

# Keisuke Ejima

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## Education

- Ph.D. Mar 2014 **The University of Tokyo**, Tokyo, Japan  
Information Science and Technology / Study Area: Infectious disease modelling  
Dissertation Title: *Mathematical Modeling of Disease Transmission Dynamics with Data Generating Processes*  
Advisor: Kazuyuki Aihara, PhD, The University of Tokyo, Institute of Industrial Science
- M.S. Mar 2011 **The University of Tokyo**, Tokyo, Japan  
Information Science and Technology / Study Area: Infectious disease modelling  
Dissertation Title: *Modeling and Analysis of Spreads of Infectious Diseases on the Basis of Human Behavior*  
Advisor: Kazuyuki Aihara, PhD, The University of Tokyo, Institute of Industrial Science
- B.E. Mar 2009 **The University of Tokyo**, Tokyo, Japan  
Economics
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## Curriculum and Appointments

### The University of Tokyo

- 2010 – 2011 *Technical Assistant*, Institute of Industrial Science, The University of Tokyo  
2011 – 2014 *Research Fellow*, Institute of Industrial Science, The University of Tokyo, (funded by JSPS DC1)  
2014 *Research Assistant*, Department of Global Health Policy, Graduate School of Medicine, The University of Tokyo

### The University of Hong Kong

- 2012 *Visiting student*, Division of Epidemiology and Biostatistics, School of Public Health, The University of Hong Kong

### The University of Alabama at Birmingham

- 2014 – 2017 *Visiting Scholar*, Nutrition and Obesity Research Center, The University of Alabama at Birmingham (funded by The Uehara Memorial Foundation [2014-2015])

and JSPS PD [2015-2017])

## **Indiana University**

- 2017 – 2019 *Visiting Scholar*, Department of Epidemiology and Biostatistics, School of Public Health, Indiana University (funded by Japan Society for the Promotion of Science [JSPS] PD [2017-2018], and JSPS Overseas Research Fellowships [2018-2019])
- 2019 – 2022 *Assistant Research Scientist* (non-tenure-track), Department of Epidemiology and Biostatistics, School of Public Health-Bloomington, Indiana University

## **Nanyang Technological University**

- 2022 – present *Assistant Professor* (tenure-track), Lee Kong Chian School of Medicine, Nanyang Technological University

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## **Teaching Experience**

- Spring 2022 Co-Instructor, SPH-E 350 Infectious Diseases: Outbreaks and Field Investigations, Indiana University School of Public Health
- Fall 2021 Co-Instructor, SPH-E 311 Introduction to Epidemiology, Indiana University School of Public Health
- Oct 2018 Guest lecturer, Beijing Sports University, Beijing, China
- Aug 2018 Guest lecturer, Summer boot camp of infectious disease modelling, The Institute of Statistical Mathematics, Tokyo, Japan
- Aug 2017 Guest lecturer, Summer boot camp of infectious disease modelling, The Institute of Statistical Mathematics, Tokyo, Japan
- Aug 2016 Guest lecturer, Summer boot camp of infectious disease modelling, The Institute of Statistical Mathematics, Tokyo, Japan
- Apr 2014 – Aug 2014 Lecturer, Basic Mathematics, School of Science and Technology, Meiji University, Tokyo, Japan

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## **Professional Service**

### **Journal Review**

#### *Reviewer for Peer-Reviewed Journals*

- 2021 – Present PLoS Medicine
- 2021 – Present Annals of Applied Statistics
- 2021 – Present eLife
- 2021 – Present Epidemics
- 2020 – Present British Journal of Nutrition
- 2020 – Present Journal of Clinical Medicine

2019 – Present British Medical Journal (BMJ)  
2019 – Present Clinical Obesity  
2019 – Present Heliyon  
2019 – Present International Journal of Obesity  
2019 – Present PNAS  
2019 – Present Proceedings of The Royal Society B  
2019 – Present Obesity Review  
2018 – Present JAMA Network Open  
2018 – Present Science  
2018 – Present Annals of Internal Medicine  
2017 – Present The Journal of the American Medical Association (JAMA)  
2017 – Present BMJ Open  
2016 – Present Obesity  
2015 – Present Theoretical Ecology  
2015 – Present Bulletin of Mathematical Biology  
2015 – Present European Journal of Clinical Investigation  
2015 – Present Scientific Report  
2014 – Present The American Journal of Clinical Nutrition  
2014 – Present European Journal of Clinical Nutrition  
2014 – Present Mathematical Biosciences  
2014 – Present Nonlinear Theory and Its Applications  
2013 – Present Journal of Theoretical Biology  
2013 – Present Theoretical Biology and Medical Modelling  
2012 – Present PLoS One

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## Grantsmanship

### Research Grants -----

#### Active Grants:

<i>Title</i>	<b>Connecting within-host viral dynamics with the epidemiology of COVID-19: a multiscale computational infrastructure</b>
<i>Source</i>	Ministry of Education (MOE) (Singapore)
<i>Funding Type</i>	MOE Start-up Grant
<i>Award</i>	360,000 SGD direct
<i>Role</i>	Principal Investigator (PI)
<i>Dates</i>	02/01/2023 – 01/01/2026
<i>Objective</i>	We aim to develop a multiscale modeling framework and computational infrastructure to connect within-host viral dynamics and between-host transmission dynamics.

*Title* **Elucidation of Obesity Epidemic Mechanism through Epidemiological Model and Evidence Analysis Identification of Most Effective Intervention Programs.**

*Source* Japan Society of Promotion of Science

*Funding Type* Grant-in-Aid for Early-Career Scientists

*Award* 3,200,000 Japanese Yen direct

*Role* Principal Investigator (PI)

*Dates* 04/01/2018 – 03/31/2023

*Objective* The goal of this project is to identify the weight trajectory patterns associated with high risk of lifestyle diseases such as type II diabetes and cardiovascular diseases, especially focusing on postmenopausal population.

*Title* **Quantitative assessment of the bias in self-reported nutrition data and the bias reduction by the Goldberg cutoffs.**

*Source* Meiji Yasuda Life Foundation of Health and Welfare

*Funding Type* Grant-in-Aid for Young Scientists

*Award* 500,000 Japanese Yen direct

*Role* Principal Investigator (PI)

*Dates* 10/01/2019 – 03/31/2023

*Objective* The aim of the study is to compute the bias in self-reported sodium intake and examine if the Goldberg cutoff can reduce the bias.

