

Takuji Ishikawa

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Department of Biomedical Engineering  
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## CAREER SUMMARY

### Statement of academic qualifications & career :

#### EDUCATION

1999 : Doctor's Degree in Mechanical Eng., Tokyo Institute of Technology, Japan

1996 : Master's Degree in Mechanical Eng., Tokyo Institute of Technology, Japan

1994 : Bachelor's Degree in Mechanical Eng., Tokyo Institute of Technology, Japan

#### EXPERIENCE

2021-present : Professor in the Dept. Biomedical Engineering, Tohoku University, Japan

2016-2021 : Professor in the Dept. Finemechanics, Tohoku University, Japan

2013-2016 : Professor in the Dept. Bioengineering and Robotics, Tohoku University, Japan

2006-2013 : Associate Professor in the Dept. Bioengineering and Robotics, Tohoku University, Japan

2003-2005 : Visiting Researcher in the DAMTP, University of Cambridge, UK.

2002-2006 : Associate Professor in the Dept. Mechanical Engineering, Fukui University, Japan

1999-2002 : Research Associate in the Dept. Mechanical Engineering, Fukui University, Japan

1997-1999 : Research Fellow of the Japan Society for the Promotion of Science

#### HONORS AND AWARDS

2023 : Research Award, Bioengineering Division, The Japan Society of Mechanical Engineers

2023 : Fellow of The Japan Society of Mechanical Engineers

2022 : Fluid Science Foundation, Fluid Science Research Award

2019 : JBSE Papers of the year award

2015 : The Visualization Society of Japan, Gold medal in Art contest "Chlamy Art"

2013 : JBSE Graphics of the year award  
2011 : Award of Aoba Foundation for the Promotion of Engineering  
2011 : JBSE Papers of the year award  
2010 : Best paper award, Japanese Society for Engineering Education  
2010 : Young investigator award, Miyagi Sangyo Kagaku Sinkou Kikin  
2010 : The Young Scientists' Prize, The Commendation for Science and Technology  
by the Minister of Education, Culture, Sports, Science and Technology  
2007 : Seguchi Award, Bioengineering Division, The Japan Society of Mechanical Engineers  
2003 : JSME Education Award, The Japan Society of Mechanical Engineers  
1999 : JSME Young Engineers Award, The Japan Society of Mechanical Engineers  
1996 : White Star Award, Dept. Mechanical Eng. and Sci., Tokyo Institute of Technology  
1994 : White Star Award, Dept. Mechanical Eng. and Sci., Tokyo Institute of Technology

#### ACADEMIC ACTIVITIES

World Council of Biomechanics, Member  
Asian-Pacific Association for Biomechanics, Treasure  
Journal of Biomechanical Science and Engineering, Editor in Chief  
Science Council of Japan, Associate Member  
Bioengineering Division of the Japan Society of Mechanical Engineers, Vice Chair  
IAESTE JAPAN, Board of Directors  
Graduate School of Biomedical Engineering, Tohoku University, Assistant Dean

## List of publications :

### REVIEW PAPERS

1. D. Barthes-Biesel, T. Yamaguchi, T. Ishikawa, and E. Lac  
From passive motion of capsules to active motion of cells  
*Journal of Biomechanical Science and Engineering*, **1**, 51-68, (2006)
2. T. Yamaguchi, T. Ishikawa, K. Tsubota, Y. Imai, M. Nakamura and T. Fukui  
Computational blood flow analysis - New trends and methods -  
*Journal of Biomechanical Science and Engineering*, **1**, 29-50, (2006)
3. T. Ishikawa  
Suspension biomechanics of swimming microbes  
*Journal of the Royal Society Interface*, **6**, 815-834 (2009)
4. T. Yamaguchi, T. Ishikawa, Y. Imai, N. Matsuki, M. Xenos, Y. Deng, D. Bluestein  
Particle-Based Methods for Multiscale Modeling of Blood Flow in the Circulation and in Devices:  
Challenges and Future Directions  
*Annals of Biomedical Engineering*, **38**, 1225-1235 (2010)
5. T. Ishikawa  
Models and Numerical Methods for a Suspension of Swimming Microorganisms: Review  
*International Journal of Offshore and Polar Engineering*, **22**, 270-275 (2012)
6. Toshihiro Omori, Yohsuke Imai, Kenji Kikuchi, Takuji Ishikawa, Takami Yamaguchi  
Hemodynamics in the microcirculation and in microfluidics  
*Annals of Biomedical Engineering*, **43**, 238-257 (2015)
7. Y. Imai, T. Omori, Y. Shimogonya, T. Yamaguchi and T. Ishikawa  
Numerical methods for simulating blood flow at macro, micro, and multi scales  
*Journal of Biomechanics*, **49**, 2221-2228 (2016)
8. Takuji Ishikawa  
Swimming of ciliates under geometric constraints  
*Journal of Applied Physics*, **125**, 200901 (2019)
9. Takuji Ishikawa, Toshihiro Omori, Kenji Kikuchi  
Bacterial Biomechanics - From Individual Behaviors to Biofilm and the Gut Flora -  
*APL Bioengineering*, **4**, 041504 (2020)
10. Takuji Ishikawa, Hironori Ueno, Toshihiro Omori, Kenji Kikuchi  
Cilia and Centrosomes: Ultrastructural and Mechanical Perspectives  
*Seminars in Cell and Developmental Biology*, **110**, 61-69 (2021)

11. Takuji Ishikawa, Takeru Morita, and Toshihiro Omori  
Soft Microswimmer Powered by Fluid Oscillation  
*Journal of Robotics and Mechatronics*, **34**, 298-300 (2022)
12. Takuji Ishikawa, T. J. Pedley  
50-year History and Perspective on Biomechanics of Swimming Microorganisms:  
Part I. Individual Behaviours  
*Journal of Biomechanics*, **158**, 111706 (2023)
13. Toshihiro Omori, Takuji Ishikawa  
Computational Fluid Dynamics of Swimming Microorganisms  
*Journal of the Physical Society of Japan*, in press (2023)
14. Takuji Ishikawa  
Fluid dynamics of squirmers and ciliated microorganisms  
*Annual Review of Fluid Mechanics*, to appear (2024)

