

CURRICULUM VITAE

NAME: DR. SHEILA NATHAN, *FASc, FRSB, FTWAS*

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EDUCATION:

1984 – 1988	BSc (Biochemistry) (First Class Hons) Universiti Kebangsaan Malaysia
1988 - 1989	MSc (Molecular Biology & Genetic Manipulation) (Distinction) University of Sussex, United Kingdom
1989 - 1993	DPhil (DNA Repair) University of Sussex, United Kingdom

SPECIALIZATION: Microbial Genomics and Molecular Biology

AREAS OF RESEARCH: Microbial pathogenesis and host interaction

CAREER DEVELOPMENT:

1990 – 1993	Tutor, Faculty of Life Sciences, Universiti Kebangsaan Malaysia
1993 – 2000	Lecturer, Faculty of Life Sciences, Universiti Kebangsaan Malaysia
1997 – 1998	Visiting Fulbright Scholar & Research Associate, The Scripps Research Institute, La Jolla, California, U.S.A.
2000 – 2008	Associate Professor, Faculty of Science & Technology, Universiti Kebangsaan Malaysia
2004 – 2005	Visiting Scientist, Department of Pathology, University of Cambridge, United Kingdom
2008 - 2023	Professor, Faculty of Science & Technology, Universiti Kebangsaan Malaysia
2009 - 2013	Director (Comparative Genomics and Genetics Research Centre), Malaysia Genome Institute, National Institutes for Biotechnology Malaysia
2016 – 2017	Programme Head for Bioinformatics, Faculty of Science and Technology, Universiti Kebangsaan Malaysia
2016 – 2021	Programme Head for Biotechnology with Management, Faculty of Science & Technology, Universiti Kebangsaan Malaysia
2016 – 2021	Programme Head for Plant Biotechnology, Faculty of Science & Technology, Universiti Kebangsaan Malaysia

CURRENT POSITION: Retired Professor of Molecular Microbiology

AWARDS

1. Excellence Service Award (UKM) – 1997, 2000, 2005, 2014, 2019
This is an award given by the Government of Malaysia to civil servants who have excelled in terms of their work performance for a calendar year.

2. Fulbright Scholar Award (Council for International Exchange of Scholars, U.S.A.) - 1997/8
Awarded by the Fulbright Commission USA to pursue a research programme / visiting lectureship at an American Institution of Higher Learning or Research.
3. National Academic Award (Journal Publication (Science)) – 2014
Awarded by the Government of Malaysia for excellence in scientific publishing amongst university academics: only one award is presented every year.
4. Eminent Academic Figure Award (FST, UKM) - 2014
Awarded by the Faculty of Science & Technology, Universiti Kebangsaan Malaysia in recognition of contribution to research.
5. Highflyer Researcher Award (UKM) – 2016
Awarded by Universiti Kebangsaan Malaysia for contributions to research and postgraduate training; only one award per faculty.
6. Fellow of the Academy of Sciences Malaysia – 2017
Awarded by the Academy of Sciences Malaysia for outstanding individual achievements in science, engineering and technology
7. MSBMB President's – Tan Sri Dato' Kong Hon Kong Award – 2019
Inaugural recipient of the award given by the Malaysian Society for Biochemistry and Molecular Biology to a biochemist or molecular biologist who has made important contributions to the field of Biochemistry and Molecular Biology at the international level
8. Malaysian Society for Microbiology Award – 2019
Awarded for excellent and outstanding contributions towards Microbiology research, publications, teaching, outreach at the international and national levels, and to the Malaysian Society for Microbiology
9. Fellow of the Royal Society of Biology United Kingdom – 2022
Elected by the Royal Society of Biology United Kingdom for outstanding individual achievements in biological sciences
10. Fellow of The World Academy of Sciences - 2025
Elected by The World Academy of Sciences (TWAS) for outstanding contribution to science and its promotion in the developing world

RESEARCH AWARDS:

1. ITEX bronze medal recipient – 2003
2. ITEX silver medal recipient - 2004
3. UKM Research & Innovation Expo, Silver Medal - 2005
4. Biotechnology Asia, Bronze Medal - 2005
5. UKM Research Innovation Award: Melioidosis Diagnostic Kit (Winner)- 2013

SCHOLARSHIPS / FELLOWSHIPS

1. Kuok Foundation (Malaysia) Scholar - 1988
2. British High Commissioner's Chevening Scholar – 1988 & 1990

3. CVCP (UK) Overseas Research Studentship Award – 1989-1992
4. Universiti Kebangsaan Malaysia Postgraduate Scholarship – 1990-1992
5. Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB) Travel Fellowship - 1995
6. Cold Spring Harbor Laboratory Training Fellowship (U.S.A.) - 1996
7. Ministry of Science, Technology & Innovation Malaysia Research Fellowship, 2005

ACADEMIC COURSES TAUGHT AT UNDERGRADUATE AND POSTGRADUATE LEVELS

Undergraduate (1993 – 2023)

- Scientific Communication
- Microbial Genetics
- Molecular Biology
- Immunology
- Recombinant DNA Technology I
- Recombinant DNA Technology II
- Biochemistry Practical
- Gene Expression
- Biochemical Techniques
- Effective Communication
- Critical Thinking and Problem Solving

Postgraduate (2006 – 2023)

- Current Developments in Molecular Biology
- Experimental Methodology
- Molecular Mechanisms of Pathogenesis

INTERNATIONAL-LEVEL CONTRIBUTIONS

No.	Body	Position / Role	Duration
1.	Federation of Asian and Oceanian Biochemists and Molecular Biologists	• Country Delegate • Chair Fellowships Committee • Member, Gender Equality Committee • Acting Secretary General • Secretary-General	2002 – 2003 2009 - 2013 2014 – 2017 2014 – 2023 2015 – 2016 2018 - 2024
2.	Monash University Australia	• External Examiner for PhD thesis • External reviewer Biomedical Sciences Programme • External reviewer for academic appointments and promotions	2011 - 2023 2011 2013 - 2023

