

BIOGRAPHICAL SKETCH

NAME Long, Eric O.		POSITION TITLE Senior Investigator and Section Head	
eRA COMMONS USER NAME eolong			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Federal Institute of Technology (ETH), Zurich, University of Geneva, Geneva, Switzerland	M.S. Ph.D.	1971 1976	Biochemistry Biology
Carnegie Institution of Washington, Baltimore, and National Cancer Institute, NIH, Bethesda		1977- 1980	Developmental Biology

A. Positions and Honors.

Positions and Employment

- 1977-1980 Postdoctoral Fellow, Carnegie Institution of Washington, Baltimore, MD, and Laboratory of Biochemistry, National Cancer Institute, NIH, Bethesda, MD
- 1980-1983 Research Associate, Department of Microbiology, University of Geneva Medical School, Geneva, Switzerland
- 1983-1988 Visiting Scientist, Laboratory of Immunogenetics, NIAID, NIH, Bethesda, MD
- 1988-present Head, Molecular and Cellular Immunology Section, Laboratory of Immunogenetics, NIAID, NIH

Other Experience and Professional Memberships

- 1971-1972 Postgraduate research, MRC, Molecular Genetics Unit, Edinburgh, Scotland
- 1977-1979 Fellow of the Swiss National Fund for Scientific Research
- 1979-1980 Visiting Fellow, National Cancer Institute, NIH
- 1995-1998 Advisory Committee, Howard Hughes Medical Institute - NIH Research Scholars Program
- 1997-1999 Steering Committee, NIH Immunology Interest Group
- 1999-2002 Advisory Board, International Histocompatibility Working Group
- 2003-2006 Program Committee, American Association of Immunologists
- 2003-2006 Editorial Board, *J Clin Immunol*
- 2005-2008 Editorial Board, *J Biol Chem*
- 2006-2010 Promotion and Tenure Committee, NIAID, NIH
- 2007-2009 Steering Committee, NIH Immunology Interest Group
- 2011-present Associate Editor, *Frontiers Immunol*

Honors

- 1992 NIH Director's Award
- 2011 NIAID Merit Award
- 2012 NIH Director's Award

B. Recent publications.

1. Rajagopalan S, Moyle MW, Joosten I, **Long EO** (2010) DNA-PKcs Controls an Endosomal Signaling Pathway for a Proinflammatory Response by Natural Killer Cells. *Science Signaling* 3:ra14
2. Kim HS, Das A, Gross CC, Bryceson YT, **Long EO** (2010) Synergistic Signals for Natural Cytotoxicity Are Required to Overcome Inhibition by c-Cbl. *Immunity* 32:175-186
3. Gross CC, Brzostowski JA, Liu D, **Long EO** (2010) Tethering of ICAM on target cells is required for LFA-1-dependent NK cell adhesion and granule polarization *J Immunol* 185:2918-2926
4. Das A, **Long EO** (2010) Lytic granule polarization, rather than degranulation, is the preferred target of inhibitory receptors in NK cells. *J Immunol* 185:4698-4704
5. Liu D, Meckel T, **Long EO** (2010) Distinct role of Rab27a in granule movement at the plasma membrane and in the cytosol of NK cells. *PLoS One* 5(9):e12870
6. Watzl C, **Long EO** (2010) Signal transduction during activation and inhibition of natural killer cells. *Curr Protoc Immunol* 90:11.9B.1-11.9B.17
7. Dustin ML, **Long EO** (2010) Cytotoxic immunological synapses. *Immunol Rev* 235:24-34