#### Completed Grants:

*Title* **Test-based guideline to end isolation of patients.**

*Source* Models of Infectious Disease Agent Study

*Funding Type* MIDAS COVID-19 Urgent Grant Program

*Award* 6,309 USD direct

*Role* Principal Investigator (PI)

*Dates* 03/14/2021 – 06/30/2022

*Objective* The aim of the study is to compare different isolation guidelines in two metrics: the risk of both releasing infectious patients, and unnecessarily prolonging isolation.

*Title* **Longitudinal investigation of subconcussive brain injury in adolescent football players: a pilot study**

*Source* IU Vice President for Research

*Funding Type* Research Grant Award

*Award* 40,000 USD direct

*Role* Co-Investigator (Co-I)

*Dates* 09/14/2018 – 12/30/2021

*Objective* Aims of the study are to associate cumulative subconcussive head impacts as

measured by sensor-installed mouthguard with blood biomarker levels and ocular-motor functions.

*Title* **Subconcussive neurodegenerative progression in adolescent athletes**  
*Source* National Institutes of Health / NINDS  
*Funding Type* R01  
*Award* 1,864,253 USD direct  
*Role* Co-Investigator (Co-I)  
*Dates* 12/1/2020 – 11/30/2025  
*Objective* The goal of the proposed project is to determine whether multiple years of subconcussive head impact exposure in adolescent athletes may induce progressive neurodegenerative changes, which lead to cognitive and sensory impairments.

*Title* **Neuroimaging and blood biomarkers for subconcussive neural stress on ADHD**  
*Source* National Institutes of Health / NINDS  
*Funding Type* R21  
*Award* 275,000 USD direct  
*Role* Co-Investigator (Co-I)  
*Dates* 10/1/2020 – 09/30/2022  
*Objective* The overall goal of this study is to identify a panel of fluid and imaging biomarkers that can reflect subtle and subclinical, but detectable, levels of neuronal damage in ADHD individuals.

*Title* **Elucidation of the mechanism behind obesity epidemic using epidemiological model and evidence analysis.**  
*Source* Japan Society for the Promotion of Science  
*Funding Type* Grant-in-Aid for JSPS Fellows (PD)  
*Award* 3,400,000 Japanese Yen direct  
*Role* Principal Investigator (PI)  
*Dates* 04/24/2015 – 03/31/2018  
*Objective* The aim of the study is to develop an epidemiological model to explain how obesity propagate in human population. The model and model parameters are based on systematic review of literature.

*Title* **Development of multiscale infectious disease models using data assimilation.**  
*Source* Japan Society for the Promotion of Science  
*Funding Type* Grant-in-Aid for JSPS Fellows (DC1)  
*Award* 1,900,000 Japanese Yen direct  
*Role* Principal Investigator (PI)

*Dates* 04/01/2011 – 03/31/2014  
*Objective* The goal of this study is to develop mathematical models which connect microscale human behavior to infection dynamics among humans and populations.

*Title* **Identifying areas with high obesity prevalence using spatial epidemiology.**

*Source* The TANITA Healthy Weight Community Trust

*Funding Type* Tanita Obesity Grant

*Award* 500,000 Japanese Yen direct

*Role* Principal Investigator (PI)

*Dates* 11/01/2014 – 10/31/2015

*Objective* The goal of this project is to identify areas with high obesity prevalence using special epidemiological approach. Further, we will identify risk factor unique obesogenic risk factors in such areas.

*Title* **Comparing different types of obesity index using proportional hazard models: what would be the most excellent obesity index?**

*Source* Center for Clinical Epidemiology, St. Luke's International University

*Funding Type* Grant-in-Aid for Epidemiological Research

*Award* 1,000,000 Japanese Yen direct

*Role* Principal Investigator (PI)

*Dates* 04/01/2016 – 03/31/2017

*Objective* The goal of this project is to compare the predictive ability of mortality of different obesity staging systems.

### *Grants – Not funded* -----

*Title* **DMS/NIGMS 2: Connecting within-host viral dynamics with the epidemiology of infectious diseases: a multiscale computational infrastructure**

*Source* National Institutes of Health / NIGMS

*Funding Type* R01

*Award* 1,183,550 USD direct

*Role* Co-Principal Investigator (Co-PI)

*Dates* 04/01/2022 – 03/31/2026

*Objective* The goal of this project is the development of a novel multi-scale modeling framework connecting within-host viral and immune dynamics with the epidemiology of infectious diseases to address practical public health questions.

### *Fellowship Grants (completed)* -----

Overseas Research Fellowship, JSPS, 2018.4-2019.8

Research Fellowships for Young Scientists (PD), JSPS, 2015.4-2018.3

Post-doctoral Fellowship for Study Abroad, The Uehara memorial Foundation, 2014.9-2015.3  
Research Fellowships for Young Scientists (DC1), JSPS, 2011.4-2014.3

## *The Most Significant Publications* -----

1. Jeong YD<sup>†§</sup>, **Ejima K<sup>†§\*</sup>**, Kim KS<sup>†§</sup>, Jooheon W, Iwanami S, Fujita Y, Jung IH, Aihara K, Shibuya K, Iwami S, Bento AI<sup>‡</sup>, Ajelli M<sup>‡</sup>. Designing isolation guidelines for COVID-19 patients with rapid antigen tests. ***Nature Communications***
2. Kim KS<sup>†§</sup>, **Ejima K<sup>†</sup>**, Iwanami S<sup>§</sup>, Fujita Y<sup>§</sup>, Ohashi H, Koizumi Y, Asai Y, Nakaoka S, Watashi K, Aihara K, Thompson RN, Ke R, Perelson AS<sup>‡</sup>, S. Iwami S<sup>‡</sup> (2021). A quantitative model used to compare within-host SARS-CoV-2, MERS-CoV and SARS-CoV dynamics provides insights into the pathogenesis and treatment of SARS-CoV-2. ***PLoS Biology*** 19:e3001128
3. Iwanami S<sup>†</sup>, **Ejima K<sup>†\*</sup>**, Kim KS<sup>§</sup>, Noshita K, Fujita Y<sup>§</sup>, Miyazaki T, Kohno S, Miyazaki Y, Morimoto S, Nakaoka S, Koizumi Y, Asai Y, Aihara K, Watashi K, Thompson RN, Shibuya K, Fujiu K, Perelson AS<sup>‡</sup>, Iwami S<sup>‡\*</sup>, Wakita T (2021). Detection of significant antiviral drug effects on COVID-19 with reasonable sample sizes in randomized controlled trials: a modeling study combined with clinical data. ***PLoS Medicine*** 18(7):e1003660
4. Jeong YD<sup>†§</sup>, **Ejima K<sup>†\*</sup>**, Kim KS<sup>†§</sup>, Iwanami S<sup>§</sup>, Bento AI, Fujita Y<sup>§</sup>, Jung IH, Aihara K, Watashi K, Miyazaki T, Wakita T, Iwami S<sup>\*</sup>, Ajelli M (2021). Revisiting the guidelines for ending isolation for COVID-19 patients. ***eLife*** 10:e69340

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## References

### Professional reference 1

Name: David B. Allison, Ph.D.