3.	BBSRC UK	Research grants expert review panel	2018
4.	Wellcome Trust UK	Research grants expert review panel	2011 – 2023
5.	Medical Research Council UK	Research grants expert review panel	2012 – 2023
6.	Cariplo Foundation Italy	Research grants expert review panel	2011 - 2023
7.	Austrian Science Fund (FWF) Austria	Research grants expert review panel	2014 - 2023
8.	Swiss National Science Foundation (SNF)	Research grants expert review panel	2016 - 2023
9.	BMC Genomics	Editor	2015 – 2023
10.	Manuscript peer reviewer 2000 - 2023 PLoS Pathogens, PLoS Genetics, PLoS Negl Trop Dis, PLoS ONE, Virulence, BMC Genomics, Microb Pathogen, Vaccine, Enzy. Microb. Tech., J Trop. Plant Physio., J. Infect. Dis., Proteomics, In Silico Biol., EJCMID, BMC Infect Dis., Vet J, Emerg. Infect. Dis., Microbiology, Can J. Microbiol., Future Microbiol., Microb. Immunol., Plant Foods Hum. Nutr. J., FSIM, Sc. Reports, Infect. Immun., FEMS Micro. Lett., Nature Microbiol., Peer J., Acta Tropica, Genome Biol & Evolution, Frontiers Microbiol., Gene, Infection and Drug Resistance, BMC Medicine, Bioscience Reports, ACS Infectious Diseases, BMC Immunology, Biofouling, Nature Comm., NPJ Vaccines, Vet Parasit., Microb Genomics, Appl. Environ. Microbiol., Mol Biol Reports, Biotech Adv, Microbiol. Spectrum		
11.	International Biology Olympiad	Malaysian Team Leader and International Jury Panel	2015
12.	International Melioidosis Network	Member Executive Committee	2014 – current 2017 – 2024
13.	ScienceAsia	Editorial Board Member	2018 - current
14.	UKRI	Research grants expert review panel	2024
15.	TWAS	- Research Fellowship expert review panel - Membership Advisory Committee (Biological Sciences) member	2024 - current 2025 - 2027

NATIONAL-LEVEL CONTRIBUTIONS

No.	Body	Position / Role	Duration
1.	Malaysia Genome Institute	• Research Director • Coordinator Bioinformatics Facility • Coordinator Protein Expression and Purification Facility • Coordinator Ministry of Science, Technology and Innovation Advanced Training Programme • Head, <i>C. elegans</i> Research Facility	2009 – 2013 2001 – 2005 2006 – 2013 2003 – 2013 2005 – 2023
2.	Ministry of Science, Technology & Innovation	• Review panel, S&T Human Resource Development Programme • Research grants expert review panel • Member of the Bioeconomy Council Malaysia	2002 – 2003 2002 – 2023 2017 – 2019
3.	Malaysian Society for Biochemistry and Molecular Biology	• Executive Council Member • Honorary Secretary • Vice President • President • Advisor	1994 – 2024 1995 – 1997, 2003 – 2007 2007 – 2009 2009 – 2013 2015
4.	Malaysian Journal for Biochemistry and Molecular Biology	• Editorial Board Member • Editor-in-Chief • Editorial Board Member	1997 – 2009 2009 – 2013 2015 – 2024
5.	Fulbright Alumni of Malaysia	• Honorary Treasurer • Member	2005 – 2009 1998 – current
6.	Universiti Sains Malaysia	• External examiner for PhD candidates • External examiner for MSc candidates • External reviewer for academic appointments • Interview panel for academic promotions	2004 – 2023 2001 – 2023 2014 – 2023 2016
7.	Universiti Putra Malaysia	• External examiner for PhD candidates	2004 – 2023

		• External examiner for MSc candidates • Reviewer R, D & C Research Expo • External panel for academic promotions • External reviewer for MSc programme accreditation	2002 – 2023 2010 – 2012 2015 – 2023 2019 - 2020
8.	Universiti Malaya	• Reviewer R, D & C Research Expo • External examiner for PhD candidates • External examiner for MSc candidates • Expert review panel for High Impact Research (HIR) grants	2011 - 2013 2007 – 2023 2003 – 2023 2012 - 2023
9.	Universiti Malaysia Sarawak	External examiner for MSc candidates	2010
10	Universiti Teknologi Malaysia	External reviewer for academic appointments	2010 – 2023
11.	Universiti Sultan Zainal Abidin	External reviewer for academic appointments	2014 – 2023
12.	Universiti Malaysia Terengganu	• External reviewer for academic appointments • External reviewer Biological Sciences Programme	2011 – 2023 2014 – 2023
13.	University College Sedaya International (UCSI)	• External reviewer Applied Sciences Postgraduate Programme • External examiner for MSc candidates	2013 – 2014 2015 - 2023
14.	Perdana – Johns Hopkins University	Member, Board of Studies	2013
15.	INTI International University	Curriculum reviewer and exam moderation panel	2009 – 2023
16.	Taylor’s University Malaysia	• External reviewer for academic appointments • Research grants expert review panel	2013 – 2023 2014 - 2023
17.	Universiti Tuanku Abdul Rahman	External reviewer for academic appointments	2014 – 2023
18.	Kuok Foundation	Review panel for Graduate Fellowships	2008 – 2013
19.		Manuscript peer reviewer	1998 – 2023

MJBMB, Sains Malaysiana, MAB Journal, Pertanika, Trop. Biomed., TLSR Journal, Mal. J. Micro., JTAFS ASM Sc Journal, J Bioscience

20.	Permata Pintar Negara	Convener of the Malaysian Biology Olympiad	2015 - 2018
21.	Ministry of (Higher) Education	• Member of the National Academic Award (Journal Publication) Selection Committee • Review Panel for HiCOE • Interview panel for MOHE Fellowships • Review Panel for Distinguished Professors • Technical expert for MyLab research funds	2016 - 2023 2016 2016 2018 2018 - 2019
22.	Academy of Science Malaysia	• Review panel for research grants • Review panel for Mahathir Science Award • Member of the Precision Medicine Initiative for Malaysia • Membership Committee for the selection of ASM Fellows and Top Research Scientists • Chair, RBS Medical Trust Fund Committee • Advisor, RBS Medical Trust Fund Committee	2018 - 2023 2020 2018 - 2023 2018 - current 2021 - 2025 2025 - 2027
23.	Universiti Pendidikan Sultan Idris	• Member, Scientific Panel, Biosafety Research Ethics Committee	2018 - 2021

