Muhammad H Zaman

List of Publications by Year
in descending order

119	5,945	147801	79698
papers	citations	31 h-index	73 g-index

131	131	131	8534
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Migration of tumor cells in 3D matrices is governed by matrix stiffness along with cell-matrix adhesion and proteolysis. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 10889-10894.	7.1	1,029
2	Collective cell guidance by cooperative intercellular forces. Nature Materials, 2011, 10, 469-475.	27.5	781
3	Impact of the physical microenvironment on tumor progression and metastasis. Current Opinion in Biotechnology, 2016, 40, 41-48.	6.6	437
4	Microarchitecture of Three-Dimensional Scaffolds Influences Cell Migration Behavior via Junction Interactions. Biophysical Journal, 2008, 95, 4013-4024.	0.5	313
5	Computational Model for Cell Migration in Three-Dimensional Matrices. Biophysical Journal, 2005, 89, 1389-1397.	0.5	236
6	Extracellular Matrix Stiffness and Architecture Govern Intracellular Rheology in Cancer. Biophysical Journal, 2009, 97, 1013-1021.	0.5	174
7	Embedded multicellular spheroids as a biomimetic 3D cancer model for evaluating drug and drug-device combinations. Biomaterials, 2014, 35, 2264-2271.	11.4	151
8	Cancer Cell Stiffness: Integrated Roles of Three-Dimensional Matrix Stiffness and Transforming Potential. Biophysical Journal, 2010, 99, 2048-2057.	0.5	137
9	Investigations into Sequence and Conformational Dependence of Backbone Entropy, Inter-basin Dynamics and the Flory Isolated-pair Hypothesis for Peptides. Journal of Molecular Biology, 2003, 331, 693-711.	4.2	118
10	Dynamic interplay between tumour, stroma and immune system can drive or prevent tumour progression. Convergent Science Physical Oncology, 2017, 3, 034002.	2.6	114
11	Breast Cancer Spheroids Reveal a Differential Cancer Stem Cell Response to Chemotherapeutic Treatment. Scientific Reports, 2017, 7, 10382.	3.3	112
12	Modeling the Mechanics of Cancer: Effect of Changes in Cellular and Extra-Cellular Mechanical Properties. Frontiers in Oncology, 2013, 3, 145.	2.8	87
13	Interstitial flow promotes macrophage polarization toward an M2 phenotype. Molecular Biology of the Cell, 2018, 29, 1927-1940.	2.1	83
14	The biomechanical integrin. Journal of Biomechanics, 2010, 43, 38-44.	2.1	80
15	A synthetic strategy for mimicking the extracellular matrix provides new insight about tumor cell migration. Integrative Biology (United Kingdom), 2010, 2, 32-40.	1.3	79
16	Heavy Metal Toxicity in Armed Conflicts Potentiates AMR in A. baumannii by Selecting for Antibiotic and Heavy Metal Co-resistance Mechanisms. Frontiers in Microbiology, 2020, 11, 68.	3.5	79
17	Interplay of active processes modulates tension and drives phase transition in self-renewing, motor-driven cytoskeletal networks. Nature Communications, 2016, 7, 10323.	12.8	76
18	Single-Cell Migration in Complex Microenvironments: Mechanics and Signaling Dynamics. Journal of Biomechanical Engineering, 2016, 138, 021004.	1.3	74