PEER REVIEW JOURNAL PAPERS

1. T. Ishikawa, L. F. R. Guimaraes, S. Oshima and R. Yamane  
Numerical simulation of blood flow through stenosed tube (Effect of non-Newtonian property of blood)  
*Transactions of the Japan Society of Mechanical Engineers, B*, **62**-600, 2957-2964, (1996)  
(in Japanese)
2. T. Ishikawa, S. Oshima and R. Yamane  
Resonance of vortex in blood flow through stenosed tube  
*Transactions of the Japan Society of Mechanical Engineers, B*, **63**-606, 387-395, (1997) (in Japanese)
3. T. Ishikawa, S. Oshima and R. Yamane  
Numerical simulation of blood flow through stenosed tube with moving wall  
*Transactions of the Japan Society of Mechanical Engineers, B*, **63**-607, 789-797, (1997) (in Japanese)
4. T. Ishikawa, L. F. R. Guimaraes, S. Oshima and R. Yamane  
Effect of non-Newtonian property of blood on flow through a stenosed tube  
*Fluid Dynamics Research*, **22**, 251-264, (1998)
5. T. Ishikawa, Y. Kosakai, S. Oshima and R. Yamane  
Visualization and simulation of pulsatile flow in a stenosed tube  
*Transactions of the Visualization Society of Japan*, **18**-70, 198-206, (1998) (in Japanese)
6. T. Ishikawa, S. Oshima and R. Yamane  
Mass Transport in Blood Flow through a Stenosed Tube  
*Transactions of the Japan Society of Mechanical Engineers, B*, **64**-625, 2774-2781, (1998)  
(in Japanese)
7. T. Ishikawa, S. Oshima, R. Yamane and M. Hasegawa  
Change of turbulent structure due to the shape of arterial wall  
*Transactions of the Japan Society of Mechanical Engineers, B*, **64**-625, 2782-2789, (1998)  
(in Japanese)
8. T. Ishikawa, S. Oshima and R. Yamane  
Mass Transport in Blood Flow through a Stenosed Tube  
*JSME International Journal, C*, **42**- 3, 680 - 688, (1999)
9. Y. Waki, T. Ishikawa, S. Oshima, R. Yamane and M. Hasegawa  
Effect of intermittency on pulsatile blood flow through a stenosed tube  
*Transactions of the Japan Society of Mechanical Engineers, B*, **65**-630, 690-697, (1999) (in Japanese)
10. Y. Waki, T. Ishikawa, S. Oshima, R. Yamane and M. Hasegawa  
Mass transport in pulsatile blood flow with intermittency through a stenosed aorta  
*Transactions of the Japan Society of Mechanical Engineers, B*, **65**-632, 1362-1369, (1999)  
(in Japanese)
11. Y. Waki, T. Ishikawa, S. Oshima, R. Yamane and M. Hasegawa  
Mass accumulation on the wall of a stenosed artery  
*Transactions of the Japan Society of Mechanical Engineers, B*, **65**-633, 1551-1558, (1999)  
(in Japanese)

12. T. Ishikawa, S. Oshima and R. Yamane  
Modeling and numerical simulation of axisymmetric stenosis growth in an artery  
*Transactions of the Japan Society of Mechanical Engineers, B*, **65-637**, 2982-2989, (1999)  
(in Japanese)
13. T. Ishikawa, S. Oshima and R. Yamane  
Resonance of vortex in pulsatile flow through asymmetric stenosis  
*Transactions of the Japan Society of Mechanical Engineers, B*, **65-639**, 3546-3553, (1999) (in Japanese)
14. T. Ishikawa, S. Oshima and R. Yamane  
Vortex enhancement in blood flow through stenosed and locally expanded tubes  
*Fluid Dynamics Research*, **26-1**, 35-52, (2000)
15. T. Ishikawa, N. Kawabata, K. Fujita and Y. Miyake  
Unsteady flow of viscoelastic fluid modeled by beads, springs and dampers  
*Transactions of the Japan Society of Mechanical Engineers, B*, **66-645**, 1287-1294, (2000)  
(in Japanese)
16. T. Ishikawa, S. Oshima and R. Yamane  
Mass transport in flow through asymmetric stenosis  
*Transactions of the Japan Society of Mechanical Engineers, B*, **66-647**, 1644-1651, (2000)  
(in Japanese)
17. T. Ishikawa, N. Kawabata, K. Fujita and Y. Miyake  
Fundamental characteristics of viscoelastic fluid modeled by beads, springs and dampers  
(Mechanism of second normal stress difference generation by dampers)  
*Transactions of the Japan Society of Mechanical Engineers, B*, **66-648**, 2049-2055, (2000)  
(in Japanese)
18. T. Ishikawa, N. Kawabata and M. Tachibana  
Modeling an erythrocyte by beads and springs and the numerical analysis of blood flow under the constant shear field  
*Transactions of the Japan Society of Mechanical Engineers, B*, **66-650**, 2642-2649, (2000)  
(in Japanese)
19. T. Ishikawa, S. Oshima, R. Yamane  
Mass Transport in Pulsatile Flow through Asymmetric Stenosis  
*JSME International Journal, C*, **44-4**, 1005-1012, (2001)
20. T. Ishikawa, N. Kawabata, M. Tachibana  
Proposal of a Deformable Erythrocyte Model and Numerical Analysis of a Shear Flow of Blood  
*JSME International Journal, C*, **44-4**, 964-971, (2001)
21. Q. Wang, N. Kawabata and T. Ishikawa  
Evaluation of critical velocity employed to prevent the backlayering of thermal fume during tunnel fires  
*Transactions of the Japan Society of Mechanical Engineers, B*, **67-656**, 911-918, (2001) (in Japanese)

22. T. Ishikawa, N. Kawabata and M. Tachibana  
Numerical analysis of blood flow under the oscillatory shear field by means of a bead-spring-damper model  
*Transactions of the Japan Society of Mechanical Engineers, B*, **67**-661, 2180-2187, (2001)  
(in Japanese)
23. T. Ishikawa, N. Kawabata, H. Shimizu and K. Fujita  
Numerical analysis of Poiseuille flow of polymeric liquid by means of a bead-spring macro model  
*Transactions of the Japan Society of Mechanical Engineers, B*, **68**-676, 3266-3272, (2002)  
(in Japanese)
24. T. Ishikawa, N. Kawabata and M. Tachibana  
Comparison between the discrete erythrocyte method and constitutive equations for blood  
*Acta of Bioengineering and Biomechanics*, **5**-1, 21-34, (2003)
25. N. Kawabata, T. Ishikawa, Y. Naito, Y. Matsumoto, N. Saito and T. Tsuruda  
Numerical simulation of mixing process of gaseous suppressant  
*Transactions of the Japan Society of Mechanical Engineers, B*, **69**-688, 2569-2576, (2003)  
(in Japanese)
26. N. Kawabata, A. Sano, T. Kikumoto, T. Ishikawa, T. Saito and T. Kanou  
Interference of fire smoke between successive tunnels with a snow-shed  
*Transactions of the Society of Heating, Air-conditioning and Sanitary Engineers of Japan*, **94**, 61-68, (2004) (in Japanese)
27. T. Ishikawa, K. Kamemoto and N. Kawabata  
Deformation of a capsule in a low Re number simple shear flow  
*Transactions of the Japan Society of Mechanical Engineers, B*, **72**-720, 1927-1934, (2006)  
(in Japanese)
28. T. Ishikawa, M. P. Simmonds and T. J. Pedley  
Hydrodynamic interaction of two swimming model micro-organisms  
*Journal of Fluid Mechanics*, **568**, 119-160, (2006)
29. T. Ishikawa and M. Hota  
Interaction of two swimming Paramecia  
*Journal of Experimental Biology*, **209**, 4452-4463, (2006)
30. T. Ishikawa, N. Kawabata, Y. Imai, K. Tsubota and T. Yamaguchi  
Numerical simulation of a low-hematocrit blood flow in a small artery with stenosis  
*Journal of Biomechanical Science and Engineering*, **2**, 12-22, (2007)
31. K. Yano, D. Mori, K. Tsubota, T. Ishikawa, S. Wada and T. Yamaguchi  
Analysis of destruction process of the primary thrombus under the influence of the blood flow  
*Journal of Biomechanical Science and Engineering*, **2**, 34-44, (2007)
32. T. Fukui, K. H. Parker, Y. Imai, K. Tsubota, T. Ishikawa, S. Wada, and T. Yamaguchi  
Effect of the wall motion on arterial wall shear stress  
*Journal of Biomechanical Science and Engineering*, **2**, 58-68, (2007)