Position: Dean, Distinguished Professor, & Provost Professor, Indiana University School of Public Health-Bloomington

Address: 1025 E. 7th St. Bloomington IN, USA, 47405

Email: [allison@iu.edu](mailto:allison@iu.edu)

Phone: 812-855-1250

### Professional reference 2

Name: Hiroshi Nishiura, Ph.D.

Address: Yoshidakonoecho, Sakyo-ku, Kyoto, 606-8503, Japan

Position: Professor, Department of Health and Environmental Sciences, Kyoto University School of Public Health

Email: [nishiura.hiroshi.5r@kyoto-u.ac.jp](mailto:nishiura.hiroshi.5r@kyoto-u.ac.jp)

Phone: +81-75-753-4490

### Professional reference 3

Name: Kazuyuki Aihara, Ph.D.

Address: 7-3-1 Hongo Bunkyo-ku, Tokyo, 113-0033, Japan

Position: University Professor, International Research Center for Neurointelligence, The University of Tokyo

Email: [kaihara@g.ecc.u-tokyo.ac.jp](mailto:kaihara@g.ecc.u-tokyo.ac.jp)

Phone: +81-3-5841-3435

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## Scholarship

## Refereed Publications

\* Corresponding Author

§ Students or post-docs I mentored

†,‡ Equal contribution

### **Under Review (n=2)**

1. **Ejima K**, Liu N, Mestre LM, de los Campos G, Allison DB\*. Conditioning on parental mating type reduces the necessary assumptions for Mendelian Randomization.
2. Yamamoto N§, **Ejima K\***, Zoh RS, Brown AW. Bias in nutrition-health associations is not eliminated by excluding extreme reporters in empirical or simulation studies.

### **2022 (n=5; 2 first, 3 middle, 2 corresponding authorships)**

1. Chusyd, D.E., Austad, S.N., Dickinson, S.L. et al (2022). Randomization, design and analysis for interdependency in aging research: no person or mouse is an island. **Nature Aging** 1101–1111
2. Chusyd DE, Austad SN, Brown AW, Chen X, Dickinson SL, **Ejima K**, Fluharty D, Golzarri-Arroyo L, Holden R, Jamshidi-Naeini J, Landsittel D (2022). From Model Organisms to Humans, the Opportunity for More Rigor in Methodologic and Statistical Analysis, Design, and Interpretation of Aging and Senescence Research. **The Journals of Gerontology: Series A** glab382.
3. Yamamoto N†§, Koizumi Y†, Tsuzuki S†, **Ejima K**, Takano M, Iwami S†, Mizushima D†, Oka S† (2021). Evaluating the cost-effectiveness of a pre-exposure prophylaxis program for HIV prevention for men who have sex with men in Japan. **Scientific Reports**
4. **Ejima K†**, Kim KS†§, Bento AI†, Iwanami S§, Fujita Y§, Ito Y§, Ohashi H, Koizumi Y, Watashi K, Aihara K, Shibuya K, Iwami S\* (2022). Preparing for the second wave of COVID-19: correcting recall bias in contact tracing using within-host SARS-CoV-2 infection dynamics model. **BMC Infectious Diseases**
5. Jeong YD†§, **Ejima K†§**, Kim KS†§, Joohyeon W, Iwanami S, Fujita Y, Jung IH, Aihara K, Shibuya K, Iwami S, Bento AI†, Ajelli M† (2022). Designing isolation guidelines for COVID-19 patients with rapid antigen tests. **Nature Communications**

### **2021 (n=14; 8 first, 6 middle, 6 corresponding authorships)**

6. Kroeger CM†, **Ejima K†**, Hannon BA, Halliday TM, McComb B, Teran-Garcia M, Dawson JA, King DB, Brown AW, Allison DB\* (2021). Persistent confusion in nutrition and obesity research about the validity of classic nonparametric tests in the presence of heteroscedasticity: Evidence of the problem and valid alternatives. **The American Journal of Clinical Nutrition** 113:517-524
7. **Ejima K†**, Kim KS†§, Ludema C, Bento AI, Iwanami S§, Fujita Y§, Ohashi H, Koizumi Y, Watashi K, Aihara K, Nishiura H, Iwami S\* (2021). Estimation of the incubation period of COVID-19 using viral load data. **Epidemics** 35:100454
8. Kim KS†§, **Ejima K†**, Iwanami S§, Fujita Y§, Ohashi H, Koizumi Y, Asai Y, Nakaoka S, Watashi K,



