ID der Kurzfassung : **98**

Oncolytic influenza virus infection restores immunocompetence of lung tumor-associated alveolar macrophages

Inhalt

The majority of all lung cancers belong to the subtype of non-small-cell lung carcinomas (NSCLCs), which are known to be insensitive to chemotherapy and radiation. Non-small-cell lung cancer is the most frequent type of lung cancer and demonstrates high resistance to radiation and chemotherapy. Additionally, these tumors develop a highly immunosuppressive tumor-microenvironment as an immune evasion mechanism. Genetic analysis has revealed oncogenic activation of the Ras/Raf/MEK/ERK signaling pathway to be a hallmark of NSCLCs, which promotes influenza A virus (IAV) infection and replication in these cells. Thus, we aimed to unravel the oncolytic and immunostimulatory properties of IAV infection against NSCLCs in an immunocompetent model in vivo. Using Raf-BxB transgenic mice that spontaneously develop NSCLCs based on lung-specific c-Raf onkogene expression, we demonstrated that infection with low-pathogenic IAV leads to rapid and efficient oncolysis, eliminating 70% of the initial tumor mass. Interestingly, IAV infection of Raf-BxB mice caused a functional reversion of highly immunosuppressed tumor-associated lung macrophages into a M1-like pro-inflammatory active phenotype that additionally supported virus-induced oncolysis of cancer cells. Altogether, our data demonstrate for the first time in an immunocompetent in vivo model that oncolytic IAV infection is capable of restoring and redirecting immune cell functions within the tumor microenvironment of NSCLCs, indicating that controlled infection with attenuated oncolytic IAV might be a potential approach for therapy of NSCLCs in patients.

Choose primary session

Innate Immunity

Choose secondary Session

Virus host cell interaction

Typ des Beitrags : Oral presentation