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Overexpression of MRPA in *Trypanosoma brucei* resistant field isolates

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The multidrug resistance protein MRPA is a large hydrophobic membrane protein and therefore made some methodological problems. Former experiments showed it to be a promising candidate in conferring resistance at least for the arsenical drug melarsoprol and its active metabolite melarsen-oxide. In vitro it could be shown that the overexpression of MRPA in trypanosomes is possible and leads to up to 50 fold resistance against these drugs.
The generated polyclonal antibody detected MRPA clearly and distinct which was proven best by RNAi that showed a clear depletion of the bands in question.
In wild type cells though the antibody could only hardly detect MRPA expression. MRPA therefore doesn't seem to be abundant in wild-type *Trypanosoma*. In field isolates from patients that were defined resistant to melarsoprol treatment in the past no significant overexpression of MRPA could be shown. Hence MRPA doesn't play an important role in the drug resistance against melarsoprol and melarsen-oxide in these field isolates, and other mechanisms and/or their combination have to be taken into account for the emergence of high level resistance in the field.