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Novel NK cell-mediated targeted immunotherapy for cancer

This presentation will address recent findings in NK cell mediated targeted therapy for cancer. Identification and characterization of NK cell receptors lead to a better understanding of the molecular basis of Natural Killer cell recognition and activation by cancer cells. NK cell functions are regulated by a delicate balance between signaling through activating receptors and inhibitory receptors. The interactions of activating receptors 2B4 (CD244), CS1 (CD319, CRACC) and LLT1 and their ligands (CD48, CS1 and CD 161) in modulating NK cytolytic function against cancer cells will be addressed. LLT1 expressed on cancer cells inhibit NK cell cytolytic function by interacting with the NK cell inhibitory receptor, NKR1A (CD161). Monoclonal antibodies against NK receptors or their ligands could be used in inducing activation signals or blocking inhibitory signals from cancer cells. Current use of anti-CS1 mAb (Elotuzumab or Huluc63) against multiple myeloma and future prospects of use of anti-LLT1 mAb against glioblastoma and prostate cancer will be discussed.

Biography

Porunelloor A Mathew received his PhD in Biochemistry in 1987 from University of Pune, India. He did Postdoctoral fellowships at University of Medicine and Dentistry of New Jersey and UT Southwestern Medical Center, Dallas in the area of regulation of gene expression. He is one of the pioneers who identified, cloned and characterized several receptors expressed on NK cells. He also identified two other novel receptors called LLT1 and CS1 (CD319) that play a role in killing of cancer cells by NK cells. He was awarded a US patent for "Immuno activation of CS1 receptor in Natural Killer cells to inhibit tumor cell growth". His research has opened new NK cell based targeted immunotherapy for cancer.

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