Immuno-Proteomic Profiling of Excretory-Secretory Proteins of Taenia solium Metacestode

A Thesis

Submitted by

Naina Arora

(D15025)

For the award of the degree of

DOCTOR OF PHILOSOPHY

Under the supervision of

Dr. Amit Prasad

School of Basic Sciences

Indian Institute of Technology Mandi

Mandi, Himachal Pradesh, India-175001

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भारतीय प्रौद्योगिकी संस्थान मण्डी
मण्डी–175001, हिमाचल प्रदेश, भारत

Declaration by the Research Scholar

I hereby declare that the entire work embodied in this Thesis is the result of investigations carried out by me in the **School of Basic Sciences**, Indian Institute of Technology Mandi, under the supervision of **Dr. Amit Prasad**, and that it has not been submitted elsewhere for any degree or diploma. In keeping with the general practice, due acknowledgements have been made wherever the work described is based on finding of other investigators.

Place: Mandi, Himachal Pradesh Signature:

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मण्डी–175001, हिमाचल प्रदेश, भारत

Declaration by the Research Advisor

I hereby certify that the entire work in this Thesis has been carried out by **Ms. Naina Arora,** under my supervision in the **School of Basic Sciences,** Indian Institute of Technology Mandi, and that no part of it has been submitted elsewhere for any Degree or Diploma.

Signature:

Name of the Guide: Dr.Amit Prasad

Date:

Dedicated

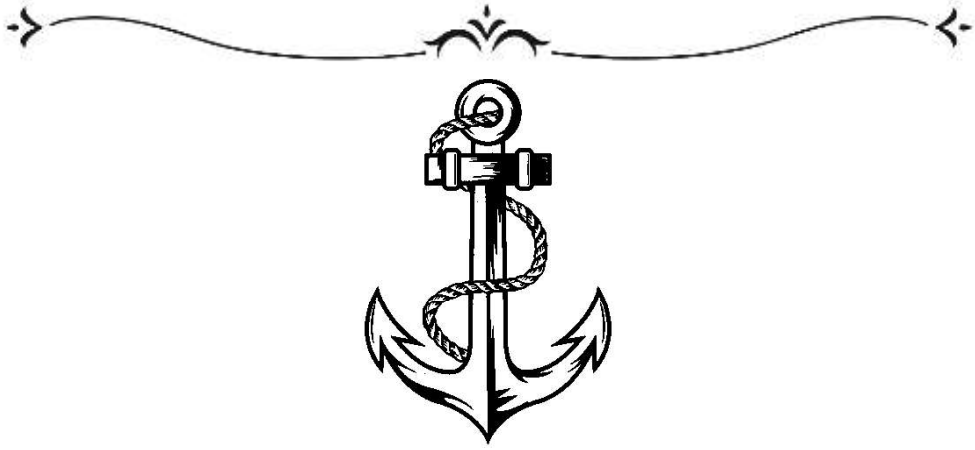
to

my

superheroes

♥

Mom & Dad



To,

My Mentor

Dr. Amit Prasad,

Dear Sir,

गुरुर्ब्रह्मा ग्रुरुर्विष्णुः गुरुर्देवो महेश्वरः ।

गुरुः साक्षात् परं ब्रह्म तस्मै श्री गुरवे नमः ॥

त्वमेव माता च पिता त्वमेव ।
त्वमेव बन्धुश्च सखा त्वमेव ।
त्वमेव विद्या द्रविणम् त्वमेव ।
त्वमेव सर्वम् मम देव देव ॥

Whatever I am and I shall be,

my failures and my success

I owe it to you !

Yours Sincerely,

Naina

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I hope this research work benefits the Neurocysticercosis patients and Taenia solium endemic region in some way or the other. May almighty bless the patients and lessen their suffering.

Naina Arora

Abbreviations

α	Alpha
AE	Active epilepsy
β	Beta
bp	Base pair
BSA	Bovine serum albumin
°C	Degree centigrade
CF	Cysts fluid*
CL	Crude lysate
Cm	Centimeter
CNS	Central nervous system
DC	Disease control
DEPC	Di ethyl pyrocarbonate
EDTA	Ethylene diamine tetra acetic acid
epK	Eukaryotic protein Kinase
EITB	Enzyme linked immunoelectrotransfer blot
ELISA	Enzyme linked immunosorbent assay
ESP	Excretory secretory proteins
FCS	Fetal calf serum
x g	Gravity
γ	Gamma
gm	Gram
h	Hours
HC	Healthy control
HMM	Hidden markove model
H_2O_2	Hydrogen peroxide
HRP	Horse radish peroxidase
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IL2	Interleukin 2
kDa	Kilodalton
kHz	Kilo hertz

L	Liter
M	Molar
$MgCl_2$	Magnesium chloride
mg	Milligram
min	Minutes
miR	microRNA
MW	Molecular weight
µl	Microliter
µg	Microgram
µm	Micrometer
µM	Micromole
NCC	Neurocysticercosis
O.D.	Optical density
PAGE	Poly acryl amide gel electrophoresis
PBS	Phosphate buffered saline
PBMCs	Peripheral blood mononuclear cells
PCR	Polymerase chain reaction
PHA	Phytohaemagglutinin
PMSF	Phenyl methyl sulphonyl fluoride
PRR	Pattern recognition receptor
RPM	Rotations per minute
RT-PCR	Reverse transcriptase polymerase chain reaction
SDS	Sodium dodecyl sulphate
Sec	Seconds
TBE	Tris- borate –EDTA
TE	Tris-EDTA
TMB	Tetramethylene benzidine
TLR	Toll like receptor
UV	Ultra-violet light
VF	Vesicular fluid*
WBCs	White blood cells
w/v	Weight by volume

*same,used interchangeably

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