NEJAT K. EGILMEZ

Professor with tenure and Chairman
Department of Microbiology and Immunology
School of Medicine, University of Louisville
505 S. Hancock St., Rm. 603
Louisville, KY 40202
Email: nejat.egilmez@louisville.edu

EDUCATION

Postdoctoral training	Molecular Biology	LSU Medical Center	1986 - 1988
Ph.D.	Cell and Molecular Biology	State University of New York at Buffalo	1986
M.A.	Cell and Molecular Biology	State University of New York at Buffalo	1983
B.S.	Biochemistry	University of Minnesota	1980

PROFESSIONAL APPOINTMENTS

University of Louisville, Louisville, KY

Professor and Chairman	Department of Microbiology and Immunology	2013 - present

State University of New York, Buffalo, NY.

Professor	Department of Microbiology and Immunology	2012-2013

State University of New York, Buffalo, NY

Associate Professor	Department of Microbiology and Immunology	2006-2012

J. G. Brown Cancer Center and University of Louisville, Louisville, KY

Assistant Professor	Department of Microbiology and Immunology	2003-2006

State University of New York, Buffalo, NY

Research Assistant Professor	Department of Microbiology and Immunology	2001-2003

Roswell Park Cancer Institute, Buffalo NY

Assistant Member	Department of Immunology	2000-2001
Cancer Research Scientist I, II	Department of Immunology	1994-2000

Robert College, Istanbul, Turkey

Assistant Professor	Department of Biological Sciences	1988-1993

PUBLICATIONS

Journal Articles (refereed)

1. Bhutiani N, Li Q, Anderson CD, Gallagher HC, De Jesus M, Singh R, Jala VR, Fraig M, Gu T and **Egilmez NK**. Enhanced Gut Barrier Integrity Sensitizes Colon Cancer to Immune Therapy. Oncoimmunology, 2018. *In press*.
2. Hao J, Yan F, Zhang Y, Triplett A, Zhang Y, Schultz DA, Sun Y, Zeng J, Silverstein KAT, Zheng Q, Bernlohr DA, Cleary MP, **Egilmez NK**, Sauter E, Liu S, Suttles J, Li B. Expression of Adipocyte/Macrophage Fatty

Acid-Binding Protein in Tumor-Associated Macrophages Promotes Breast Cancer Progression. Cancer Res. 2018 May 1;78(9):2343-2355. doi: 10.1158/0008-5472.CAN-17-2465. Epub 2018 Feb 6. PMID:29437708.

3. Liu Y, Perez J, Hammer LA, Gallagher HC, De Jesus M, **Egilmez NK**, Russell MW. Intravaginal Administration of Interleukin 12 during Genital Gonococcal Infection in Mice Induces Immunity to Heterologous Strains of Neisseria gonorrhoeae. mSphere. 2018 Jan 31;3(1). pii: e00421-17. doi: 10.1128/mSphere.00421-17. eCollection 2018 Jan-Feb. PMID:29404418.
4. Gu T, De Jesus M, Gallagher HC, Burris TP and **Egilmez NK**. Oral IL-10 Suppresses Colon Carcinogenesis via Elimination of Pathogenic CD4+ T-cells and Induction of Antitumor CD8+ T-cell Activity. Oncoimmunology. 2017 Apr 20;6(6):e1319027. doi: 10.1080/2162402X.2017.1319027. eCollection. PMID:28680752.
5. Liu Y, Hammer LA, Liu W, Hobbs MM, Zielke RA, Sikora AE, Jerse AE, **Egilmez NK** and Russell MW. Experimental vaccine induces Th1-driven immune responses and resistance to Neisseria gonorrhoeae infection in a murine model. Mucosal Immunol. 2017 Mar 8. doi: 10.1038/mi.2017.11. Epub ahead of print] PMID: 28272393.
6. Bhutiani N, Grizzle WE, Galandiuk S, Otali D, Dryden GW, **Egilmez NK**, McNally LR. Noninvasive Imaging of Colitis Using Multispectral Optoacoustic Tomography. J Nucl Med. 2017 Jun;58(6):1009-1012. doi: 10.2967/jnumed.116.184705. Epub 2016 Dec 1. PMID:27908970
