

# In Memoriam

## Elaine W. Raines (1948–2017)

Jingjing Tang

The scientific community of atherosclerosis and related inflammatory diseases research has lost a lifelong member with the passing of Elaine W. Raines on July 16, 2017. Elaine died at her home in Burien Washington after losing her battle to metastasized breast cancer. Those of us who are familiar with Elaine's passion for science, her perseverance in everyday research and her ultimate optimistic perspective for life are greatly saddened. We feel fortunate to have experienced Elaine's mentorship, friendship, love of science, and love of Northwest living; we mourn deeply the loss of a very unique and inspirational personality.

Elaine was born in Seattle and grew up in Renton Washington. After graduating from Whitman College where she double majored in Chemistry and Economics, she spent 5 years in California where she completed her Master of Science at the University of California at San Francisco and did research at the Salk Institute. On her return to Seattle, Elaine landed the job of a lifetime at the University of Washington in the lab of Dr Russell Ross. Together, they revolutionized our understanding of the cellular mechanisms of atherosclerosis. After Dr Ross's death in 1999, Elaine took on the leadership of the lab and continued and broadened the scientific research in the field.

Working with Dr Ross, Elaine's earliest work focused on purifying and characterizing platelet-derived growth factor and its receptors. The successful purification and characterization of platelet-derived growth factor, let to a storm of insightful studies in the following years, in the biological functions of this growth factor and its receptors, had thus provided the basic evidences that interactions between growth factors and their target cells are one of the key mechanisms in wound healing, neoplasia, growth and development, and the genesis of lesions of atherosclerosis.

It is often observed in the field of growth factor biology, that the membrane-bound precursors undergo multiple activation steps, some of which involves cleavage of the precursor to generate active forms of soluble factors. Elaine's research as an independent investigator had brought her attention to a family of proteases, started with the tumor necrosis factor- $\alpha$  convertase (TACE, aka ADAM17), as well as with the matrix metalloproteinases. Her work in the field of cell surface proteases had focused on the molecular mechanisms during acute and chronic inflammatory states, by providing evidences that proteolytic activity can rapidly change the leukocyte cell surface repertoire of cytokines and their receptors, and generate soluble mediators of the inflammatory response, thus regulating scopes of cellular events during inflammation.

Elaine was an outstanding writer and a well-respected but tough reviewer of grants and manuscripts. She had a strong grasp of the literature that contributed to her insightful critiques. Elaine served on National Institutes of Health and other study sections and was appointed as Chair of AICS (Atherosclerosis and Inflammation of the Cardiovascular System) in 2014; she had also chaired the Atherosclerosis Gordon Conference in 2011.

Few of Elaine's colleagues through the decades would realize that Elaine's career path was quite unusual, in that she had not officially obtained a PhD. But this did not stop her from becoming a successful scientist. She was a key example for those who would come later with non-traditional backgrounds. That she was never honored with an honorary PhD is a missed opportunity, as such an honor was certainly deserved.

With her great energy, determination, and kindness, Elaine had touched the hearts of people around her in all aspects. She loved her native Northwest, loved the waters and the mountains. She was an avid skier and mountaineer and spent weeks every summer sailing along the Pacific Coast on the family sailboat with her husband Lee and their son Alex. Spending time with her 2 grandchildren was one of the greatest joys of her life. Elaine was renowned for the dinners and deserts she created at Chez Elaine. She was a great mentor to many young scientists, especially women scientists. Stories



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of Elaine's detailed knowledge and help with everyday issues such as childcare, kid's school choice, sports team volunteering, extracurricular information, etc are many. Every trainee who came to Seattle to work with Elaine can recall receiving the thoroughly researched information specific to their needs. Many of her colleagues from outside of Seattle recall being nurtured at critical times in their careers, as Elaine provided gentle scientific criticism, a well-timed diversion from the

stress of the scientific conferences, or opened her home that overlooked the Puget Sound which she and her late husband designed.

Elaine's passing leaves behind a legacy, the one we will miss and cherish in ways of an inspirational role model, an optimistic and hardworking colleague, a trusted friend, and a passionate human being who always put in 120% to everything she took on in life.

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