MAJOR RESEARCH PROJECTS:**AS PROJECT LEADER:**

No	Title	Role	Duration	Quantum (RM*)
1	Development of diagnostics for direct detection of <i>Burkholderia pseudomallei</i>	Sub-project Leader	1993-2000	1,078,000
2	p53 as a molecular biomarker for UV-induced skin diseases	Project Leader	1996-2001	317,000
3	Identification of novel protease inhibitors	Project Leader	1999-2001	107,000
4	Construction of recombinant antibodies against the proteins of <i>Toxoplasma gondii</i>	Sub-project Leader	1999-2003	155,000
5	Expression and evaluation of recombinant insect toxins from <i>Bacillus thuringiensis</i>	Project Leader	2000-2003	156,072
6	Identification of novel bacterial and viral peptide inhibitors	Project Leader	2000-2006	1,346,225
7	Transgenic rubber tree resistant to <i>Corynespora cassiicola</i>	Sub-project Leader	2004-2006	345,000
8	Dissecting the host-pathogen enigma: the case for <i>Burkholderia pseudomallei</i>	Project Leader	2005-2015	10,200,000
9	Identification of novel molecular signatures as potential drug targets for diseases in fisheries and livestock	Project Leader	2007-2011	3,100,800
10	Identification of biopharmaceuticals against infectious agents using <i>Caenorhabditis elegans</i> as a model system	Sub-project Leader	2008-2013	446,000
11	Elucidating the gaharu resin and other biosynthetic pathways by large scale transcriptome and metabolite profiling	Project Leader	2012-2014	500,000
12	High throughput screen of synthetic and small molecules as anti-infectives	Project Leader	2012-2014	466,400
13	Understanding bacterial intracellular survival and emergence of virulence	Project Leader	2012-2015	101,000
14	Comparative genomics of clinical and environmental <i>Burkholderia pseudomallei</i> to understand emergence of virulence	Project Leader	2013-2015	418,400
15	Microbial methylomics: understanding methylation-mediated regulation in endemic model systems	Project Leader	2014-2016	250,000
16	<i>Burkholderia pseudomallei</i> virulence: towards understanding pathogenesis and host-pathogen response	Project Leader	2016-2017	200,000
17	Mapping the <i>Burkholderia pseudomallei</i> transcriptional profile in different niches to understand pathogenicity	Project Leader	2016-2019	89,000
18	Understanding the diabetes-melioidosis co-morbidity	Project Leader	2017-2019	70,000

19	Structure-function analysis of <i>Burkholderia</i> proteins as drug targets	Co- Project Leader	2017-2021	1,231,306
20	<i>Burkholderia pseudomallei</i> biofilm extracellular polymeric proteins as potential targets for inhibitor design	Project Leader	2021-2024	100,000
21	Dual expression profile analysis of mouse- <i>B. pseudomallei</i> infection to understand diabetes-melioidosis co-morbidity	Project Leader	2021-2024	103,710

AS PRINCIPAL INVESTIGATOR:

No	Title	Role	Duration	Quantum (RM*)
1	Gene structure and function studies on the protease gene of <i>Burkholderia pseudomallei</i>	Principal Investigator	1996-2002	1,105,000
2	Pathotyping of Newcastle Disease virus and development of diagnostics	Principal Investigator	2000-2006	2,000,000
3	Microbial genomics for natural product discovery	Principal Investigator	2001-2007	6,000,000
4	The effect of conformation on fungal cutinase function	Principal Investigator	2001-2007	246,682
5	Structural genomics of extremophilic proteins	Principal Investigator	2003-2006	400,000
6	Development of repeatable protein arrays using RAPID-M technology	Principal Investigator	2006-2010	9,000,000
7	Structural genomics of <i>Burkholderia pseudomallei</i> essential genes and transcription factors	Principal Investigator	2007-2011	3,500,000
8	Omp-based melioidosis vaccine development	Principal Investigator	2011-2013	260,000
9	Next generation genomics of Malaysian bioresources: Exploring the enigmatic biology of <i>Rafflesia</i> sp., <i>Garcinia mangostana</i> and lichens via transcriptome and metagenome sequence analysis	Principal Investigator	2010-2013	500,000
10	RNA interference-mediated silencing effects of genes involved in longevity, DNA repair. and locomotion of <i>Caenorhabditis elegans</i> exposed to microgravity and orbital forces.	Principal Investigator	2012-2015	528,000
11	The cancer genome atlas (TCGA): molecular networks for improving diagnosis and treatment of cancers	Principal Investigator	2015-2020	2,370,000
12	Structural and functional characterization of <i>B. pseudomallei</i> essential proteins of host infection	Principal Investigator	2018-2020	143,000
13	<i>Burkholderia pseudomallei</i> in chronic relapse melioidosis: understanding evolution, adaptation and pathogenic persistence using genomics and proteomics approaches	Principal Investigator	2021-2023	100,000

PUBLICATIONS:

BOOKS

1. Sylvia Chieng and **Sheila Nathan**. 2021 *Burkholderia pseudomallei*: Jangkitan dan Pengesanan. ISBN 978-967-251-309-4. Penerbit Universiti Kebangsaan Malaysia

