Zhongjun J. Wu

List of Publications by Year
in descending order

132 papers	3,586 citations	136950 32 h-index	155660 55 g-index
133 all docs	133 docs citations	133 times ranked	2721 citing authors

#	Article	IF	Citations
1	A Quantitative Comparison of Mechanical Blood Damage Parameters in Rotary Ventricular Assist Devices: Shear Stress, Exposure Time and Hemolysis Index. Journal of Biomechanical Engineering, 2012, 134, 081002.	1.3	262
2	The use of computational fluid dynamics in the development of ventricular assist devices. Medical Engineering and Physics, 2011, 33, 263-280.	1.7	204
3	Evaluation of Eulerian and Lagrangian Models for Hemolysis Estimation. ASAIO Journal, 2012, 58, 363-372.	1.6	148
4	Study of Flow-Induced Hemolysis Using Novel Couette-Type Blood-Shearing Devices. Artificial Organs, 2011, 35, 1180-1186.	1.9	141
5	Blood-aggregating hydrogel particles for use as a hemostatic agent. Acta Biomaterialia, 2014, 10, 701-708.	8.3	130
6	Computational and Experimental Evaluation of the Fluid Dynamics and Hemocompatibility of the CentriMag Blood Pump. Artificial Organs, 2006, 30, 168-177.	1.9	124
7	Ambulatory veno-venous extracorporeal membrane oxygenation: Innovation and pitfalls. Journal of Thoracic and Cardiovascular Surgery, 2011, 142, 755-761.	0.8	117
8	Computational Fluid Dynamics as a Development Tool for Rotary Blood Pumps. Artificial Organs, 2001, 25, 336-340.	1.9	104
9	Design and Hydrodynamic Evaluation of a Novel Pulsatile Bioreactor for Biologically Active Heart Valves. Annals of Biomedical Engineering, 2004, 32, 1039-1049.	2.5	93
10	Paradoxical Effect of Nonphysiological Shear Stress on Platelets and <scp>v</scp>on <scp>W</scp>illebrand Factor. Artificial Organs, 2016, 40, 659-668.	1.9	81
11	Computational Characterization of Flow and Hemolytic Performance of the UltraMag Blood Pump for Circulatory Support. Artificial Organs, 2010, 34, 1099-1113.	1.9	78
12	Activation and shedding of platelet glycoprotein IIb/IIIa under non-physiological shear stress. Molecular and Cellular Biochemistry, 2015, 409, 93-101.	3.1	64
13	Shear-Induced Hemolysis: Species Differences. Artificial Organs, 2015, 39, 795-802.	1.9	63
14	Smooth muscle cell hypertrophy of renal cortex arteries with chronic continuous flow left ventricular assist. Annals of Thoracic Surgery, 2003, 75, 178-183.	1.3	62
15	Characterization of membrane blood oxygenation devices using computational fluid dynamics. Journal of Membrane Science, 2007, 288, 268-279.	8.2	60
16	Shear-induced platelet receptor shedding by non-physiological high shear stress with short exposure time: Glycoprotein IbÎ± and glycoprotein VI. Thrombosis Research, 2015, 135, 692-698.	1.7	58
17	Quantification of Shearâ€Induced Platelet Activation: High Shear Stresses for Short Exposure Time. Artificial Organs, 2015, 39, 576-583.	1.9	57
18	High shear induces platelet dysfunction leading to enhanced thrombotic propensity and diminished hemostatic capacity. Platelets, 2019, 30, 112-119.	2.3	55

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19	Flow features and deviceâ€induced blood trauma in CFâ€VADs under a pulsatile blood flow condition: A CFD comparative study. International Journal for Numerical Methods in Biomedical Engineering, 2018, 34, e2924.	2.1	52
20	Comparison and Experimental Validation of Fluid Dynamic Numerical Models for a Clinical Ventricular Assist Device. Artificial Organs, 2013, 37, 380-389.	1.9	48
21	Computational Fluid Dynamics Analysis of Thrombosis Potential in Left Ventricular Assist Device Drainage Cannulae. ASAIO Journal, 2010, 56, 157-163.	1.6	45
