Activity of sarecycline in murine models of infection and inflammation

S. aureus, a Gram-positive bacteria commonly found in the human gastrointestinal tract. A murine systemic (intraperitoneal) infection model was used to assess the in vivo efficacies of SAR, doxycycline (DOX), and minocycline (MIN) against S. aureus and E. coli. At 48 hours after systemic infection with S. aureus, SAR, DOX, and MIN had a protective dose to achieve 50% survival (PD50) of 0.25, 0.3, and 0.03 mg/kg, respectively. In contrast, SAR did not demonstrate in vivo efficacy against E. coli even at the highest dose (PD50 > 40 mg/kg). While DOX and MIN had a PD50 of 5.72 and 6.95 mg/kg, respectively. The anti-inflammatory efficacies of SAR, DOX, or MIN, were tested in male, Sprague-Dawley rats using a cartogenan-induced foot edema model. Mean percent inflammation at a dose of 100 mg/kg was 53.1, 36.0, and 20.5, respectively. SAR demonstrated in vivo efficacy against S. aureus but not E. coli in animals models of infection, confirming the narrow-spectrum activity observed in vitro. SAR also showed an anti-inflammatory effect comparable to DOX and MIN.

A basophil-neutrophil axis promotes itch

Although recent seminal discoveries have unearthed the neuroimmune circuitry of itch, severe, chronic itch. In addition to chronic itch, patients with AD often suffer flares of acute itch. Although there is an understanding of hormone-triggered autosalom regulatory defects, the mechanisms underlying acute itch exacerbations remain overlooked. Herein, we identify that itch. Inflammatory basophils were prone to release cellular contents and intravital histamine become entirely dispensable for acute itch flares that happen on top of chronic itch. Potential viral infections. Interestingly, newborns and the elderly have immature diurnal circadian rhythms. Although there is an understanding of homozygous autosomal recessive DOCK8 deficiency, there is limited information about simple or complex heterozygous mutations in the DOCK8 region or whether heterozygosity for DOCK8 is associated with cutaneous or systemic infections. Inclusion of heterozygous mutation analysis may improve the collective understanding of DOCK8 genetic variants. Objective: The purpose of this review is to provide useful insights into the clinical features, genetic analysis and genetic variants of DOCK8 deficiency, with particular emphasis on heterozygous DOCK8 mutations. Methods: PubMed, NCBI, and Medline were searched for scientific articles that provide information on DOCK8 deficiency. The keywords queried included “DOCK8 deficiency”, “mutations”, “heterozygous”, and “genetics”. Results: Due to the vital role that DOCK8 plays in the immune system as well as the actin cytoskeleton, the clinical hallmarks of DOCK8 deficiency are recurrent upper respiratory tract, cutaneous infections and eczema. Although most symptomatic individuals have homozygous autosomal recessive mutations, this review revealed similar clinical findings in patients with heterozygous DOCK8 mutations. Conclusion: Although individuals with heterozygous DOCK8 mutations are generally asymptomatic, recent literature highlights the vast phenotypic heterogeneity of these individuals.

Human papillomaviruses (HPVs), a group of non-enveloped small viruses with double-stranded circular DNA which lead to multiple skin diseases such as benign warts, are commonly seen in clinics. The current HPV detection systems aim mainly at mucosal HPVs, however, an efficient clinical approach for cutaneous HPVs detection is lacking. To establish a rapid detection system for cutaneous HPVs, we used a colorimetric loop-mediated isothermal amplification (LAMP) with hydroxypyrophyl fat blue (HNB) dye in combination with microfluidic technology. The lower detection limit of the LAMP assay was 104 viral DNA copies/μl when tested on synthesized L1 DNA sequences, which was better than the conventional PCR. Compared to PCR sequencing, the sensitivity of HPV27, HPV2, HPV1, HPV5, HPV7, HPV14, HPV7 and HPV75 genotypes detections were 100%, whereas the specificity was 14.55%, 45.12%, 95.85%, 98.59% and 97.62% respectively, when tested on clinical samples. The new cutaneous type HPV detection system is characterized by both a good sensitivity and specificity compared to conventional methods.