33. T. Ishikawa, G. Sekiya, Y. Imai and T. Yamaguchi  
Hydrodynamic interaction between two swimming bacteria  
*Biophysical Journal*, **93**, 2217-2225, (2007)
34. T. Ishikawa and T. J. Pedley  
The rheology of a semi-dilute suspension of swimming model micro-organisms  
*Journal of Fluid Mechanics*, **588**, 399-435, (2007)
35. T. Ishikawa and T. J. Pedley  
Diffusion of swimming model micro-organisms in a semi-dilute suspension  
*Journal of Fluid Mechanics*, **588**, 437-462, (2007)
36. T. Ishikawa, T. J. Pedley and T. Yamaguchi  
Orientational relaxation time of bottom-heavy squirmers in a semi-dilute suspension  
*Journal of Theoretical Biology*, **249**, 296-306, (2007)
37. T. Yoshida, F. Mizuno, T. Hayasaka, K. Tsubota, Y. Imai, T. Ishikawa and T. Yamaguchi  
Development of a wearable surveillance system using gait analysis  
*Telemedicine and e-Health*, **13**, 703-714, (2007)
38. D. Mori, K. Yano, K. Tsubota, T. Ishikawa, S. Wada and T. Yamaguchi  
Simulation of platelet adhesion and aggregation regulated by fibrinogen and von Willebrand factor  
*Thrombosis and Haemostasis*, **99**, 108-115, (2008)
39. R. Lima, S. Wada, S. Tanaka, M. Takeda, T. Ishikawa, K. Tsubota, Y. Imai and T. Yamaguchi  
In vitro blood flow in a rectangular PDMS microchannel: experimental observations using a confocal micro-PIV system  
*Biomedical Microdevices*, **10**, 153-167, (2008)
40. T. Ishikawa and T. J. Pedley  
Coherent Structures in Monolayers of Swimming Particles  
*Physical Review Letters*, **100**, 088103 (2008)
41. Y. Feng, S. Wada, T. Ishikawa, K. Tsubota and T. Yamaguchi  
A rule-based computational study on the early progression of intracranial aneurysms using fluid-structure interaction: Comparison between straight model and curved model  
*Journal of Biomechanical Science and Engineering*, **3**, 124-137, (2008)
42. T. Ishikawa and T. Yamaguchi  
Shear-induced fluid-tracer diffusion in a semi-dilute suspension of spheres  
*Physical Review E*, **77**, 041402 (2008)
43. R. Lima, T. Ishikawa, Y. Imai, M. Takeda, S. Wada, T. Yamaguchi  
Radial dispersion of red blood cells in blood flowing through glass capillaries: Role of Hematocrit and geometry  
*Journal of Biomechanics*, **41**, 2188-2196, (2008)
44. K. Sato, Y. Imai, T. Ishikawa, N. Matsuki and T. Yamaguchi  
The importance of parent artery geometry in intra-aneurysm hemodynamics  
*Medical Engineering & Physics*, **30**, 774-782, (2008)



45. Y. Imai, K. Sato, T. Ishikawa and T. Yamaguchi  
Inflow into saccular cerebral aneurysms at arterial bends  
*Annals of Biomedical Engineering*, **36**, 1489-1495, (2008)
46. N. Matsuki, T. Ishikawa, Y. Imai and T. Yamaguchi  
Low voltage pulses can induce apoptosis  
*Cancer Letters*, **269**, 93-100, (2008)
47. Y. Shimogonya, T. Ishikawa, Y. Imai, D. Mori, N. Matsuki, T. Yamaguchi  
Formation of saccular cerebral aneurysms may require proliferation of the arterial wall  
(Computational investigation)  
*Journal of Biomechanical Science and Engineering*, **3**, 431-442, (2008)
48. T. Ishikawa, J. T. Locsei and T. J. Pedley  
Development of coherent structures in concentrated suspensions of swimming model  
micro-organisms  
*Journal of Fluid Mechanics*, **615**, 401-431 (2008)
49. S. Kim, H. Nakamura, T. Yoshida, M. Kishimoto, Y. Imai, N. Matsuki, T. Ishikawa and  
T. Yamaguchi  
Development of a wearable system module for monitoring physical and mental workloads  
*Telemedicine and e-Health*, **14**, 939-945 (2008)
50. D. Mori, K. Yano, K. Tsubota, T. Ishikawa, S. Wada and T. Yamaguchi  
Computational study on effect of red blood cells on primary thrombus formation  
*Thrombosis Research*, **123**, 114-121 (2008)
51. M. Yamano, N. Matsuki, K. Numayama, M. Takeda, T. Hayasaka, T. Ishikawa and T. Yamaguchi  
Progress of Recurrent Education for the Development of Engineering Enhanced Medicine  
"REDEEM" at Tohoku University  
*Transactions of Japanese Society for Engineering Education*, **56-6**, 125-132 (2008) (in Japanese)
52. Y. Shimogonya, T. Ishikawa, Y. Imai, N. Matsuki and T. Yamaguchi  
Can temporal fluctuation in spatial wall shear stress gradient initiate a cerebral aneurysm? A proposed  
novel hemodynamic index, the gradient oscillatory number (GON)  
*Journal of Biomechanics*, **42**, 550-554 (2009)
53. M. Yamano, N. Matsuki, K. Numayama, M. Takeda, T. Hayasaka, T. Ishikawa and T. Yamaguchi  
Development and experimental study of Education through the Synergetic Training for the  
Engineering Enhanced Medicine "ESTEEM" at Tohoku University  
*Transactions of Japanese Society for Engineering Education*, **57**, 13-21, (2009) (in Japanese)
54. H. Kondo, Y. Imai, T. Ishikawa, K. Tsubota, and T. Yamaguchi  
Hemodynamic analysis of micro-circulation in malaria infection  
*Annals of Biomedical Engineering*, **37**, 702-709 (2009)
55. H. Fujiwara, T. Ishikawa, R. Lima, N. Matsuki, Y. Imai, H. Kaji, M. Nishizawa and T. Yamaguchi  
Red blood cell motions in high-hematocrit blood flowing through a stenosed microchannel  
*Journal of Biomechanics*, **42**, 838-843 (2009)

