Introduction: Hanafusa Memorial Issue, Part 2

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To honor our mentor, Hidesaburo Hanafusa, who passed away recently, we present the second memorial issue of *Genes & Cancer* containing reviews of cutting-edge research by the Hanafusa laboratory alumni. Hidesaburo's career stands as a great example to us all: dedication to his research interests, the study of oncogenes and the molecular mechanisms of oncogenesis, and dedication to the training of his students. By assembling these review articles, we not only show our gratitude to Saburo for his stalwart mentorship, but we also seek to pay forward his legacy of inspiration for the next generation of students.

Kharas and Daley describe the discovery timeline of Src and Abl oncogenes and their oncogenic pathways, to the identification of the BCR-ABL fusion oncogene as a driver, and now, a therapeutic target in chronic myelogenous leukemia. Stacey reviews how early efforts

to dissect the roles of Ras and serum growth factors in controlling the cell cycle led to the discovery of a regulatory cascade involving cyclins, cyclin-dependent kinases, and small cyclin-dependent kinase inhibitors. Georgescu highlights the critical role of the PI3K-Akt pathway in mediating inositol-phosphate signaling during oncogenesis, and how cancer progression correlates with the loss of the PTEN phosphoinositol phosphatase, which normally serves as an antagonist of PI3K-Akt signaling. Greulich describes how "next-gen sequencing" is revolutionizing the characterization of human cancer subtypes and the manner in which these cancers will be treated. The ability to identify oncogenic mutations in KRAS and EGFR, as well as inactivating mutations in TP53 and other tumor suppressors, provides a solid rationale for cancer treatment—personalized genomics. Zheng and Blobel review the

growing field of the GATA transcription factor family, their roles in normal development, and how mutation of specific family members either promotes or suppresses cancers in humans and in mouse models. Ouchi and Ouchi discuss an emerging theme of how BRCA1 may facilitate repair of damaged DNA, and thus suppression of oncogenesis, by assembling damage-sensing proteins and transducing signals to G2/M checkpoint kinases.

We thank again the editor-in-chief of *Genes & Cancer*, E. Premkumar Reddy, for opening his new journal to our initiative. Together with Dr. Reddy, we invite other alumni of Hidesaburo Hanafusa to organize additional sets of reviews for future issues of the journal.

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Invited Editors

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