7. Li Q, Harden JL, Anderson CD and **Egilmez NK**. Tolerogenic Phenotype of IFN-γ-Induced IDO+ Dendritic Cells Is Maintained via an Autocrine IDO-Kynurenine/AhR-IDO Loop. J Immunol. 2016 Jun 17. pii: 1502615. [Epub ahead of print] PMID: 27316681.
8. Li Q, Virtuoso LP, Anderson CD and **Egilmez NK**. Regulatory Rebound in Interleukin-12-treated Tumors is driven by Uncommitted Peripheral Treg. J Immunol. 2015 Aug 1;195(3):1293-300. PMID: 26085681 .
9. Conway TF, Hammer L, Furtado F, Mathiowitz E, Nicoletti F, Mangano K, **Egilmez NK***, Auci DL. Oral Delivery of Particulate Transforming Growth Factor Beta 1 and All-Trans Retinoic Acid Reduces Gut Inflammation in Murine Models of Inflammatory Bowel Disease. J Crohn's and Colitis. 2015, Aug;9(8):647-58.
10. Ozbilge H, LeVea C, Chung AY, Li Q, **Egilmez NK**. Modulating Gut Immunity and Neoplasia with Oral Cytokine Adjuvants. Oncoimmunol. 2015, Jan 22;4(4).
11. Carvalho-Queiroz C, Nyakundi R, Ogongo P, Rikoi H, Egilmez NK, Farah IO, Kariuki TM, LoVerde PT. Protective Potential of Antioxidant Enzymes as Vaccines for Schistosomiasis in a Non-Human Primate Model. Front Immunol. 2015 Jun 2;6:273.
12. Deng Z, Mu J, Tseng M, Wattenberg B, Zhuang X, **Egilmez NK**, Wang Q, Zhang L, Norris J, Guo H, Yan J, Haribabu B, Miller D, Zhang HG. Enterobacteria-secreted particles induce production of exosome-like S1P-containing particles by intestinal epithelium to drive Th17-mediated tumorigenesis. Nat Commun. 2015 Apr 24;6:6956.
13. Wang Q, Ren Y, Mu J, **Egilmez NK**, Zhuang X, Deng Z, Zhang L, Yan J, Miller D, Zhang HG. Grapefruit-derived nanovectors use an activated leukocyte trafficking pathway to deliver therapeutic agents to inflammatory tumor sites. Cancer Res. 2015 Apr 16.
14. Dennis KL, Saadalla A, Blatner NR, Wang S, Venkateswaran V, Gounari F, Cheroutre H, Weaver CT, Roers A, **Egilmez NK**, Khazaie K. T-cell expression of IL-10 is essential for tumor immune surveillance in the small intestine. Cancer Immunol Res. 2015 Apr 8.
15. Rao E, Zhang Y, Zhu G, Hao J, Persson XM, **Egilmez NK**, Suttles J, Li B. Deficiency of AMPK in CD8+ T cells suppresses their anti-tumor function by inducing protein phosphatase-mediated cell death. Oncotarget. 2015 Apr 10;6(10):7944-58.
16. Chung AY, Li Q, Blair SJ, De Jesus M, Dennis KL, LeVea C, Yao J, Sun Y, Conway TF, Virtuoso LP, Battaglia NG, Furtado S, Mathiowitz E, Mantis NJ, Khazaie K, **Egilmez NK**. Oral Interleukin-10 Alleviates Polyposis via Neutralization of Pathogenic T-Regulatory Cells. Cancer Res. 2014 Oct 1;74(19):5377-85
17. Gerber SA, Lim JY, Connolly KA, Sedlacek AL, Barlow ML, Murphy SP, **Egilmez NK**, Lord EM. 2013. Radio-responsive tumors exhibit greater intratumoral immune activity than non-responsive tumors. Int J Cancer. E publication Nov 23.
18. Liu Y, **Egilmez NK**, Russell MW. 2013. Enhancement of Adaptive Immunity to Neisseria gonorrhoeae by Local Intravaginal Administration of Microencapsulated Interleukin 12. J Infect Dis. 208(11):1821-9.
19. Liu W, Baker SS, Trinidad J, Burlingame AL, Baker RD, Forte JG, Virtuoso LP, **Egilmez NK**, Zhu L. 2013. Inhibition of lysosomal enzyme activities by proton pump inhibitors. J Gastroenterol.
20. Manjili MH, **Egilmez N**, Knutson KL, Selvan SR, Ostberg JR. 2012. Tumor escape and progression under immune pressure. Clin Dev Immunol vol 2012; 1-2.

