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Stars and Drugs, a classic combination: Stellate Amoebae vs Killer Compounds

Acanthamoeba is a genus of free-living amoebae that opportunistically infect humans and can cause several diseases, most commonly the sight threatening *Acanthamoeba* Keratitis (AK).

In AK, the cornea is invaded by *Acanthamoebae* and unless quickly treated, a slow, painful destruction of the corneal stroma follows, as the amoebae use it for a food source.

AK is often diagnosed late and is refractory to treatment due to the chemically resistant cyst stage of *Acanthamoeba* and the challenging nature of bioavailability of drug in the corneal environment.

The cure rate of the most effective treatment (PHMB 0.02%) is poor (84% after a year of treatment) and average resolution time is very long at an average of 5 months (Papa *et al.* 2020) and in the majority of cases there is some degree of sight loss. Treatment outcome is highly variable, and the treatment often results in adverse effects that can result in treatment halts. The need for improved therapeutics is clear.

Several different isolates of *Acanthamoeba* with different genotypes and/or presenting different morphotypes were exposed to a panel of currently used and experimental therapeutic compounds, to investigate the therapeutic response of genetically and morphologically distinct *Acanthamoebae*. The amoebae tested include clinical isolates from AK cases sent to the Diagnostic Parasitology Laboratory at LSHTM and Type-culture collection cultures from ATCC and CCAP.

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Papa, V., Rama, P., Radford, C., Minassian, D.C. and Dart, J.K., 2020. *Acanthamoeba* keratitis therapy: time to cure and visual outcome analysis for different anti-amoebic therapies in 227 cases. *British Journal of Ophthalmology*, 104(4), pp.575-581.