- Aihara K, Thompson RN, Ke R, Perelson AS<sup>‡</sup>, S. Iwami S<sup>‡</sup> (2021). A quantitative model used to compare within-host SARS-CoV-2, MERS-CoV and SARS-CoV dynamics provides insights into the pathogenesis and treatment of SARS-CoV-2. *PLoS Biology* 19:e3001128
9. **Ejima K<sup>†</sup>**, Koizumi Y, Yamamoto N<sup>§</sup>, Rosenberg M, Ludema C, Bento AI, Yoneoka D, Ichikawa S, Mizushima D, Iwami S<sup>†</sup> (2021). HIV testing by public health centers and municipalities and new HIV cases during the COVID-19 pandemic in Japan. *Journal of Acquired Immune Deficiency Syndromes* (ePub Ahead) doi: 10.1097/QAI.0000000000002660
  10. **Ejima K<sup>†</sup>**, Kim KS<sup>‡§</sup>, Iwanami S<sup>‡§</sup>, Fujita Y, Li M, Zoh RS, Aihara K, Miyazaki T, Wakita T, Iwami S<sup>†</sup> (2021). Time variation in the probability of failing to detect a case of PCR testing for SARS-CoV-2 as estimated from a viral dynamics model, *Journal of the Royal Society Interface* 18:20200947
  11. Ohashi H<sup>†</sup>, Watashi K<sup>†</sup>, Saso W<sup>†</sup>, Shionoya K, Iwanami S, Hirokawa T, Shirai T, Kanaya S, Ito Y, Kim KS, Nomura T, Suzuki T, Nishioka K, Ando S, **Ejima K**, Koizumi Y, Tanaka T, Aoki S, Kuramochi K, Suzuki T, Hashiguchi T, Maenaka K, Matano T, Muramatsu M, Saijo S, Aihara K, Iwami S, Takeda M, McKeating JA, Wakita T (2021). Potential anti-COVID-19 agents, Cepharranthine and Nelfinavir, and their usage for combination treatment, *iScience* 24:102367
  12. Yoneoka D<sup>†</sup>, Shi S<sup>†</sup>, Nomura S<sup>†</sup>, Tanoue Y<sup>†</sup>, Kawashima T<sup>†</sup>, Eguchi A<sup>†</sup>, Matsuura K, Makiyama K, Uryu S, **Ejima K**, Sakamoto H, Taniguchi T, Kunishima H, Gilmour S, Nishiura H, Miyata H (2021). Assessing the regional impact of Japan's COVID-19 state of emergency declaration: a population-level observational study using social networking services. *BMJ Open* 11:e042002
  13. Iwanami S<sup>†</sup>, **Ejima K<sup>†</sup>**, Kim KS<sup>§</sup>, Noshita K, Fujita Y<sup>§</sup>, Miyazaki T, Kohno S, Miyazaki Y, Morimoto S, Nakaoka S, Koizumi Y, Asai Y, Aihara K, Watashi K, Thompson RN, Shibuya K, Fujiu K, Perelson AS<sup>‡</sup>, Iwami S<sup>†</sup>, Wakita T (2021). Detection of significant antiviral drug effects on COVID-19 with reasonable sample sizes in randomized controlled trials: a modeling study combined with clinical data. *PLoS Medicine* 18(7):e1003660
  14. Camell CD<sup>†</sup>, Yousefzadeh MJ<sup>†</sup>, Zhu Y<sup>†</sup>, Prata LGPL<sup>†</sup>, Huggins MA, Pierson M, Zhang L, O'Kelly RD, Pirtskhalava T, Xun P, **Ejima K**, Xue A, Tripathi U, Espindola-Netto JM, Giorgadze N, Atkinson EJ, Inman CL, Johnson KO, Cholensky S, Carlson TW, LeBrasseur NK, Khosla S, O'Sullivan MG, Allison DB, Jameson SC, Prakash YS, Chiarella SE, Hamilton SE<sup>\*</sup>, Tchkonja T<sup>\*</sup>, Niedernhofer LJ<sup>\*</sup>, Kirkland JL<sup>\*</sup>, Robbins PD<sup>\*</sup> (2021). Senolytics reduce corona virus-related mortality in old mice. *Science* eabe4832
  15. Jeong YD<sup>†§</sup>, **Ejima K<sup>†</sup>**, Kim KS<sup>†§</sup>, Iwanami S<sup>§</sup>, Bento AI, Fujita Y<sup>§</sup>, Jung IH, Aihara K, Watashi K, Miyazaki T, Wakita T, Iwami S<sup>†</sup>, Ajelli M (2021). Revisiting the guidelines for ending isolation for COVID-19 patients. *eLife* 10:e69340
  16. Alfaras I<sup>†</sup>, **Ejima K<sup>†</sup>**, Teixeira CVL, Germanio CD, Sarah J. Mitchell SJ, Hamilton S, Ferrucci L, Price NL, Allison DB, Bernier M, de Cabo R (2021). Empirical vs theoretical power and type-I error ('false positive') rates estimated from real murine aging research data. *Cell Reports* 36:109560
  17. Pallyaguru D, Shiroma E, Nam J, Duregon E, Vieiraligoteixeira C, Price NL, Bernier M, Vaughan K, Deighan A, Korstanje R, Peters L, Dickinson S, **Ejima K**, Simonsick EM, Launer LJ, Chia C, Egan J, Allison DB, Churchill G, Anderson R, Ferrucci L, Mattison J, de Cabo R (2021) Fasting Blood Glucose as a Predictor of Mortality: Lost in Translation. *Cell Metabolism* S1550-

18. Kim KS, Iwanami S, Oda T, Fujita Y, Kuba K, Miyazaki T, Ejima K\*, and Iwami S\* (2021) Incomplete viral treatment may induce longer durations of viral shedding during SARS-CoV-2 infection ***Life Science Alliance*** 4(10):e202101049
19. Unnikrishnan A, Matyi S, Garrett K, Ranjo-Bishop M, Allison DB, **Ejima K**, Chen X, Dickinson S, Richardson A. Reevaluation of the effect of dietary restriction on different recombinant inbred lines of male and female mice. ***Aging Cell*** 2021;20(11):e13500

