Editorial

Cancer Immunology Research

# A New *Cancer Immunology Research* Special Feature: Perspective from a Master of Immunology

Immune checkpoint blockade and adoptive T-cell therapy are transforming the landscape of cancer medicine and research. Blocking mAbs against the negative T-cell costimulatory molecules cytotoxic T lymphocyte–associated antigen-4 (CTLA-4) and programmed death 1 (PD-1; or its ligand PD-L1) has or will shortly enter the mainstream of cancer treatment. Durable clinical responses have been effectuated in advanced melanoma, non–small cell lung carcinoma, renal carcinoma, bladder carcinoma, and other tumor types. Clinical trials with adoptive transfer of T cells engineered to express CD19-directed chimeric antigen receptors have elicited impressive remissions in otherwise refractory acute lymphoblastic leukemias and, to a lesser extent, other B-cell malignancies. Early-stage patient trials also suggest that the prospects for adoptive T-cell therapy against a broader array of cancers are very promising.

These remarkable clinical achievements represent the fruition of decades of basic research into the functioning of the immune system. Primarily driven by a curiosity to understand how immune responses develop and are regulated, a community of investigators collectively uncovered the molecular details of T-cell biology. This work provided the foundation for crafting the current repertoire of efficacious immunotherapies, and for developing the next cadre of approaches. At a time when funding for basic science is under significant duress, it is critical to effectively tell the story of how fundamental research fuels clinical innovation, thereby improving human health.

In this didactic spirit, *Cancer Immunology Research* is pleased to introduce a new feature entitled "Perspective from a Master of Immunology." These pieces provide the opportunity for leading investigators to present a broad overview of the maturation of an important principle in cancer immunology. The ability of a master to reflect on the evolution of a nascent idea into an established concept or even an intervention that affects patients with cancer illustrates the unexpected and often circuitous paths of discovery. The fruits of basic research may take considerable time to ripen into therapeutics, but the importance of curiosity-driven inquiry for real innovation must be emphasized.

To launch this series, Harvey Cantor and Hye Jung Kim elegantly explore the underpinnings of T-cell–based cancer immunotherapy. Building on their earlier introduction to $CD4^+$ T cells in tumor immunity (1), Drs. Cantor and Kim now illuminate the major discoveries in T-cell biology that have enabled the design of potent strategies for immune-mediated tumor destruction.

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## Reference

1. Kim HJ, Cantor H. CD4 T-cell subsets and tumor immunity: the helpful and the not-so-helpful. Cancer Immunol Res 2014;2:91–8.

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