# Ovijit Chaudhuri

List of Publications by Year
in descending order



| 66 | 15,408 | 79946 | 103101 |
|---|---|---|---|
| papers | citations | 39 h-index | 66 g-index |

| 78 | 78 | 78 | 19889 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Highly stretchable and tough hydrogels. Nature, 2012, 489, 133-136. | 36.2 | 4,297 |
| 2 | Hydrogels with tunable stress relaxation regulate stem cell fate and activity. Nature Materials, 2016, 15, 326-334. | 26.6 | 1,775 |
| 3 | Effects of extracellular matrix viscoelasticity on cellular behaviour. Nature, 2020, 584, 535-546. | 36.2 | 1,231 |
| 4 | Extracellular matrix stiffness and composition jointly regulate the induction of malignant phenotypes in mammary epithelium. Nature Materials, 2014, 13, 970-978. | 26.6 | 723 |
| 5 | Substrate stress relaxation regulates cell spreading. Nature Communications, 2015, 6, 6364. | 13.2 | 677 |
| 6 | Matrix elasticity of void-forming hydrogels controls transplanted-stem-cell-mediated boneÂformation. Nature Materials, 2015, 14, 1269-1277. | 26.6 | 420 |
| 7 | Stress relaxing hyaluronic acid-collagen hydrogels promote cell spreading, fiber remodeling, and focal adhesion formation in 3D cell culture. Biomaterials, 2018, 154, 213-222. | 11.8 | 401 |
| 8 | Mechanical confinement regulates cartilage matrix formation by chondrocytes. Nature Materials, 2017, 16, 1243-1251. | 26.6 | 379 |
| 9 | Reversible stress softening of actin networks. Nature, 2007, 445, 295-298. | 36.2 | 341 |
| 10 | Maintenance of neural progenitor cell stemness in 3D hydrogels requires matrix remodelling. Nature Materials, 2017, 16, 1233-1242. | 26.6 | 333 |
| 11 | Matrix mechanical plasticity regulates cancer cell migration through confining microenvironments. Nature Communications, 2018, 9, 4144. | 13.2 | 296 |
| 12 | Mechanics and contraction dynamics of single platelets and implications for clot stiffening. Nature Materials, 2011, 10, 61-66. | 26.6 | 294 |
| 13 | Viscoelastic hydrogels for 3D cell culture. Biomaterials Science, 2017, 5, 1480-1490. | 5.5 | 257 |
| 14 | Strain-enhanced stress relaxation impacts nonlinear elasticity in collagen gels. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 5492-5497. | 7.6 | 238 |
| 15 | Influence of the stiffness of three-dimensional alginate/collagen-I interpenetrating networks on fibroblast biology. Biomaterials, 2014, 35, 8927-8936. | 11.8 | 235 |
| 16 | Loading history determines the velocity of actin-network growth. Nature Cell Biology, 2005, 7, 1219-1223. | 10.0 | 204 |
| 17 | Matching material and cellular timescales maximizes cell spreading on viscoelastic substrates. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E2686-E2695. | 7.6 | 203 |
| 18 | Varying PEG density to control stress relaxation in alginate-PEG hydrogels for 3D cell culture studies. Biomaterials, 2019, 200, 15-24. | 11.8 | 194 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Beyond proteases: Basement membrane mechanics and cancer invasion. Journal of Cell Biology, 2019, 218, 2456-2469. | 5.2 | 177 |
| 20 | Actin filament curvature biases branching direction. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 2913-2918. | 7.6 | 163 |
| 21 | Viscoplasticity Enables Mechanical Remodeling ofÂMatrix by Cells. Biophysical Journal, 2016, 111, 2296-2308. | 0.5 | 154 |
| 22 | Matrix stiffness induces a tumorigenic phenotype in mammary epithelium through changes in chromatin accessibility. Nature Biomedical Engineering, 2019, 3, 1009-1019. | 22.4 | 152 |
| 23 | Combined atomic force microscopy and side-view optical imaging for mechanical studies of cells. Nature Methods, 2009, 6, 383-387. | 19.6 | 148 |
| 24 | Cellâ€“extracellular matrix mechanotransduction in 3D. Nature Reviews Molecular Cell Biology, 2023, 24, 495-516. | 37.3 | 148 |
| 25 | Volume expansion and TRPV4 activation regulate stem cell fate in three-dimensional microenvironments. Nature Communications, 2019, 10, 529. | 13.2 | 146 |
| 26 | YAP-independent mechanotransduction drives breast cancer progression. Nature Communications, 2019, 10, 1848. | 13.2 | 142 |
| 27 | Enhanced substrate stress relaxation promotes filopodia-mediated cell migration. Nature Materials, 2021, 20, 1290-1299. | 26.6 | 138 |
| 28 | Cell cycle progression in confining microenvironments is regulated by a growth-responsive TRPV4-PI3K/Akt-p27 <sup>Kip1</sup> signaling axis. Science Advances, 2019, 5, eaaw6171. | 10.9 | 121 |
| 29 | Mechanisms of Plastic Deformation in Collagen Networks Induced by Cellular Forces. Biophysical Journal, 2018, 114, 450-461. | 0.5 | 118 |
| 30 | Delivery of CAR-T cells in a transient injectable stimulatory hydrogel niche improves treatment of solid tumors. Science Advances, 2022, 8, eabn8264. | 10.9 | 112 |
| 31 | Dynamic Hyaluronan Hydrogels with Temporally Modulated High Injectability and Stability Using a Biocompatible Catalyst. Advanced Materials, 2018, 30, e1705215. | 24.3 | 107 |
| 32 | The living interface between synthetic biology and biomaterial design. Nature Materials, 2022, 21, 390-397. | 26.6 | 93 |
| 33 | Mitotic cells generate protrusive extracellular forces to divide in three-dimensional microenvironments. Nature Physics, 2018, 14, 621-628. | 11.8 | 90 |
| 34 | Oxidized alginate hydrogels for bone morphogenetic protein-2 delivery in long bone defects. Acta Biomaterialia, 2014, 10, 4390-4399. | 8.8 | 82 |
| 35 | Viscoelasticity and Adhesion Signaling in Biomaterials Control Human Pluripotent Stem Cell Morphogenesis in 3D Culture. Advanced Materials, 2021, 33, e2101966. | 24.3 | 73 |
| 36 | Anchoring cell-fate cues. Nature Materials, 2012, 11, 568-569. | 26.6 | 60 |