**2020 (n=18; 3 first, 15 middle, 1 corresponding authorships)**

20. Vorland CJ, Brown AW, **Ejima K**, Mayo-Wilson E, Valdez D, Allison DB\* (2020). Toward fulfilling the aspirational goal of science as self-correcting: A call for editorial courage and diligence for error correction. ***European Journal of Clinical Investigation*** 50:e13190
21. Huibregtse ME, Zonner SW, **Ejima K**, Bevilacqua ZW, Newman S, Macy J, Kawata K\* (2020). Association between muscle damage and head impacts in high school American football. ***International Journal of Sports Medicine*** 41:36-43
22. **Ejima K**, Xavier NA, Mehta T\* (2020). Comparing the ability of two comprehensive clinical staging systems to predict mortality: EOSS and CMDS. ***Obesity*** 28:353-361
23. **Ejima K**, Dickinson S, Brown AW, Yanovski J, Kaiser K, Hall, K, Heymsfield, SB, Allison DB\* (2020). Exceptional reported effects and data anomalies merit explanation from “A randomized controlled trial of coordination exercise on cognitive function in obese adolescents” by Liu et al. (2018). ***Psychology of Sport & Exercise*** 46:101604
24. Nowak MK, Bevilacqua ZW, **Ejima K**, Huibregtse ME, Chen Z, Mickleborough TD, Newman SD, Kawata K\* (2020). Neuro-ophthalmologic response to repetitive subconcussive head Impacts: A randomized clinical trial. ***JAMA Ophthalmology*** 138:350-357
25. **Ejima K\***, Brown AW, Smith Jr DL, Beyaztas U, Allison DB\* (2020). Murine genetic models of obesity: type I error rates and the power of commonly used analyses as assessed by plasmode-based simulation. ***International Journal of Obesity*** 44:1440-1449
26. Kercher K, Steinfeldt JA, Macy JT, **Ejima K**, Kawata K\* (2020). Subconcussive head impact exposure between drill intensities in U.S. high school football. ***PLoS One*** 15:e0237800
27. Yoneoka D, Takayuki Kawashima, Yuta Tanoue Y, Nomura S, **Ejima K**, Shi S, Eguchi A, Taniguchi T, Sakamoto H, Kunishima H, Gilmour S, Nishiura H, Miyata H\* (2020). Early SNS-based monitoring system for the COVID-19 outbreak in Japan: a population-level observational study. ***Journal of Epidemiology*** 30:362-370
28. Hickson LJ, Langhi Prata LGP, Bobart SA, Evans TK, Giorgadze N, Hashmi SK, Herrmann SM, Jensen MD, Jia Q, Jordan KL, Kellogg TA, Khosla S, Koerber DM, Lagnado AB, Lawson DK, LeBrasseur NK, Lerman LO, McDonald KM, McKenzie TJ, Passos JF, Pignolo RJ, Pirtskhalava T, Saadiq IM, Schaefer KK, Textor SC, Victorelli SG, Volkman TL, Xue A, Wentworth MA, Wissler Gerdes EO, Allison DB, Dickinson SL, **Ejima K**, Atkinson EJ, Lenburg M, Zhu Y, Tchkonja T, Kirkland JL\* (2020). Corrigendum to ‘Senolytics decrease senescent cells in humans: Preliminary report from a clinical trial of Dasatinib plus Quercetin in individuals with diabetic kidney disease’ ***EBioMedicine*** 47 (2019) 446–456 ***EBioMedicine*** 52:102595
29. Kurusu T<sup>†§</sup>, Kim KS<sup>†§</sup>, Koizumi Y<sup>†</sup>, Nakaoka S, **Ejima K**, Misawa N, Koyanagi Y, Sato K\*, Iwami

- S\* (2020). Quantifying the antiviral effect of APOBEC3 on HIV-1 infection in humanized mouse model. *Journal of Theoretical Biology* 498:110295
30. Nowak MK<sup>§</sup>, **Ejima K**, Quinn PD, Bazarian JJ, Mickleborough TD, Harezlak J, Newman SD, Kawata K\* (2020). ADHD may associate with reduced tolerance to acute subconcussive head impacts: a pilot case-control intervention study. *Journal of Attention Disorders* 1087054720969977
31. Tahir MJ, **Ejima K**, Li P, Demerath EW, Allison DB, Fields DA\* (2020). Associations of breastfeeding or formula feeding with infant anthropometry and body composition at 6 months. *Maternal & Child Nutrition* e13105
32. Huibregtse ME<sup>§</sup>, Nowak MK, Kim JE, Kalbfell RM, Koppineni A, **Ejima K**, Kawata K\* (2020). Does acute soccer heading cause an increase in plasma S100B? A randomized controlled trial. *PLoS One* 15:e0239507
33. Yoneoka D<sup>†</sup>, Tanoue Y<sup>†</sup>, Kawashima T<sup>†</sup>, Nomura S<sup>†</sup>, Shi S<sup>†</sup>, Eguchi A<sup>†</sup>, **Ejima K**, Taniguchi T, Sakamoto H, Kunishima H, Gilmour S, Nishiura H, Miyata H\* (2020). Large-scale epidemiological monitoring of the COVID-19 epidemic in Tokyo. *The Lancet Regional Health - Western Pacific* 3:100016
34. Eguchi A<sup>†</sup>, Yoneoka D<sup>†</sup>, Shi S<sup>†</sup>, Tanoue Y<sup>†</sup>, Kawashima T<sup>†</sup>, Nomura S<sup>†</sup>, Matsuura K, Makiyama K, **Ejima K**, Gilmour S, Nishiura H, Miyata H\* (2020). Trend change of the transmission route of COVID-19-related symptoms in Japan. *Public Health* 187:157-160
35. Huibregtse ME<sup>§</sup>, **Ejima K**, Chen Z, Kalbfell RM, Koppineni A, Kawata K\* (2020). Acute time-course changes in CCL11, CCL2, and IL-10 levels after controlled subconcussive head impacts: a pilot randomized clinical trial. *Journal of Head Trauma Rehabilitation* 35:308-316
36. Nomura S<sup>†</sup>, Yoneoka D<sup>†</sup>, Shi S<sup>†</sup>, Tanoue Y<sup>†</sup>, Kawashima T<sup>†</sup>, Eguchi A<sup>†</sup>, Matsuura K, Makiyama K, **Ejima K**, Taniguchi T, Sakamoto H, Kunishima H, Gilmour S, Nishiura H, Miyata H\* (2020). An assessment of self-reported COVID-19 related symptoms of 227,898 users of a social networking service in Japan: Has the regional risk changed after the declaration of the state of emergency? *The Lancet Regional Health - Western Pacific* 1:100011.
37. Kawata K\*, Steinfeldt JA, Huibregtse ME, Nowak MK, Macy J, Kercher K, Rettke D, Shin A, Chen Z, **Ejima K**, Newman SD (2020). Association between proteomic blood biomarkers and DTI/NODDI metrics in adolescent football players: A pilot study. *Frontiers in Neurology* 11:1417.

