



Cairo University

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A Trial for Preparation of Mucosal Vaccine for Foot and Mouth Disease Virus

A Thesis Submitted By

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(B.V.Sc., Cairo University (2012))
For The Degree Of
M.V.Sc.
(Virology)

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2017



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ABSTRACT

Mucosal vaccines for foot and mouth disease virus are expected to block viral entry, thus, limiting (FMDV) spread in the cattle herd. Immunization strategy based on both mucosal and systemic immunity platforms is greatly needed to control FMD. In this study, several immunization strategies, using two foot and mouth disease vaccine formulations, including Montanide ISA 206 oil - based FMD inactivated vaccine and Montanide IMS 1313 VG N PR - based concentrated semi-purified FMD mucosal vaccine were applied. Results of intra nasal immunization with the prepared FMD mucosal vaccine given, once or twice, induced IgA levels in both nasal and salivary secretions besides a high response of lymphocyte proliferation with protection levels reaching 20% and 40%, respectively, in a challenge trial in cattle. Prime boost strategy based on the administration of mucosal vaccine followed by inactivated vaccine appeared to be the most potent strategy, achieving 100% protection against an FMDV challenge. Indeed, the study reports the efficacy of the prepared IMS 1313 FMD mucosal vaccine and the possible use of this vaccine in the context of different vaccination strategies to control FMDV.

Keywords: FMDV; mucosal vaccine; immunization strategy; prime boost.

Dedication

For

My amazing father,

My wonderful mother,

Marwa,

Mohamed,

and

My adorable friends

Acknowledgement

I am greatly indebted in all my work and success to our merciful (ALLAH)

*My chief supervisor **Prof. DR. Hussein Ali Hussein** Professor of virology, faculty of veterinary medicine, Cairo University, You have been and will always be my role model, I am so grateful for your guidance and advice without you it would not have been possible to achieve anything. I can't describe how your passion supported me. Am so proud to be your student.*

*I would like to express my sincere gratitude to **DR. Ayman H.El Deeb**, lecturer of Virology, Faculty of Veterinary Medicine, Cairo University for his kindness support and continuous encouragement. Am speechless for your assist especially in the writing material.*

*I am so thankful for my God father **Prof. Dr.Sayed Zeidan**. Chief researcher and director of Serum and vaccine Research Institute, Abbsia, Cairo. Thanks For being always beside me and giving me the chance to carry out this work and for always supporting and giving me hand whenever needed.*

*Words are not expressive at all for **Dr. Hany Abu El Naga** researcher at Foot and mouth disease Department Serum and vaccine Research Institute, Abbsaia, Cairo. Thanks a lot for your precious time and effort and teaching me passion in every single step of my work. Speechless for being there for me all the time. I owe you every step in my career.*

*I give my sincere acknowledge to **Dr.safaa**, **Dr. Sonia** and **Dr.Abo bakr Aggour** chief researchers at Foot and mouth disease department Serum and vaccine Research Institute, Abbsia, Cairo. For facilitating all the difficulties facing me*

*Thanks to all members of (CLEVB) for all scientific support in the lab especially **Prof. Dr. Mohamed Saad** and **DR. Darwish Mahmoud***

I am highly indebted to all staff members and my colleagues at the foot and mouth disease department, Veterinary serum and Vaccine research institute.

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