

**The 561st Kitasato Medical Society  
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**The rate of cancer progression and metastasis  
is determined by the tumor microenvironment**

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Tumors are unorganized organs that contain many different cell types that communicate with cancer cells. The central goal of our laboratory is to evaluate the role of these noncancer cells in cancer progression and metastasis. Cancer progression significantly depends on the influence of many different host cells on the genetically unstable cancer cells. Whether such host responses are recruited to control cancer progression or further aid in tumor growth (or both) is still unclear. This lecture will highlight the role of extracellular matrix, angiogenesis, fibroblast recruitment and innate immunity in cancer progression and metastasis. Kinase unlikely to be effective. In contrast, we have found that a single phosphatase variant appears to be the primary  $\alpha$ -Syn phosphatase. We have also identified a small molecule (SIG1012) that promotes the activity of this phosphatase both *in vitro* and in mice. Treatment of  $\alpha$ -Syn transgenic mice with this compound for 9 months was able to prevent many of the pathological features associated with  $\alpha$ -Syn toxicity. The above findings highlight the complexity of the mechanisms by which  $\alpha$ -Syn exerts its toxicity but they also identify opportunities for therapeutic interventions.