

## Ng Oon Tek



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Research/Innovation Interests:

- General Infectious Diseases
- Antimicrobial Resistance
- Emerging Infectious Disease
- HIV Medicine

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### Biography

A/Prof Ng Oon Tek completed his Infectious Disease subspecialty training at Tan Tock Seng Hospital in 2008. Supported by a 2-year NMRC fellowship award, he completed a Master of Public Health and research fellowship at Johns Hopkins. Subsequent research upon return till date are being supported by NMRC TA and CSA awards. His research interests focus on integrating public health, laboratory medicine and clinical medicine to improve patient outcomes. This is being applied to the use of whole-genome sequencing for the control of antimicrobial resistance, especially carbapenem-resistance Gram-negative infections.

## Selected Publications

- Ng OT, Marimuthu K, Chia PY, Koh V, Chiew CJ, De Wang L, Young BE, Chan M, Vasoo S, Ling LM, Lye DC, Kam KQ, Thoon KC, Kurupatham L, Said Z, Goh E, Low C, Lim SK, Raj P, Oh O, Koh VTJ, Poh C, Mak TM, Cui L, Cook AR, Lin RTP, Leo YS, Lee VJM. SARS-CoV-2 Infection among Travelers Returning from Wuhan, China. *N Engl J Med*. 2020 Apr 9;382(15):1476-1478. doi: 10.1056/NEJMc2003100. Epub 2020 Mar 12. PMID: 32163698; PMCID: PMC7121487.  
<https://www.nejm.org/doi/full/10.1056/NEJMc2003100>
- Pung R, Chiew CJ, Young BE, Chin S, Chen MI, Clapham HE, Cook AR, Maurer-Stroh S, Toh MPHS, Poh C, Low M, Lum J, Koh VTJ, Mak TM, Cui L, Lin RVTP, Heng D, Leo YS, Lye DC, Lee VJM; Singapore 2019 Novel Coronavirus Outbreak Research Team. Investigation of three clusters of COVID-19 in Singapore: implications for surveillance and response measures. *Lancet*. 2020 Mar 28;395(10229):1039-1046. doi: 10.1016/S0140-6736(20)30528-6.  
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- Ong SWX, Tan YK, Chia PY, Lee TH, Ng OT, Wong MSY, Marimuthu K. Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient. *JAMA*. 2020 Apr 28;323(16):1610-1612. doi: 10.1001/jama.2020.3227. PMID: 32129805; PMCID: PMC7057172.
- Young BE, Ong SWX, Kalimuddin S, Low JG, Tan SY, Loh J, Ng OT, Marimuthu K, Ang LW, Mak TM, Lau SK, Anderson DE, Chan KS, Tan TY, Ng TY, Cui L, Said Z, Kurupatham L, Chen MI, Chan M, Vasoo S, Wang LF, Tan BH, Lin RTP, Lee VJM, Leo YS, Lye DC; Singapore 2019 Novel Coronavirus Outbreak Research Team. Epidemiologic Features and Clinical Course of Patients Infected With SARS-CoV-2 in Singapore. *JAMA*. 2020 Apr 21;323(15):1488-1494. doi: 10.1001/jama.2020.3204.  
<https://jamanetwork.com/journals/jama/fullarticle/2762688>
- Chng KR, Li C, Bertrand D, Ng AHQ, Kwah JS, Low HM, Tong C, Natrajan M, Zhang MH, Xu L, Ko KKK, Ho EXP, Av-Shalom TV, Teo JWP, Khor CC; MetaSUB Consortium; Chen SL, Mason CE, Ng OT, Marimuthu K, Ang B, Nagarajan N. Cartography of opportunistic pathogens and antibiotic resistance genes in a tertiary hospital environment. *Nat Med*. 2020 Jun;26(6):941-951. doi: 10.1038/s41591-020-0894-4. Epub 2020 Jun 8. PMID: 32514171; PMCID: PMC7303012.
- Ng OT, Marimuthu K, Koh V, Pang J, Linn KZ, Sun J, De Wang L, Chia WN, Tiu C, Chan M, Ling LM, Vasoo S, Abdad MY, Chia PY, Lee TH, Lin RJ, Sadarangani SP, Chen MI, Said Z, Kurupatham L, Pung R, Wang LF, Cook AR, Leo YS, Lee VJ. SARS-CoV-2 seroprevalence and transmission risk factors among high-risk close contacts: a retrospective cohort study. *Lancet Infect Dis*. 2021 Mar;21(3):333-343. doi: 10.1016/S1473-3099(20)30833-1.  
[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30833-1/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30833-1/fulltext)