56. K. Drescher, K. Leptos, I. Tuval, T. Ishikawa, T. J. Pedley and R. E. Goldstein  
Dancing *Volvox* : Hydrodynamic bound states of swimming algae  
*Physical Review Letters*, **102**, 168101 (2009)
57. N. Matsuki, M. Takeda, M. Yamano, Y. Imai, T. Ishikawa and T. Yamaguchi  
Effects of unique biomedical education programs for engineers: REDEEM and ESTEEM projects  
*Advances in Physiology Education*, **33**, 91-97 (2009)
58. M. Kishimoto, T. Yoshida, T. Hayasaka, D. Mori, Y. Imai, N. Matsuki, T. Ishikawa, T. Yamaguchi  
An internet-based wearable watch-over system for elderly and disabled utilizing EMG and accelerometer  
*Technology and Health Care*, **17**, 121-131 (2009)
59. R. Lima, T. Ishikawa, Y. Imai, M. Takeda, S. Wada, T. Yamaguchi  
Measurement of individual red blood cell motions under high hematocrit conditions using a confocal micro-PTV system  
*Annals of Biomedical Engineering*, **37**, 1546-1559 (2009)
60. R. Lima, M. S. N. Oliveira, T. Ishikawa, H. Kaji, S. Tanaka, M. Nishizawa, T. Yamaguchi  
Axisymmetric polydimethylsiloxane microchannels for in vitro haemodynamic studies  
*Biofabrication*, **1**, 035005 (2009)
61. Y. Shimogonya, T. Ishikawa, Y. Imai, N. Matsuki, T. Yamaguchi  
A realistic simulation of saccular cerebral aneurysm formation: focussing on a novel haemodynamic index, the gradient oscillatory number  
*International Journal of Computational Fluid Dynamics*, **23**, 583-593 (2009)
62. D. Hosokawa, T. Ishikawa, H. Morikawa, Y. Imai and T. Yamaguchi  
Development of a biologically inspired locomotion system for a capsule endoscope  
*International Journal of Medical Robotics and Computer Assisted Surgery*, **5**, 471-478 (2009)
63. T. Ishikawa  
Effect of shear flow on the self-diffusion of model micro-organisms in a semi-dilute suspension  
*Simulation*, **1**, 60-65 (in Japanese)
64. H. Kamada, K. Tsubota, M. Nakamura, S. Wada, T. Ishikawa, T. Yamaguchi  
A three-dimensional particle simulation of the formation and collapse of primary thrombus  
*International Journal for Numerical Methods in Biomedical Engineering*, **26**, 488-500 (2010)
65. Y. Imai, K. Sato, T. Ishikawa, A. Comerford, T. David and T. Yamaguchi  
ATP transport in saccular cerebral aneurysms at arterial bends  
*Annals of Biomedical Engineering*, **38**, 927-934 (2010)
66. N. Matsuki, M. Takeda, T. Ishikawa, A. Kinjo, T. Hayasaka, Y. Imai, T. Yamaguchi  
Activation of caspases and apoptosis in response to low-voltage electric pulses  
*Oncology Reports*, **23**, 1425-1434 (2010)
67. Y. Imai, H. Kondo, T. Ishikawa, C. T. Lim, T. Yamaguchi  
Modeling of hemodynamics arising from malaria infection  
*Journal of Biomechanics*, **43**, 1386-1393 (2010)

68. T. Ishikawa, J. T. Locsei and T. J. Pedley  
Fluid particle diffusion in a semi-dilute suspension of model micro-organisms  
*Physical Review E*, **82**, 021408 (2010)
69. N. Matsuki, M. Takeda, M. Yamano, Y. Imai, T. Ishikawa and T. Yamaguchi  
Designing a clinical education program for engineers: The ESTEEM Project  
*Journal of Interprofessional Care*, **24**, 738-741 (2010)
70. D. Giacche and T. Ishikawa  
Hydrodynamic interaction of two unsteady model microorganisms  
*Journal of Theoretical Biology*, **267**, 252-263 (2010)
71. D. Giacche, T. Ishikawa and T. Yamaguchi  
Hydrodynamic entrapment of bacteria swimming near a solid surface  
*Physical Review E*, **82**, 056309 (2010)
72. J-J. Christophe, T. Ishikawa, N. Matsuki, Y. Imai, K. Takase, M. Thiriet, T. Yamaguchi  
Patient-specific morphological and blood flow analysis of pulmonary artery in the case of severe deformations of the lung due to pneumothorax  
*Journal of Biomechanical Science and Engineering*, **5**, 485-498 (2010)
73. M. Saadatmand, T. Ishikawa, N. Matsuki, M. J. Abdekhodaie, Y. Imai, H. Ueno and T. Yamaguchi  
Fluid particle diffusion through high-hematocrit blood flow within a capillary tube  
*Journal of Biomechanics*, **44**, 170-175 (2011)
74. T. Ishikawa, H. Fujiwara, N. Matsuki, Y. Imai, H. Ueno and T. Yamaguchi  
Asymmetry of blood flow and cancer cell adhesion in a microchannel with symmetric bifurcation and confluence  
*Biomedical Microdevices*, **13**, 159-167 (2011)
75. T. Miki, Y. Imai, T. Ishikawa, S. Wada, T. Aoki, T. Yamaguchi  
A fourth-order Cartesian local mesh refinement method for the computational fluid dynamics of physiological flow in multi-generation branched vessels  
*International Journal for Numerical Methods in Biomedical Engineering*, **27**, 424-435 (2011)
76. T. Ishikawa, T. Sato, G. Mohit, Y. Imai and T. Yamaguchi  
Transport phenomena of microbial flora in the small intestine with peristalsis  
*Journal of Theoretical Biology*, **279**, 63-73 (2011)
77. T. Omori, T. Ishikawa, D. Barthes-Biesel, A.-V. Salsac, Y. Imai and T. Yamaguchi  
Comparison between spring network models and continuum constitutive laws: application to the large deformation of a capsule in shear flow  
*Physical Review E*, **83**, 041918 (2011)
78. Y. Imai, K. Nakaaki, H. Kondo, T. Ishikawa, C. T. Lim, T. Yamaguchi  
Margination of red blood cells infected by *Plasmodium falciparum* in a microvessel  
*Journal of Biomechanics*, **44**, 1553-1558 (2011)
79. T. Ishikawa, N. Yoshida, H. Ueno, M. Wiedeman, Y. Imai and T. Yamaguchi  
Energy transport in a concentrated suspension of bacteria  
*Physical Review Letters*, **107**, 028102 (2011)