BOOK CHAPTERS

1. **Sheila Nathan**. 2005. Recombinant Antibodies: Biology and Application. In: Selected Issues in Biotechnology. pp. 16-29. ISBN No. 983-2975-36-0
2. Noor Izaanin, Lee Yook Heng and **Sheila Nathan**. 2009. Recent Progress in Chemical Sensor and Biosensor Research Series II: 37-44. UKM: Ampang Press
3. Wong P S, **Sheila Nathan** and Lee Yook Heng. 2009. Recent Progress in Chemical Sensor and Biosensor Research Series II: 97-102. UKM: Ampang Press
4. Ifor Beacham, Yuka Hara, **Sheila Nathan** and Ian Peak. 2012. Virulence determinants in *Burkholderia pseudomallei*: Opportunistic or accidental pathogen? In: Melioidosis – A Century of Observation and Research. pp. 87-98 (ed. N. Keethesan, Elsevier) ISBN No. 978-0-444-53479-8.
5. Yuka Hara and **Sheila Nathan**. 2015. Outer membrane proteins and potential candidate vaccine targets. In: Post-genomic Approaches in Drug and Vaccine Development pp. 277-322. (eds. K. Sakharar, M. Sakharar and R. Chandra, River Publishers) ISBN No. 978-87-93102-84-2.
6. **Sheila Nathan**, Sylvia Chieng, Paul Vijay Kingsley, Anand Mohan, Yuwana Podin, Mong-How Ooi, Vanitha Mariappan, Kumutha Malar Vellasamy, Jamuna Vadivelu, Sylvia Daim and Soon-Hin How. 2019. Melioidosis in Malaysia: Incidence, clinical challenges, and advances in understanding pathogenesis. In: Global Burden and Challenges of Melioidosis pp. 109-127. (eds. D. Limmathurotsakul and DAB Dance, MDPI Books) ISBN No. 978-3-03897-742-1.
7. **Sheila Nathan**. 2022. Harnessing the power of phage display to engineer antibodies: A Californian experience. In: Bridging Cultures: Reflections of UKM Fulbright Scholars Experiences. (eds. K.A. Mastor and K.A. Talib, UKM Press) ISBN 978-967-251-815-0

PEER-REVIEWED JOURNALS

1. R. Mohamed, **Sheila Nathan**, G. Ismail and Noor Embi. 1989. Inhibition of protein synthesis in macrophage cells by exotoxin of *Pseudomonas pseudomallei*. *Microbiol. Immunol.* 33:518-533. 1.304
2. **Sheila Nathan**. 1995. DNA repair disorders: A review. *Sains Malaysiana*. 24(3): 1-18.
3. **Sheila Nathan**, Y.L. Chin, S. Chandrasekaran, S.M. Sharifah Hamidah, R. Mohamed and Noor Embi. 1997. Specificity of serum polyclonal antibodies towards the exotoxin of *Burkholderia pseudomallei*. *Mal. J. Biochem. & Mol. Biol.* 1:14-18.
4. Chiu H.F., P.M. Kok, R. Mohamed, Noor Embi and **Sheila Nathan**. 1999. Purification and characterisation of monoclonal antibodies towards exotoxin of *Burkholderia pseudomallei*. *Mal. J. Biochem. & Mol. Biol.* 4:20-24.
5. Li H. and **Sheila Nathan**. 1999. Antibody Engineering. *Mal. J. Biochem. & Mol. Biol.* 4:1-7.
6. Cheong S.C., K. Sidik, S. Hussein and **Sheila Nathan**. 1999. Analysis of p53 mutations in Malaysian skin disorders. *Mal. J. Dermatol.* 12:13-20.
7. **Sheila Nathan**, A. van Hoffen, L H.F. Mullenders and L.V. Mayne. 1999. Gene-specific repair of 6-4 photoproducts in trichothiodystrophy cells. *J. Biochem. & Mol. Biol.* 32(6): 554-560.
8. **Sheila Nathan**, A. van Hoffen, L.H. Mullenders and L. Mayne. 2000. Gene-specific repair of pyrimidine dimers in trichothiodystrophy cells. *Sains Malaysiana*. 29:19-31.
9. **Sheila Nathan**, R.P. Pillai, K.Y. Lai, R. Mohamed and Noor Embi. 2000. Monoclonal

- antibodies towards the exotoxin of *Burkholderia pseudomallei*. *J. Biochem., Mol. Biol. & Biophys.* 4:17-25.
10. C. Rader, G. Ritter, **Sheila Nathan**, M. Elia, I. Gout, A.A. Jungbluth, L.S. Cohen, S. Welt, L.J. Old and C.F. Barbas. 2000. The rabbit antibody repertoire as a novel source for the generation of therapeutic human antibodies. *J. Biol. Chem.* 275:13668-13676.
 11. J.M.L. Ling, **Sheila Nathan**, K.H. Lee and R. Mohamed. 2001. Expression and characterisation of a *B. pseudomallei* serine metalloprotease from a recombinant *E. coli*. *J. Biochem. & Mol. Biol.* 34(6): 509-516
 12. A. S.C. Chin, S.C. Cheong, K. Sidik, S. Hussein and **Sheila Nathan**. 2001. Multiplex PCR for the detection of mutations in the *p53* and *hprt* genes. *Mal. J. Biochem. & Mol. Biol.* 6:25-29.
 13. **Sheila Nathan**, H. Li, R. Mohamed and Noor Embi. 2002. Production and characterization of recombinant antibodies towards exotoxin of *Burkholderia pseudomallei*. *J. Biochem., Mol. Biol & Biophysics.* 6:45-53
 14. W.L. Kok, **Sheila Nathan**, K. Yusoff and W.S. Tan. 2002. Construction and display of the HBV PreS domain on bacteriophage M13 and T7. *J. Biochem., Mol. Biol & Biophysics.* 6:55-58.
 15. P. Ramanujam, W.S. Tan, **Sheila Nathan** and K. Yusoff. 2002. Novel peptides that inhibit the propagation of Newcastle disease virus. *Arch. of Virology.* 147:981-993.
 16. Y. C. Su, K. P. Lim and **Sheila Nathan**. 2003. Bacterial expression of the scFv fragment of a recombinant antibody specific for *Burkholderia pseudomallei* exotoxin. *J. Biochem. & Mol. Biol.* 6:25-29.
 17. T. L. Yap, C. Y. Chin and **Sheila Nathan**. 2003. Characterization of the phage coat protein (pIII) gene subcloned into pComb3X. *Mal. J. Biochem. & Mol. Biol.* 8:54-58.
 18. S. C. Cheong and **Sheila Nathan**. 2003. p53 – Guardian of the genome. *Mal. J. Biochem. & Mol. Biol.* 8:1-11.
 19. N. A. Shaharuddin and **Sheila Nathan**. 2003. Pembinaan dan pencirian antibody scFv terhadap protease rekombinan *Burkholderia pseudomallei*. *Sains Malaysiana* 30: 51-64.
 20. P. Ramanujam, W.S. Tan, **Sheila Nathan** and K. Yusoff. 2004. Pathotyping of Newcastle Disease virus with a filamentous bacteriophage. *BioTechniques.* 36(2):296-303.
 21. W.S. Tan, P. Ramanujam, **Sheila Nathan** and K. Yusoff. 2004. Effect of pH and temperature for the binding of a fusion phage to Newcastle Disease virus. *Mal. J. Biochem. & Mol. Biol.* 9:35-37.
 22. K.P. Lim, H. Li and **Sheila Nathan**. 2004. Expression and purification of a recombinant scFv towards the exotoxin of the pathogen, *Burkholderia pseudomallei*. *J. Microbiol.* 42: 126-132.
 23. S.W. Chan, G.I. Ong and **Sheila Nathan**. 2004. Neutralizing chimeric mouse-human antibodies against *Burkholderia pseudomallei* protease: Expression, purification and characterization. *J. Biochem. & Mol. Biol.* 37: 556-564.
 24. S.W. Chan and **Sheila Nathan**. 2005. Epitope mapping of *Burkholderia pseudomallei* serine metalloprotease: Identification of serine epitope mimics. *FEMS Microbiol. & Immunol.* 43: 37-44.
 25. K.P. Lim, R. Mohamed, Noor Embi and **Sheila Nathan**. 2005. Purification of a *Burkholderia pseudomallei* antigen via affinity chromatography. *Asia Pac. J. of Mol. Biol. & Biotech.* 13: 71-78.
 26. L.N. Hoe, K.L. Wan and **Sheila Nathan**. 2005. Construction and characterization of recombinant single chain variable fragment antibodies against *Toxoplasma gondii* MIC2 protein. *Parasitol.* 131: 759-768.
 27. **Sheila Nathan**, C. Rader and C.F. Barbas. 2005. Neutralization of *Burkholderia pseudomallei* protease by Fabs generated through phage display. *Biosc. Biotech. Biochem.* 69:2302-2311.
 28. **Sheila Nathan**, T.L. Yap and M.S.F. Sa'arwijaya 2005. *Burkholderia pseudomallei* secretes metallo and serine protease in culture. *Mal. J. Biochem. & Mol. Biol.* 11:13-19.
 29. **Sheila Nathan**, D.H.A. Aziz and N.M. Mahadi. 2006. Phage displayed *Bacillus thuringiensis* Cry1Ba4 toxin is toxic to *Plutella xylostella*. *Curr. Microbiol.* 53:412–415.