#### 2019 (n=5; 1 first, 4 middle authorships)

38. Zonner SW, **Ejima K**, Fulgar CC, Charleston CN, Huibregtse ME, Bevilacqua ZW, Kawata K\* (2019). Oculomotor response to cumulative subconcussive head impacts in US high school football players: a pilot longitudinal study. *JAMA Ophthalmology*. 137:265–270
39. Martins MA, Gonzalez-Nieto L, Shin YC, Domingues A, Gutman MJ, Maxwell HS, Magnani DM, Ricciardi MJ, Pedreño-Lopez N, Bailey VK, Altman JD, Parks CL, Allison DB, **Ejima K**, Rakasz EG, Capuano S 3rd, Desrosiers RC, Lifson JD, Watkins DI\* (2019). The frequency of vaccine-induced T-cell responses does not predict the rate of acquisition after repeated intrarectal SIVmac239 challenges in MAMU-B\*08 rhesus macaques. *Journal of Virology* 93:e01626-18

40. Zonner SW, **Ejima K**, Bevilacqua ZW, Huibregtse ME, Charleston C, Fulgar C, Kawata K\* (2019). Association of increased serum S100B levels with high school football subconcussive head impacts. *Frontier in Neurology* 10:327
41. Gonzalez-Nieto L, Castro IM, Bischof GF, Shin YC, Ricciardi MJ, Bailey VK, Dang CM, Pedreño-Lopez N, Magnani DM, **Ejima K**, Allison DB, Gil HM, Evans DT, Rakasz EG, Lifson JD, Desrosiers RC, Martins MA\* (2019). Vaccine protection against rectal acquisition of SIVmac239 in rhesus macaques. *PLoS Pathogens*. 15:e1008015
42. **Ejima K**, Brown AW, Schoeller DA, Heymsfield SB, Nelson EJ, Allison DB\* (2019). Does exclusion of extreme reporters of energy intake (the ‘Goldberg cutoffs’) reliably reduce or eliminate bias in nutrition studies? Analysis with illustrative associations of energy intake with health outcomes. *The American Journal of Clinical Nutrition* 110:1231-1239

**2018 (n=12; 3 first, 9 middle, 1 corresponding authorships)**

43. **Ejima K**, Pavela G, Li P, Allison DB\* (2018). Generalized lambda distribution for flexibly testing differences beyond the mean in the distribution of a dependent variable such as body mass index. *International Journal of Obesity* 42:930-933
44. **Ejima K\***, Thomas D, Allison DB (2018). A mathematical model for predicting obesity transmission with both genetic and nongenetic heredity. *Obesity* 26:927-933
45. Endo A, **Ejima K**, Nishiura H\* (2018). Capturing the transmission dynamics of pandemic influenza H1N1-2009 in the presence of heterogeneous immunity. *Annals of Epidemiology* 28:293-300
46. **Ejima K**, Nishiura H\* (2018). Real-time quantification of the next generation matrix and age-dependent forecasting of pandemic influenza H1N1 2009 in Japan. *Annals of Epidemiology* 28:301-308
47. Saito M, **Ejima K**, Kinoshita R, Nishiura H\* (2018). Assessing the effectiveness and cost-benefit of test-and-vaccinate policy for supplementary vaccination against rubella with limited doses. *International Journal of Environmental Research and Public Health* 15:572
48. Mao K, Quipildor GF, Tabrizian T, Novaj A, Guan F, Walters RO, Delahaye F, Hubbard GB, Ikeno Y, **Ejima K**, Li P, Allison DB, Salimi-Moosavi H, Beltran PJ, Cohen P, Barzilai N, Huffman DM\* (2018). Late-life targeting of the IGF-1 receptor improves healthspan and lifespan in female mice. *Nature Communications* 9:2394
49. Xu M\*, Pirtskhalava T, Farr JN, Weigand BM, Palmer AK, Weivoda MM, Inman CL, Ogrodnik MB, Hachfeld CM, Fraser DG, Onken JL, Johnson KO, Verzosa GC, Langhi LGP, Weigl M, Giorgadze N, LeBrasseur NK, Miller JD, Jurk D, Singh RJ, Allison DB, **Ejima K**, Hubbard GB, Ikeno Y, Cubro H, Garovic VD, Hou X, SJ Weroha SJ, Robbins PD, Niedernhofer LJ, Khosla S, Tchkonja T\*, Kirkland JL\* (2018). Senolytics improve physical function and increase lifespan in old age. *Nature Medicine* 24:1246-1256
50. Yamamoto N<sup>§</sup>, **Ejima K**, Nishiura H\* (2018). Modelling the impact of correlations between condom use and sexual contact pattern on the dynamics of sexually transmitted infections. *Theoretical Biology and Medical Modelling* 15:6
51. Martins MA\*, Tully D, Pedreño-Lopez N, von Bedrow B, Pauthner M, Shin Y, Yuan M, Lima N, Bean D, Gonzalez-Nieto L, Domingues A, Gutman M, Maxwell H, Magnani D, Ricciardi M,

Bailey V, Altman J, Burton D, **Ejima K**, Allison DB, Evans D, Rakasz E, Parks C, Bonaldo M, Capuano S III, Lifson J, Desrosiers R, Allen T, Watkins DI (2018). Mamu-B\*17+ rhesus macaques vaccinated with env, vif, and nef manifest early control of SIVmac239 replication. *Journal of Virology* 92:e00690-18

52. Howell CR\*, Mehta T, **Ejima K**, Ness KK, Cherrington A, Fontaine KR (2018). Body composition and mortality in Mexican American adults: results from the National Health and Nutrition Examination Survey. *Obesity* 26:1372-80
53. Ito Y\$, Tuzin A, Remion A, **Ejima K**, Mammano F\*, Iwami S\* (2018). Dynamics of HIV-1 coinfection in different susceptible target cell populations during cell-free infection, *Journal of Theoretical Biology* 455:39-46
54. Martins MA\*, Gonzalez-Nieto L, Shin YC, Domingues A, Gutman MJ, Maxwell HS, Magnani DM, Ricciardi MJ, Pedreño-Lopez N, Bailey VK, Altman JD, Parks CL, Allison DB, **Ejima K**, Rakasz EG, Capuano III S, Desrosiers RC, Lifson JD, Watkins DI (2018). Vaccine-induced T-cell responses do not predict the rate of acquisition after repeated intrarectal SIVmac239 challenges in Mamu-B\*08+ rhesus macaques. *Journal of Virology* 93:e01626-18

**2017 (n=3; 3 middle authorships) Average Impact Factor: 4.144**

55. Howell CR\*, Fontaine KR, **Ejima K**, Ness KK, Cherrington A, Mehta T (2017). Maximum lifetime body mass index and all-cause and cause-specific mortality in Mexican- American adults: Results from the National Health and Nutrition Examination Study, 1988-2004 and 1999-2010. *Preventive Chronic Disease* 14:E67
56. Ito Y\$, Remion A, Tuzin A, **Ejima K**, Nakaoka S, Iwasa Y, Iwami S\*, Mammano F\* (2017). Number of infection events per cell during HIV-1 cell-free infection. *Scientific Reports* 7:6559
57. Martins MA\*, Shin YC, Gonzalez-Nieto L, Domingues A, Gutman MJ, Maxwell HS, Castro I, Magnani DM, Ricciardi M, Pedreño-Lopez N, Bailey V, Betancourt D, Altman JD, Pauthner M, Burton DR, von Bredow B, Evans DT, Yuan M, Parks CL, **Ejima K**, Allison DB, Rakasz E, Barber GN, Capuano S III, Lifson JD, Desrosiers RC, Watkins DI (2017). Vaccine-induced immune responses against both Gag and Env improve control of simian immunodeficiency virus replication in rectally challenged rhesus macaques. *PLoS Pathogens* 13:e1006529