| # | Article | IF | Citations |
|---|---|---|---|
| 37 | New advances in probing cellâ€“extracellular matrix interactions. Integrative Biology (United) Tj ETQq1 1 0.784314 rgBT /Overlock 10 | 1.9 | 55 |
| 38 | The nuclear piston activates mechanosensitive ion channels to generate cell migration paths in confining microenvironments. Science Advances, 2021, 7, . | 10.9 | 55 |
| 39 | A dysfunctional TRPV4â€“GSK3Î² pathway prevents osteoarthritic chondrocytes from sensing changes in extracellular matrix viscoelasticity. Nature Biomedical Engineering, 2021, 5, 1472-1484. | 22.4 | 52 |
| 40 | CD44 alternative splicing in gastric cancer cells is regulated by culture dimensionality and matrix stiffness. Biomaterials, 2016, 98, 152-162. | 11.8 | 37 |
| 41 | Regulation of Breast Cancer Progression by Extracellular Matrix Mechanics: Insights from 3D Culture Models. ACS Biomaterials Science and Engineering, 2018, 4, 302-313. | 5.4 | 37 |
| 42 | Increased Stiffness Inhibits Invadopodia Formation and Cell Migration in 3D. Biophysical Journal, 2020, 119, 726-736. | 0.5 | 29 |
| 43 | Covalent cross-linking of basement membrane-like matrices physically restricts invasive protrusions in breast cancer cells. Matrix Biology, 2020, 85-86, 94-111. | 3.7 | 28 |
| 44 | Matrix viscoelasticity promotes liver cancer progression in the pre-cirrhotic liver. Nature, 2024, 626, 635-642. | 36.2 | 26 |
| 45 | Engineered composite fascia for stem cell therapy in tissue repair applications. Acta Biomaterialia, 2015, 26, 1-12. | 8.8 | 25 |
| 46 | Mechanical regulation of cell-cycle progression and division. Trends in Cell Biology, 2022, 32, 773-785. | 8.1 | 25 |
| 47 | 3D Cell Culture in Interpenetrating Networks of Alginate and rBM Matrix. Methods in Molecular Biology, 2017, 1612, 29-37. | 0.0 | 24 |
| 48 | Differential force microscope for long time-scale biophysical measurements. Review of Scientific Instruments, 2007, 78, 043711. | 1.4 | 17 |
| 49 | Magnetic probe-based microrheology reveals local softening and stiffening of 3D collagen matrices by fibroblasts. Biomedical Microdevices, 2021, 23, 27. | 3.0 | 17 |
| 50 | Nonlinear Elastic and Inelastic Properties of Cells. Journal of Biomechanical Engineering, 2020, 142, . | 1.4 | 17 |
| 51 | Modeling the tumor immune microenvironment for drug discovery using 3D culture. APL Bioengineering, 2021, 5, 010903. | 6.0 | 16 |
| 52 | The nature of cell division forces in epithelial monolayers. Journal of Cell Biology, 2021, 220, . | 5.2 | 16 |
| 53 | Recursive feedback between matrix dissipation and chemo-mechanical signaling drives oscillatory growth of cancer cell invadopodia. Cell Reports, 2021, 35, 109047. | 6.3 | 15 |
| 54 | Identification of cell context-dependent YAP-associated proteins reveals Î²1 and Î²4 integrin mediate YAP translocation independently of cell spreading. Scientific Reports, 2019, 9, 17188. | 3.4 | 14 |

