Accepted Manuscript

Fructose-1,6-bisphosphate aldolase of *Mycoplasma bovis* is a plasminogen-binding adhesin

Xiang Gao, Shijun Bao, Xiaoyong Xing, Xiaoping Fu, Yi Zhang, Huiwen Xue, Fengqin Wen, Yanming Wei

PII: S0882-4010(18)30946-X

DOI: 10.1016/j.micpath.2018.08.032

Reference: YMPAT 3117

To appear in: Microbial Pathogenesis

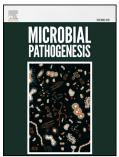
Received Date: 23 May 2018

Revised Date: 14 August 2018

Accepted Date: 18 August 2018

Please cite this article as: Gao X, Bao S, Xing X, Fu X, Zhang Y, Xue H, Wen F, Wei Y, Fructose-1,6-bisphosphate aldolase of *Mycoplasma bovis* is a plasminogen-binding adhesin, *Microbial Pathogenesis* (2018), doi: 10.1016/j.micpath.2018.08.032.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



ACCEPTED MANUSCRIPT

- 1 Fructose-1,6-bisphosphate aldolase of Mycoplasma bovis is a
- 2 plasminogen-binding adhesin
- 3 Xiang Gao^a, Shijun Bao^{a*}, Xiaoyong Xing^a, Xiaoping Fu^a, Yi Zhang^a, Huiwen
- 4 Xue^a, Fengqin Wen^a, Yanming Wei^a
- ^a College of Veterinary Medicine, Gansu Agricultural University, 1 Yingmencun,
- 6 Lanzhou 730070, China.
- 7 Abstract: Mycoplasma bovis is an extremely small cell wall-deficient pathogenic
- 8 bacterium in the genus *Mycoplasma* that causes serious economic losses to the cattle
- 9 industry worldwide. Fructose-1,6-bisphosphate aldolase (FBA), a key enzyme in the
- 10 glycolytic pathway, is a multifunctional protein in several pathogenic bacterial species,
- but its role in *M. bovis* remains unknown. Herein, the FBA gene of the *M. bovis* was
- amplified by PCR, and subcloned into the prokaryotic expression vector pET28a(+) to
- generate the pET28a-FBA plasmid for recombinant expression in *Escherichia coli*
- 14 Transetta. Expression of the 34 kDa recombinant rMbFBA protein was confirmed by
- 15 electrophoresis, and enzymatic activity assays based on conversion of NADH to
- 16 NAD+ revealed Km and Vmax values of 48 µM and 43.8 µmol/L/min, respectively.
- 17 Rabbit anti-rMbFBA and anti-M. bovis serum were generated by inoculation with
- 18 rMbFBA and *M. bovis*, and antigenicity and immunofluorescence assay demonstrated
- that FBA is an immunogenic protein expressed on the cell membrane in *M. bovis* cells.
- 20 Enzyme-linked immunosorbent assays revealed equal distribution of FBA in the cell
- 21 membrane and cytoplasm. Complement-dependent mycoplasmacidal assays showed
- 22 that rabbit anti-rMbFBA serum killed 44.1% of M. bovis cells in the presence of
- 23 complement. Binding and ELISA assays demonstrated that rMbFBA binds native
- bovine plasminogen and in a dose-dependent manner. Fluorescent microscopy
- 25 revealed that pre-treatment with antibodies against rMbFBA decreased the adhesion
- of *M. bovis* to embryonic bovine lung (EBL) cells. Furthermore, adherence inhibition
- 27 assays revealed 34.4% inhibition of *M. bovis* infection of EBL cells following

^{*} Correspondence: bsjdy@126.com College of Veterinary Medicine, Gansu Agricultural University, 1 Yingmencun, Lanzhou 730070, China.

Download English Version:

https://daneshyari.com/en/article/10129691

Download Persian Version:

https://daneshyari.com/article/10129691

Daneshyari.com