80. C. Huang, T. W. H. Sheu, T. Ishikawa, T. Yamaguchi  
Development of a particle interaction kernel for convection-diffusion scalar transport equation  
*Numerical Heat Transfer, B*, **60**, 96-115 (2011)
81. H. Kamada, K. Tsubota, M. Nakamura, S. Wada, T. Ishikawa, T. Yamaguchi  
Computational study on effect of stenosis on a primary thrombus formation  
*Biorheology*, **48**, 99-114 (2011)
82. A. A. Evans, T. Ishikawa, T. Yamaguchi and E. Lauga  
Orientational order in concentrated suspensions of spherical microswimmers  
*Physics of Fluids*, **23**, 111702 (2011)
83. V. Leble, R. Lima, R. Dias, C. Fernandes, T. Ishikawa, Y. Imai and T. Yamaguchi  
Asymmetry of red blood cell motions in a microchannel with a diverging and converging bifurcation  
*Biomicrofluidics*, **5**, 044120 (2011)
84. D. Alizadehrad, Y. Imai, K. Nakaaki, T. Ishikawa, T. Yamaguchi  
Parallel simulation of cellular flow in microvessels using a particle method  
*Journal of Biomechanical Science and Engineering*, **7**, 57-71 (2012)
85. T. Tanaka, T. Ishikawa, K. Numayama-Tsuruta, Y. Imai, H. Ueno, T. Yoshimoto, N. Matsuki and T. Yamaguchi  
Inertial migration of cancer cells in blood flow in microchannels  
*Biomedical Microdevices*, **14**, 25-33 (2012)
86. T. Omori, Y. Imai, T. Yamaguchi and T. Ishikawa  
Reorientation of a non-spherical capsule in creeping shear flow  
*Physical Review Letters*, **108**, 138102 (2012)
87. N. Matsuki, S. Ichiba, T. Ishikawa, O. Nagano, M. Takeda, Y. Ujike and T. Yamaguchi  
Blood oxygenation using microbubble suspensions  
*European Biophysics Journal*, **41**, 571-578 (2012)
88. J-J. Christophe, T. Ishikawa, Y. Imai, K. Takase, M. Thiriet and T. Yamaguchi  
Hemodynamics in the pulmonary artery of a patient with pneumothorax  
*Medical Engineering & Physics*, **34**, 725-732 (2012)
89. T. Miki, X. Wang, T. Aoki, Y. Imai, T. Ishikawa, K. Takase and T. Yamaguchi  
Patient-specific modeling of pulmonary air flow using GPU cluster for the application in medical practice  
*Computer Methods in Biomechanics and Biomedical Engineering*, **15**, 771-778 (2012)
90. Y. Imai, T. Miki, T. Ishikawa, T. Aoki and T. Yamaguchi  
Deposition of micrometer particles in pulmonary airways during inhalation and breath holding  
*Journal of Biomechanics*, **45**, 1809-1815 (2012)
91. T. Ishikawa  
Vertical dispersion of model microorganisms in horizontal shear flow  
*Journal of Fluid Mechanics*, **705**, 98-119 (2012)

92. H. Ueno, T. Ishikawa, K. H. Bui, K. Gonda, T. Ishikawa and T. Yamaguchi  
Mouse respiratory cilia with the asymmetric axonemal structure on sparsely distributed ciliary cells can generate overall directional flow  
*Nanomedicine: Nanotechnology, Biology, and Medicine*, **8**, 1081-1087 (2012)
93. T. Tanaka, T. Ishikawa, K. Numayama-Tsuruta, Y. Imai, H. Ueno, N. Matsuki, T. Yamaguchi  
Separation of cancer cells from a red blood cell suspension using inertial force  
*Lab on a Chip*, **12**, 4336-4343 (2012)
94. H. Kamada, Y. Imai, M. Nakamura, T. Ishikawa, T. Yamaguchi  
Computational analysis on the mechanical interaction between thrombus and red blood cells  
*Medical Engineering & Physics*, **34**, 1411-1420 (2012)
95. D. Alizadehrad, Y. Imai, K. Nakaaki, T. Ishikawa, T. Yamaguchi  
Quantifying the deformation of red blood cells in microvessels  
*Journal of Biomechanics*, **45**, 2684-2689 (2012)
96. T. Omori, T. Ishikawa, D. Barthes-Biesel, A.-V. Salsac, J. Walter, Y. Imai and T. Yamaguchi  
Tension of red blood cell membrane in simple shear flow  
*Physical Review E*, **86**, 056321 (2012)
97. T. Omori, T. Ishikawa, Y. Imai and T. Yamaguchi  
Membrane tension of red blood cells pairwise interacting in simple shear flow  
*Journal of Biomechanics*, **46**, 548-553 (2013)
98. Y. Imai, I. Kobayashi, S. Ishida, T. Ishikawa, M. Buist and T. Yamaguchi  
Antral recirculation in the stomach during gastric mixing  
*American Journal of Physiology - Gastrointestinal and Liver Physiology*, **304**, G536-542 (2013)
99. T. Omori, T. Ishikawa, Y. Imai and T. Yamaguchi  
Shear-induced diffusion of red blood cells in a semi-dilute suspension  
*Journal of Fluid Mechanics*, **724**, 154-174 (2013)
100. A. Takamatsu, T. Ishikawa, K. Shinohara and H. Hamada  
Asymmetric rotational stroke in mouse node cilia during left-right determination  
*Physical Review E*, **87**, 050701(R) (2013)
101. A. Takamatsu, K. Shinohara, T. Ishikawa and H. Hamada  
Hydrodynamic Phase Locking in Mouse Node Cilia  
*Physical Review Letters*, **110**, 248107 (2013)
102. T. Yaginuma, M. S. N. Oliveira, R. Lima, T. Ishikawa and T. Yamaguchi  
Behavior of red blood cells in a hyperbolic microchannel: the extensional flow effect  
*Biomicrofluidics*, **7**, 054110 (2013)
103. H. Kamada, Y. Imai, M. Nakamura, T. Ishikawa and T. Yamaguchi  
Computational simulation of thrombus formation regulated by platelet membrane receptors and blood shear  
*Microvascular Research*, **89**, 95-106 (2013)