21. **Egilmez NK**, Harden JL, Rowswell-Turner RB. 2012. Chemoimmunotherapy as long-term maintenance therapy for cancer. Oncoimmunology. Jul 1;1(4):563-565.
22. Virtuoso LP, Harden JL, Sotomayor P, Sigurdson WJ, Yoshimura F, **Egilmez NK**, Minev B, Kilinc MO. 2012. Characterization of iNOS+ Neutrophil-like ring cell in tumor-bearing mice..J Transl Med. 10(1):152
23. Rowswell-Turner RB, Nair RE and **Egilmez NK**. 2011. Chronic chemoimmunotherapy achieves cure of spontaneous murine mammary tumors via persistent blockade of post-therapy counter-regulation. J. Immunol. 187(8):4109-18.
24. Harden JL, Gu T, Kilinc MO, Rowswell-Turner RB, Virtuoso LP and **Egilmez NK**. 2011. Dichotomous effects of IFNγ on Dendritic cell function determine the extent of Interleukin-12-driven antitumor T-cell immunity. J Immunol. 187(1):126-32.
25. **Egilmez NK**, Harden JL, Virtuoso LP, Schwendener R and Kilinc MO. 2011. Nitric Oxide Short-circuits Interleukin-12-mediated Tumor Progression. Cancer Immunol Immunother. 60(6):839-845.
26. Gu T, Rowswell-Turner RB, Kilinc MO and **Egilmez NK**. 2010. Central role of IFNγ-Indoleamine 2,3-dioxygenase in regulation of Interleukin-12-mediated antitumor immunity. Cancer Res. 70(1):129-138**.**
27. Kilinc MO, Rowswell-Turner RB, Gu T, Virtuoso LP and **Egilmez NK**. 2009. Activated CD8+ T-effector/memory cells eliminate CD4+ CD25+ Foxp3+ T-suppressor cells from tumors via FasL-mediated apoptosis. J. Immunol. 183(12):7656-7660.
28. Kilinc MO, Gu T, Harden JL, Virtuoso LP and **Egilmez NK**. 2009. Central role of tumor-associated CD8+ T-effector/memory cells in restoring systemic anti-tumor immunity. J. Immunol. 182: 4217-4225.
29. Watkins SK, Li B, Richardson KS, Head K, **Egilmez NK**, Zeng Q, Suttles J, Stout RD. 2009. Rapid release of cytoplasmic IL-15 from tumor-associated macrophages is an initial and critical event in IL-12-initiated tumor regression. Eur J Immunol. Jul 16;39(8):2126-2135
30. Gu T, Kilinc MO and **Egilmez NK**. 2008. Transient activation of tumor-associated T-effector/memory cells promotes tumor eradication via NK-cell recruitment: Minimal role for long-term T-cell immunity in cure of metastatic disease. Cancer Immunol Immunother. 57(7):997-1005.
31. Watkins, SK, **Egilmez, NK**, Suttles, J and Stout RD. 2007. IL-12 rapidly alters the functional profile of tumor-associated and tumor-infiltrating macrophages in vitro and in vivo. J. Immunol. 178(3):1357-62.
32. Kilinc, MO, Aulakh, KS, Nair RE, Jones SA, Alard, P, Kosiewicz, MM and **Egilmez, NK.** 2006. Reversing Tumor Immune Suppression with Intra-tumoral IL-12: Activation of Tumor-associated T-Effector/memory Cells, Induction of T-Suppressor Apoptosis and Infiltration of CD8+ T-Effectors. J. Immunol. 177(10):6962-73.
33. Nair RE, Kilinc MO, Jones SA and **Egilmez, NK**. 2006. Chronic immune therapy induces a progressive increase in intra-tumoral T-suppressor activity and a concurrent loss of tumor-specific CD8+ T-effectors in her-2/neu transgenic mice bearing advanced spontaneous tumors. J. Immunol. 176(12):7325-34.
34. Nair RE, Jong YS, Jones SA, Sharma A, Mathiowitz E and **Egilmez, NK**. 2006. IL-12 + GM-CSF Microsphere therapy induces eradication of advanced spontaneous tumors in Her-2/neu transgenic mice but fails to achieve long-term cure due to the inability to maintain effector T-cell activity. J Immunother 29(1):10-20.
35. Lou Q, Conway TF Jr, **Egilmez NK**, Loyall JL, Bernstein SH, Kelleher RJ Jr, Bankert RB. 2006. B cell tumor vaccine enhanced by covalent attachment of immunoglobulin to surface proteins on dendritic cells. Clin Immunol. 118(1):66-76.
36. Sabel MS, Hess SD, **Egilmez NK**, Conway TF, Chen F-A and Bankert, RB. 2005. CTLA-4-Ig blockade augments human T-lymphocyte mediated suppression of lung tumor xenografts in SCID mice. 2005. Cancer Immunol. Immunother, 54(10):944-52.
37. Sharma, A, Harper, CM, Hammer, L, Nair, RE, Mathiowitz, E. and **Egilmez, N.K.** Characterization of cytokine-encapsulated controlled-release microsphere adjuvants. 2004. Cancer Biother. Radiopharm. 19(6):764-769.
38. McLean, M., Wallace, H.L., Sharma, A., Hill, H.C., Sabel, M.S. and **Egilmez, N.K**. A BALB/c murine lung alveolar carcinoma used to establish a surgical spontaneous metastasis model. 2004. Clin Exp Met. 21(4):363-369.
39. Carvalho-Queiroz, C., Cook, R., Wang, C.C., Correa-Oliveira, R., Bailey, N.A., Mathiowitz, E., **Egilmez, N.K**. and LoVerde, P. *Schistosoma mansoni* cytosolic superoxide dismutase, a vaccine candidate that targets adult worms: cross-reactivity with host superoxide dismutase and identification of parasite-specific B epitopes. 2004. Infect. Immun. 72(5):2635-47.
40. Sabel, MS, Skitzki J, Stoolman L, **Egilmez NK**, Mathiowitz E, Bailey N, Chang W-J and Chang A. Intratumoral IL-12 and TNFa-loaded microspheres lead to regression of breast cancer and systemic antitumor immunity. 2004. Ann Surg Oncol. 11(2):147-156.
41. Anderson TM, Hess SD, **Egilmez NK**, Nwogu CE, Lenox JM, Bankert RB. 2003. Comparison of human

