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### Original Article

#### Protein Profiling on Meglumine Antimoniate (Glucantime®) Sensitive and Resistant *L. tropica* Isolates by 2-Dimensional Gel Electrophoresis: A Preliminary Study

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#### Abstract:

Background: Glucantime® is the first-line drug for the treatment of all forms of leishmaniasis. Unfortunately, the prevalence of parasites becoming resistant to Glucantime® is increasing in several parts of the world including Iran. As protein is the most important target for drugs in response to a variety of signals including drugs so, it seems expression protein patterns in sensitive and resistant *Leishmania* parasites could greatly help us about the mechanisms of responses to antileishmanial drugs. In this study, we used 2-dimensional gel electrophoresis (2-DE) method to determine protein expression profiles between drug (Glucantime®) sensitive and resistant *Leishmania tropica* isolated from Iranian anthroponotic cutaneous leishmaniasis (ACL) patients.

Methods: We used from the two confirmed genetically of Glucantime® sensitive (Mash-4) and resistant (Mash-927) field strains of *L. tropica*, isolated from ACL patients in north eastern Iran. The two *Leishmania* isolates were cultured, promastigotes were harvested followed by protein extraction using TCA/Aceton to study protein profiling, 2-DE was done and gels stained with silver nitrate.

Results: At least 2236 distinct protein spots were detected. Twelve spots out of them, showed significant changes in expression in resistant compared to sensitive isolates. Of these, 11 protein spots were up- and one was down-regulated.

Conclusions: This preliminary study has showed that a number of proteins differentially expressed in drug (Glucantime®) resistance *L. tropica* and probably the role of these proteins are increasing the parasite resistance against the drug and delay in cell death.

#### Keywords:

[2 Dimensional gel Electrophoresis \(2 DE\)](#) , [Protein profiling](#) , [L. tropica](#) , [Glucantime®](#) , [Resistant](#) , [Sensitive](#) , [Iran](#)

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