30. T.C. Lee, K. Yusoff, **Sheila Nathan** and W.S. Tan. 2006. Detection of virulent Newcastle Disease virus using a phage capturing dot-blot assay. *J. Virol. Methods*. 136:224–229.
31. C.E. Chong, B.S. Lim, **Sheila Nathan** and R. Mohamed. 2006. In silico analysis of *Burkholderia pseudomallei* genome sequence for potential drug targets. *In Silico Biol.* 6: 31 - 34.
32. **Sheila Nathan**, S. Chieng and Y.C. Su. 2006. Cloning, expression and characterization of *Burkholderia pseudomallei* M23B peptidase. *Mal. J. Biochem. & Mol. Biol.* 14: 33-37.
33. C.Y. Chin, R. Othman and **Sheila Nathan**. 2007. The *Burkholderia pseudomallei* serine protease MprA is auto-proteolytically activated to produce a highly stable enzyme. *Enzyme and Microb. Tech.* 40:370-377.
34. S.H. Lee, C.E. Chong, B.S. Lim, S. J. Chai, K. K. Sam, R. Mohamed and **Sheila Nathan**. 2007. *Burkholderia pseudomallei* animal and human isolates from Malaysia exhibit different phenotypic characteristics. *Diag. Microbiol. Infect. Dis.* 58:263-273.
35. B-S Lim, C-E. Chong, **Sheila Nathan** and Rahmah Mohamed. 2007. Genome-wide prediction and annotation of AraC/XylS family transcription regulator in *Burkholderia pseudomallei* by using the Hidden Markov Model. *In Silico Biol.* 7: 0026-0030.
36. M-P Nyon, David W. Rice, John M. Berrisford, Hua-Zhang Huang, Arthur J.G. Moir, C. Jeremy Craven, **Sheila Nathan**, Nor Muhammad Mahadi and Farah Diba Abu Bakar. 2008. Crystallization and preliminary X-ray analysis of recombinant *Glomerella cingulata* cutinase. *Acta Crystallogr Sect F Struct Biol Cryst Commun.* 1; 64(Pt 6):504-8.
37. Y-C Su, K.L. Wan, R. Mohamed and **Sheila Nathan**. 2008. A genome level survey of *Burkholderia pseudomallei* immunome expressed during infection. *Microb. Infect.* 10: 1335-1345.
38. M-P Nyon, David W. Rice, John M. Berrisford, Andrea M. Hounslow, Arthur J.G. Moir, Huazhang Huang, **Sheila Nathan**, Nor Muhammad Mahadi, Farah Diba Abu Bakar and C. Jeremy Craven. 2009. Catalysis by *Glomerella cingulata* cutinase requires conformational cycling between the active and inactive states of its catalytic triad. *J. Mol. Biol.* 385:226-235.
39. E. Sunderasan, Rusni A Kadir, Valerie P-Renaud, HY Yeang and **Sheila Nathan**. 2009. Single-chain variable fragments antibody specific to *Corynespora cassicola* toxin, cassiicolin, reduces necrotic lesion formation in *Hevea brasiliensis*. *J. Gen. Plant Pathol.* 75:19-26.
40. Hara Y, Mohamed R and **Sheila Nathan**. 2009. Immunogenic *Burkholderia pseudomallei* outer membrane proteins as potential candidate vaccine targets. *PLoS ONE* 4(8): e6496.
41. Zeti AMH, Shamsir MS, Tajul-Arifin K, Merican AF, Mohamed R, **Sheila Nathan**, Nor Muhammad Mahadi, Suhaimi Napis and Tin W. Tan. 2009. Bioinformatics in Malaysia: Hope, initiative, effort, reality, and challenges. *PLoS Comput Biol* 5(8): e1000457.
42. Lokanathan Y, A. Mohd-Adnan, K-L Wan and **Sheila Nathan**. 2010. Transcriptome analysis of the *Cryptocaryon irritans* tomont stage identifies potential genes for the detection and control of cryptocaryonosis. *BMC Genomics* 11:76.
43. Yu-Ching Su, Kiew-Lian Wan, Rahmah Mohamed and **Sheila Nathan**. 2010. Immunization with the recombinant *Burkholderia pseudomallei* outer membrane protein Omp85 induces protective immunity in mice. *Vaccine* 28:5005-5011.
44. Chui-Yoke Chin, Denise M Monack and **Sheila Nathan**. 2010. Genome wide transcriptome profiling of a murine acute melioidosis model reveals new insights into how *Burkholderia pseudomallei* overcome host innate immunity. *BMC Genomics.* 11:672.
45. R. Jamal, J. Nurul-Faizah, S.M. Then, **Sheila Nathan**, N.J. Szewczyk, L.S. Stodieck, R. Harun. 2010. Gene expression changes in space flown *Caenorhabditis elegans* exposed to a long period of microgravity. *Gravitational and Space Biology* 23(2): 85-86.
46. Song-Hua Lee, Soon-Keat Ooi, Nor Muhammad Mahadi, Man-Wah Tan and **Sheila Nathan**. 2011. Complete killing of *Caenorhabditis elegans* by *Burkholderia pseudomallei* is dependent on prolonged direct association with the viable pathogen. *PLoS ONE* 6(3):e16707.
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 137. Revathy Arushothy, Mohammad Ridhuan Mohd Ali, Hana Farizah Zambri, Vickneshwaran Muthu, Rohaidah Hashim, Sylvia Chieng and **Sheila Nathan**. 2024. Assessing the National Antibiotic Surveillance data to identify burden for melioidosis in