lung cancer/SCID mouse tumor xenografts and cell culture growth with patient clinical outcomes. J. Cancer Res. Clin. Oncol. 129(10):565-8.

42. Hess, S.D., **Egilmez, N.K.**, Bailey, N., Anderson, T.M., Mathiowitz, E., Bernstein, S. H. and Bankert, R.B. 2003. Human CD4+ T cells present within the microenvironment of human lung tumors are mobilized by the local and sustained release of IL-12 to kill tumors in situ by indirect effects of IFN-gamma. J Immunol. 170(1):400-12.
43. Hill, H.C., Conway, T.F., Sabel, M.S., Jong, Y.S., Mathiowitz, E., Bankert, R.B. and **Egilmez, N.K**. 2002. Cancer Immunotherapy with Interleukin-12 and Granulocyte-Macrophage Colony-Stimulating Factor-encapsulated microspheres: Coinduction of innate and adaptive immunity and cure of disseminated disease. Cancer Res. 62:7254-7263.
44. **Egilmez, N.K.**, Hess, S.D., Chen, F-A, Takita, H., Conway, T. and Bankert, R.B. 2002. Human CD4+ Effector T-Cells Mediate an Indirect IL-12 and IFN-γ-Dependent Suppression of Autologous Lung Tumor Xenografts in SCID Mice. Cancer Res. 62:2611-2617.
45. Sabel, M.S., Hill, H., Jong, Y.S., Mathiowitz, E., Bankert, R.B. and **Egilmez, N.K.**, 2001. Neoadjuvant therapy with Interleukin-12-loaded polylactic acid microspheres reduces local recurrence and distant metastases. Surgery. 130:470-478.
46. Hess, S.D., **Egilmez, N.K.**, Shiroko, J. and Bankert, R.B. 2001. Antitumor efficacy of a human interleukin-12 expression plasmid demonstrated in a human peripheral blood leukocyte/human tumor SCID mouse xenograft model. Cancer Gene Therapy. 8:371-377.
47. Yamada, M., Shiroko, T., Kawaguchi, Y., Sugiyama, Y., **Egilmez, N.K.**, Chen, F-A. And Bankert, R.B. 2001. Recombinant CD40 Ligand modulates MHC, ICAM-1 and FAS expression in CD40+ human lung tumors and delays their entry into S-phase. Int. J. Cancer. 92:589-599.
48. Sugiyama, Y., Kato, M., Chen, F-A, Williams, S.S., Kawaguchi, Y., Miya, K., Jong, Y.S., Mathiowitz, E., **Egilmez, N.K.** and Bankert, R.B. 2001. Human inflammatory cells within the microenvironment of lung tumor xenografts mediate tumor growth suppression in situ that is dependent upon and augmented by IL-12. J. Immunother. 24(1):37-45.
49. Sugano, M., **Egilmez, N.K.**, Yokota, S.J., Chen, F-A., Harding, J., Huang, S-K. and Bankert, R.B. 2000. Antibody targeting of doxorubicin-loaded liposomes suppresses the growth and metastatic spread of established human lung tumor xenografts in SCID mice. Cancer Res. 60:6942-6949.
50. **Egilmez, N.K**., Jong, Y.S., Sabel, M.S., Jacob, J.S., Mathiowitz, E. and Bankert, R.B. 2000. *In situ* tumor vaccination with Interleukin-12 encapsulated biodegradable microspheres: induction of tumor regression and potent antitumor immunity. Cancer Res. 60:3832-3837.
51. **Egilmez, N.K**., Jong, Y.S., Hess, S.D., Jacob, J.S., Mathiowitz, E. and Bankert, R.B., 2000. Cytokines delivered by biodegradable microspheres promote effective suppression of human tumors by human peripheral blood lymphocytes in the SCID/Winn model. J. Immunother. 23(2):190-195.
52. Conway, T.F. jr., Sabel, M.S., Sugano, M., Frelinger, J.G., **Egilmez, N.K.**, Chen, F-A. And Bankert, R.B. 2000. PSA transfected human tumor xenograft progression can be monitored by quantifying PSA in the serum of SCID mice. J. Immunol. Meth. 233:57-65.
53. Kuriakose, M.A., Chen, F-A, **Egilmez, N.K**., Jong, Y.S., Mathiowitz, E., DeLacure, M.D., Hicks, W.L., Loree, T.L. and Bankert, R.B. 2000. Interleukin-12 delivered by biodegradable microspheres promotes the antitumor activity of human peripheral blood lymphocytes in a human head and neck tumor xenograft/SCID mouse model. Head and Neck 22: 57-63.
54. Cherkasova, V., Ayyadevara, S., **Egilmez, N**. and Reis, R.S. 2000. Diverse caenorhabditis elegans genes that are unregulated in dauer larvae also show elevated transcript levels in long-lived, aged, or starved adults. J. Mol. Biol. 300 (3):433-448.
55. **Egilmez, N.K.**, Jong, Y.S., Iwanuma, Y., Jacob, J.S., Mathiowitz, E. And Bankert, R.B. 1998. Cytokine immunotherapy of cancer with controlled release biodegradable microspheres in a human tumor xenograft / SCID mouse model. Cancer Immunol. Immunother. 46:21-24.
56. Iwanuma, Y., Chen F-A, **Egilmez, N.K**., Takita, H. And Bankert, R.B. 1997. Antitumor immune response of human peripheral blood lymphocytes coengrafted with tumor into severe combined immunodeficient mice. Cancer Res. 57:2937-2942
57. **Egilmez, N.K.**, R. Cuenca, S.J. Yokota, Sorgi, F. and R.B. Bankert. 1996. *In vivo* Cytokine Gene Therapy of Human Tumor Xenografts in SCID Mice. Gene Therapy 3:607-614..
58. **Egilmez, N.K.**, Y. Iwanuma and R.B. Bankert. 1996. Evaluation and Optimization of Various Cationic Liposome Formulations for *in vivo* Gene Transfer. Biochem. Biophys. Res. Comm. 221:169-173.
59. Ebert, R.H., **N.K. Egilmez**, S. Ruggles and R.J. Shmookler Reis. 1996. Initial Mapping of Loci with Fitness and Longevity Effects in DH424 and N2 Strains of *Caenorhabditis elegans*. Developmental Genetics 18(2):131-143.

60. **Egilmez, N.K.,** R.H. Ebert and R.J. Shmookler Reis. 1995. Strain Evolution in *Caenorhabditis elegans*: Transposable Elements as Markers of Inter-strain Evolutionary Distance. Journal of Molecular Evolution 40:372-381
61. **Egilmez, N.K**. and R.J. Shmookler Reis. 1994. Age-dependent Somatic Excision of Transposable Element Tc1 in *Caenorhabditis elegans*. Mutation Research 316 (1):17-24.
62. **Egilmez, N.K**., Y. Gokmen, H. Bahcecioglu and B. Kirdar. 1992. Human Factor VIII HindIII Polymorphism: Genotypic Distribution in the Turkish Population. The Turkish Journal of Medical Sciences. 16:105-112.
63. Graham, J.B., G.R. Kunkel, **N.K. Egilmez**, A. Wallmark, D.M. Fowlkes and S.T. Lord. 1991. The Varying Frequencies of Five DNA Polymorphisms of X-linked Coagulant Factor IX in Eight Ethnic Groups. Am. J. Hum. Genet. 49:537-544.
64. **Egilmez, N.K**., J.B. Chen and S.M. Jazwinski. 1990. Preparation and Characterization of Old Yeast Cells. J. Gerontol., 45:B9-17.
65. **Egilmez, N.K**., J.B. Chen and S.M. Jazwinski. 1989. Specific Alterations in Transcript Prevalence During the Yeast Life-span. J. Biol. Chem. 264:14312-14317.
66. **Egilmez, N.K.** and S.M. Jazwinski. 1989. Evidence for the Involvement of a Cytoplasmic Factor in the Aging of the Yeast *Saccharomyces cerevisiae*. J. Bacteriol. 171:37-42.
67. **Egilmez, N.K.** and M. Rothstein. 1985. The Effect of Aging on Cell-free Protein Synthesis in the Free-living Nematode *Turbatrix aceti*. Biochim. Biophys. Acta. 840: 355-363.