22	Fluid Dynamic Characterization of Operating Conditions for Continuous Flow Blood Pumps. ASAIO Journal, 1999, 45, 442-449.	1.6	43
23	Platelet glycoprotein IbÎ± ectodomain shedding and non-surgical bleeding in heart failure patients supported by continuous-flow left ventricular assist devices. Journal of Heart and Lung Transplantation, 2014, 33, 71-79.	0.6	43
24	Shear stress and blood trauma under constant and pulse-modulated speed CF-VAD operations: CFD analysis of the HVAD. Medical and Biological Engineering and Computing, 2019, 57, 807-818.	2.8	41
25	Drag reducing polymers improve tissue perfusion via modification of the RBC traffic in microvessels. Biorheology, 2009, 46, 281-292.	0.4	40
26	Micro-scale modeling of flow and oxygen transfer in hollow-fiber membrane bundle. Journal of Membrane Science, 2010, 362, 172-183.	8.2	36
27	Oxidative Stress, DNA Damage and Repair in Heart Failure Patients after Implantation of Continuous Flow Left Ventricular Assist Devices. International Journal of Medical Sciences, 2013, 10, 883-893.	2.5	36
28	Microscopic investigation of erythrocyte deformation dynamics. Biorheology, 2006, 43, 747-65.	0.4	36
29	In Vivo Experience of the Child-Size Pediatric Jarvik 2000 Heart: Update. ASAIO Journal, 2010, 56, 369-376.	1.6	35
30	Impact of high mechanical shear stress and oxygenator membrane surface on blood damage relevant to thrombosis and bleeding in a pediatric ECMO circuit. Artificial Organs, 2020, 44, 717-726.	1.9	35
31	Mesenchymal Stem Cell Transplantation Improves Regional Cardiac Remodeling Following Ovine Infarction. Stem Cells Translational Medicine, 2012, 1, 685-695.	3.3	34
32	Optimization of a Miniature Maglev Ventricular Assist Device for Pediatric Circulatory Support. ASAIO Journal, 2007, 53, 23-31.	1.6	33
33	Early In Vivo Experience With the Pediatric Jarvik 2000 Heart. ASAIO Journal, 2007, 53, 374-378.	1.6	32
34	Thirty-Day In-Vivo Performance of a Wearable Artificial Pump-Lung for Ambulatory Respiratory Support. Annals of Thoracic Surgery, 2012, 93, 274-281.	1.3	32
35	Pre-clinical evaluation of the infant Jarvik 2000 heart in a neonate piglet model. Journal of Heart and Lung Transplantation, 2013, 32, 112-119.	0.6	32
36	Computational characterization of flow and blood damage potential of the new maglev CH-VAD pump versus the HVAD and HeartMate II pumps. International Journal of Artificial Organs, 2020, 43, 653-662.	1.4	32

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37	Effects of Left Ventricular Assist Device Support and Outflow Graft Location Upon Aortic Blood Flow. ASAIO Journal, 2004, 50, 432-437.	1.6	31
38	Short-Term Mechanical Unloading With Left Ventricular Assist Devices After Acute Myocardial Infarction Conserves Calcium Cycling and Improves Heart Function. JACC: Cardiovascular Interventions, 2013, 6, 406-415.	2.9	31
39	Deviceâ€induced platelet dysfunction in mechanically assisted circulation increases the risks of thrombosis and bleeding. Artificial Organs, 2019, 43, 745-755.	1.9	31
40	Ex Vivo Lung Evaluation of Prearrest Heparinization in Donation After Cardiac Death. Annals of Surgery, 2013, 257, 534-541.	4.2	29
41	Device-Induced Hemostatic Disorders in Mechanically Assisted Circulation. Clinical and Applied Thrombosis/Hemostasis, 2021, 27, 107602962098237.	1.7	29
42	Computational Design and In Vitro Characterization of an Integrated Maglev Pumpâ€Oxygenator. Artificial Organs, 2009, 33, 805-817.	1.9	28
43	Evaluation of in vitro hemolysis and platelet activation of a newly developed maglev LVAD and two clinically used LVADs with human blood. Artificial Organs, 2019, 43, 870-879.	1.9	28
