Ultrasound Enhanced Drug-Delivery for Treatment of Nail Fungus

*Narrative*

Nail fungus causes nails to thicken, turn yellow or cloudy in appearance. This disease has proven to cause pain, discomfort and social embarrassment in patients. Systemic treatments for nail fungus have dangerous side-affects such as elevated liver function tests and hepatitis. Topical treatments for nail fungus take many months to work and only work for a small percentage of patients. Topical treatments are ineffective, because of the low permeability of the nail’s surface.

GW researchers applied the ultrasound mediated drug delivery for treatment of nail fungus. The ultrasound treatment increases permeability of the nail, so the drug can penetrate. The proof of concept achieved shows penetration of a drug-mimicking dye though a pig nail and that the ultrasound applied does not have problems with thermal safety. Next steps are tests on human nails and with a clinically applicable anti-fungal drug.

**Applications:**

- Treatment of nail fungus

**Advantages:**

- Increased nail permeability for effective drug delivery
- Ability to use topical treatment with little to no side effects

**Inventors**

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