Invited Review Articles (refereed)

1. Li Q and Egilmez NK. Ontogeny of Tumor-associated CD4+CD25+Foxp3+ T-regulatory Cells. Immunol Invest. 2016; Pages 1-17 | Published online: 19 Oct 2016.
2. Harden JL, **Egilmez NK**. Indoleamine 2,3-dioxygenase and dendritic cell tolerogenicity. Immunol Invest. 2012;41(6-7):738-64.
3. **Egilmez NK** and Kilinc MO. 2010. Tumor resident CD8+ T-cell: A critical catalyst in IL-12-mediated reversal of tumor immune suppression. Arch. Immunol. Ther. Exp. 58(6):399-405.
4. **Egilmez, NK**., Kilinc MO, Gu T and Conway TF. 2007. Controlled-release particulate cytokine adjuvants for cancer therapy. Endoc. Metabol. Imm. Dis. – Drug Targets 7(4):266-270.
5. Bankert, R.B., Hess, S.D. and **Egilmez, N.K**. 2002. SCID mouse models to study human cancer pathogenesis and approaches to therapy: Potential, limitations, and future directions. Frontiers in Bioscience 7: 44-62.
6. Abra R.M., Bankert R.B., Chen F., **Egilmez N.K.**, Huang K., Saville R., Slater J.L., Sugano M., Yokota S.J. 2002. The next generation of liposome delivery systems: recent experience with tumor-targeted, sterically-stabilized immunoliposomes and active-loading gradients. J Liposome Res. Feb-May;12(1-2):1-3.
7. Bankert, R.B, **Egilmez, N.K.** and Hess, S.D. 2001. Human/SCID Chimeric Models for Pre-clinical Evaluation of Anti-Cancer Therapies: Applications, Limitations and Future Directions. Trends in Immunology 22(7):386-393.
8. Bankert, R.B., Chen, F-A, Sugiyama, Y. and **Egilmez N**. 2000. Patient immune response to tumors monitored using SCID mouse models. Immunol. Invest. 29(2), 171-176.
9. Jazwinski, S.M., **N.K. Egilmez** and J.B. Chen. 1989. Replication Control and Cellular Life-span. Exp. Gerontol. 24:423-436.

Invited Book Chapters

1. **Egilmez NK**. 2011. Interleukin-12: Effector mechanisms and homeostatic counterregulation in cancer therapy. Cytokines: Mechanisms, Functions and Abnormalities, Masoud Manjili, ed. Nova Science Publishers, Hauppauge, NY. Chapter 1. (featured on book cover).
2. **Egilmez, NK**. 2007. Cytokines as Vaccine Adjuvants. Vaccine Adjuvants and Delivery Systems, Manmohan Singh, ed. pp. 327-354. J. Wiley & Sons, Hoboken, NJ, USA.
3. **Egilmez, N.K.** and Bankert, R. B., 2003. Liposome-mediated cytokine gene delivery to human tumor xenografts. Methods in Enzymology, Liposomes, Part C, vol. 373 N. Duzgunes ed, pp. 529-535.
4. **Egilmez, N.K.**, Jong, Y.S., Mathiowitz, E. and Bankert, R.B. 2003. Tumor vaccination with cytokine-encapsulated microspheres. Meth. in Mol. Med., Vol. II, Diagnostic and Therapeutic Methods and Reviews, ed. Barbara Driscoll, pp. 687-696. Humana Press, Totowa, NJ.

INVITED PRESENTATIONS (since 2002)

National Cancer Institute, Experimental Transplantation and Immunology Division, November 2002, NIH, Bethesda, MD. Tumor immunotherapy with cytokine-encapsulated microspheres.

University of Louisville, Department of Microbiology and Immunology and J.G. Brown Cancer Center, March 2003. Louisville, Kentucky. Tumor vaccination with IL-12 + GM-CSF microspheres: Induction of antitumor immunity and eradication of systemic disease.

The 19th Annual Meeting of the International Society for Biological Therapy of Cancer, November 2004, San Fransisco, CA. Immune therapy as neoadjuvant treatment: Regression of Established Autochthonous Mammary Tumors and Induction of Systemic Anti-Tumor T- and B-Cell Immunity in HER-2/NEU Transgenic Mice after Treatment with IL-12 and GM-CSF-Encapsulated Microspheres.

University of California, Irvine, John Tu & Thomas Yuen Ctr. for Functional Onco-Imaging, Irvine, CA, May 2005. Monitoring lymphocyte activity in tumors during immune therapy.

32nd Annual Meeting of the Controlled Release Society, June 2005, Miami, FL. Biodegradable sustained-release nanoparticles for cancer immunotherapy

International Society for Biological Therapy of Cancer. 20th Annual Meeting, Nov. 10-13, 2005, Washington, D.C. Intra-tumoral IL-12 + GM-CSF Microsphere Therapy Induces Activation of Tumor-associated T-Effector/Memory Cells, Exodus of CD4+ CD25+ T-Suppressors and Infiltration of CD8+ T-Effectors

State University of New York at Buffalo, Department of Microbiology and Immunology, School of Medicine, April 2006 (interview seminar). Modulating suppressor T-cell homeostasis in the tumor microenvironment.

Molecular Targets in Cancer Therapy, Fourth Biennial meeting: Mechanism and Therapeutic Reversal of Immune Suppression in Cancer. H. Lee Moffitt Cancer Center. January 25-28, 2007. Clearwater Beach, FL. Reversing tumor immunosuppression with intratumoral IL-12: Activation of tumor-associated Teffector/memory cells and induction of CD4+ CD25+ Foxp3+ T suppressor cell apoptosis.