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19	Alteration of Cellular Behavior and Response to PI3K Pathway Inhibition by Culture in 3D Collagen Gels. PLoS ONE, 2012, 7, e48024.	2.5	73
20	Dependence of Invadopodia Function on Collagen Fiber Spacing and Cross-Linking: Computational Modeling and Experimental Evidence. Biophysical Journal, 2008, 95, 2203-2218.	0.5	67
21	Schwann cell response on polypyrrole substrates upon electrical stimulation. Acta Biomaterialia, 2014, 10, 2423-2433.	8.3	62
22	A Computational Model of YAP/TAZ Mechanosensing. Biophysical Journal, 2016, 110, 2540-2550.	0.5	61
23	Antimicrobial resistance in livestock and poor quality veterinary medicines. Bulletin of the World Health Organization, 2018, 96, 662-664.	3.3	55
24	Understanding Effects of Matrix Protease and Matrix Organization on Directional Persistence and Translational Speed in Three-Dimensional Cell Migration. Annals of Biomedical Engineering, 2006, 35, 91-100.	2.5	54
25	Influence of the microenvironment on cell fate determination and migration. Physiological Genomics, 2014, 46, 309-314.	2.3	54
26	The role of engineering approaches in analysing cancer invasion and metastasis. Nature Reviews Cancer, 2013, 13, 596-603.	28.4	53
27	Quantitative Analysis of the Effect of Cancer Invasiveness and Collagen Concentration on 3D Matrix Remodeling. PLoS ONE, 2011, 6, e24891.	2.5	52
28	Controlling uncertainty in aptamer selection. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 12076-12081.	7.1	43
29	A novel jamming phase diagram links tumor invasion to non-equilibrium phase separation. IScience, 2021, 24, 103252.	4.1	43
30	Cancer Cell Migration: Integrated Roles of Matrix Mechanics and Transforming Potential. PLoS ONE, 2011, 6, e20355.	2.5	42
31	Unjamming and collective migration in MCF10A breast cancer cell lines. Biochemical and Biophysical Research Communications, 2020, 521, 706-715.	2.1	42
32	Engineering, global health, and inclusive innovation: focus on partnership, system strengthening, and local impact for SDGs. Global Health Action, 2016, 9, 30175.	1.9	38
33	Core Competencies for Undergraduates in Bioengineering and Biomedical Engineering: Findings, Consequences, and Recommendations. Annals of Biomedical Engineering, 2020, 48, 905-912.	2.5	37
34	Impact of Dimensionality and Network Disruption on Microrheology of Cancer Cells in 3D Environments. PLoS Computational Biology, 2014, 10, e1003959.	3.2	35
35	Multiscale mechanobiology: computational models for integrating molecules to multicellular systems. Integrative Biology (United Kingdom), 2015, 7, 1093-1108.	1.3	33
36	Veterinary antimicrobial resistance containment in Bangladesh: Evaluating the national action plan and scoping the evidence on implementation. Journal of Global Antimicrobial Resistance, 2020, 21, 105-115.	2.2	33

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37	A Quantitative Comparison of Human HT-1080 Fibrosarcoma Cells and Primary Human Dermal Fibroblasts Identifies a 3D Migration Mechanism with Properties Unique to the Transformed Phenotype. PLoS ONE, 2013, 8, e81689.	2.5	32
38	Rapid Quantification of 3D Collagen Fiber Alignment and Fiber Intersection Correlations with High Sensitivity. PLoS ONE, 2015, 10, e0131814.	2.5	30
39	Connecting planetary health, climate change, and migration. Lancet Planetary Health, The, 2018, 2, e58-e59.	11.4	30
40	Solid dissolution in a fluid solvent is characterized by the interplay of surface area-dependent diffusion and physical fragmentation. Scientific Reports, 2018, 8, 7711.	3.3	30
41	Evolution of Rifampin Resistance in Escherichia coli and Mycobacterium smegmatis Due to Substandard Drugs. Antimicrobial Agents and Chemotherapy, 2019, 63, .	3.2	30
42	Epithelial layer unjamming shifts energy metabolism toward glycolysis. Scientific Reports, 2020, 10, 18302.	3.3	30
43	Characterization of the mechanical properties of cancer cells in 3D matrices in response to collagen concentration and cytoskeletal inhibitors. Integrative Biology (United Kingdom), 2018, 10, 232-241.	1.3	29
44	Development and selection of low-level multi-drug resistance over an extended range of sub-inhibitory ciprofloxacin concentrations in Escherichia coli. Scientific Reports, 2020, 10, 8754.	3.3	29
45	Modeling Extracellular Matrix Reorganization in 3D Environments. PLoS ONE, 2013, 8, e52509.	2.5	27
46	Modeling, signaling and cytoskeleton dynamics: integrated modelingâ€experimental frameworks in cell migration. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2017, 9, e1365.	6.6	26
47	Mechanical confinement via a PEG/Collagen interpenetrating network inhibits behavior characteristic of malignant cells in the triple negative breast cancer cell line MDA.MB.231. Acta Biomaterialia, 2018, 77, 85-95.	8.3	26
48	A Computational Model for Collective Cellular Motion in Three Dimensions: General Framework and Case Study for Cell Pair Dynamics. PLoS ONE, 2013, 8, e59249.	2.5	24
49	Viscoelastic Gel-Strip Model for the Simulation of Migrating Cells. Annals of Biomedical Engineering, 2011, 39, 2735-2749.	2.5	22
50	Stability measurements of antibodies stored on paper. Analytical Biochemistry, 2014, 449, 147-154.	2.4	22
51	Integrin Clustering in Two and Three Dimensions. Langmuir, 2012, 28, 5379-5386.	3.5	21
52	Effects of 3D geometries on cellular gradient sensing and polarization. Physical Biology, 2016, 13, 036008.	1.8	21
53	The Integrated Role of Wnt/Î²-Catenin, N-Glycosylation, and E-Cadherin-Mediated Adhesion in Network Dynamics. PLoS Computational Biology, 2016, 12, e1005007.	3.2	20
54	Computational Study of Proteolysis-Driven Single Cell Migration in a Three-Dimensional Matrix. Annals of Biomedical Engineering, 2010, 38, 1815-1825.	2.5	18