- Wang M, Earley M, Chen L, Hanson BM, Yu Y, Liu Z, Salcedo S, Cober E, Li L, Kanj SS, Gao H, Munita JM, Ordoñez K, Weston G, Satlin MJ, Valderrama-Beltrán SL, Marimuthu K, Stryjewski ME, Komarow L, Luterbach C, Marshall SH, Rudin SD, Manca C, Paterson DL, Reyes J, Villegas MV, Evans S, Hill C, Arias R, Baum K, Fries BC, Doi Y, Patel R, Kreiswirth BN, Bonomo RA, Chambers HF, Fowler VG Jr, Arias CA, van Duin D; Multi-Drug Resistant Organism Network Investigators. Clinical outcomes and bacterial characteristics of carbapenem-resistant *Klebsiella pneumoniae* complex among patients from different global regions (CRACKLE-2): a prospective, multicentre, cohort study. *Lancet Infect Dis*. 2022 Mar;22(3):401-412. doi: 10.1016/S1473-3099(21)00399-6 [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(21\)00399-6/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00399-6/fulltext)
- Wu Y, Raju C, Hou Z, Si Z, Xu C, Pranantyo D, Marimuthu K, De PP, Ng OT, Pethe K, Kang ET, Chan-Park MB. Mixed-charge pseudo-zwitterionic copolymer brush as broad spectrum antibiofilm coating. *Biomaterials*. 2021 Jun;273:120794. doi: 10.1016/j.biomaterials.2021.120794. <https://www.sciencedirect.com/science/article/abs/pii/S0142961221001502>
- Si Z, Lim HW, Tay MYF, Du Y, Ruan L, Qiu H, Zamudio-Vazquez R, Reghu S, Chen Y, Tiong WS, Marimuthu K, De PP, Ng OT, Zhu Y, Gan YH, Chi YR, Duan H, Bazan GC, Greenberg EP, Chan-Park MB, Pethe K. A Glycosylated Cationic Block Poly( $\beta$ -peptide) Reverses Intrinsic Antibiotic Resistance in All ESKAPE Gram-Negative Bacteria. *Angew Chem Int Ed Engl*. 2020 Apr 20;59(17):6819-6826. doi: 10.1002/anie.201914304. Epub 2020 Feb 19. PMID: 32011781. <https://onlinelibrary.wiley.com/doi/abs/10.1002/anie.201914304>
- Hou Z, Wu Y, Xu C, Reghu S, Shang Z, Chen J, Pranantyo D, Marimuthu K, De PP, Ng OT, Pethe K, Kang ET, Li P, Chan-Park MB. Precisely Structured Nitric-Oxide-Releasing Copolymer Brush Defeats Broad-Spectrum Catheter-Associated Biofilm Infections In Vivo. *ACS Cent Sci*. 2020 Nov 25;6(11):2031-2045. doi: 10.1021/acscentsci.0c00755. Epub 2020 Oct 29. PMID: 33274280; PMCID: PMC7706084. <https://pubs.acs.org/doi/10.1021/acscentsci.0c00755>

## Notable Research Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
<b>National Medical Research Council (NMRC) Clinician Scientist Award (CSA)</b> Oral capsule-administered faecal microbiota transplantation for intestinal carbapenemase-producing Enterobacteriaceae decolonization	2019
<b>NHG-LKCMedicine Clinician Scientist Fellowship (CSF)</b>	2019
<b>Communicable Diseases Division, Ministry of Health (MOH CDD) Operational Research Fund</b> The Research Study on Seroprevalence and Exposure Risk Factors Among Close Contacts of COVID-19 Cases	2020
<b>NMRC COVID-19 Research Fund (COVID19RF)</b> Transmission Potential of Asymptomatic SARS-CoV-2-infected Persons	2020
<b>CENTRE GRANT (CG)</b> Collaborative Solutions Targeting Antimicrobial Resistance Threats in Health Systems	2021
<b>NMRC COVID-19 Research Fund (COVID19RF)</b> Determining the Impact of SARS-CoV-2 Variants and Vaccination on Close-contact Attack Rates and Acquisition Risk Factors	2021
<b>CoSTAR-HS ARG Seed Grant</b> Development of a clinically relevant human-associated microbiota mouse model of intestinal carbapenem-resistant Enterobacteriales carriage and decolonization	2022
<b>Programme for Research in Epidemic Preparedness and REsponse (PREPARE) - Outbreak Research Strategic Funds</b> PREPARE Outbreak Research on Monkeypox in Singapore	2022
<b>Programme for Research in Epidemic Preparedness and REsponse (PREPARE): PREPARE Strategic Commissioned Studies</b> Metagenomics for emerging infectious disease detection and surveillance	2023
<b>Programme for Research in Epidemic Preparedness and REsponse (PREPARE): PREPARE Clinical Trial Funds</b> A Clinically-Oriented Antimicrobial Resistance Surveillance Network for Healthcare-associated infections (ACORN-HAI)	2024

## Translating Research/Innovation Into Healthcare

Health Impact (CY2022 publications)

1) Analysis of COVID-19 Incidence and Severity Among Adults Vaccinated With 2-Dose mRNA COVID-19 or Inactivated SARS-CoV-2 Vaccines With and Without Boosters in Singapore

- a) Paper was cited by the **The Federal Office of Public Health (Bundesamt für Gesundheit)** as part of Annex 4 submitted to **Government of Switerland** on the analysis of the Efficacy of the vaccines.

The Federal Office of Public Health (FOPH) is the Swiss federal government's centre for public health and a part of the Swiss Federal Department of Home Affairs. In addition to developing national health policy, it also represents the interests of its country within international health organizations such as the OECD or the World Health Organization.

Policy citation link (Plum X Metrix):

[https://plu.mx/plum/a/policy\\_citation?doi=10.1001/jamanetworkopen.2022.28900](https://plu.mx/plum/a/policy_citation?doi=10.1001/jamanetworkopen.2022.28900)

2) Transmission modes of severe acute respiratory syndrome coronavirus 2 and implications on infection control: a review

- a) The paper was cited by Sax Institute as part of the evidence snapshot and was commissioned by the Australian Commission on Safety and Quality in Health Care as part of the information to better protect healthcare workers during the SARS-CoV-2 virus.

Sax Institute:

The Sax Institute is an independent, not-for-profit organisation that improves health and wellbeing by driving better use of evidence in policies, programs and services. A Evidence Specialist team working collaboratively to embed research into the fabric of policy, program and service delivery decisions. The team develop, test and deliver best-practice approaches to working at the interface of research and health decision-making.

Policy citation link (Plum X Metrix):

[https://plu.mx/plum/a/policy\\_citation?doi=10.11622/smedj.2020114](https://plu.mx/plum/a/policy_citation?doi=10.11622/smedj.2020114)