemistry and Biology (1 semester)
3. Short courses
 - PCR Techniques
 - DNA-based Food Analysis
 - Rapid Methods in Food Analysis
4. Lab Courses
 - Biochemistry (1 semester)
 - Food Analysis (1 semester)

Teaching (Medical University of South Carolina):

- Neal, Hallie; 2005-2006; College of Charleston; Honor's Thesis entitled "The Modulation of Pdef dependent pathways during cancer progression"
- Mateus, Camilo F; 2005; Summer Research Intern Program, SC Governor's School for Science and Mathematics; Report entitled "Locating the integration site of the c-neu transgene in mice"

Honors and Awards:

- 1995 Zoltan Magyary Postdoctoral Research Scholarship of the Ministry of Education, Hungary
- 1992 Diploma Work Awarded by the Hungarian Chemists' Society
- 1991 Award for Hungarian Engineering Development
- 1990 First Prize in Biochemistry at the National Conference of Student Research, Hungary
- 1986 Member of the "American National Honor Society"

Memberships:

- Hungarian Chemists' Society (1995-present)
- General Assembly of the Hungarian Academy of Sciences (1995-present)
- International Society of Animal Genetics (1992-1994)