8. Rajagopalan S, **Long EO** (2010) Antagonizing inhibition gets NK cells going. *Proc Natl Acad Sci USA* 107:10333-10334
9. March ME, Gross CC, **Long EO** (2010) Use of transfected *Drosophila* S2 cells to study NK cell activation. In "Natural Killer Cell Protocols", Campbell KS (Ed), *Methods Mol Biol* 612:67-88
10. Bryceson YT, Fauriat C, Nunes JM, Wood SM, Björkström NK, **Long EO**, Ljunggren HG (2010) Functional Analysis of Human NK cells by Flow Cytometry. In "Natural Killer Cell Protocols", Campbell KS (Ed), *Methods Mol Biol* 612:335-352
11. March ME, **Long EO** (2011) Beta2 integrin induces TCR zeta–Syk–PLC-gamma phosphorylation and paxillin-dependent granule polarization in human NK cells *J Immunol* 186:2998–3005
12. Martinez E, Brzostowski JA, **Long EO**,* Gross CC* (2011) Cutting Edge: NKG2D-dependent cytotoxicity is controlled by ligand distribution in the target cell membrane. *J Immunol* 186:5538-5542,
13. Agüera-González S, Gross CC, Fernández-Messina L, Ashiru O, Estes G, Hang HC, Reyburn HT, **Long EO**, Valés-Gómez M (2011) Palmitoylation of MICA, a ligand for NKG2D, mediates its recruitment to membrane microdomains and promotes its shedding. *Eur J Immunol* 41:3667-3676
14. Liu D, Martina JA, Wu XS, Hammer III JA, **Long EO** (2011) Two modes of lytic granule fusion during degranulation by natural killer cells. *Immunol Cell Biol* 89:728-738
15. Ombrello MJ, Remmers EF, Sun G, Freeman AF, Datta S, Torabi-Parizi P, Subramanian N, Bunney TD, Rhona W, Baxendale RW, Marta S, Martins MS, Romberg N, Komarow H, Aksentijevich I, Kim HS, Ho J, Cruse G, Jung MY, Gilfillan AM, Metcalfe DD, Nelson C, O'Brien M, Wisch L, Stone K, Douek DC, Gandhi C, Wanderer AA, Lee H, Nelson SF, Shianna KV, Cirulli ET, Goldstein DB, **Long EO**, Moir S, Meffre E, Holland S, Kastner DL, Katan M, Hoffman HM, Milner JD (2011) Cold Urticaria, Immune Deficiency and Autoimmunity Due to *PLCG2* Deletions. *New Engl J Med* 366:330-338
16. **Long EO** (2011) ICAM-1: Getting a grip on leukocyte adhesion. *J Immunol* 186:5021-5023
17. Liu D, Peterson ME, **Long EO** (2012) The adaptor protein Crk controls activation and inhibition of natural killer cells. *Immunity* 36:600-611
18. Kim HS, **Long EO** (2012) Complementary phosphorylation sites in the adaptor protein SLP-76 promote synergistic activation of natural killer cells. *Science Signaling* 5:ra49
19. Rajagopalan S, **Long EO** (2012) Cellular senescence induced by CD158d reprograms natural killer cells to promote vascular remodeling. *Proc Natl Acad Sci USA* 109:20596-20601
20. Rajagopalan S, **Long EO** (2012) KIR2DL4 (CD158d): An activation receptor for HLA-G. *Front Immunol* 3:258
21. Rajagopalan S, **Long EO** (2013) A positive role for senescence in reproduction? *Aging* 5:96-97
22. **Long EO**, Kim HS, Liu D, Peterson ME, Rajagopalan S (2013) Controlling NK Cell Responses: Integration of Signals for Activation and Inhibition. *Annu Rev Immunol* 31:227-258
23. Thomas LM, Peterson ME, **Long EO** (2013) Cutting Edge: NK Cell Licensing Modulates Adhesion to Target Cells. *J Immunol* 191:3981-3985
24. Rajagopalan S, Lee EC, DuPrie ML, **Long EO** (2014) TRAF6 and TAK1 control signals for a senescence response by an endosomal NK cell receptor. *J Immunol* 192:714-721
25. Zhang M, March ME, Lane WS, **Long EO** (2014) A Signaling Network Induced by beta2 Integrin Controls the Polarization of Lytic Granules in Cytotoxic Cells. *Science Signaling* 7:ra96
26. Kumar S, Sarkar P, Sim MJW, Rajagopalan S, Vogel SS, **Long EO** (2015) A single amino acid change in inhibitory killer cell Ig-like receptor results in constitutive receptor self-association and phosphorylation. *J Immunol* 194:817-826
27. Mitra S, Ring AM, Amarnath S, Spangler JB, Li P, Ju W, Fischer S, Oh J, Spolski R, Weiskopf K, Kohrt H, Foley JE, Rajagopalan S, **Long EO**, Fowler DH, Waldmann TA, Garcia KC, Leonard WJ (2015) Interleukin-2 Activity Can Be Fine-Tuned with Engineered Receptor Signaling Clamps. *Immunity* 42:826-838
28. Sim MJW, Stowell J, Sergeant R, Altmann DM, **Long EO**,* Boyton RJ* (2015) KIR2DL3 and KIR2DL1 show similar impact on licensing of human NK cells. *Eur J Immunol*, DOI: 10.1002/eji.201545757
29. Anton OM, Vielkind S, Peterson ME, Yutaka Tagaya Y, **Long EO** (2015) NK Cell Proliferation Induced by IL-15 Transpresentation Is Negatively Regulated by Inhibitory Receptors. *J Immunol* 195:4810-4821
30. Kumar S, Rajagopalan S, Sarkar P, Dorward DW, Peterson ME, Liao H-S, Guillemier C, Steinhäuser ML, Vogel SS, **Long EO** (2016) Zinc-induced polymerization of killer-cell Ig-like receptor into filaments promotes its inhibitory function at cytotoxic immunological synapses. *Mol Cell* 62:21-33