44	Regional remodeling strain and its association with myocardial apoptosis after myocardial infarction in an ovine model. Journal of Thoracic and Cardiovascular Surgery, 2008, 135, 991-998.e2.	0.8	27
45	Systemic Inflammatory Response Syndrome in End-Stage Heart Failure Patients Following Continuous-Flow Left Ventricular Assist Device Implantation: Differences in Plasma Redox Status and Leukocyte Activation. Artificial Organs, 2016, 40, 434-443.	1.9	27
46	Quantitative Characterization of Shear-Induced Platelet Receptor Shedding: Glycoprotein IbÎ±, Glycoprotein VI, and Glycoprotein IIb/IIIa. ASAIO Journal, 2018, 64, 773-778.	1.6	27
47	The role of PI3K/Akt signaling pathway in nonâ€physiological shear stressâ€induced platelet activation. Artificial Organs, 2019, 43, 897-908.	1.9	25
48	The impact of shear stress on deviceâ€induced platelet hemostatic dysfunction relevant to thrombosis and bleeding in mechanically assisted circulation. Artificial Organs, 2020, 44, E201-E213.	1.9	25
49	Computational Fluid Dynamics Analysis of a Maglev Centrifugal Left Ventricular Assist Device. Artificial Organs, 2004, 28, 874-880.	1.9	24
50	Functional and Biocompatibility Performances of an Integrated Maglev Pumpâ€Oxygenator. Artificial Organs, 2009, 33, 36-45.	1.9	24
51	Computational Modelâ€Based Design of a Wearable Artificial Pumpâ€Lung for Cardiopulmonary/Respiratory Support. Artificial Organs, 2012, 36, 387-399.	1.9	23
52	Mechanistic insight of platelet apoptosis leading to non-surgical bleeding among heart failure patients supported by continuous-flow left ventricular assist devices. Molecular and Cellular Biochemistry, 2017, 433, 125-137.	3.1	23
53	Induction of Ventricular Collapse by an Axial Flow Blood Pump. ASAIO Journal, 1998, 44, M685-M690.	1.6	21
54	Progress toward an ambulatory pump-lung. Journal of Thoracic and Cardiovascular Surgery, 2005, 130, 973-978.	0.8	20

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55	Prediction of mechanical hemolysis in medical devices via a Lagrangian strainâ€based multiscale model. Artificial Organs, 2020, 44, E348-E368.	1.9	20
56	Biocompatibility Assessment of a Longâ€Term Wearable Artificial Pumpâ€Lung in Sheep. Artificial Organs, 2013, 37, 678-688.	1.9	19
57	Computational Study of the Blood Flow in Three Types of 3D Hollow Fiber Membrane Bundles. Journal of Biomechanical Engineering, 2013, 135, 121009.	1.3	19
58	Intraplatelet reactive oxygen species, mitochondrial damage and platelet apoptosis augment non-surgical bleeding in heart failure patients supported by continuous-flow left ventricular assist device. Platelets, 2015, 26, 536-544.	2.3	19
59	Oxidative stress induced modulation of platelet integrin Î±2bÎ²3 expression and shedding may predict the risk of major bleeding in heart failure patients supported by continuous flow left ventricular assist devices. Thrombosis Research, 2017, 158, 140-148.	1.7	19
60	Comparison of Intraplatelet Reactive Oxygen Species, Mitochondrial Damage, and Platelet Apoptosis After Implantation of Three Continuous Flow Left Ventricular Assist Devices. ASAIO Journal, 2015, 61, 244-252.	1.6	18
61	Investigation of fluid dynamics within a miniature mixed flow blood pump. Experiments in Fluids, 2001, 31, 615-629.	2.4	17
62	Effects of Continuous Flow Left Ventricular Assist Device Support on Skin Tissue Microcirculation and Aortic Hemodynamics. ASAIO Journal, 2003, 49, 103-107.	1.6	17
63	A novel wearable pump-lung device: In vitro and acute in vivo study. Journal of Heart and Lung Transplantation, 2012, 31, 101-105.	0.6	17
64	Infection, Oxidative Stress, and Changes in Circulating Regulatory T Cells of Heart Failure Patients Supported by Continuous-Flow Ventricular Assist Devices. ASAIO Journal, 2017, 63, 128-133.	1.6	16