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55	Bioengineering approaches to study multidrug resistance in tumor cells. Integrative Biology (United) Tj ETQq1 1 0.784314 rgBT /Over	1.3	18
56	Modeling the impact of drug interactions on therapeutic selectivity. Nature Communications, 2018, 9, 3452.	12.8	18
57	Temperature dependence of reactions with multiple pathways. Physical Chemistry Chemical Physics, 2003, 5, 2589.	2.8	17
58	Computational Model To Quantify the Growth of Antibiotic-Resistant Bacteria in Wastewater. MSystems, 2021, 6, e0036021.	3.8	17
59	Modeling of adhesion, protrusion, and contraction coordination for cell migration simulations. Journal of Mathematical Biology, 2014, 68, 267-302.	1.9	16
60	Amperometric measurements of ethanol on paper with a glucometer. Talanta, 2015, 134, 194-199.	5.5	16
61	Computational model of wound healing: EGF secreted by fibroblasts promotes delayed re-epithelialization of epithelial keratinocytes. Integrative Biology (United Kingdom), 2018, 10, 605-634.	1.3	16
62	Supply chain failures amid Covidâ€19 signal a new pillar for global health preparedness. Journal of Clinical Nursing, 2021, 30, e1-e3.	3.0	16
63	Evaluation of the effect of temperature on the stability and antimicrobial activity of rifampicin quinone. Journal of Pharmaceutical and Biomedical Analysis, 2021, 197, 113941.	2.8	15
64	Patient Access in 14 High-Income Countries to New Antibacterials Approved by the US Food and Drug Administration, European Medicines Agency, Japanese Pharmaceuticals and Medical Devices Agency, or Health Canada, 2010â€“2020. Clinical Infectious Diseases, 2022, 74, 1183-1190.	5.8	15
65	Integrated Analysis of Intracellular Dynamics of MenaINV Cancer Cells in a 3D Matrix. Biophysical Journal, 2017, 112, 1874-1884.	0.5	14
66	Exploring the Role of Ad Hoc Grassroots Organizations Providing Humanitarian Aid on Lesvos, Greece. PLOS Currents, 2016, 8, .	1.4	13
67	A quantitative electrochemical assay for liver injury. Biosensors and Bioelectronics, 2019, 131, 74-78.	10.1	12
68	Free energy landscape of receptor-mediated cell adhesion. Journal of Chemical Physics, 2007, 126, 045103.	3.0	11
69	Computational Model to Probe Cellular Mechanics during Epithelial-Mesenchymal Transition. Cells Tissues Organs, 2013, 197, 435-444.	2.3	11
70	Models of education in medicine, public health, and engineering. Science, 2014, 345, 1281-1283.	12.6	11
71	Collective motion of mammalian cell cohorts in 3D. Integrative Biology (United Kingdom), 2015, 7, 1526-1533.	1.3	11
72	The need for comprehensive and multidisciplinary training in substandard and falsified medicines for pharmacists. BMJ Global Health, 2019, 4, e001681.	4.7	11