- Malaysia. *IJID Regions*. 10:94-99.
138. Ainulkhair Hussin, **Sheila Nathan**, Muhammad Ashraf Shahidan, Mohd Yusof Nor Rahim, Mohamad Yusof Zainun, Nurul Aiman Nafisah Khairuddin and Nazlina Ibrahim. 2024. Identification and mechanism determination of the efflux pump subunit *amrB* gene mutations linked to gentamicin susceptibility in clinical *Burkholderia pseudomallei* from Malaysian Borneo. *Molecular Genetics & Genomics*. 299:12 - 24.
 139. Md Lasim A, Mohd Ngesom AM, **Sheila Nathan**, Abdul Razak F, Abdul Halim M, Mohd-Saleh W, Zainul Abidin K, Mohd-Taib FS. 2024. Bacterial community profiles within the water samples of leptospirosis outbreak areas. *PeerJ* 12:e17096
 140. Uthaya Kumar, A., Ahmad Zan, M., Ng, CL. Sylvia Chieng and **Sheila Nathan**. 2024. Diabetes and infectious diseases with a focus on melioidosis. *Current Microbiology* 81: 208.
 141. Diajeng Sekar Adisuri, Priya Madhavan, Pei Pei Chong and **Sheila Nathan**. 2024. Antifungal activity of piperine-based nanoemulsion against *Candida spp.* via in vitro broth microdilution assay. *Journal of Pharmaceutical Sciences* 113(9):2843-2850.
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 145. Ali Ashrafzadeh, Noor Liana Mat Yajit, **Sheila Nathan**, Iekhsan Othman and Saiful Anuar Karsani. 2025. Comprehensive study of sperm proteins and metabolites potentially associated with higher fertility of Zebu Cattle (*Bos indicus*) in tropical areas. *Journal of Proteome Research*. 24(1):368-380.
 146. Revathy Arushothy, Norazlah Bahari, Punitha Manoharan, Mohammad Ridhuan Mohd Ali, Siti Nur Zawani Rosli, Nazirah Samsuddin, Nur Sulhi Ilani Che Unik, Fairuz Amran, Ratna Mohd Tap, Rohaidah Hashim and **Sheila Nathan**. 2025. Tracing the environmental source of fatal community-acquired pneumonia and sepsis caused by *Burkholderia pseudomallei*. *Infection, Genetics and Evolution*. 133: 105788.
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 150. Chan, Y.-T., Rizkita, A.D., Hsieh, H.-J., Hsu, S.-F., Lin, T.E., Huang, W.-J., Hsu, K.-C., **Sheila Nathan**, Chang, P., Wang, A.H.-J. and Lee, C.-C. 2026. Mechanistic insights into HapC: A key enzyme in prodiginine biosynthesis in *Hahella chejuensis*. *FEBS J*. <https://doi.org/10.1111/febs.70518>.
 151. Galvin Steven Sebastian, Barathan Muttiah, Noraziah Mohamad Zin, **Sheila Nathan**, Kumutha Malar Vellasamy and Vanitha Mariappan. 2026. Combating *Burkholderia*

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NUMBER OF POSTGRADUATE STUDENTS SUPERVISED (up to December 2025):

Program	Status	As a Main Supervisor	As a Co-supervisor
PhD	Graduated	17	6
	Ongoing	0	1
Masters (with thesis)	Graduated	21	15
	Ongoing	0	1

PhD Students (as main supervisor)

Name	Project Title	Current Position / Status
Sok-Ching Cheong	Analysis of p53 mutations in Malaysian skin disorders	Chief Scientific Officer, Cancer Research Malaysia (CRM) & Adjunct Professor, University of Malaya, Malaysia
Yu-Ching Su	<i>Burkholderia pseudomallei</i> immunome expressed during infection	Associate Professor, University of Malmo, Sweden
Mun-Peak Nyon	Structure-function analysis of the <i>Glomerella cingulate</i> cutinase	Team Leader, Thermo Fisher Inc., St. Louis, USA
Song-Hua Lee	Host-pathogen interaction of <i>Burkholderia pseudomallei</i> using a <i>Caenorhabditis elegans</i> model	Team Leader, Thermo Fisher Inc., Brussels, Belgium
Chui-Yoke Chin	Understanding <i>Burkholderia pseudomallei</i> host-pathogen interaction in a mouse melioidosis model	Project Manager, Laboratory Corporation of America, Atlanta, USA
Yock-Ping Chow	Immunogenic <i>Eimeria tenella</i> glycosylphosphatidylinositol-anchored surface antigens (SAGs)	Senior research fellow, Sunway University, Kuala Lumpur, Malaysia
Sylvia Chieng	<i>Burkholderia pseudomallei</i> transcriptional adaptation in macrophages	Senior Lecturer, Universiti Kebangsaan Malaysia, Selangor, Malaysia
Yogeswaran Lokanathan	Transcriptome analysis of the <i>Cryptocaryon irritans</i> tomtom stage for detection and control of cryptocaryonosis	Associate Professor, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
Mohsen Arefnejad	Characterisation of <i>B. cepacia</i> complex soil isolates	Assistant Professor, Mashhad University of Medical Sciences, Mashhad, Iran

