

# CURRICULUM VITAE

## EDUCATION AND TRAINING

Year	Institution	Qualification	Discipline
2020 – Present	University of Georgia (UGA)	Doctor of Philosophy (Ph.D)	Infectious Diseases
2018 - 2019	University of Rhode Island (URI)	Doctor of Philosophy (Ph.D)	Cell and Molecular Biology (Immunoinformatics)
2015 - 2017	Perdana University, Malaysia	Master of Science (MSc.)	Bioinformatics
2009 - 2012	National University of Malaysia (UKM)	Bachelor of Science with Honours (BSc., Hons) – <i>Second Upper Class</i>	Bioinformatics

## Professional Experience

Year	Position	Institutions
2017	MIT Automation Engineer	Intel Corporation, Penang, Malaysia
2015 - 2017	Teaching Assistant	Perdana University School of Data Sciences (PU-SDS), Malaysia
2013 - 2015	Secretariat	Asia-Pacific Bioinformatics Network (APBioNET)
2012 - 2015	Research Assistant	Perdana University Centre for Bioinformatics (PU-CBi), Malaysia
July - Sept. 2012	Intern	Perdana University Graduate School of Medicine (PUGSOM)
June - Aug. 2011	Short Attachment	National University of Malaysia (UKM)

## RESEARCH ACTIVITIES

### Research Experience

Year	Project	Role	Institution/ Grant
May 2019 - Present	Identification of proteasome catalyzed peptide splicing (PCPS)	Graduate Research Assistant (GRA)	URI
Jan. 2019 - Present	Influenza vaccine immunity shaped by human-like T cell epitopes	GRA	URI (R21 grant)

**Tan S**, Haltaufderhyde K, De Groot AS, Moise L. Influenza vaccine immunity is modulated by human-like hemagglutinin (HA) T cell epitopes.

**Poster presented at:** Options X for the Control of Influenza 2019; Aug. 28 - Sept. 1; Suntec City Convention Hall, Singapore.

Dec. 2018 - Present	PEDV vaccine evaluation	GRA	URI
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*PEDV T-cell epitope persistence suggests immune pressure does not act on T cell immunity*

(Upcoming) **Oral presentation at:** The 100th Annual Conference of Research Workers in Animal Diseases (CRWAD) 2019; Nov. 2 - 5; Chicago, Illinois, USA.

Nov. 2018 - Present	Predicting spillover event from swine influenza A virus to human and vice versa	GRA	URI
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*Protecting swine from the next pandemic: Looking back and looking forward*

(Upcoming) **Oral presentation at:** The 100th Annual Conference of Research Workers in Animal Diseases (CRWAD) 2019; Nov. 2 - 5; Chicago, Illinois, USA.

Apr. 2018 - July 2019	Comparison of immunization means in pandemic H1N1 pig challenge model	Collaborator	URI
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Apr. 2018 - Present	Persistence of T cell epitopes in swine influenza isolates	GRA	URI
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1. **Tan S**, Gutiérrez AH, Gauger P, Opriessnig T, Moise L, De Groot AS. Quantifying the persistence of vaccine T cell epitopes in circulating swine influenza strains from 2013 – 2017.

**Poster presented at:** International Veterinary Immunology Symposium (IVIS) 2019; Aug. 13 -16; Seattle, Washington, USA.

2. *Predicting swine flu vaccine efficacy: Assessing T cell epitope cross-conservation in vaccine and field strains*

**Oral presentation given at:** The 99th Annual Conference of Research Workers in Animal Diseases (CRWAD) 2018; Dec. 1 - 4; Chicago, Illinois, USA.

Mar. 2013 - May. 2017	Dissecting the dynamics of Influenza A subtype viruses proteome diversity	Collaborator	Perdana University
July - Dec. 2016	Singapore 2010 Youth Olympic Games (YOG) Project	Collaborator - Data Analyst	The International Olympic Committee
Apr. 2013 - Sept. 2016	H7N9 Influenza Virus Mutations as Signatures of Human Transmission	Lead Researcher	Perdana University
<p>1. <b>Tan S</b>, Sjaugi MF, Raman HSA, Mohamad NE, August JT, and Khan AM. Characterization of Avian to Human Mutation Patterns for Influenza A (H7N9) Virus.  <b>Poster presented at:</b> GIW/InCoB 2015; Sept. 9 - 11; Odaiba, Tokyo, Japan.</p> <p>2. <b>Tan S</b>, Sjaugi MF, Raman HSA, Nik Mohamed NE, August JT, Khan AM. Antigenic transmission patterns for influenza A virus subtype H7N9.  <b>Poster showcased at:</b> BioPharma Asia Convention 2015; Mar. 24 &amp; 25; Suntec City Convention Hall, Singapore.</p>			
Nov. 2012 - 2015	Open Infectious Disease Clinical Database	Collaborator	Perdana University
July - Sept. 2012	Conservation Analysis of the Five H5N1 Mutations that Change Avian Infection to Human	Internship	Perdana University
Sept. 2011 - May 2012	Generation and Analysis of The Complete Coding Sequence of The Putative Alpha-Expansin Gene in <i>Rafflesia cantleyi</i>	Final Year Project	UKM
June - Aug. 2011	Generation and Data Analysis of <i>Rafflesia cantleyi</i> Transcriptome	Research Assistant	UKM

## PUBLICATIONS

### Journal Article

1. Quantifying the Persistence of Vaccine-derived T cell Epitopes in Circulating Swine Influenza Strains from 2013-2017. [Manuscript in preparation].

