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Tumor control by genetically engineered CD8+ and CD4+ T cells

Immanuel Luescher

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This lecture will focus on tumor control by genetically engineered CD8+ and CD4+ T cells. A critical overview of different strategies of cancer gene therapies including adoptive transfer of autologous of CD8+ and CD4+ T cells transduced with genes coding for affinity optimized T cell receptors (TCR) or chimeric antigen receptors (CAR) will be presented. Detailed mechanistic studies will be discussed on how adoptive transfer of tumor-specific CD8+ T cells engineered to express high FasL and IFN γ expression and CAR engineered CD4+ T cells, respectively, mediate complete and permanent tumor eradication. In both cases the transferred T cells reprogrammed the tumor environment from a suppressive one to one supportive for the induction and amplification of endogenous tumor-specific T cell immunity and capable to destroy established tumors. Future perspectives will be discussed, how tumor microenvironments can be manipulated to achieve tumor control by altering balance between immunity and suppression.

Biography

Immanuel Luescher and is the head of the Molecular Immunology unit and author of over 133 peer reviewed articles. He is reviewing for different journals and committees responsible for grant allocations and recruitments. In over 25 years of research different aspects of activation and inactivation of cytotoxic CD8+ T and CD4+ T cells were investigated. More recently research is mainly focused on tumor control and reprogramming tumor micro-environments. He is president of TCMetrix a Swiss based Ltd, providing high quality soluble MHC class I and class II – peptide complexes in various formats.

The value of cytogenetics in acute myeloid leukemia

Kalliopi Manola

NCSR "Demokritos", Greece

Acute myeloid leukemia (AML) is a heterogeneous disease with a variable response to therapy. Conventional and molecular cytogenetic analysis identifies biological distinct subsets of AML that differ in their response to therapy and treatment outcome. Priority of this lecture will be given to the cytogenetic aberrations underlying AML and to the significance of Cytogenetics in AML. More specifically, it will focus on the value of Cytogenetics in diagnosis, prognosis and stratification of AML patients into favorable, intermediate or adverse risk group, as well as in treatment selection and follow-up of AML patients. This lecture will also cover the clinical features and chromosomal abnormalities according to age groups. Moreover, it will include discussion about the limitations of Cytogenetics for risk stratification of AML patients and how specific gene mutations may alter the prognosis of the cytogenetically defined risk groups of AML. In addition to these subjects, attendees of this lecture will be familiarized with the need for Cytogenetics not only as a diagnostic tool but also as a research tool. This is mainly due to the fact that the identification of chromosomal aberrations, including gene expression changes, paved the way for the identification of the genes involved which contributed to the understanding of the molecular basis of AML. At the end, this lecture will provide insights for developing new targeted treatment, adjusted for individual patient genetic profile.

Biography

Kalliopi Manola is Senior Researcher at National Centre for Scientific Research (NCSR) "Demokritos", in Athens, Greece. She works as a cytogeneticist since 1991. Her main research field of interest is conventional and molecular cytogenetic analysis of hematological malignancies, with emphasis on the identification of chromosomal abnormalities and gene rearrangements, their association with the patients' diagnosis and prognosis and their role in the pathogenesis of the disease. She is a member of European Cytogeneticists Association (ECA), European Hematology Association (EHA) and LeukemiaNET. She has authored more than 120 peer-reviewed reports.