BIOGRAPHICAL SKETCH

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NAME: Kenneth Walsh, Ph.D.

eRA COMMONS USER NAME (credential, e.g., agency login): kxwalsh@bu.edu

POSITION TITLE: Professor, UVA / Director, Hematovascular Biology Center (HBC)

Personal Statement

My laboratory broadly examines the molecular events that drive cardiovascular cell growth, differentiation and cell death. A major focus has been to elucidate mechanisms of inter-tissue communication and understand how these systems contribute to physiological versus pathological tissue growth in the cardiovascular system, particularly as they relate to systemic metabolic dysfunction and cardiovascular disease (CVD).

Our recent studies have investigated how "clonal hematopoiesis" functions as a causal risk factor for cardio-metabolic diseases. Recent large exome sequencing studies in humans have shown that aging is frequently associated with the appearance of pre-leukemic, somatic mutations in the hematopoietic system that provide a competitive growth advantage to the mutant cell and allow its clonal expansion. These aberrant clonal events in the hematopoietic system have been found to be associated with greater risk of CVD. Using murine genetic models, our work suggests that there is a causal connection between clonal hematopoiesis and CVD, and we have elaborated aspects of the underlying mechanisms. This new line of investigation has provided support for a new mechanism of CVD that is reflected by our recent papers:

"Clonal hematopoiesis associated with Tet2 deficiency accelerates atherosclerosis development in mice" (J. J. Fuster, et al. (2017). ***Science*** 355:842-847. PMCID: PMC5542057).

"Tet2-mediated clonal hematopoiesis accelerates heart failure through a mechanism involving the IL-1β/NLRP3 inflammasome" (S. Sano et al. (2018). ***J Am Coll Cardiol.*** 71:875-886. PMCID: PMC5828038).

"CRISPR-mediated Gene Editing to assess the roles of Tet2 and Dnmt3a in Clonal Hematopoiesis and Cardiovascular Disease" (S. Sano et al. (2018) ***Circ. Res.*** 123:335-341 PMCID: PMC6054544).

"JAK2^{V617F}-mediated clonal hematopoiesis accelerates pathological remodeling in murine heart failure" (S. Sano et al. (2019). ***JACC Basic Transl. Sci.*** 4:684-697. PMCID: PMC6834960).

"Tet2-mediated clonal hematopoiesis in non-conditioned mice accelerates age-associated cardiac dysfunction". (Y. Wang et al. (2020). ***JCI Insight.*** 5:e135204).

"TET2 loss of function-driven clonal hematopoiesis exacerbates experimental insulin resistance in aging and obesity". (J. J. Fuster, et al. (2020). ***Cell Rep****.* In press).

Recent Positions, Employment, Etc.

2018-	University of Virginia - School of Medicine; Lockhart B. McGuire Professor; Director of the Hematovascular Biology Center (HBC); Member, Robert M. Berne Cardiovascular Research Center, Associate Member, Cancer Center
2020-	Professor, Department of Biochemistry and Molecular Genetics (UVA)
2020	Distinguished Researcher Award, University of Virginia
2020	BCVS Kenneth D. Bloch Memorial Lecturer

A partial list of my published work listed in MyBibliography:
https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40321655/?sort=date&direction=descending
Google Scholar h-index 125 (66,785 citations); Scopus h-index 107 (47,014 citations)