

Lucy E.J. Lee

Autobiographical sketch / July 2017



Lucy Lee was born in Seoul, Korea, 3 years after the end of the Korean War. Rebuilding of Seoul was a difficult task after the ravages of the war but Lucy's parents were hard-working and had big plans for a better future for their kids. Food was scarce, but fish was plenty, and Lucy loved fish. Her father occasionally brought American delicacies, as he worked for the US army, yet she preferred fish over chocolates! By the age of 6, Lucy's father had moved the family around the world, to Trujillo, Peru, where she spent her formative years. Peru in the 60's was a fishing powerhouse and fish was cheap. Lucy grew up eating all sorts of seafood from the then bountiful Pacific Ocean. With country-wide unrest in the late 70's, she moved to Canada and attended the University of Waterloo for her BSc.

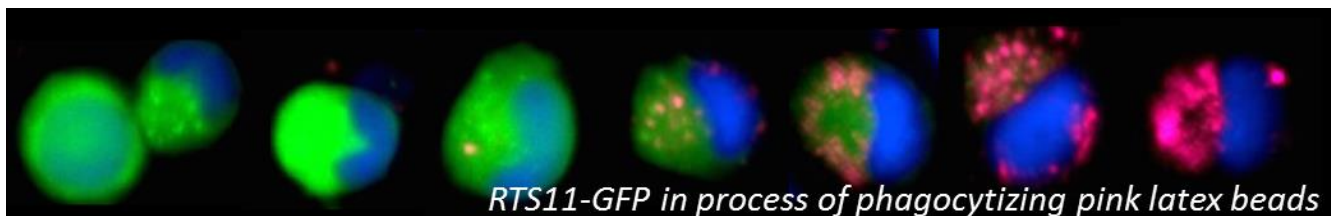
While an undergraduate student, she learned tissue culture from a developmental biology course, and in a lab exercise, when she cultured embryonic heart cells from chick embryos, she was hooked! She could spend hours watching beating heart cells in culture and by the time she took Virology in her senior year and learned about cell lines, she knew she wanted to do graduate studies working with cell cultures. At this time, her virology lab partner was Dick Mosser (now a professor at the University of Guelph, Ontario) who was working for Dr. Niels Bols in an undergraduate project with fish cells, she became fascinated with the idea of working with fish "in vitro". She then applied to do graduate studies with Dr. Bols, but at that time in 1983, he was going off on a sabbatical year and was not interested in taking on new graduate students, but Lucy's persistence won him over and he left her with a project to develop a defined cell culture medium for [RTG-2](#) cells, a cell line from rainbow trout (RT) that was ill defined. While Dr. Bols was away, Lucy decided to culture her own RT cells and she began culturing RT cells on the side, as well as working on developing a defined culture medium. She developed many cell lines from various tissues of RT, but her thesis came first and she set aside many RT cell cultures and cryopreserved them while she completed her MSc and PhD. By 1988, she obtained her first academic appointment at Acadia University in Nova Scotia and although no tissue culture facilities were available, she had access to Atlantic salmon, so did histology and immunochemistry. She then obtained a tenure-track position moving to Saskatchewan and taught at the Western College of Veterinary Medicine from 1989 to 1996. This is where tissue culture facilities were available and she began culturing all live tissues that she could get her hands on, not just fish from nearby aquaculture farms or from pet stores, but also many veterinary specimens including exotic species like musk-ox.

The publication of [RTL-W1 \(PMID:8299006\)](#), which was started during her graduate years, kick started a series of new fish cell line preparations that include many fish species and tissue origins. While she moved universities twice since, for family reasons, Wilfrid Laurier University (1997 to 2012), and University of the Fraser Valley (2012 to present), she has continued her work on developing and characterizing fish cell lines with funding from the Natural Sciences and Engineering Research Council of Canada (NSERC) for over 25 years.

While her research career had many ups and downs, she loved teaching and has trained and mentored a large number of undergraduate and graduate students with the intricacies of cell culture. Currently, although a full-time administrator, she continues to do research in her spare time and has adjunct appointments at Waterloo and the University of British Columbia, and collaborates with scientists around the world giving hands on training workshops not only in Canada and the USA but also South America and Europe.

Professionally, she has been the President of the Canadian Society of Zoologists (2016-17) and has been active in various roles including organization of their 2003 annual meeting. She is President of the Canadian Council of Deans of Science (2016-18) and has coordinated the organization of their last two annual meetings. She has been on the Board of Directors of the Society for In Vitro Biology (2010-12), and has organized many sessions and symposia, including the 2008, 2012 and 2016 International conferences on invertebrate and fish tissue culture. She is also a member of the Society for Environmental Toxicology and Chemistry's (SETAC) Animal Alternative's Steering Committee, as well as having been actively involved with the Aquatic Toxicity Workshop (now renamed as Canadian Ecotoxicity Workshop).

Additional to RTL-W1, she initiated or had direct input in the development and characterization of many additional fish cell lines (see below). One of the cell lines which could be very useful for co-culture studies with epithelial or fibroblastic cells in vitro is [RTS11-GFP](#), a subline of RTS11 that expresses a *P. plumata* GFP. Upon phagocytosis (e. g. ingesting latex beads as in figure below in pink), GFP expression is lost.



Cell lines established by Lucy Lee and her group

ASimf20 (CVCL AZ82)	ASP309 (CVCL AZ83)	ASP409 (CVCL AZ84)
EelB (CVCL AZ88)	FHML2-6 (CVCL L022)	FHMT-W1 (CVCL L018)
GFSk-S1 (CVCL L021)	GloFish (CVCL KB56)	GML-5 (CVCL KR30)
HEW (CVCL R907)	KFE-5 (CVCL KR29)	PBLE (CVCL R845)
RT-milt5 (CVCL AZ89)	RT-ovf1 (CVCL AZ90)	RTBrain (CVCL KB55)
RTee (CVCL DE14)	RTgill-W1 (CVCL 6441)	RTgutGC (CVCL DE13)
RTL-W1 (CVCL L011)	RTP-2 (CVCL L012)	RTS11-GFP (CVCL KR31)
SBB-W1 (CVCL S942)	YPF-5 (CVCL KR28)	ZEB2J (CVCL 6E10)
ZSSJ (CVCL 6E22)		