10th Annual Upstate New York Immunology Conference. October 14-17, 2007. The Sagamore Resort, Bolton Landing, NY. Reversing tumor immune suppression with intratumoral IL-12.

The 22nd Annual Meeting of the International Society for Biological Therapy of Cancer, October 31-November 4, 2007. Seaport Conference Center, Boston, MA. Intratumoral IL-12 promotes CD8+ T-effector/memory cell-mediated, IFNg and FasL-dependent elimination of T-suppressor cells from tumors.

Roswell Park Cancer Center, Department of Molecular and Developmental Genetics, December 2007, Buffalo, NY. Critical Role of Tumor-associated CD8+ T-effector/memory Cells in Reversing Tumor Immune Suppression

Roswell Park Cancer Center, Department of Immunology, March 2008, Buffalo, NY. Reversing Tumor Immune Suppression with Intra-tumoral IL-12.

Brown University, Department of Molecular Pharmacology and Biotechnology, June 2008. Providence, RI. Biodegradable nanoparticles for cytokine therapy of cancer.

The 25th Annual Meeting of the International Society for Biological Therapy of Cancer, October 2- 4, 2010, Washington DC. IFNgamma is central to both immunogenic and tolerogenic properties of dendritic cells after IL-12 and GM-CSF microsphere treatment.

University of Minnesota, Center for Immunology and the Masonic Comprehensive Cancer Center, March 15, 2011, Minneapolis, MN. IL-12 in cancer therapy: Effector mechanisms and homeostatic counter-regulation.

NIH, Center for Human Immunology & Inflammation, April 21, 2011, Bethesda, MD. Homeostatic counter-regulation in Interleukin-12 Cancer Therapy.

Stony Brook University, SUNY, Department of Pharmacological Sciences. May 3 2011. Stony Brook, NY. IL-12 in Cancer Therapy: Effector Mechanisms and Homeostatic Counter-regulation.

Upstate Immunology Conference, Oct 21-24, 2012, Lake George, NY. Title of talk: The Aryl Hydrocarbon Receptor Plays a Critical Role in the Prolonged Expression of IFN-y-induced Indoleamine 2,3-dioxygenase in Dendritic Cells. Talk given by student Jessica Zourelias due to conflict with study section service.

University of Rochester, Department of Microbiology and Immunology, Feb 4, 2012, Rochester, NY. Pro- and Anti-inflammatory strategies for Prevention and Therapy of Cancer.

Virginia Health Sciences University, Department of Microbiology and Immunology, April 2014.

Jantzen Inc. Brussels, Belgium. Oral IL-10 for Colon Cancer Therapy. May 2015.

Mayo Clinic, Department of Immunology, Rochester, Minnesota. "Immune Homeostasis in Cancer Therapy". April 2016.

State University of New York, Department of Microbiology & Immunology, Buffalo, NY. "Oral Immune Adjuvants for Therapy of Colitis and Colon Cancer". November 2017.

ABSTRACTS

On average 3 abstracts per year presented at local or national meetings in the past 10 years. The great majority of these are represented in the peer-reviewed publications listed above.

SERVICE TO THE PROFESSION

NIH study sections

Ad-hoc member NIH/TTT study section, October 2005.
Ad-hoc member NIH/TME study section, February 2008, October 2008, October 2009, June 2010, February 2017.
Ad-hoc member NIH/ZATI SM13 study section, March 2009.
Ad-hoc member NIH/ZRG1 OTC-F study section, June 2010.
Ad-hoc member NIH/ZRG1 BCMB-A 51R study section, March 2014.
Ad-hoc member NIH/ZRG1 OTC-C(02)M study section, October 2014
Ad-hoc member NIH/ZRG1 F09B-B920) study section, March 2015
Ad-Hoc member NIH/ZAT1 SM (37) L study section June 2015
Ad-Hoc member NIH/ZRG1 OBT-H (81) A study section November 2015
Ad-Hoc member NIH/ZES1 LWJ-D (U0)1 study section March 2016.
Ad-Hoc member NIH/CII study section, October 2017, June 2018.

Charter member NIH/TME study section 7/2010 – 6/2014.

Journal reviews / editorial boards

Reviewer for: Journal of Immunology, Cancer Research, Vaccine, Carcinogenesis, Cancer Immunology Immunotherapy, Immunological Investigations, Trends in Immunology, Cancer Letters, Cytokine, International Immunopharmacology.

Editor-in-Chief, International Journal of Immunology and Immunotherapy
Associate Editor, Immunological Investigations.
Associate Editor, Journal of Immunology Research
Associate Editor, World Journal of Immunology

Professional Memberships:
American Association of Immunologists
American Association for Cancer Research
Society for Immune Therapy of Cancer
American Association for the Advancement of Science

SERVICE TO THE PUBLIC

Co-founded TherapyX, Inc. in 2001, a small biotechnology company located in Buffalo, NY, focusing on the development of immune-based therapies of cancer, infectious disease and autoimmune disorders. The company has 7 full-time employees and has been continuously funded by the NIH SBIR program in the past 18 years via 10 Phase I and 5 Phase II grants with funds in excess of $14,000,000. Served as PI or Co-investigator on all grants.

Co-Chair, 2008, Buffalo Immunology Conference (co-sponsored by the Department of Microbiology and Immunology, UB, Witebsky Center for Microbial Pathogenesis and Immunology, UB and Department of Immunology, RPCI).

Co-Chair, 2011, Buffalo Immunology Conference (co-sponsored by the Department of Microbiology and Immunology, UB, Witebsky Center for Microbial Pathogenesis and Immunology, UB and Department of Immunology, RPCI).