2. Hewitt JS, Karuppannan AK, **Tan S**, Gauger P, Halbur PG, Gerber PF, De Groot AS, Moise L, Opriessnig T (2019). A prime-boost concept using a T-cell epitope-driven DNA vaccine followed by a whole virus vaccine effectively protected pigs in the pandemic H1N1 pig challenge model. *Vaccine*: Vol. 37(31):4302-4309.
3. Raman HSA, **Tan S**, August JT, and Khan AM (2019). Dynamics of Influenza A (H5N1) virus protein sequence diversity. [*Manuscript accepted by PeerJ*].
4. **Tan S**, Nik Mohamed NE, Raman HSA, Khan AM, August JT (2016). Avian influenza H7N9 virus adaptation to human hosts. [*Manuscript submitted to Nature Scientific Reports*].
5. Sjaugi MF<sup>+</sup>, **Tan S**<sup>+</sup>, Raman HSA, Lim WC, Mohamed NE, Khan AM. (2015). g-FLUA2H: A web-based application to study the dynamics of animal-to-human mutation transmission for influenza viruses. *BMC Medical Genomics*: 8 (Suppl 4): S5. <sup>+</sup>Equal contributors.
6. Raman HSA, **Tan S**, Sjaugi MF, Nik Mohamed NE, Khan AM. (2014). Bioinformatics for vaccine target discovery. *Asia Pacific Biotech News – Bioinformatics* (September issue): 18(9), 43-49.
7. Nik Mohamed NE, Raman HSA, **Tan S**, Azhar NA, Sjaugi MF, Khan AM. (2014). Perdana University Centre for Bioinformatics: contributing to the growth of bioinformatics in Malaysia. *Asia Pacific Biotech News – Bioinformatics* (September issue): 18(9), 38-42.

#### Poster

1. Hewitt JS, Karuppannan AK, **Tan S**, Gauger PC, Halbur PG, Gerber PF, De Groot AS, Opriessnig T. A prime-boost concept using a T-cell epitope-driven DNA vaccine followed by a whole virus vaccine effectively protected pigs in the pandemic H1N1 pig challenge model. *Upcoming poster presentation at: The 2019 International Society for Vaccines (ISV) Annual Congress*; Oct. 27 - 29; Ghent, Belgium.
2. Alluhaybi K, **Tan S**, Khan S, Gutiérrez AH, Moise L, Gauger PC, Martin W, De Groot AS. Predicting The Next Pandemic Using Swine IAV Data and Immunoinformatics Tools. Poster presented at: The 99th Annual Conference of Research Workers in Animal Diseases (CRWAD) 2018; Dec. 1 - 4; Chicago, Illinois, USA.
3. Khan S, **Tan S**, Shepherd F, Gutiérrez AH, Moise L, Marthaler D, De Groot AS. Application of the Epitope Content Comparison Tool (EpiCC) to develop better porcine rotavirus vaccines. Poster presented at: The 99th Annual Conference of Research Workers in Animal Diseases (CRWAD) 2018; Dec. 1 - 4; Chicago, Illinois, USA.
4. Raman HSA, **Tan S**, August JT, and Khan AM. Dissecting the dynamics of influenza A H5N1 protein sequence diversity. 23<sup>rd</sup> Annual International Conference on Intelligent Systems for Molecular Biology and the 14th European Conference on Computational Biology (ISMB/ECCB 2015); 10 – 14 July 2015; Convention Center Dublin, Ireland.

## AWARDS

Year	Title
2019	Travel Fellowship awarded by USDA-NIFA to support International Veterinary Immunology Symposium (IVIS) @ Seattle, USA; 13-16 August 2019
2018	Travel Fellowship awarded by La Jolla Institute for Immunology to support Immune Epitope Database (IEDB) User Workshop @ California, USA; 22-23 October 2018
2017	Asia-Pacific Bioinformatics Network (APBioNet) Best Applied Research Thesis Award for MSc. Thesis work at Perdana University, Malaysia
2015 - 2017	MyBrain15 (MyMaster) Scholarship awarded by Ministry of Higher Education (MOHE), Malaysia
2015	Travel Fellowship awarded by Asia-Pacific Bioinformatics Network (APBioNet) to support 14th International Conference on Bioinformatics (GIW/InCoB2015) @ Tokyo, Japan; 9-11 September 2015
2009 - 2012	Jabatan Perkhidmatan Awam (JPA) Scholarship awarded by Public Service Department of Malaysia

### Student Mentorship

Year: 2016

Ke Hui Mei (PU-CBi Intern)

Bachelor of Science (Honours) Bioinformatics Internship (completed), Malaysia Multimedia University (MMU)

Project: Zika virus sequence diversity analysis

Year: 2015

Lim Wan Ching (PU-CBi Intern)

Bachelor of Science (Honours) Bioinformatics Internship (completed), Malaysia Multimedia University (MMU)

Project: Sequence diversity and mutation transmission pattern of influenza A H5N1 virus

## ORGANIZATIONAL ACTIVITIES

### Professional Affiliations

2012 - 2016	Asia-Pacific Bioinformatics Network (APBioNet)	Member
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