

Alpha viral infection product



Pentosan Polysulfate Sodium (PPS): anti-inflammatory disease modifying properties to treat debilitating alpha-virus induced arthritis

Partnership Opportunity:

No approved treatment for severely debilitating viral infection which results in painful arthritis. Potential to gain Fast Track or Break Through regulatory status, resulting in rapid clinical development. Currently, Paradigm has commenced a Phase 2 Trial to treat Ross River Virus induced arthralgia and in preparation for a Phase 2 trial to treat Chikungunya Virus induced arthritis.

Alphavirus infections result in the clinical symptoms of joint and muscle pain, fever and joint inflammation. Ross River Virus (RRV) and Chikungunya (CHIKV) are mosquito-transmitted arthritogenic alpha viruses that cause large scale epidemics of severe musculoskeletal disease in many countries. Currently, the use of analgesic and non-steroidal anti-inflammatory drugs provide inadequate pain relief with no effective symptomatic resolution of the arthralgia and patients are left incapacitated with symptoms persisting for many years. The therapeutic effects of PPS for the treatment of acute and chronic symptoms associated with mosquito transmitted alphavirus infections (Ross River virus (RRV) and chikungunya virus (CHIKV) were based on compelling preclinical evidence in alpha virus models and the observed clinical benefits in RRV patients with debilitating arthralgia who were treated with PPS on sympathetic requests via the Therapeutic Goods and Administration (TGA) – Special Access Scheme.

- No available effective treatment for alphavirus disease induced pain and inflammation of the joints.
- Global chikungunya virus outbreaks had been identified in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans and in the Americas and with potential economic burden.
- Potential for Fast-Track/Breakthrough/Accelerated Approval.

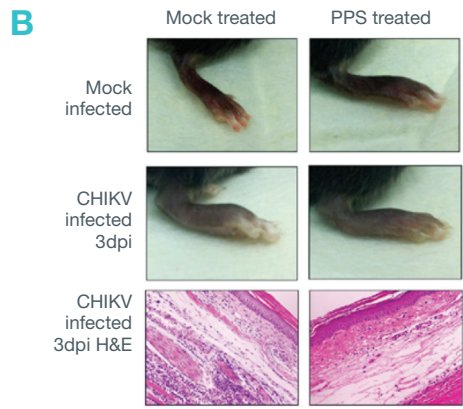
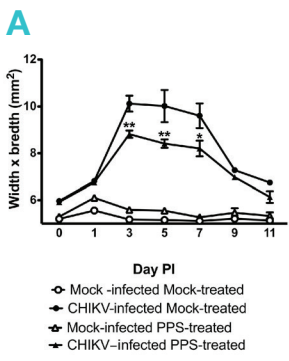
Scientific basis supporting PPS as a treatment for alpha viral induced arthritis:

- PPS significantly alleviated the severity of disease and reduced both the inflammatory response and the loss of articular cartilage in a preclinical mouse model of alpha virus infection
 - PPS increased the serum level of anti-inflammatory IL-10 and decreased the pro-inflammatory cytokines associated with alpha virus disease
 - PPS reduced inflammatory cellular infiltrates in joints of infected animals
- PPS treatment is a safe long-term treatment strategy for chronic symptoms following acute alphaviral disease.

Preclinical data demonstrating efficacy of PPS in alpha virus arthralgia treatment (Herrero et al 2015; J. Virol. doi:10.1128/JVI.00224-15).



PPS treatment resulted in a significant reduction in swelling. Histological analysis showed PPS treatment decreased the level of inflammatory infiltrates in CHIKV-infected mouse joints at peak swelling 3 days post-infection.



PPS-treatment alters soluble mediators of inflammation in CHIKV-induced disease. Increases the anti-inflammatory cytokine IL-10 but reduces the level of inflammatory cytokines.

