



## Novel Therapy for Herpes Virus Infection

**The Challenge:** Human herpes simplex virus-1 (HSV-1), a herpes virus family member, is treatable with oral doses of an antiviral agent such as acyclovir (ACV), a drug which has poor bioavailability. An alternative method for delivering ACV would be to employ a long-lived subcutaneous implant that would allow for near zero-order drug delivery kinetics.

**UMBI Solution:** UMBI Scientists have demonstrated that an implantable drug delivery device which is composed of a matrix of silicone containing material in combination ACV is effective for the treatment of Herpes virus infections. This technology can be effectively applied to other therapeutic compounds in an amount that will effectively treat HSV-1, HSV 2 and/or VZV or reduce reactivation. Here, the implantable drug delivery device is positioned at or near the site of latent infection or at the site of observed clinical symptoms. The therapeutic compound may include any active anti-herpes agent including acyclovir, guanosine, valacyclovir or functionally active analogues.

### Commercial Applications:

- Long-term therapy for HSV-1 (labial herpes), HSV-2 (genital herpes), and VZV (shingles) outbreak.
- Potential veterinary applications for feline herpes outbreaks that lead to blindness or other recurrent morbid or mortal veterinary herpes infections.

### Advantages:

- This novel delivery system results in higher local concentration of drug compared to systemic delivery.
- It obviates the need for large oral doses that end up distributing acyclovir throughout the patient.
- Lower quantities of overall daily dose mean lower chance for off-site side effects.
- Obviates need for high level of patient compliance.
- Implant delivers constant level of drug at zero-order release rate for at least 60 days in mice, obviating the need for multiple oral daily dosing.

**Stage of Development:** Proven to work in vivo with experimentally infected mice, where protection from recrudescence was shown to be statistically significant. Studies also done in guinea pigs, as experimental model for HSV-2 genital infections.

**Licensing Potential:** UMBI is seeking exclusive licensees to all or part of this technology. The inventors would welcome the opportunity to work with any licensee to further refine or extend the capabilities of this invention.

**Patent Status:** Pending PCT application.

**Relevant Publication:**

- Johnson TP, Frey R, Modugno M, Brennan TP, Margulies BJ, “Development of an aciclovir implant for the effective long-term control of herpes simplex virus type-1 infection in Vero cells and in experimentally infected SKH-1 mice”, Int J Antimicrob Agents. 2007 Nov;30(5):428-35. Epub 2007 Sep 11.

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