Yee Wai Yan	Proteome profile of <i>C. elegans</i> infected by <i>B. pseudomallei</i>	Medical Science Liaison, Merck Sharp & Dohme, Singapore
Douglas Law	Development of alternative heterologous protein expression systems	Associate Professor, INTI International University Nilai, Negeri Sembilan
Ali Ashrafzadeh	Comparative analysis of Mafriwal (<i>Bos taurus</i> × <i>Bos indicus</i>) and Kedah Kelantan (<i>Bos indicus</i>) sperm proteome	Application Solution Product Support and Technical Marketing Engineer, Agilent Technologies, California, USA
Cin Kong	Anti-infectives against <i>Staphylococcus aureus</i> using a <i>Caenorhabditis elegans</i> infection model	Assistant Professor, Nottingham University Malaysia Campus, Semenyih, Malaysia
Mei-Perng Lim	Nematode antimicrobial peptides effective against <i>Burkholderia pseudomallei</i>	Post-doctoral Fellow, Washington State University, USA
Rui-Rui Wong	UGT-29::GFP nematode biosensor to screen for potential <i>Burkholderia pseudomallei</i> toxins	Senior Lecturer, INTI International University Nilai, Negeri Sembilan
Su-Anne Eng	Anti-infectives against <i>Burkholderia pseudomallei</i> using a <i>Caenorhabditis elegans</i> infection model	Senior Ecommerce Manager, SNS Network (M) Sdn. Bhd., Perak, Malaysia
Yee-Chin Wong	Identification of essential genes of <i>Burkholderia pseudomallei</i> and <i>B. cenocepacia</i>	Educator, INTI International University, Selangor, Malaysia
Chee-Hoo Yip	A synthetic biology approach to express <i>Serratia marcescens</i> prodigiosin	Bio-Rad Laboratories, Hong Kong
Ahmad Kamal Ghazali	<i>Burkholderia pseudomallei</i> virulence: Towards understanding pathogenesis and host-pathogen response	Technical Specialist, Apical Scientific Sdn Bhd
Revathy Arushothy	Characterization of <i>Burkholderia pseudomallei</i> isolates from Malaysia and genomic analysis of the common sequence types	Scientific Officer, Institute for Medical Research Malaysia

EXTERNAL INVITATIONS AS KEYNOTE / PLENARY / INVITED SPEAKER:

1. Institute for Medical Research Advanced Technologies in Healthcare R&D Seminar, Kuala Lumpur, Malaysia 2001
2. SEAMEO-TROPED Diploma in Medical Microbiology, Institute for Medical Research, Kuala Lumpur, Malaysia 2001
3. SEAMEO-TROPED Diploma in Medical Microbiology, Institute for Medical Research, Kuala Lumpur, Malaysia 2003
4. MSc Programme at the Department of Biochemistry, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia 2006
5. Visiting Scientist Seminar, Monash University Malaysia, Malaysia 2007
6. 34th Malaysian Society for Biochemistry and Molecular Biology Annual Conference, Malaysia 2009
7. Malaysian Society for Microbiology Annual Conference, Malaysia 2009
8. 14th US-Japan Emerging Infectious Diseases Conference, Penang, Malaysia 2010
9. 1st Functional Genomics and Structural Biology Symposium, Putrajaya, Malaysia 2011
10. 1st INFORMM Postgraduate Conference, Kelantan, Malaysia 2011

11.	Malaysia Genome Institute Official Opening, Bangi, Malaysia	2011
12.	International Conference of the Malaysian Society for Microbiology, Penang, Malaysia	2011
13.	19 th Annual MSMBB Conference, Kuala Lumpur, Malaysia	2012
14.	13 th Federation of Asian and Oceanian Biochemists and Molecular Biologists Congress, Bangkok, Thailand	2012
15.	Visiting Professor Seminar, Department of Molecular Biology & Biotechnology, University of Sheffield, United Kingdom	2013
16.	International Conference of the Malaysian Society for Microbiology, Langkawi, Malaysia	2013
17.	39 th Malaysian Society for Biochemistry and Molecular Biology Annual Conference, Sepang, Malaysia	2014
18.	Immunology Symposium, Universiti Putra Malaysia, Serdang, Malaysia	2014
19.	International Congress on Pathology & Laboratory Medicine & 48 th Malaysia-Singapore Congress of Medicine, Kuala Lumpur, Malaysia	2014
20.	FAOBMB / HKSBMB Mini Symposium, Hong Kong	2014
21.	21 st Annual MSMBB Conference, Sunway, Selangor, Malaysia	2014
22.	Workshop on Exploiting Physical Properties of Nanomaterials for Tackling Infectious Diseases, Hanoi, Vietnam	2014
23.	Workshop on Grant Proposal Writing, INTI International University, Nilai, Malaysia	2014
24.	Infections 2015, Putrajaya, Malaysia	2015
25.	14 th Postgraduate Students Colloquia, Universiti Kebangsaan Malaysia, Bangi, Malaysia	2015
25.	Annual Scientific Meeting of CPATH AMM & 40 th Anniversary Celebrations of the Pathology Advocates, Kuala Lumpur, Malaysia	2015
26.	International Conference on Natural Products 2016, Terengganu, Malaysia	2016
27.	Joint Seminar in Science and Technology for ASEAN Community (STAC) 2016, Songkla, Thailand	2016
28.	Malaysian Society for Microbiology Postgraduate Seminar 2016, Bangi, Malaysia	2016
29.	FAOBMB Workshop for Sri Lankan Biochemists, Colombo, Sri Lanka	2016
30.	4 th National Permata Nobel Mindset Workshop 2016, Selangor, Malaysia	2016
31.	Workshop on Effective Manuscript Writing, Bangi, Malaysia	2016
32.	Open seminar, School of Sciences Monash University Malaysia, Sunway, Malaysia	2016
33.	Workshop on Effective Publishing, Bangi, Malaysia	2017
34.	Workshop on Effective Supervision, Bangi, Malaysia	2018
35.	Regional Conference on Molecular Medicine, Kuala Lumpur, Malaysia	2018
36.	International Conference of the Indonesian Society for Biochemistry and Molecular Biology, Surabaya, Indonesia	2018
37.	Malaysia Agricultural Proteomics Society Meeting, Serdang, Malaysia	2018
38.	Malaysian Society for Microbiology Symposium, Penang, Malaysia	2018
39.	MSM-ASM Workshop on Scientific Writing, Bangi, Malaysia	2018
40.	Workshop on Scientific Writing, UKM, Bangi, Malaysia	2019
41.	MSBMB Presidential Award Lecture, Kuala Lumpur, Malaysia	2019
42.	Malaysian Society for Microbiology Award Lecture, Seremban, Malaysia	2019
43.	28 th FAOBMB Conference, Colombo, Sri Lanka	2020
44.	Workshop on Scientific Writing, UKM, Bangi, Malaysia	2021
45.	UniSZA International Webinar-Symposium on "The -Omics Revolution in Medicine and Health Sciences	2021
46.	Swinburne University Sarawak Postgraduate Research Conference, Kuching, Malaysia	2023
47.	UMBI-UKM Research Scholar Guest Lecture, Kuala Lumpur, Malaysia	2023
48.	ISBMB Research Symposium, Yogyakarta, Indonesia	2024