UNIVERSITY OR MEDICAL SCHOOL SERVICE

Chair, IACUC SUNY/Buffalo	2008 - 2013
Internal grant reviewer for the Office of VP for Research	2009
UB regional representative, Upstate New York Immunology Conference	2010 - 2013
School of Medicine and Biomedical Sciences Core facilities planning committee	2011 - 2013
Associate Director, Witebsky Center for Microbial Pathogenesis and Immunology	2012 - 2013
HSC Space committee, University of Louisville	2018

DEPARTMENTAL SERVICE

IGPBS representative Department of Microbiology and Immunology	2006-2008
Associate Chair, Graduate Affairs Committee and Director, Masters Program. Department of Microbiology & Immunology, SUNY Buffalo	2008-2010
Chair, Graduate Affairs Committee and Director, PhD Program. Department of Microbiology and Immunology, SUNY, Buffalo	2010-2012
Buffalo-Niagara Medical Campus, Departmental Space Committee	2010-2013.
Member, Search Committee for Chair, Department of Microbiology & Immunology SUNY, Buffalo.	2012
Member, Faculty search committee, Department of Microbiology & Immunology SUNY, Buffalo	2012

COURSES TAUGHT AND EDUCATIONAL ACTIVITIES

University of Louisville:
Scientific Writing (MBIO623, lecturer) 2017-current.

University at Buffalo.
Current topics in Immunology (MIC 609, course director), 2011-2013.
Fundamentals of Immunology (MIC 412/512), 2007- current, 6 hours/semester.
Critical Analysis (MIC 610), 2008 – 2011, one lecture/semester.
Immunology Journal Club, Department of Microbiology & Immunology, 2006, Co-Director.
Honors Seminar for Medical Students (BMS 512). 2007-2013.

Brown Cancer Center and University of Louisville.
Multiple lectures in Advanced Immunology (MBIO 658) and Cancer Biology (BIOC 875) courses. 2004-2006.

Robert College, Istanbul, Turkey
Course Director for General Biology, Molecular Biology, Genetics, Cell Biology. 1990-1994 (graduate and undergraduate).

RESEARCH ACTIVITIES

Graduate students mentored

PhD Candidate, Neal Bhutiani, Department of Microbiology and Immunology, University of Louisville, 2015-2018.
M.S. Candidate, Kylee Creason, Department of Microbiology and Immunology, University of Louisville, 2015-2017.
M.S. Candidate, Makenzie Danton, Department of Microbiology and Immunology, University of Louisville, 2013-2015.
PhD candidate, Allen Chung, Department of Microbiology and Immunology (MD/PhD program), SUNY, Buffalo 2011 – 2014. Currently resident at Children's Hospital, Buffalo, NY.
M.S. Candidate, Jessica Zourelias, Department of Microbiology and Immunology, SUNY, Buffalo, 2011-2014.
M.S. candidate, Sarah Blair, Department of Microbiology and Immunology, 2012 – 2014.
Ph.D. candidate, Jamie L. Harden, Department of Microbiology and Immunology 2007 – August 2011. Currently senior Scientist at Dermira, Inc, San Fransisco.
Ph.D. candidate, Rachael B Rowswell-Turner, Department of Microbiology and Immunology (MD/PhD program) 2007 – June 2011. Currently, resident at University of Rochester.
PhD candidate, Karanvir S. Aulakh, Department of Microbiology & Immunology, University of Louisville, 2004-2007. Resigned from the program following PI's move to Buffalo to pursue veterinary practice (VMD from India). Currently doing residency in Veterinary Medicine.
Ph.D. candidate, co-advisor: Steven D. Hess, M.D./Ph.D. program, SUNY, Buffalo, 1998-2001.

PhD Committee memberships / outside readership

Committee memberships:

Morgan Duff (mentor Dr. Nathan Schmidt) 2016-current. Department of Microbiology and Immunology, University of Louisville.
Joshua Denny (mentor Dr. Nathan Schmidt) 2015-current. Department of Microbiology and Immunology, University of Louisville.
Ashley Mudd (mentor Dr. Ramesh Gupta) 2014-current. Department of Pharmacology and Toxicology, University of Louisville.
Gerald Dryden (mentor Dr. Jill Suttles). 2013-2015. Department of Microbiology and Immunology, University of

Louisville.
Maryann Mikucki (mentor Dr. Sharon Evans). 2011-2013. Department of Immunology, Roswell Park Cancer Institute.
Christopher Greene (mentor: Dr. Terry Connell). 2010-current. Department of Microbiology and Immunology, UB.
Debarati Banik (mentor Dr. Scott Abrams). 2010-current. Department of Immunology, RPCI.
Jonathan Heald (mentor Dr. Yasmin Thanavala). 2009-2010 (failed to pass qualifying exam). Department of Immunology, RPCI.
Chen Ting Lee (mentor Dr. Elizabeth Repasky). 2008-2012. Department of Immunology, RPCI.
Craig Brackett (mentor Dr. Sandra Gollnick). 2008-2011. Department of Immunology, RPCI.
Chang Hoon Lee 2007-2011 (mentor: Dr. Terry Connell). Department of Microbiology and Immunology, UB.
Jennifer Barnas 2006-2010 (mentor: Dr. Richard Bankert). Department of Microbiology and Immunology, UB.

Committee member for 9 PhD students, 2003-2006. Department of Microbiology and Immunology, University of Louisville, Louisville, KY.

Outside readerships:
Roshni Patel 2011 (mentor Jeffrey Morgan), Department of Molecular Pharmacology, Physiology and Biotechnology (MPPB), Brown University.
Shinsuke Onishi 2009 (mentor: Dr. Ashu Sharma). Department of Oral Biology, UB.
Diana Ferris 2004 (mentor Edith Mathiowitz)., Department of Molecular Pharmacology, Physiology and Biotechnology (MPPB), Brown University.
Danielle Abramson 2002 (mentor Edith Mathiowitz)., Department of MPPB, Brown University.
Jennifer Godbee 2002 (mentor Edith Mathiowitz)., Department of MPPB, Brown University.
Maryellen Sandor 2001 (mentor Edith Mathiowitz)., Department of MPPB, Brown University.

