Gretchen Eiben Lyons, PhD
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Professional Summary

Experience biology educator and researcher with over 20 years expertise in molecular biology, genetics, oncology and general biology. Proven track record as a senior instructor, research associate and committee leader. Recognized for excellence in teaching, innovative curriculum design, and subject matter expertise in undergraduate and graduate biology education. Adept at writing and reviewing grants, advising on best practice and integrating current scientific advances into instructional materials.

Education

- **Post-Doctoral Fellowship**
  The University of Chicago, Department of Surgical Oncology (April 2006)
  Topic: Generation of CD8+ and CD4+ melanoma reactive human T cells by retroviral transfer
- **PhD, Molecular Biology**
  Loyola University Stritch School of Medicine, Chicago IL (December 2004)
  Thesis: Immunotherapeutic Strategies to Induce Immunity to HPV-induced Cervical Cancer in an HLA-A2 murine model
- **BS, Biology**
  Boston College, Chestnut Hill, MA (May 1997)

Professional Experience

Senior Instructor of Biology
Northeastern Illinois University, Chicago, IL (Aug 2012-Present)

- Lead undergraduate and graduate courses in General Biology and Genetics
- Develop, review and coordinate curriculum and laboratory content for multiple sections each semester
- Mentor students and advise on academic and career pathways in biology and medicine
- Integrate current peer reviewed research and technology into course content
- Serve on department committees on curriculum enhancement and grant submissions

Tenure Track Professor of Biology
Malcolm X College, Chicago, IL (Jan 2011-Aug 2012)

- Designed and assessed biology curriculum for diverse student populations
- Led department committees on curriculum development
- Advised Biology Club and mentored students in research projects

Senior Research Associate
The University of Chicago Hospital, Department of Surgical Oncology (May 2006- Mar 2010)

- Conducted research in immunotherapy, genetics and cancer biology
- Published extensively in peer-reviewed journals
- Present findings at national and international conferences

Research Associate, Pediatric Infectious Disease
Illinois Masonic Medical Center, Chicago, IL (Aug 1997-July 1999)

- Performed diagnostic immunological assays on patient samples

Subject Matter Expertise

- Molecular Biology, Genetics, Virology, Immunotherapy, Cancer Biology
- Curriculum and assessment design for undergraduate and graduate biology programs
- Educational and research grant development and review
- Committee leadership in STEM education and curriculum innovation
- Peer reviewed scientific journal article writing and review

Selected Achievements

- Educational Faculty Sabbatical Award, Northeastern Illinois University (2023)
- Excellence in Teaching Award, Northeastern Illinois University (2022)
- Outstanding Faculty Presentation, The University of Chicago (May 2009)
- NIH Postdoctoral Fellowship Award, University of Chicago (2005)

Courses Taught

- Introduction to Biology (BIO 100)
- The Changing Natural Environment (BIO 104)
- Essential Skills of a Biologist (BIO 250)
- General Biology (BIO 201)
- General Genetics (BIO 301)
- Human Genetics (BIO 361)

Committees and Leadership

- Title V Grant Committee (2025): Integrates social science into general biology education courses
- Bio 100 Course Conversion (2024): Converted a core biology course from 4 to 5 credits in accordance with the Illinois Articulation Initiative with greater societal relevance and culturally relevant pedagogy
- Noyce Teacher Scholarship Grant Committee (2024): Led cross-institutional STEM teacher training grant
- Biology Curriculum Enhancement Committee (2023): Developed lab manuals and assessment protocols
- STEM Student Research Advisory Committee (2020): Designed student research projects for publication
- Assessment Committee (2019): Facilitated continuous improvement in student learning

Continuing Education

- Magna Diversity, Equity and Inclusion (DEI) Digital Credential (2025)
- Diversity, Equity and Inclusion in Course Materials and Syllabus (2023)
- Building a Liquid Syllabus (2023)
- Online Course Design II & II (2021)
- Quality Matters – Designing your Online Course (2020)

Publications

1. Spear TT, Riley TP, **Lyons GE**, Callender GG, Roszkowski JJ, Wang Y, Simms PE, Scurti GM, Foley KC, Murray DC, Hellman LM, McMahan RH, Iwashima M, Garrett-Mayer E, Rosen HR, Baker BM, Nishimura MI. Hepatitis C virus-cross-reactive TCR gene-modified T cells: a model for immunotherapy against diseases with genomic instability.J Leukoc Biol. 2016 Sep;100(3)
2. Mehrotra S, Al-Khami AA, Klarquist J, Husain S, Naga O, Eby JM, Murali AK, **Lyons GE**, Li M, Spivey ND, Norell H, Martins da Palma T, Onicescu G, Diaz-Montero CM, Garrett-Mayer E, Cole DJ, Le Poole IC, Nishimura MI. A coreceptor-independent transgenic human TCR mediates anti-tumor and anti-self immunity in mice. J Immunol. 2012 Aug 15;189(4):1627-38. doi: 10.4049/jimmunol.1103271.