MEMBERSHIP OF SOCIETIES:

Malaysian Society for Biochemistry and Molecular Biology	Member	1993 - 2013
Malaysian Society for Biochemistry and Molecular Biology	Life Member	2013-current
Malaysian Society for Biochemistry and Molecular Biology	Executive Committee Member	1995 - 2024
Malaysian Society for Microbiology	Life Member	2011 - current
Malaysian Society for Applied Biology	Member	2000 -current
American Society for Microbiology	Member	2009 -2024
International Society for Computational Biology	Life Member	2012 -current
International Melioidosis Network	Member	2016 -current
International Melioidosis Network	Executive Committee Member	2017 - 2024

INTERNATIONAL LINKAGES

1. The Scripps Research Institute, La Jolla, California, USA
2. Department of Pathology, University of Cambridge, United Kingdom
3. Laboratory of Molecular Biology, Cambridge, United Kingdom
4. King Abdullah University of Science & Technology, Kingdom of Saudi Arabia
5. Department of Molecular Biology and Biotechnology, University of Sheffield, United Kingdom
6. Department of Genetics, Stanford School of Medicine, Stanford University, USA
7. Department of Immunology, Stanford School of Medicine, Stanford University, USA

PATENTS FILED & GRANTED

No.	Patent Name	Application Serial Number	Country	Date	Inventors
1	<i>Burkholderia pseudomallei</i> Outer Membrane Protein 85	201002328-1	Singapore	5 April 2010	Yu-Ching Su, Sheila Nathan , Kiew-Lian Wan, Rahmah Mohamed
2	<i>Burkholderia pseudomallei</i> Outer Membrane Protein A	200808749-6	Singapore	26 Nov 2008	Sheila Nathan , Rahmah Mohamed, Yuka Hara
3	<i>Burkholderia pseudomallei</i> Outer Membrane Protein A	PI20082707	Malaysia	21 July 2008	Sheila Nathan , Rahmah Mohamed, Yuka Hara
4	<i>Burkholderia pseudomallei</i> Outer Membrane Protein 85	1001000573	Thailand	1 April 2010	Yu-Ching Su, Sheila Nathan , Kiew-Lian Wan, Rahmah Mohamed
5	<i>Burkholderia pseudomallei</i> Outer Membrane Protein 85	2010201487	Australia	14 April 2010	Yu-Ching Su, Sheila Nathan , Kiew-Lian Wan, Rahmah Mohamed
6	<i>Burkholderia pseudomallei</i> Outer Membrane Protein 85	PI20091793	Malaysia	4 May 2009	Yu-Ching Su, Sheila Nathan , Kiew-Lian Wan, Rahmah Mohamed
7	Monoclonal Antibodies towards the Exotoxin of <i>Burkholderia pseudomallei</i>	200704861-4	Singapore	28 June 2007	Sheila Nathan , Rahmah Mohamed, Lim Kue Peng, Li Hong Bin, Mohamed Noor Embi
8	Monoclonal Antibodies towards the Exotoxin of <i>Burkholderia pseudomallei</i>	0701003568	Thailand	17 July 2007	Sheila Nathan , Rahmah Mohamed, Lim Kue Peng, Li Hong Bin, Mohamed Noor Embi
9	Monoclonal Antibodies towards the Exotoxin of <i>Burkholderia pseudomallei</i>	2007203519	Australia	27 July 2007	Sheila Nathan , Rahmah Mohamed, Lim Kue Peng, Li Hong Bin, Mohamed Noor Embi
10	Monoclonal Antibodies towards the Exotoxin of <i>Burkholderia pseudomallei</i>	PI20070519	Malaysia	3 April 2007	Sheila Nathan , Rahmah Mohamed, Lim Kue Peng, Li Hong Bin, Mohamed Noor Embi
11	Peptides that inhibit the propagation of Newcastle Disease virus	PI 20013687	Malaysia	4 Dec 2003	Tan Wen Siang, Khatijah Yusoff, Priadarshini Ramanujam, Sheila Nathan
12	A method of preparing a repeatable protein array	PI201002815	Malaysia	17 July 2011	Dhulaikah Khairuddin, Suganti Ramarad, Nur Suhanawati Ashaari, Yuka Hara, Nor Azura Mat Akhir, Putri Ibrizah Zahariman, Rahmah Mohamed, Nor Muhammad Mahadi, Sheila Nathan
13	Diagnostic method for Melioidosis based on the antigen <i>Burkholderia pseudomallei</i> TssD-5	P 2012700110	Malaysia	22 Mar 2012	Sylvia Chieng, Sheila Nathan