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73	Quantitative bioassay to identify antimicrobial drugs through drug interaction fingerprint analysis. Scientific Reports, 2017, 7, 42644.	3.3	10
74	TNFÎ± antagonization alters NOS2 dependent nasopharyngeal carcinoma tumor growth. Cytokine, 2015, 74, 157-163.	3.2	9
75	Bacterial antibiotic resistance development and mutagenesis following exposure to subminimal inhibitory concentrations of fluoroquinolones in vitro: a systematic literature review protocol. BMJ Open, 2019, 9, e030747.	1.9	9
76	Computational Model for Migration of a Cell Cluster in Three-Dimensional Matrices. Annals of Biomedical Engineering, 2011, 39, 2068-2079.	2.5	8
77	Biomedical engineering education and practice challenges and opportunities in improving health in developing countries. , 2011, , .		8
78	Decoupling Directed and Passive Motion in Dynamic Systems: Particle Tracking Microrheology of Sputum. Annals of Biomedical Engineering, 2013, 41, 837-846.	2.5	7
79	Combinative in vitro studies and computational model to predict 3D cell migration response to drug insult. Integrative Biology (United Kingdom), 2014, 6, 957-972.	1.3	7
80	Modeling Persistence in Mesenchymal Cell Motility Using Explicit Fibers. Langmuir, 2014, 30, 5506-5509.	3.5	7
81	Continued Outbreak of Ceftriaxone-Resistant Salmonella enterica Serotype Typhi across Pakistan and Assessment of Knowledge and Practices among Healthcare Workers. American Journal of Tropical Medicine and Hygiene, 2021, 104, 1265-1270.	1.4	7
82	Assessing Antimicrobial Resistance, Utilization, and Stewardship in Yemen: An Exploratory Mixed-Methods Study. American Journal of Tropical Medicine and Hygiene, 2021, 105, 1404-1412.	1.4	7
83	Identification of Multiple Low-Level Resistance Determinants and Coselection of Motility Impairment upon Sub-MIC Ceftriaxone Exposure in Escherichia coli. MSphere, 2021, 6, e0077821.	2.9	7
84	One Health approaches to improve refugee health. The Lancet Global Health, 2021, 9, e1646-e1647.	6.3	7
85	A multiscale probabilisitic framework to model early steps in tumor metastasis. MCB Molecular and Cellular Biomechanics, 2007, 4, 133-41.	0.7	7
86	Thermodynamics of clustered and unclustered receptor systems in cell adhesion. Chemical Physics Letters, 2008, 454, 362-366.	2.6	6
87	Are the Effects of Independent Biophysical Factors Linearly Additive? A 3D Tumor Migration Model. Biophysical Journal, 2019, 117, 1702-1713.	0.5	6
88	Bacterial antibiotic resistance development and mutagenesis following exposure to subinhibitory concentrations of fluoroquinolones in vitro: a systematic review of the literature. JAC-Antimicrobial Resistance, 2020, 2, dlaa068.	2.1	6
89	Towards better diagnostic tools for liver injury in low-income and middle-income countries. BMJ Global Health, 2019, 4, e001704.	4.7	6
90	Small volume method for drug release screening using ultrasonic agitation. Analyst, The, 2018, 143, 4732-4740.	3.5	5