104. J. Ferracci, H. Ueno, K. Numayama-Tsuruta, Y. Imai, T. Yamaguchi, T. Ishikawa  
Hydrodynamical entrapment of ciliates at the air-liquid interface  
*PLoS ONE*, **8**, e75238 (2013)
105. K. Kiyota, H. Ueno, K. Numayama-Tsuruta, T. Haga, Y. Imai, T. Yamaguchi and T. Ishikawa  
Fluctuation of cilia-generated flow on the surface of tracheal lumen  
*American Journal of Physiology - Lung Cellular and Molecular Physiology*, **306**, L144-L151 (2014)
106. T. Ishikawa, T. Shioiri, K. Numayama-Tsuruta, H. Ueno, Y. Imai, T. Yamaguchi  
Separation of bacteria using the near-wall drift velocity in a microchannel  
*Lab on a Chip*, **14**, 1023-1032 (2014)
107. T. Omori, H. Hosaka, Y. Imai, T. Yamaguchi, T. Ishikawa  
Numerical analysis of a red blood cell flowing through a thin micro-pore  
*Physical Review E*, **89**, 013008 (2014)
108. P. Kanehl and T. Ishikawa  
Fluid mechanics of swimming bacteria with multiple flagella  
*Physical Review E*, **89**, 042704 (2014)
109. T. Omori, T. Ishikawa, Y. Imai and T. Yamaguchi  
Hydrodynamic interaction between two red blood cells in simple shear flow:  
its impact on the rheology of a semi-dilute suspension  
*Computational Mechanics*, **54**, 933-941 (2014)
110. N. Matsuki, T. Ishikawa, S. Ichiba, N. Shiba, Y. Ujike and T. Yamaguchi  
Oxygen supersaturated fluid using fine micro/nanobubbles  
*International Journal of Nanomedicine*, **9**, 4495-4505 (2014)
111. N. Takeishi, Y. Imai, K. Nakaaki, T. Yamaguchi and T. Ishikawa  
Leukocyte margination at arteriole shear rate  
*Physiological Reports*, **2**, e12037, (2014)
112. T. Ishikawa and T. J. Pedley  
Dispersion of model microorganisms swimming in a nonuniform suspension  
*Physical Review E*, **90**, 033008 (2014)
113. H. Ueno, K. H. Bui, T. Ishikawa, Y. Imai, T. Yamaguchi, T. Ishikawa  
Structure of dimeric axonemal dynein in cilia suggests an alternative mechanism of force generation  
*Cytoskeleton*, **71**, 412-422 (2014)
114. S. Nix, Y. Imai, D. Matsunaga, T. Yamaguchi, T. Ishikawa  
Lateral migration of a spherical capsule in a near-wall shear flow  
*Physical Review E*, **90**, 043009 (2014)

115. D. Matsunaga, Y. Imai, T. Omori, T. Ishikawa, T. Yamaguchi  
A full GPU implementation of a numerical method for simulating capsule suspensions  
*Journal of Biomechanical Science and Engineering*, **9**, 14-00039 (2014)
116. D. Matsunaga, Y. Imai, T. Yamaguchi, T. Ishikawa  
Deformation of a spherical capsule under oscillating shear flow  
*Journal of Fluid Mechanics*, **762**, 288-301 (2015)
117. Y. Kawano, C. Otsuka, J. Sanzo, C. Higgins, T. Nirei, T. Schilling, T. Ishikawa  
Applicability of darkfield internal reflection illumination (DIRI) to observations in microfluidics  
*PLoS ONE*, **10**, e0116925 (2015)
118. T. Ishikawa and V. A. Vladimirov  
A stepping micro-robot controlled by flow oscillations  
*Journal of Fluids Engineering*, **137**, 84501-1-3 (2015)
119. Y. Shimogonya, Y. Sawano, H. Wakebe, Y. Inoue, A. Ishijima and T. Ishikawa  
Torque-induced precession of bacterial flagella  
*Scientific Reports*, **5**, 18488 (2015)
120. N. Takeishi, Y. Imai, T. Yamaguchi, T. Ishikawa  
Flow of a circulating tumor cell and red blood cells in microchannels  
*Physical Review E*, **92**, 063011 (2015)
121. K. Kyoya, D. Matsunaga, Y. Imai, T. Omori and T. Ishikawa  
Shape matters: Near-field fluid mechanics dominate the collective motions of ellipsoidal squirmers  
*Physical Review E*, **92**, 063027 (2015)
122. D. Matsunaga, Y. Imai, T. Yamaguchi, T. Ishikawa  
Rheology of a dense suspension of spherical capsules under simple shear flow  
*Journal of Fluid Mechanics*, **786**, 110-127 (2016)
123. T. Ishikawa, T. Tanaka, Y. Imai, T. Omori and D. Matsunaga  
Deformation of a micro torque swimmer  
*Proceedings of the Royal Society A*, **472**, 20150604 (2016)
124. Y. Nonaka, K. Kikuchi, K. Numayama-Tsuruta, A. Kage, H. Ueno, T. Ishikawa  
Inhomogeneous distribution of *Chlamydomonas* in a cylindrical container with a bubble plume  
*Biology Open*, **5**, 154-160 (2016)
125. T. Omori and T. Ishikawa  
Upward swimming of a sperm cell in shear flow  
*Physical Review E*, **93**, 032402 (2016)
126. T. Ishikawa, S. Kajiki, Y. Imai and T. Omori  
Nutrient uptake in a suspension of squirmers  
*Journal of Fluid Mechanics*, **789**, pp.481-499 (2016)

127. R. Niwayama, H. Nagao, T. Kitajima, L. Hufnagel, K. Shinohara, T. Higuchi, T. Ishikawa, A. Kimura  
Bayesian inference of forces causing cytoplasmic streaming in *Caenorhabditis elegans* embryos and mouse oocytes  
*PLoS ONE*, **11**, e0159917 (2016)
128. S. Nix, Y. Imai, T. Ishikawa  
Lateral migration of a spherical capsule in a parabolic flow  
*Journal of Biomechanics*, **49**, 2249-2254 (2016)
129. M. Saadatmand, Y. Shimogonya, T. Yamaguchi, T. Ishikawa  
Enhancing cell free layer thickness by bypass channels in a wall  
*Journal of Biomechanics*, **49**, 2299-2305 (2016)
130. N. Takeishi, Y. Imai, S. Ishida, T. Omori, R. D. Kamm, T. Ishikawa  
Cell adhesion during bullet motion in capillaries  
*American Journal of Physiology - Heart and Circulatory Physiology*, **311**, H395-H403 (2016)
131. S. Ishida, Y. Imai, Y. Ichikawa, S. Nix, D. Matsunaga, T. Omori, T. Ishikawa  
A numerical model of a red blood cell infected by *Plasmodium falciparum* malaria: coupling cell mechanics with ligand-receptor interactions  
*Science and Technology of Advanced Materials*, **17**, 454-461 (2016)
132. D. Matsunaga, Y. Imai, W. Christian, T. Ishikawa  
Reorientation of a single red blood cell during sedimentation  
*Journal of Fluid Mechanics*, **806**, 102-128 (2016)
133. Taimei Miyagawa, Yohsuke Imai, Shunichi Ishida, and Takuji Ishikawa  
Relationship between gastric motility and liquid mixing in the stomach  
*American Journal of Physiology - Gastrointestinal and Liver Physiology*, **311**, G1114-G1121 (2016)
134. Y. Kawano, K. Namiki, A. Miyawaki, T. Ishikawa  
Extending whole slide imaging: Color darkfield internal reflection illumination (DIRI) for biological applications  
*PLoS ONE*, **12**, e0167774 (2017)
135. Jinyou Yang, Yuji Shimogonya, Takuji Ishikawa  
Mixing and pumping functions of the intestine of zebrafish larvae  
*Journal of Theoretical Biology*, **419**, 152-158 (2017)
136. K. Kikuchi, T. Haga, K. Numayama-Tsuruta, H. Ueno, T. Ishikawa  
Effect of fluid viscosity on the cilia-generated flow on a mouse tracheal lumen  
*Annals of Biomedical Engineering*, **45**, 1048-1057 (2017)
137. Hiroki Kamada, Yohsuke Imai, Masanori Nakamura, Takuji Ishikawa, Takami Yamaguchi  
Shear-induced platelet aggregation and distribution of thrombogenesis at stenotic vessels  
*Microcirculation*, **24**, e12355 (2017)



