

## TRANSDERMAL CHOLECALCIFEROL RODENTICIDE

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**Abstract** A genetic resistance to anticoagulants, and bait shyness, have made baited approaches to rodent management less effective. Baiting approaches rely on the rodent to consume the anticoagulant; however, there is no guarantee that effective amounts of the rodenticide will be ingested. The consequence of this sub-lethal dosing has been the natural selection of resistant strains. There is thus a need for an alternative to anticoagulant rodenticides which differs in active ingredient and manner of delivery. Through the development of an in-vitro in-vivo model we present an optimized, cholecalciferol based, transdermal rodenticide. The liquid rodenticide is designed for application to the back of the rodent, via an aerosol, allowing the delivery of cholecalciferol through the rat's skin. A laboratory efficacy evaluation was performed with the new rodenticide, conducted inline with European and Mediterranean Plant Protection Organization (EPPO) guidelines (EPPO 1998), in which 100% efficacy was achieved. This is greater than the 90% efficacy (European Commission 2009) deemed 'sufficiently effective' by EU Regulation No 528/2012 (European Commission 2012). The results signify the first steps in the approval of an alternative to anticoagulant baiting which both negates resistance and bait shyness by delivering acute doses of cholecalciferol through the dermis.