65	Effects of Cardiopulmonary Support With a Novel Pediatric Pumpâ€Lung in a 30â€Day Ovine Animal Model. Artificial Organs, 2015, 39, 989-997.	1.9	15
66	Continued Development of the Nimbus/University of Pittsburgh (UOP) Axial Flow Left Ventricular Assist System. ASAIO Journal, 1997, 43, M567.	1.6	14
67	Computational Fluid Dynamics and Experimental Characterization of the Pediatric Pump-Lung. Cardiovascular Engineering and Technology, 2011, 2, 276-287.	1.6	14
68	Design Optimization of a Wearable Artificial Pump-Lung Device With Computational Modeling. Journal of Medical Devices, Transactions of the ASME, 2012, 6, .	0.7	14
69	Flow characteristics and hemolytic performance of the new Breethe centrifugal blood pump in comparison with the CentriMag and Rotaflow pumps. International Journal of Artificial Organs, 2021, 44, 829-837.	1.4	14
70	Models of Shear-Induced Platelet Activation and Numerical Implementation With Computational Fluid Dynamics Approaches. Journal of Biomechanical Engineering, 2022, 144, .	1.3	14
71	Regional imbalanced activation of the calcineurin/BAD apoptotic pathway and the PI3K/Akt survival pathway after myocardial infarction. International Journal of Cardiology, 2013, 166, 158-165.	1.7	13
72	Prophylactic amiodarone and lidocaine improve survival in an ovine model of large size myocardial infarction. Journal of Surgical Research, 2013, 185, 152-158.	1.6	13

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73	Extracorporeal Respiratory Support With a Miniature Integrated Pediatric Pumpâ€Lung Device in an Acute Ovine Respiratory Failure Model. Artificial Organs, 2016, 40, 1046-1053.	1.9	13
74	Association of Oxidative Stress and Platelet Receptor Glycoprotein GPIbÎ± and GPVI Shedding During Nonsurgical Bleeding in Heart Failure Patients With Continuous-Flow Left Ventricular Assist Device Support. ASAIO Journal, 2018, 64, 462-471.	1.6	13
75	Modeling Clot Formation of Shear-Injured Platelets in Flow by a Dissipative Particle Dynamics Method. Bulletin of Mathematical Biology, 2020, 82, 83.	1.9	13
76	Progress on Development of the Nimbusâ€"University of Pittsburgh Axial Flow Left Ventricular Assist System. ASAIO Journal, 1998, 44, M521-M524.	1.6	12
77	Sensorless Physiologic Control, Suction Prevention, and Flow Balancing Algorithm for Rotary Biventricular Assist Devices. IEEE Transactions on Control Systems Technology, 2019, 27, 717-729.	5.2	12
78	Mechanical Circulatory Support of a Univentricular Fontan Circulation with a Continuous Axial-Flow Pump in a Piglet Model. ASAIO Journal, 2015, 61, 196-201.	1.6	11
79	Computed tomography angiography as an adjunct to computational fluid dynamics for prediction of oxygenator thrombus formation. Perfusion (United Kingdom), 2021, 36, 285-292.	1.0	11
80	Novel Ventricular Apical Cannula: In Vitro Evaluation Using Transparent, Compliant Ventricular Casts. ASAIO Journal, 1998, 44, M691-M695.	1.6	10
81	Strain-related regional alterations of calcium-handling proteins in myocardial remodeling. Journal of Thoracic and Cardiovascular Surgery, 2006, 132, 900-908.	0.8	10
82	Systemic Inflammatory Response Syndrome After Contentious-Flow Left Ventricular Assist Device Implantation and Change in Platelet Mitochondrial Membrane Potential. Journal of Cardiac Failure, 2015, 21, 564-571.	1.7	10
83	FVII Dependent Coagulation Activation in Citrated Plasma by Polymer Hydrogels. Biomacromolecules, 2010, 11, 3248-3255.	5.4	9
84	Initial Experience with a Juvenile Sheep Model for Evaluation of the Pediatric Intracorporeal Ventricular Assist Services. ASAIO Journal, 2013, 59, 75-80.	1.6	7