**2016 (n=1; 1 first authorship)**

58. **Ejima K**, Li P, Smith Jr DL, Nagy TR, Kadish I, van Groen T, Dawson JA, Yang Y, Patki A, Allison DB\* (2016). Observational research rigour alone does not justify causal inference. *European Journal of Clinical Investigation* 46:985-993

**2015 (n=1; 1 middle authorship)**

59. Martins MA\*, Tully DC, Cruz MA, Power KA, Veloso de Santana MG, Bean DJ, Ogilvie CB, Gadgil R, Lima NS, Magnani DM, **Ejima K**, Allison DB, Piatak M Jr, Altman JD, Parks CL, Rakasz EG, Capuano S 3rd, Galler R, Bonaldo MC, Lifson JD, Allen TM, Watkins DI (2015). Vaccine-induced simian immunodeficiency virus specific CD8 T-cell responses focused on a single Nef epitope select for escape variants shortly after infection. *Journal of Virology* 89:10802-10820.

#### 2014 (n=4; 1 first, 3 middle authorships)

60. **Ejima K**, Aihara K, Nishiura H\* (2014). Probabilistic differential diagnosis of Middle East respiratory syndrome (MERS) using the time from immigration to illness onset among imported cases. *Journal of Theoretical Biology* 346:47-53
61. Nishiura H\*, **Ejima K**, Mizumoto K (2014). Missing information in animal surveillance of MERS-CoV. *Lancet Infectious Diseases* 14:100
62. Nishiura H\*, **Ejima K**, Mizumoto K, Nakaoka S, Inaba H, Imoto S, Yamaguchi R, Saito MM (2014). Cost-effective length and timing of school closure during an influenza pandemic depend on the severity. *Theoretical Biology and Medical Modelling* 11:5
63. Mizumoto K, **Ejima K**, Yamamoto T, Nishiura H\* (2014). On the risk of severe dengue during secondary infection: A systematic review coupled with mathematical modeling. *Journal of Vector Borne Diseases* 51:153-164.

#### 2013 (n=5; 3 first, 2 middle authorships)

64. Nishiura H\*, Mizumoto K, **Ejima K** (2013). How to interpret the transmissibility of novel influenza A(H7N9): an analysis of initial epidemiological data of human cases from China. *Theoretical Biology and Medical Modelling* 10:30
65. **Ejima K**, Aihara K, Nishiura H\* (2013). The impact of model building on the transmission dynamics under vaccination: Observable (symptom-based) versus unobservable (contagiousness-dependent) approaches. *PLoS One* 8:4:e62062
66. **Ejima K**, Aihara K, Nishiura H\* (2013). Modeling the obesity epidemic: Social contagion and its implications for control. *Theoretical Biology and Medical Modelling* 10:17
67. **Ejima K**, Aihara K, Nishiura H\* (2013) On the use of chance-adjusted agreement statistic to measure the assortative transmission of infectious diseases. *Computational & Applied Mathematics* 32:303-313
68. Mizumoto K, **Ejima K**, Yamamoto T, Nishiura H\* (2013). Vaccination and clinical severity: Is the effectiveness of contact tracing and case isolation hampered by past vaccination? *International Journal of Environmental Research and Public Health*. 10:816-829

#### 2012 (n=3; 2 first, 1 middle authorships)

69. **Ejima K**, Omori R, Cowling BJ, Aihara K, Nishiura H\* (2012). The time required to estimate the case fatality ratio of influenza using only the tip of an iceberg: Joint estimation of the virulence and the transmission potential. *Computational and Mathematical Methods in Medicine* 978901
  70. **Ejima K**, Omori R, Aihara K, Nishiura H\* (2012). Real-time investigation of measles epidemics with estimate of vaccine efficacy. *International Journal of Biological Sciences* 8:620-9
  71. Nishiura H\*, Mizumoto K, **Ejima K**, Zhong Y, Cowling BJ, Omori R (2012). Incubation period as part of the case definition of severe respiratory illness caused by a novel corona virus. *Eurosurveillance* 17:20296
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## Professional Presentation

### Oral Presentations -----

1. **Ejima K.** Estimation of Epidemiological Key Parameters Using Viral Dynamics Model. *2020 Japan Society for Mathematical Biology Annual Meeting*. September 2021. Online
2. **Ejima K.** Preparing for the second wave of COVID-19: Correcting recall bias in contact tracing using within-host SARS-CoV-2 infection dynamics model. *Indiana-Wide COVID-19 Research Networking Event*. June 2020. Online
3. **Ejima K.** Application of virus dynamics models to epidemiology and clinical trial design. *2020 Japan Society for Mathematical Biology Annual Meeting*. September 2020. Online
4. **Ejima K.** Postmenopausal Longitudinal Bone Mineral Density (BMD) Trajectory Improves Prediction Accuracy of Fracture Risk. *The International Council for Industrial and Applied Mathematics 2019*. July 2019. Valencia, Spain
5. **Ejima K**, Brown AW, Schoeller DA, Heymsfield SB, Nelson EJ, Allison DB. Does exclusion of extreme reporters of energy intake reliably make results less biased in nutrition studies? *Public Health Research day*. April 2019. Bloomington, IN, USA
6. **Ejima K.** Modelling Obesity: Exploration of Obesity-Mortality Association. *Japanese Society for Mathematical Biology Annual Meeting*. October 2017. Sapporo, Japan
7. **Ejima K.** Modeling Social Contagion of Obesity. *AAAS 2017 Annual Meeting*. February 2017. Boston, MA, USA
8. **Ejima K.** Mathematical Model for “Vertical Transmission” of Obesity. *10<sup>th</sup> European Conference on Mathematical and Theoretical Biology and SMB Annual Meeting*. July 2016. Nottingham, UK
9. **Ejima K.** Mehta T, Allison DB. Comparing the Predictive Ability of Two Comprehensive Clinical Staging Systems: Edmonton Obesity Staging System (EOSS) and Cardiometabolic Disease Staging (CMDs). *Obesityweek*. November 2015. Los Angeles, CA, USA
10. **Ejima K.** Propagation of the US Obesity Epidemic Across Generations: Maternal Obesity and Future Obesity Prevalence. *Society for Mathematical Biology Annual Meeting*. July 2015 Atlanta, GA, USA
11. **Ejima K.** Consequences of Obesity Epidemic; the Impact of “Vertical Transmission” of Obesity on Population Dynamics. *9<sup>th</sup> European Conference on Mathematical and Theoretical Biology*. June 2014. Goteborg, Sweden
12. **Ejima K**, Aihara K, Nishiura H. Modeling the social contagion: The obesity epidemic and its control. *Annual Conference & Meeting for the Society for Mathematical Biology*. June 2013. Tempe, AZ, USA
13. **Ejima K.** Real-time estimation of the next-generation matrix of the pandemic influenza H1N1-2009. *The Fourth Conference on Computational and Mathematical Population Dynamics*. June 2013. Taiyuan, Shanxi Province, China
14. **Ejima K**, Nishiura H, Aihara K. Real-time estimation of the next-generation matrix of the pandemic influenza H1N1-2009. *Japanese Society for Mathematical Biology Annual Meeting*. September 2013. Shizuoka, Japan