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|---|---|---|---|
| 55 | Evaluation of a bioengineered construct for tissue engineering applications. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2018, 106, 2345-2354. | 3.7 | 13 |
| 56 | Transient mechanical interactions between cells and viscoelastic extracellular matrix. Soft Matter, 2021, 17, 10274-10285. | 2.8 | 11 |
| 57 | Cellular Pushing Forces during Mitosis Drive Mitotic Elongation in Collagen Gels. Advanced Science, 2021, 8, 2000403. | 12.4 | 11 |
| 58 | Multi-scale cellular engineering: From molecules to organ-on-a-chip. APL Bioengineering, 2020, 4, 010906. | 6.0 | 10 |
| 59 | Epigenetic regulation of mechanotransduction. Nature Biomedical Engineering, 2021, 5, 8-10. | 22.4 | 10 |
| 60 | Relative strain is a novel predictor of aneurysmal degeneration of the thoracic aorta: An ex vivo mechanical study. JVS Vascular Science, 2021, 2, 235-246. | 1.8 | 6 |
| 61 | Cells under pressure. ELife, 2021, 10, . | 5.9 | 5 |
| 62 | The evolution of spindles and their mechanical implications for cancer metastasis. Cell Cycle, 2019, 18, 1671-1675. | 2.8 | 4 |
| 63 | Cell volume expansion and local contractility drive collective invasion of the basement membrane in breast cancer. Nature Materials, 2024, 23, 711-722. | 26.6 | 4 |
| 64 | Roles of Interactions Between Cells and Extracellular Matrices for Cell Migration and Matrix Remodeling. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2020, , 247-282. | 0.0 | 2 |
| 65 | Protrusive Forces Generated by Dendritic Actin Networks During Cell Crawling. , 2010, , 359-379. | | 2 |
| 66 | Introduction to Editorial Board Member: Professor David J. Mooney. Bioengineering and Translational Medicine, 2020, 5, e10162. | 7.8 | 0 |