3. Zloza A,* **Lyons GE,*** Schenkel JM, Moore TV, Lacek AT, O'Sullivan JA, Varanasi V, et al. NKGD2 signalling on CD8+ T cells represses T-bet and rescues CD4- unhelped CD8 + T cell memory recall but not effector responses. Nature Medicine. 2012 Feb 26; 18(3):422-8.
4. Zloza A,* **Lyons GE,*** Chlewicki LK, Kohlhapp FJ, O'Sullivan JA, Lacek AT, Moore TV, Jagoda MC, Kumar V, Guevara-Patiño JA. Engagement of NK receptor NKG2D, but not 2B4, results in self reactive CD8+ T cells and autoimmune vitiligo. Autoimmunity. 2011 Dec; 44(8):599-606.
5. Zloza A, Jagoda MC, **Lyons GE**, Graves MC, Kohlhapp FJ, O'Sullivan JA, Lacek AT, Nishimura MI, Guevara-Patiño JA. CD8 co-receptor promotes susceptibility of CD8+ T cells to transforming growth factor-β (TGF-β)-mediated suppression. Cancer Immunol Immunother. 2011 Feb; 60(2):291-7.
6. **Lyons**, **GE**, McCracken J, O'Sullivan J, Guevara-Patino J. RAE1-e Signaling Rescues "Helpless" CD8+ T cell Memory Responses. Journal of Exp. Medicine. January, 2011.
7. Moore TV, **Lyons GE**, Brasic N, Roszkowski JJ, Voelkl S, Mackensen A, Kast WM, Le Poole IC, Nishimura MI. Relationship between CD8-dependent antigen recognition, T cell functional avidity and tumor cell recognition. Cancer Immunol Immunother. 2009 May; 58 (5):719-728.
8. Le Poole IC, Elmasri WM, Denman CJ, Kroll TM, Bommiasamy H, **Lyons GE**, Kast, WM. Langerhans cells and dendritic cells are cytotoxic towards HPV16 E6 and E7 expressing target cells. Cancer Immunol Immunother. 2008 Jun; 57(6):789-97.
9. **Lyons GE,** Moore T, Brasic N, Li M, Roszkowski JJ, Nishimura MI. Influence of Human CD8 □ and □ chains on recognition efficiency and tetramer binding by TCR transduced cells. Cancer Res. 2006 Dec 1; 66(23):11455-61.
10. **Lyons GE**, Roszkowski JJ, Yee C, Kast WM, Nishimura MI. Tetramer Binding or the lack there of does not necessitate antigen reactivity in TCR transduced cells. Cancer Immunol Immunother. 2006 Sep; 55(9):1142-50.
11. Callender GG, Rosen HR, Roszkowski JJ, **Lyons GE**, Li M, McKee MD, Nishimura MI. Identification of a CD8-Independent Hepatitis C Virus Specific T cell Receptor. Hepatology. 2006 May; 43(5):973-81.
12. Roszkowski JJ, **Lyons GE**, Kast WM, Yee C, Van-Besien K, Nishimura MI. Simultaneous generation of CD8+ and CD4+ melanoma reactive T cells by retroviral mediated transfer of a single TCR. Cancer Research. 65(4): 1570-6, 2005.
13. **Lyons GE**, Kast WM. Cellular Immune Responses Against Human Papillomaviruses. From: *Papillomaviruses* (R. Garcea, D. DiMaio, eds). Plenum Publishers, 2004.
14. Cassetti MC, McElhiney SP, Shahabi V, Pullen JK, LePoole IC, **Eiben GL**, Smith LR, Kast WM. Anti-tumor efficacy of Venezuelan equine encephalitis virus replicon particles encoding mutated HPV16 E6 and E7 genes. Vaccine. 22(3-4): 520-7, 2004.
15. **Eiben GL**, Da Silva DM, Fausch SC, Krier AM, LePoole IC, Papineau ME, Nishimura MI, Kast WM. Targeting Viral Antigens for the Treatment of Malignancies. From: Handbook of Cancer Vaccines, Humana Press Inc. Totowa, NJ. 49-64, 2003
16. **Eiben GL**, da Silva DM, Fausch SC, Le Poole IC, Nishimura MI, Kast WM. Cervical cancer vaccines: recent advances in HPV research. Viral Immunol. 2003;16(2):111-21.
17. Velders MP, Markiewicz MA, **Eiben GL**, Kast WM. CD4+ T cell matters in tumor immunity. Int Rev Immunol, 22(2): 113-140, 2003.
18. **Eiben GL**, DaSilva DM, Fausch SC, LePoole IC, Nishimura MI, Kast WM. Cervical cancer vaccines: Recent Advances in HPV research. Viral Immunology. 16(2): 111-121, 2003
19. Fausch SC, DaSilva DM, **Eiben GL**, LePoole IC, Kast, WM. HPV protein/peptide vaccines: from animal models to clinical trials. Front Biosci. 8:s81-91, 2003
20. **Eiben GL**, Velders MP, Schreiber H, Cassetti, MC, Pullen JK, Smith LR, Kast, WM. Establishment of an HLA-A*0201 human papillomavirus type 16 tumor model to determine the efficacy of vaccination strategies in HLA-A*0201 transgenic mice. Cancer Res. 62(20): 5792-5799, 2002.
21. **Eiben GL**, Velders, MP, Kast, WM. The cell-mediated response to human papillomavirus-induced cervical cancer: implications for immunotherapy. Advances in Cancer Research. 86: 113-148, 2002
22. Velders MP**,** McElhiney S, Cassetti MC, **Eiben GL**, Higgins T, Kovacs GR, Elmishad AG, Smith L, Kast WM. Eradication of established tumors by vaccination with Venezuelan equine encephalitis virus replicon particles delivering human papillomavirus 16 E7 RNA. Cancer Res. 61(21):7861-7867, 2001.