85	Pim-1 Kinase Cooperates with Serum Signals Supporting Mesenchymal Stem Cell Propagation. Cells Tissues Organs, 2014, 199, 140-149.	2.3	7
86	Evaluation of an autoregulatory ECMO system for total respiratory support in an acute ovine model. Artificial Organs, 2020, 44, 478-487.	1.9	7
87	Neutrophil injury and function alterations induced by high mechanical shear stress with short exposure time. Artificial Organs, 2021, 45, 577-586.	1.9	7
88	In Vitro Comparison of Recombinant and Plasma-Derived von Willebrand Factor Concentrate for Treatment of Acquired von Willebrand Syndrome in Adult Extracorporeal Membrane Oxygenation Patients. Anesthesia and Analgesia, 2022, 134, 312-321.	2.2	7
89	Development of an ambulatory extracorporeal membrane oxygenation system: From concept to clinical use. Applications in Engineering Science, 2022, 10, 100093.	0.8	7
90	Acquired platelet defects are responsible for nonsurgical bleeding in left ventricular assist device recipients. Artificial Organs, 2022, 46, 2244-2256.	1.9	7

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91	The Effect of Impeller Position on CFD Calculations of Blood Flow in Magnetically Levitated Centrifugal Blood Pumps. , 2010, , .		5
92	Pim-1 mediated signaling during the process of cardiac remodeling following myocardial infarction in ovine hearts. Journal of Molecular and Cellular Cardiology, 2013, 63, 89-97.	1.9	5
93	The Role of a Disintegrin and Metalloproteinase Proteolysis and Mechanical Damage in Nonphysiological Shear Stress-Induced Platelet Receptor Shedding. ASAIO Journal, 2020, 66, 524-531.	1.6	5
94	Computational fluid dynamics analysis and experimental hemolytic performance of three clinical centrifugal blood pumps: Revolution, Rotaflow and CentriMag. Medicine in Novel Technology and Devices, 2022, 15, 100153.	1.6	5
95	Left Ventricular Unloading After Acute Myocardial Infarction Reduces MMP/JNK Associated Apoptosis and Promotes FAK Cell-Survival Signaling. Annals of Thoracic Surgery, 2016, 102, 1919-1924.	1.3	4
96	A novel adaptor system enables endovascular access through extracorporeal life support circuits. Journal of Thoracic and Cardiovascular Surgery, 2019, 158, 1359-1366.	0.8	4
97	An exâ€vivo comparison of partial thromboplastin time and activated clotting time for heparin anticoagulation in an ovine model. Artificial Organs, 2021, , .	1.9	4
98	<i>In vitro</i>and<i>in vivo</i>evaluation of polymer hydrogels for hemorrhage control. Journal of Biomaterials Science, Polymer Edition, 2013, 24, 1781-1793.	3.5	3
99	Effects of small platform catheter-based left ventricular assist device support on regional myocardial signal transduction. Journal of Thoracic and Cardiovascular Surgery, 2015, 150, 1332-1341.	0.8	3
100	Neutrophil dysfunction due to continuous mechanical shear exposure in mechanically assisted circulation in vitro. Artificial Organs, 2022, 46, 83-94.	1.9	3
101	Model-Based Design and Optimization of Blood Oxygenators. Journal of Medical Devices, Transactions of the ASME, 2020, 14, 041001.	0.7	3
102	Right ventricular unloading and respiratory support with a wearable artificial pump-lung in an ovine model. Journal of Heart and Lung Transplantation, 2014, 33, 857-863.	0.6	2
103	High-efficiency, high-flux in-line hemofiltration using a high blood flow extracorporeal circuit. Perfusion (United Kingdom), 2020, 35, 351-355.	1.0	2
104	Understanding Extracorporeal Membrane Oxygenation Induced Coagulopathy: Many Pieces to the Puzzle. Critical Care Medicine, 2020, 48, e732-e733.	0.9	2
105	Numerical study of the effect of LVAD inflow cannula positioning on thrombosis risk. Computer Methods in Biomechanics and Biomedical Engineering, 2022, 25, 852-860.	1.6	2