138. Toshihiro Omori, Hiroto Sugai, Yohsuke Imai, Takuji Ishikawa  
Nodal cilia-driven flow: development of a computational model of the nodal cilia axoneme  
*Journal of Biomechanics*, **61**, 242-249 (2017)
139. Alexander Chamolly, Takuji Ishikawa, Eric Lauga  
Active particles in periodic lattices  
*New Journal of Physics*, **19**, 115001 (2017)
140. Cheng-Hsi Chuang, Kenji Kikuchi, Hironori Ueno, Keiko Numayama-Tsuruta, Takami Yamaguchi and Takuji Ishikawa  
Collective spreading of red blood cells flowing in a microchannel  
*Journal of Biomechanics*, **69**, 64-69 (2018)
141. Takuji Ishikawa and Kenji Kikuchi  
Biomechanics of *Tetrahymena* escaping from a dead end  
*Proceedings of the Royal Society B*, **285**, 20172368 (2018)
142. Jinyou Yang, Yuji Shimogonya, Takuji Ishikawa  
What causes the spatial heterogeneity of bacterial flora in the intestine of zebrafish larvae?  
*Journal of Theoretical Biology*, **446**, 101–109 (2018)
143. Takuya Ohmura, Yukinori Nishigami, Atsushi Taniguchi, Shigenori Nonaka, Jun-ichi Manabe, Takuji Ishikawa, Masatoshi Ichikawa  
Simple mechanosense and response of cilia motion reveal the intrinsic habits of ciliates  
*Proceedings of the National Academy of Sciences of the United States of America*, **115**, 3231-3236 (2018)
144. Keiji Okumura, Seiya Nishikawa, Toshihiro Omori, Takuji Ishikawa, Atsuko Takamatsu  
Asymmetry in cilia configuration induces hydrodynamic phase locking  
*Physical Review E*, **97**, 032411 (2018)
145. Takeru Morita, Toshihiro Omori and Takuji Ishikawa  
Passive swimming of a microcapsule in vertical fluid oscillation  
*Physical Review E*, **98**, 023108 (2018)
146. Toshihiro Omori, Katja Winter, Kyosuke Shinohara, Hiroshi Hamada, Takuji Ishikawa  
Simulation of the nodal flow of *Dpcd* and *Rfx3* mutant embryo: comparison of mechano-sensing and morphogen transport hypotheses  
*Royal Society Open Science*, **5**, 180601 (2018)
147. Yukinori Nishigami, Takuya Ohmura, Atsushi Taniguchi, Shigenori Nonaka, Junichi Manabe, Takuji Ishikawa, Masatoshi Ichikawa  
Influence of cellular shape on sliding behavior of ciliates  
*Communicative & Integrative Biology*, **11**, e1506666 (2018)

148. Takeru Morita, Toshihiro Omori and Takuji Ishikawa  
Biaxial fluid oscillations can propel a micro-capsule swimmer in an arbitrary direction  
*Physical Review E*, **98**, 063102 (2018)
149. Toshihiro Omori, Mingming Lu, Takuji Ishikawa  
Elastohydrodynamic phase-lock in two rotating cilia  
*Journal of Biomechanical Science and Engineering*, **13**, 17-00699 (2018)
150. Takuji Ishikawa  
Stability of a dumbbell micro-swimmer  
*Micromachines*, **10**, 33 (2019)
151. Toshihiro Omori, Takuji Ishikawa  
Swimming of spermatozoon in a Maxwell fluid  
*Micromachines*, **10**, 78 (2019)
152. Jinyou Yang, Yuji Shimogonya, Takuji Ishikawa  
Bacterial detachment from a wall with a line of bump  
*Physical Review E*, **99**, 023104 (2019)
153. Kenji Kikuchi, Shunsuke Shigeta, and Takuji Ishikawa  
Depth measurement of molecular permeation using inclined confocal microscopy  
*PLoS ONE*, **14**, e0214504 (2019)
154. Koyo Nakamura, Toshihiro Omori, Takuji Ishikawa  
Shear-induced migration of a transmembrane protein within a vesicle  
*Biophysical Journal*, **116**, 1483–1494, (2019)
155. Hiroaki Ito, Toshihiro Omori and Takuji Ishikawa  
Swimming mediated by ciliary beating: Comparison with a squirmer model  
*Journal of Fluid Mechanics*, **874**, 774–796. (2019)
156. Yuki Suzuki, Kenji Kikuchi, Keiko Tsuruta-Numayama, Takuji Ishikawa  
Particle selectivity of filtering by *C. elegans*  
*Theoretical & Applied Mechanics Letters*, **9**, 61-65 (2019)
157. Azusa Kage, Toshihiro Omori, Kenji Kikuchi and Takuji Ishikawa  
The shape effect of flagella is more important than bottom-heaviness on passive gravitactic orientation in *Chlamydomonas reinhardtii*  
*Journal of Experimental Biology*, **223**, jeb205989 (2020)
158. Helene de Maleprade, Frederic Moisy, Takuji Ishikawa, Raymond E. Goldstein  
Motility and Phototaxis of *Gonium*, the Simplest Differentiated Colonial Alga  
*Physical Review E*, **101**, 022416 (2020)

