



Defeating Infection Ecology: Novel OTC Treatments to Clear Recalcitrant Skin and Nail Infections

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Unmet Need

Topical infections in the body can often be cleared by common topical antibiotics or antifungal agents, but certain types of these infections can be very recalcitrant. For example, certain Staph infections can in some circumstances become very aggressive, leading to amputations and even death due to the uncontrolled systemic expansion. Antibiotic resistance is the most fearsome character of such infections, where new approaches to exert control and eradication are needed. Fungal infections of the nail (onychomycosis) do not pose such risks, but they are extremely common and represent an unmet need for effective eradication. Onychomycosis is most often in toenails, therefore presenting clinically most often at podiatry practices, where it poses a difficult challenge but also an emotional concern to patients and their caregivers.

Opportunity

Taking a radically new approach to eradicate topical infections, LIMR researchers have developed a set of topical over-the-counter (OTC) formulations of safe and effective agents. Their new approach is based on the concept of treating the infection ecology, which includes not only the microbial agent but also (1) the local supportive microbiome for the microbe, and (2) the local supportive tissue microenvironment of the host. In particular, the immune microenvironment that has been subverted by the microbiome is addressed. This strategy is conceptually similar to successes achieved in other medicinal areas, where local stimulation of the immune system itself can be sufficient to eradicate disease.

Unique Attributes

The unique attribute of this anti-infective technology is the combination approach it takes to eradicate infection. By focusing not just on the causative microbe(s), which is the traditional approach, LIMR's technology also seeks to correct the local 'micro-malbiome' or MMB which sets the local ecology in which the causative microbe takes hold. Further, the technology also applies a simple approach to restore a proper inflammatory attitude toward the MMB, which together act to limit the ability of effectiveness of simple topical antimicrobials.

In summary, by defeating the ecology of the infection which helps support its pathogenicity, LIMR's OTC formulations are better situated to eradicate skin and nail infections that are difficult to clear.

Clinical Applications

These technologies have broad application in the OTC marketplace, having already achieved proof of concept to eradicate plantar warts that are difficult to clear. LIMR's concept to jointly treat the MMB and inflammatory microenvironment with the causative microbe offers a generalized strategy for any topical infection, including various skin bacterial or fungal infections or nail fungal infections.

Additionally, these technologies offer a novel adjuvant strategy to address aggressive infections such as MRSA, which can be disfiguring or deadly, or topical parasite infections, by relieving local immune suppression created by the parasite to evade host immunity.

Stage of Development

These formulations are ready for preparation and sale, as they are composed of agents already available in the U.S. OTC and / or generally regarded as safe (GRAS categorization) by the U.S. FDA.

Intellectual Property

A PCT patent on the technology is pending.

References and Publications

None as yet.

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