## Invited Talks -----

15. **Ejima K.** Estimation of Epidemiological Key Parameters Using Viral Dynamics Model. *Interagency Modeling and Analysis Group / Multi-scale Modeling Working Group Meeting*. September 2021. Online
16. **Ejima K.** Test-based guideline to end isolation of patients. *MIDAS Webinar: COVID-19 Urgent Grant Program Awards – III*. March 2021. Online
17. **Ejima K.** Dependent happening in epidemiology: Part II: Application to social contagion of obesity. *Special Nutrition Obesity Research Center Seminar*. June 2013. Birmingham, AL, USA
18. **Ejima K.** Real time investigation of measles epidemics with estimate of vaccine efficacy. *IDE seminar, School of Public Health, The University of Hong Kong*. March 2012. Hong Kong, China

## Poster Presentation -----

19. **Ejima K,** Zoh R, Tekwe C, Allison DB, Brown AW. What Proportion of Planned Missing Data Is Allowed for Unbiased Estimates of the Association Between Energy Intake and Body Weight Using Multiple Imputation? *Nutrition 2020*. May 2020. Online
20. **Ejima K,** Brown AW, Smith Jr DL, Beyaztas U, Allison DB. Assessment of Type I Error Rates and Power of Common Analysis Methods in Murine Obesity-Related Study: ‘Plasmode-Based’ Simulation, *Nutrition 2019*. June 2019. Baltimore, MD, USA
21. **Ejima K.** Does Exclusion of Extreme Reporters of Energy Intake Make Results Less Biased in Nutrition Studies? *Obesityweek*. November 2018. Nashville, TN, USA
22. **Ejima K,** Mehta T. Comparison of Predictive Ability of Mortality between Weight History and Cardiometabolic Medication History. *Obesityweek*. November 2016. New Orleans, LA, USA
23. Mehta T, **Ejima K,** Allison DB. Modeling Obesity Associated Years of Life Lost: A Significance Test to Compare Predictive Accuracies of Non-Nested Models. *GSA Annual Scientific Meeting*. November 2015. Orlando, Florida, USA
24. **Ejima K.** The Roles of Maternal Obesity in the U.S. Obesity Epidemic: Propagation Across Generation. *Obesityweek*. November 2015. Los Angeles, CA, USA
25. **Ejima K,** Nishiura H. Chance-adjusted agreement statistic for a measurement of the assortative transmission of infectious diseases. *Japanese Society for Mathematical Biology Annual Meeting*. July 2014. Osaka, Japan
26. **Ejima K,** Aihara K, Nishiura H. Distinguishing the virulence of novel influenza using limited case data: a case study of the avian influenza A(H7N9). *EPIDEMICS4*. November 2013. Amsterdam, Netherland
27. **Ejima K,** Aihara K. Consideration on HPV vaccine policy. *The First International Symposium on Innovative Mathematical Modelling*. February 2011. Tokyo, Japan



- 2016 Japanese Society for Mathematical Biology Early Career Award  
This award is given to early career scholars who have contributed to mathematical biology in Japan.
- 2016 Best Paper Award in General Statistics Research, The Science Unbound Foundation  
This award is given to investigators in the area of statistical genetics or general statistics.
- 2022 United Japanese researchers Around the world (UJA) Paper Award  
This award is given to Japanese investigators working abroad (mainly in the US).
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## Key Media Appearances

### Indiana University School of Public Health

IU study finds differences in COVID-19 and other coronavirus which may be the reason it is so hard to control

March 24, 2021

<https://publichealth.indiana.edu/news-events/news/2021/keisuke-ejima-antiviral-therapy-study.html>

What underlies inconsistent results in clinical trials for COVID-19 drugs?

July 6, 2021

<https://news.iu.edu/stories/2021/07/iub/releases/06-inconsistent-clinical-trial-results-covid-19-drugs-patient-recruitment.html>

### Science

Should we treat obesity like a contagious disease?

February 19, 2017

<https://www.sciencemag.org/news/2017/02/should-we-treat-obesity-contagious-disease>

### (In Japanese media)

#### Japan Science and Technology Agency

Peak viral load comes fast: explaining why development of treatment for COVID-19 is challenging ~ from the frontline of interdisciplinary biological science using mathematics ~ (ウイルス排出量のピークが早い 新型コロナウイルスの治療が困難な理由を解明～数理学を駆使した異分野融合生物学研究の最前線～)

March 23, 2021

<https://www.jst.go.jp/pr/announce/20210323/index.html>

#### Yomiuri Shimbun

Viral load hits the peak 2 days after symptom onset “Treatment initiated after that is not effective” (コロナ発症から2日、ウイルス量はピークに「その後の投薬効果は低い」)

March 23, 2021

<https://www.yomiuri.co.jp/medical/20210322-OYT1T50240/>

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## **Memberships**

2020 – Present Member, Models of Infectious Disease Agent Study (MIDAS)

2019 – Present Member, American Society for Nutrition

2014 – Present Member, The Obesity Society

2010 – Present Member, Japanese Society for Mathematical Biology