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91	Analytic Study of Three-Dimensional Single Cell Migration with and without Proteolytic Enzymes. Cellular and Molecular Bioengineering, 2013, 6, 239-249.	2.1	4
92	Predicting resource-dependent maternal health outcomes at a referral hospital in Zanzibar using patient trajectories and mathematical modeling. PLoS ONE, 2019, 14, e0212753.	2.5	4
93	Economic Evaluation of Screening Interventions for Drug-induced Liver Injury. Clinical Infectious Diseases, 2021, 73, e3959-e3965.	5.8	4
94	Multiscale Modeling of Tumor Cell Migration. AIP Conference Proceedings, 2006, , .	0.4	3
95	Estimation of Cellular Adhesion Forces Using Mean Field Theory. Cellular and Molecular Bioengineering, 2010, 3, 190-194.	2.1	3
96	Computational Modeling of Stem Cell Migration: A Mini Review. Cellular and Molecular Bioengineering, 2014, 7, 196-204.	2.1	3
97	Modeling patient access to therapeutic oxytocin in Zanzibar, Tanzania. BMC Health Services Research, 2018, 18, 645.	2.2	3
98	Cytoskeletal tubulin competes with actin to increase deformability of metastatic melanoma cells. Experimental Cell Research, 2020, 394, 112154.	2.6	3
99	Cell Adhesion to Nanoligands: Effects of Ligand Size and Concentration in Solution. Langmuir, 2008, 24, 11819-11827.	3.5	2
100	Engineering education in the developing world: The case for biological engineering. , 2010, , .		2
101	Multiscale dynamics of the biophysical and biochemical microenvironment. Physics of Life Reviews, 2017, 22-23, 127-129.	2.8	2
102	Benchmarking national action plans on antimicrobial resistance in eight selected LMICs: Focus on the veterinary sector strategies. Journal of Global Health, 2020, 10, 020414.	2.7	2
103	Impact of ciprofloxacin impurities on bacterial growth, antibiotic resistance development and content assays. Letters in Applied Microbiology, 2021, 73, 220-228.	2.2	2
104	Computer Simulations in Connective Tissue Research: Successes and Challenges. Connective Tissue Research, 2008, 49, 162-164.	2.3	1
105	Development of a novel method of misoprostol detection on filter paper: Proof-of-concept. Biomedical Engineering Letters, 2016, 6, 94-99.	4.1	1
106	Examining the need & potential for biomedical engineering to strengthen health care delivery for displaced populations & victims of conflict. Conflict and Health, 2017, 11, 20.	2.7	1
107	Inclusion and equity through STEM training. Science, 2021, 372, 926-926.	12.6	1
108	Misfolding dynamics of human prion protein. MCB Molecular and Cellular Biomechanics, 2005, 2, 179-90.	0.7	1

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109	Equilibrium and Non-Equilibrium Thermodynamic Processes in Cellâ€“Matrix Interactions. Journal of Non-Equilibrium Thermodynamics, 2009, 34, .	4.2	0
110	Actinâ€“Fascin Bundle Formation Under Pressure. Cellular and Molecular Bioengineering, 2009, 2, 2-12.	2.1	0
111	Serine at Phosphorylation Site Regulates the Mechanical and Structural Behavior of Fascin. Cellular and Molecular Bioengineering, 2009, 2, 504-513.	2.1	0
112	Systems Biology of Tumor Cell Migration in 3D: Protein Signaling. , 2011, , 123-149.		0
113	Multiscale analysis of cancer cell mechanics. , 2014, , .		0
114	Improving societies' harassment policies. Science, 2018, 361, 984-985.	12.6	0
115	A predictive model for healthcare coverage in Yemen. Conflict and Health, 2020, 14, 55.	2.7	0
116	A mathematical model to estimate the incidence of child wasting in Yemen. Conflict and Health, 2021, 15, 62.	2.7	0
117	Quantitative assay for ciprofloxacin and enrofloxacin formulations. Journal of Global Health Reports, 0, 3, .	1.0	0
118	PharmaChk: A decade of research and development towards the first quantitative, field-based medicine quality screening instrument. Analyst, The, 2022, , .	3.5	0
119	Refugee Crisis: Why Scientists and Scholars Need to Step Up. American Journal of Tropical Medicine and Hygiene, 2022, 107, 12-13.	1.4	0