Summer students:
12 undergraduates 2003 - current.

Postdoctoral Fellows:
Howard Wallace, Ph.D. (2002-2003). Deceased.
Raji E. Nair, Ph.D. (2003-2006). Currently, Clinical Research Associate Urologix Inc., Plymouth, MN.
Mehmet O. Kilinc, Ph.D. (2004 – 2012). Currently Associate Director, Immunology Program, GeneLux Inc., San Diego, CA..
Tao Gu, Ph.D. (2005-2010). Currently, Research Assistant Professor, Department of Immunology, Brown University.
Qingsheng Li, Ph.D. (2012-current).

GRANT SUPPORT

"MRI: Acquisition of a High Performance Big Data Analysis Platform". NSF, proposal# 1828521 (Altiparmak, PI)
9/1/2018-8/31/2019
Role: Co-PI
Direct cost: $478,727.

"Functional Microbiomics, Inflammation and Pathogenicity". NIH P20GM125504-01.
12/1/2017 – 11/30/2022.
Role: Co-Investigator and mentor for project 4, PI of Career Development Core (Lamont PD/PI). 25% effort. Total direct costs: $11.2 million.

Program in Metagenomics and Health University of Louisville internal RFP for Academic and Research Excellence for the 21st Century University. 01/01/2017 – 12/31/2019.
Role: Principal Investigator. 10% effort. Total direct costs: $750,000.

"Delivery of nanoencapsulated TGFbeta and ATRA for the Treatment of IBD". NIH 2R44-AI080009-05.
6/15/2017-6/14/2020.
Role: Co-Investigator (Auci PD/PI), 5% effort.

“Inhaled IL-10 for Prevention and Therapy of Lung Cancer” KY Lung Cancer Program 6/1/2016 – 5/31/2018.
Role: Principal Investigator. Total direct costs: $150,000.

“Microencapsulated anti-PD-1 for the Treatment of Lung Cancer” LC150457, DOD 9/1/2016 – 8/31/2017.
Role: Principal Investigator. Total direct costs: $150,000.

“Integrating Innate and Adaptive Immunity in Cancer Therapy”, NIH, R01-CA100656,
7/1/03 – 4/30/17
Role: Principal Investigator, 10% effort. Total direct costs: $ 2,090,000.

“Delivery of nanoencapsulated TGFbeta and ATRA for the Treatment of IBD”. NIH R44-AI080009-02A1.
4/1/2011-3/31/2016.
Role: Co-investigator (Conway PI, TherapyX Inc.), 5% effort. Total costs: $ 2,999,994.

“Oral Immune-modulatory Adjuvants for Treatment of Colorectal Carcinoma” NIH R21-AI092133-01A1.
7/1/2011 - 6/30/2013.
Role: Principal Investigator, 10% effort. Total direct costs $ 312,200.

Intratumoral T-suppressor cell Homeostasis in Breast Cancer, DOD Breast Cancer Program / Pre-doctoral fellowship.
BC093325 (Rowswell-Turner, PI) 12/15/09-12/14/12
Role: Mentor, 5% effort. Total direct costs $ 120,000.
Terminated 7/2011 due to student graduating.

“Promotion of anti-tumor responses by conversion of tumor-associated macrophages to inflammatory phenotype”.
Susan G. Komen Search for the Cure Research Grant, KG081087 (Stout, PI)
9/1/08 – 8/31//11.
Role: collaborator. 5% effort. Subcontract: $ 60,000.

“Use of Microsphere Technology for Development of Cancer Vaccines”, NYSTAR Faculty Development Program, New York State.
Role: Principal Investigator, 20% effort. 11/1/2006 – 10/30/2009. Total direct costs: $ 508,253.

“Oral Retinoic Acid and TGFβ Nanospheres for Treatment of IBD” NIH/NIDDK 1R43-AI080009-01, 4/1/2008 – 3/31/2009. Role: Co-investigator (Conway, PI), 5% effort. Total costs: $155,000.

“Treatment of Type 2 Diabetes with Oral Administration of Nanoencapsulated GLP-1”, NIH 1R43-DK075190-01, 9/25/2006-8/31/2008.
Role: Co-investigator 5% effort (Conway, PI). Total costs: $ 144,480.

“Biodegradable Microspheres for Cancer Immunotherapy” NIH 2-R44-CA85097-02, 7/1/2003 – 6/30/2008, Co-investigator (originally Principal Investigator), 5% effort. (P.I. change to Dr. Thomas Conway in 2003 due to 100% academic effort for Egilmez). Total costs: $ 2,631,714.

“Tumor vaccination with Cytokine-encapsulated Microspheres”, DOD Breast Cancer Program, DAMD17-01-1-0262, 8/15/01-11/30/05, Principal Investigator, 20% effort. Total direct costs: $ 300,000.

“Biodegradable Microspheres for Cancer Immunotherapy” NIH 1-R43-CA85097-01A1, 2002, Principle Investigator. Total costs: $ 99,906.

“Interleukin-10 Microspheres for Therapy of IBD” NIH, 1-R43-DK0320-01, 2002, Principal Investigator. Total costs: $ 99,500.

“Intratumoral Injection of Biodegradable Polymer Microspheres Containing Recombinant Human Interleukin-12 for Cancer Immunotherapy”, Rapid Access to Intervention Development (RAID) Program, NCI. 2001. Principal Investigator.

“Bioadhesive Microspheres for Colon cancer Therapy” NIH, 1-R43-CA86152-01, 2000-2003, Principal Investigator, Total costs: $ 415,600.00.