159. Junichi Manabe, Toshihiro Omori and Takuji Ishikawa  
Shape matters: Entrapment of a model ciliate at interfaces  
*Journal of Fluid Mechanics*, **892**, A15 (2020)
160. Hitomu Matsui, Toshihiro Omori, Takuji Ishikawa  
Hydrodynamic interaction of two deformable torque swimmers  
*Journal of Fluid Mechanics*, **894**, A9 (2020)
161. Kenji Kikuchi, Hyontack Noh, Keiko Numayama-Tsuruta, Takuji Ishikawa  
Mechanical roles of anterograde and retrograde intestinal peristalses after feeding in a larval fish (Danio rerio)  
*American Journal of Physiology - Gastrointestinal and Liver Physiology*, **318**, G1013–G1021 (2020)
162. Takeru Morita, Toshihiro Omori, Yohei Nakayama, Shoichi Toyabe and Takuji Ishikawa  
Harnessing random low Reynolds number flow for net migration  
*Physical Review E*, **101**, 063101 (2020)
163. Yuki Suzuki, Kenji Kikuchi, Keiko Tsuruta-Numayama, Takuji Ishikawa  
How do *C. elegans* worms survive in highly viscous habitats?  
*Journal of Experimental Biology*, **224**, jeb.224691 (2020)
164. Hitomu Matsui, Toshihiro Omori, Takuji Ishikawa  
Rheology of a dilute suspension of deformable microswimmers  
*Physics of Fluids*, **32**, 071902 (2020)
165. Kenji Kikuchi, Shunsuke Shigeta, Keiko Tsuruta-Numayama, Takuji Ishikawa  
Vulnerability of the skin barrier to mechanical rubbing  
*International Journal of Pharmaceutics*, **587**, 119708 (2020)
166. Takuji Ishikawa, T. J. Pedley, K. Drescher, R. E. Goldstein  
Stability of dancing *Volvox*  
*Journal of Fluid Mechanics*, **903**, A11 (2020)
167. Zhihan Huang, Toshihiro Omori, Takuji Ishikawa  
Active droplet driven by a collective motion of enclosed microswimmers  
*Physical Review E*, **102**, 022603 (2020)
168. Nanami Taketoshi, Toshihiro Omori, Takuji Ishikawa  
Elasto-hydrodynamic interaction of two swimming spermatozoa  
*Physics of Fluids*, **32**, 101901 (2020)
169. Toshihiro Omori, Hiroaki Ito, Takuji Ishikawa  
Swimming microorganisms acquire optimal efficiency with multiple cilia  
*Proceedings of the National Academy of Sciences of the United States of America*, **117**, 30201-30207 (2020)

170. Atul Srivastava, Kenji Kikuchi, Takuji Ishikawa  
The bubble induced population dynamics of fermenting yeasts  
*Journal of the Royal Society Interface*, **17**, 20200735 (2020)
171. Takuji Ishikawa, D. R. Brumley, T. J. Pedley  
Rheology of a concentrated suspension of spherical squirmers: monolayer in simple shear flow  
*Journal of Fluid Mechanics*, **914**, A26 (2021)
172. Eric Lauga, Thanh Nghi Dang, Takuji Ishikawa  
Zigzag instability of biased pusher swimmers  
*EPL*, **133**, 44002 (2021)
173. Atul Srivastava, Kenji Kikuchi and Takuji Ishikawa  
Non-biodegradable objects may boost microbial growth in water bodies by harnessing bubbles  
*Royal Society Open Science*, **8**, 210646 (2021)
174. T. Ohmura, Y. Nishigami, A. Taniguchi, S. Nonaka, T. Ishikawa, M. Ichikawa  
Near-wall rheotaxis of the ciliate *Tetrahymena* induced by the kinesthetic sensing of cilia  
*Science Advances*, **7**, eabi5878 (2021)
175. Hiroki Kitamura, Toshihiro Omori and Takuji Ishikawa  
Impact of rheological properties on bacterial streamer formation  
*Journal of The Royal Society Interface*, **18**, 20210546 (2021)
176. Atul Srivastava, Kenji Kikuchi and Takuji Ishikawa  
Microbial Brazil nut effect  
*Soft Matter*, **17**, 10428-10436 (2021) (**Back Cover**)
177. T. Omori, K. Kikuchi, M. Schmitz, M. Pavlovic, C.-H. Chuang, T. Ishikawa  
Rheotaxis and migration of an unsteady microswimmer  
*Journal of Fluid Mechanics*, **930**, A30 (2022)
178. Takuji Ishikawa  
Lubrication theory and boundary element hybrid method for calculating hydrodynamic forces between particles in near contact  
*Journal of Computational Physics*, **452**, 110913 (2022)
179. C. Darveniza, T. Ishikawa, T. J. Pedley, and D. R. Brumley  
Pairwise scattering and bound states of spherical microorganisms  
*Physical Review Fluids*, **7**, 013104 (2022)
180. Kazuhiro Takahashi, Hiroaki Toyama, Youtaro Funahashi, Shin Kawana, Yutaka Ejima, Kenji Kikuchi, Takuji Ishikawa, Masanori Yamauchi  
Influence of Respiratory Gas Density on Tidal Volume during Mechanical Ventilation: A Laboratory Investigation and Observational Study in Children  
*Tohoku Journal of Experimental Medicine*, **256**, 271-281 (2022)

181. Takuji Ishikawa  
Bacterial behaviors in confined diorama environments  
*Biophysical Journal*, **121**, 2487-2489 (2022)
182. T. Omori, S. Munakata, and T. Ishikawa  
Self-sustaining oscillation of two axonemal microtubules based on a stochastic bonding model between microtubules and dynein  
*Physical Review E*, **106**, 014402 (2022)
183. Yuki Suzuki, Kenji Kikuchi, Keiko Numayama-Tsuruta, Takuji Ishikawa  
Reciprocating intestinal flows enhance glucose uptake in *C. elegans*  
*Scientific Reports*, **12**, 15310 (2022)
184. Takuji Ishikawa, Thanh Nghi Dang, Eric Lauga  
Instability of an active fluid jet  
*Physical Review Fluids*, **7**, 013104 (2022)
185. Takanobu A. Katoh, Toshihiro Omori, Katsutoshi Mizuno, Xiaorei Sai, Katsura Minegishi, Yayoi Ikawa, Hiromi Nishimura, Takeshi Itabashi, Eriko Kajikawa, Sylvain Hiver, Atsuko H. Iwane, Takuji Ishikawa, Yasushi Okada, Takayuki Nishizaka, Hiroshi Hamada  
Immotile cilia mechanically sense the direction of fluid flow for left-right determination  
*Science*, **379**, 66-71 (2023)
186. Takanobu A. Katoh, Toshihiro Omori, Takuji Ishikawa, Yasushi Okada, Hiroshi Hamada  
Biophysical analysis of mechanical signals in immotile cilia of mouse embryonic nodes using advanced microscopic techniques  
*Bio-protocol*, **13**, e4715 (2023)
187. Takahashi, K., Toyama, H., Kubo, R., Yoshida, N. Ejima, Y., Kikuchi, K., Ishikawa, T., Yamauchi, M.  
Effectiveness of substantial shortening of the endotracheal tube for decreasing airway resistance and increasing tidal volume during pressure-controlled ventilation in pediatric patients: a prospective observational study  
*Journal of Clinical Monitoring and Computing*, in press (2023)
188. Yu Kogure, Toshihiro Omori, Takuji Ishikawa  
Flow-induced diffusion in a packed lattice of squirmer  
*Journal of Fluid Mechanics*, in press (2023)
189. Kazuhiro Takahashi, Hiroaki Toyama, Yutaka Ejima, Jinyou Yang, Kenji Kikuchi, Takuji Ishikawa, Masanori Yamauchi  
Endotracheal tube, by the venturi effect, reduces the efficacy of increasing inlet pressure in improving pendelluft  
*PLOS ONE*, in press (2023)