106	Pasta for all: Abiomed Breethe extracorporeal membrane oxygenation system. JTCVS Open, 2021, 8, 108-113.	0.5	2
107	Multiscale Characterization of Impact of Infarct Size on Myocardial Remodeling in an Ovine Infarct Model. Cells Tissues Organs, 2014, 200, 349-362.	2.3	2
108	MSC Pretreatment for Improved Transplantation Viability Results in Improved Ventricular Function in Infarcted Hearts. International Journal of Molecular Sciences, 2022, 23, 694.	4.1	2

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109	Advanced Surface Modifications for Blood-Contacting Surfaces of Medical Devices. International Journal of Biomaterials, 2012, 2012, 1-2.	2.4	1
110	VISUALIZATION OF WALL SHEAR STRESS IN BLOOD-WETTED ARTIFICIAL ORGANS USING NEW PHOTOCHROMIC LIQUID CRYSTAL SENSOR. ASAIO Journal, 2001, 47, 174.	1.6	0
111	ALTERED AORTIC HEMODYNAMICS WITH CONTINUOUS FLOW VAD SUPPORT. ASAIO Journal, 2002, 48, 126.	1.6	0
112	REGIONAL SERCA2a PROTEIN EXPRESSION IN THE POST-MI MODEL OF HEART FAILURE. ASAIO Journal, 2005, 51, 29A.	1.6	0
113	MYOCARDIAL STRAIN MAP OF REMODELING. ASAIO Journal, 2005, 51, 29A.	1.6	0
114	COMPENSATORY HEMODYNAMIC AND BIOLOGIC RESPONSES TO PEDIATRIC CIRCULATORY SUPPORT IN LAMBS. ASAIO Journal, 2006, 52, 47A.	1.6	0
115	ESTIMATION OF FLOW-INDUCED BLOOD DAMAGE IN BIOMEDICAL DEVICES. ASAIO Journal, 2006, 52, 11A.	1.6	0
116	CHRONIC IN-VIVO HEMODYNAMIC STUDY OF THE PEDIATRIC JARVIK 2000 HEART. ASAIO Journal, 2006, 52, 50A.	1.6	0
117	Regional systolic and remodeling strain differences during cardiac remodeling. Journal of the American College of Surgeons, 2006, 203, S21.	0.5	0
118	Strain related changes in regional myocardial cyclin-dependent kinase (Cdk) inhibitor protein, p21 post-myocardial infarction in ovine model. Journal of the American College of Surgeons, 2007, 205, S22.	0.5	0
119	CFD Assisted Design of a Wearable Artificial Pump Lung Device. , 2008, , .		0
120	3D Flow Modeling and Blood Damage Characterization of the UltraMagâ„¢ Blood Pump. , 2008, , .		0
121	Design Optimization of a Wearable Artificial Pump-Lung Device With Computational Modeling. , 2010, , .		0
122	Differences in Shear Stress, Residence Time and Estimates of Hemolysis Between Different Ventricular Assist Devices. , 2011, , .		0
123	Experimental Validation of Fluid Dynamic Numerical Models in Blood Pump Simulation. , 2012, , .		0
124	Systemic Inflammatory Response Syndrome after Contentious-Flow Left Ventricular Assist Device Implantation: Change in Platelet Mitochondrial Membrane Potential. Journal of Cardiac Failure, 2014, 20, S89.	1.7	0
125	Ventricular Assist Devices: Current Status and Future Perspective. , 2003, , 197-231.		0
126	EFFECT OF DRAG REDUCING POLYMERS (DRPs) ON RED BLOOD CELL (RBC) FILTERABILITY. ASAIO Journal, 2003, 49, 200.	1.6	0

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127	Strain Mapping of LV Myocardium and its Correlation With Activation of Apoptotic Molecular Pathways Post Infarction. , 2008, , .		0
128	Computational Analysis of a Wearable Artificial Pump Lung Device in Terms of Rotor/Stator Interactions. , 2009, , .		0
129	Bioengineering Quantification of Left Ventricular Remodeling Following Myocardial Infarction. , 2009, , .		0
130	Early Remodeling Strain Levels Can Predict the Progression of Remodeling of the Left Ventricle Post Myocardial Infarction. , 2010, , .		0
131	Analysis of Infarct Size on Myocardial Infarction Remodeling. , 2011, , .		0
132	Ambulatory home wearable lung: progress and future directions. Reviews in Cardiovascular Medicine, 2021, 22, 1405.	1.4	0