SCHOOL OF MEDICINE & DENTISTRY

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pneumonia (PCP) is an opportunistic fungal infection that causes life-threatening complications in immunocompromised, such as those with HIV/AIDS, and immunosuppressed individuals. The morbidity and mortality rates caused by PCP remains significantly high due to the growing issue of antibiotic r-3( )72antibioticNicole

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Innate-like (i)T cells express an invariant TCRα and are restricted by MHC class-like molecules. Although iT cells are gaining attention owing to their potential to regulate immune responses to a broad range of pathogens, their functions are still not fully understood. As such, there is a need for an alternative animal model. Recent findings have identified an MHC-class-I-like molecule, XNC10, in the amphibian that is required for the development and function of an innate-like T cell subset (iVα6 T cells) that expresses the invariant TCR α-chain iVα6-Jα1.43. To explore XNC10/iVα6 axis; we are using a multipronged approach, including viral infection and tumor challenge. Both XNC10 and iVα6 T cells play important roles in an effective immune response against Frog Virus 3 (FV3), a pathogen that harms natural amphibian populations worldwide. We hypothesize that during early stages of FV3 infection, the expression of XNC10 molecules increases at the surface of immune cell effectors such as neutrophils and macrophages, and that iVα6 T cells are activated by these effectors. However, it is not known whether iVα6 T-cells require activation by XNC10 to elicit an antiviral response. Although treatment with an anti-XNC 10 pAb before or just after FV3 infection did not affect survival or viral replication, it may be that this Ab is not sufficiently efficient in impairing XNC10 positive cells . Notably, previous studies revealed that in one of thymic lymphoid tumors -

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The influenza A virus (IAV) infects 10-20% of the world population annually, but current vaccine approaches continue to show poor (50% or less) levels of efficacy. Our long-term goal is therefore to improve the safety and efficacy of Live-Attenuated Influenza Vaccine (LAIV). As a first step towards this objective, we wish to understand the underlying molecular basis for the attenuation of LAIV – initially by characterizing how the mutations in the viral RNA-dependent RNA polymerase (RdRp) contribute to the temperature sensitive ( ) phenotype of LAIV. We performed viral minigenome assays in human 293 T cells at 33, 37 and 39°C, to assess the functional activity of the viral RdRp, and we also performed virus growth assays at the same temperatures, along with assays of viral virulence. For these studies, we compared both the U.S (A/Ann Arbor/6/60 [H2N2]) and Russian (A/Leningrad/134/17/57) LAIVs – by introducing the corresponding