23. Velders MP, Weijzen S, **Eiben GL**, Elmishad AG, Kloetzel P-M, Higgins T, Ciccarelli RB, Evans M, Man S, Smith L, Kast WM. Defined flanking spacers and enhanced proteolysis is essential for eradication of established tumors by an epitope string DNA vaccine. J. Immunol. 166: 5366-5373, 2001
24. Da Silva DM, **Eiben GL**, Fausch SC, Wakabayashi MT, Rudolf MP, Velders MP**,** Kast WM. Cervical cancer vaccines: emerging concepts and developments. J. Cell. Physiol., 186: 169-182, 2001

Presentations

Feb 2009 NKGD2 signaling on CD8+ T cells represses T-bet and rescues CD4- unhelped CD8 + T cell memory recall but not effector responses, Charles B. Huggins Immunolgy Conference, University of Chicago.

Feb 2008 Generating Memory in the Absence of CD4 help by Activating NK Receptors, Charles B. Huggins Immunology Conference, University of Chicago.

Nov 2007 Rescuing "helpless" CD8+ T cell Memory Responses by Activating NK Receptors during Priming, Autumn Immunology Conference, Chicago IL,

Nov 2006 TCR tetramer binding does not ensure antigen reactivity, Autumn Immunology Conference, Chicago, IL.

Nov 2004 Immunotherapeutic strategies to target Human Papillomavirus induced cervical carcinomas, Dissertation Defense, Loyola University Chicago.

May 2005 TCR tetramer binding or the lack there of does not necessitate antigen reactivity in TCR transduced T cells. University of Chicago Biomedical Sciences Cluster Retreat, Lake Delavan, Wisconsin.

Jan 2004 Adoptive T cell receptor gene transfer to HPV16 HLA-A*0201 Specific TCR to Human T cells. The Midwinter Conference of Immunologists, Pacific Grove, California.

Feb 2004 Adoptive T cell receptor gene transfer of HPV16 HLA-A*0201 specific TCR to Human and Murine T cells. 21st International Papillomavirus Conference, Mexico City, Mexico.

Oct 2002 Development of an Alphavirus replicon based vaccine for therapeutic immunization against HPV associated cancer. 20th International Papillomavirus Conference, Paris France.

Aug 2002 Adoptive T cell receptor therapy of HPV induced tumors, Molecular Biology Retreat, Loyola University Chicago, Williams Conference Center, Lake Bluff, IL.

Nov 2001 Defined flanking spacers and enhanced proteolysis is essential for eradication of established tumors by an epitope string DNA vaccine. Autumn Immunology Conference, Chicago, IL.

May 2001 Genetic vaccinations against virally induced tumors, Molecular Biology Retreat, Loyola University Chicago, Cardinal Bernardin Cancer Center.