

Frederick H Silver

List of Publications by Year in descending order

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81
papers

4,701
citations

159585

30
h-index

98798

67
g-index

83
all docs

83
docs citations

83
times ranked

4640
citing authors

#	ARTICLE	IF	CITATIONS
1	Collagen self-assembly and the development of tendon mechanical properties. <i>Journal of Biomechanics</i> , 2003, 36, 1529-1553.	2.1	538
2	Viscoelastic properties of human skin and processed dermis. <i>Skin Research and Technology</i> , 2001, 7, 18-23.	1.6	358
3	Self-assembly of collagen fibers. Influence of fibrillar alignment and decorin on mechanical properties. <i>Biophysical Journal</i> , 1997, 73, 2164-2172.	0.5	353
4	Mechanobiology of force transduction in dermal tissue. <i>Skin Research and Technology</i> , 2003, 9, 3-23.	1.6	299
5	Evaluation of Collagen Crosslinking Techniques. <i>Biomaterials, Medical Devices, and Artificial Organs</i> , 1983, 11, 293-318.	0.3	274
6	Viscoelastic Behavior of Human Connective Tissues: Relative Contribution of Viscous and Elastic Components. <i>Connective Tissue Research</i> , 1983, 12, 59-70.	2.3	209
7	Collagen Fiber Formation in Repair Tissue: Development of Strength and Toughness. <i>Collagen and Related Research</i> , 1985, 5, 481-492.	2.0	192
8	Viscoelasticity of the Vessel Wall: The Role of Collagen and Elastic Fibers. <i>Critical Reviews in Biomedical Engineering</i> , 2001, 29, 279-302.	0.9	139
9	Mechanosensing and Mechanochemical Transduction: How Is Mechanical Energy Sensed and Converted Into Chemical Energy in an Extracellular Matrix?. <i>Critical Reviews in Biomedical Engineering</i> , 2003, 31, 255-331.	0.9	122
10	Mechanical Behavior of Vessel Wall: A Comparative Study of Aorta, Vena Cava, and Carotid Artery. <i>Annals of Biomedical Engineering</i> , 2003, 31, 793-803.	2.5	118
11	Role of Storage on Changes in the Mechanical Properties of Tendon and Self-Assembled Collagen Fibers. <i>Connective Tissue Research</i> , 2000, 41, 155-164.	2.3	110
12	Deposition of apatite in mineralizing vertebrate extracellular matrices: A model of possible nucleation sites on type I collagen. <i>Connective Tissue Research</i> , 2011, 52, 242-254.	2.3	109
13	The structure and function of normally mineralizing avian tendons. <i>Comparative Biochemistry and Physiology Part A, Molecular & Integrative Physiology</i> , 2002, 133, 1135-1157.	1.8	106
14	Mechanical Analysis of Hypertrophic Scar Tissue: Structural Basis for Apparent Increased Rigidity. <i>Journal of Investigative Dermatology</i> , 1985, 84, 9-13.	0.7	98
15	Transition from viscous to elastic-based dependency of mechanical properties of self-assembled type I collagen fibers. <i>Journal of Applied Polymer Science</i> , 2001, 79, 134-142.	2.6	94
16	Effects of static axial strain on the tensile properties and failure mechanisms of self-assembled collagen fibers. <i>Journal of Applied Polymer Science</i> , 1997, 63, 1429-1440.	2.6	83
17	Viscoelastic properties of young and old human dermis: A proposed molecular mechanism for elastic energy storage in collagen and elastin. <i>Journal of Applied Polymer Science</i> , 2002, 86, 1978-1985.	2.6	81
18	Collagen as a scaffold for biomimetic mineralization of vertebrate tissues. <i>Journal of Materials Chemistry</i> , 2006, 16, 1495-1503.	6.7	78

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19	Molecular Basis for Elastic Energy Storage in Mineralized Tendon. <i>Biomacromolecules</i> , 2001, 2, 750-756.	5.4	75
20	Mechanical Implications of the Domain Structure of Fiber-Forming Collagens: Comparison of the Molecular and Fibrillar Flexibilities of the I±1-Chains Found in Types I±III Collagen. <i>Journal of Theoretical Biology</i> , 2002, 216, 243-254.	1.7	73
21	<i>Biomaterials, Medical Devices and Tissue Engineering: An Integrated Approach.</i> , 1994, , .		73
22	Molecular structure of collagen in solution: comparison of types I, II, III and V. <i>International Journal of Biological Macromolecules</i> , 1984, 6, 125-132.	7.5	71
23	The Role of Mineral in the Storage of Elastic Energy in Turkey Tendons. <i>Biomacromolecules</i> , 2000, 1, 180-185.	5.4	64
24	Use of collagen film as a dural substitute: Preliminary animal studies. <i>Journal of Biomedical Materials Research Part B</i> , 1991, 25, 267-276.	3.1	61
25	Noninvasive assessment of mechanical properties of peripheral arteries. <i>Annals of Biomedical Engineering</i> , 1990, 18, 549-566.	2.5	58
26	Elastic energy storage in human articular cartilage: estimation of the elastic modulus for type II collagen and changes associated with osteoarthritis. <i>Matrix Biology</i> , 2002, 21, 129-137.	3.6	57
27	Viscoelastic Properties of Self-Assembled Type I Collagen Fibers: Molecular Basis of Elastic and Viscous Behaviors. <i>Connective Tissue Research</i> , 2002, 43, 569-580.	2.3	54
28	Invited Review: Role of mechanophysiology in aging of ECM: effects of changes in mechanochemical transduction. <i>Journal of Applied Physiology</i> , 2003, 95, 2134-2141.	2.5	47
29	Mechanical Properties of Septal Cartilage Homografts. <i>Otolaryngology - Head and Neck Surgery</i> , 1988, 99, 374-379.	1.9	37
30	Elastic energy storage in unmineralized and mineralized extracellular matrices (ECMs): A comparison between molecular modeling and experimental measurements. <i>Journal of Theoretical Biology</i> , 2004, 229, 371-381.	1.7	36
31	Non-invasive assessment of aortic mechanical properties. <i>Annals of Biomedical Engineering</i> , 1986, 14, 513-524.	2.5	35
32	Mechanical properties of the aorta: a review. <i>Critical Reviews in Biomedical Engineering</i> , 1989, 17, 323-58.	0.9	29
33	Preparation of fibrin glue: A study of chemical and physical methods. <i>Journal of Applied Biomaterials: an Official Journal of the Society for Biomaterials</i> , 1995, 6, 175-183.	1.2	28
34	Viscoelastic Behavior of Osteoarthritic Cartilage. <i>Connective Tissue Research</i> , 2001, 42, 223-233.	2.3	28
35	A method for nondestructive mechanical testing of tissues and implants. <i>Journal of Biomedical Materials Research - Part A</i> , 2017, 105, 15-22.	4.0	27
36	Do changes in the mechanical properties of articular cartilage promote catabolic destruction of cartilage and osteoarthritis?. <i>Matrix Biology</i> , 2004, 23, 467-476.	3.6	26

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37	Mechanobiology of cartilage: how do internal and external stresses affect mechanochemical transduction and elastic energy storage?. <i>Biomechanics and Modeling in Mechanobiology</i> , 2002, 1, 219-238.	2.8	24
38	A Mechanical Model of Porcine Vascular Tissues-Part II: Stress-Strain and Mechanical Properties of Juvenile Porcine Blood Vessels. <i>Cardiovascular Engineering (Dordrecht, Netherlands)</i> , 2005, 5, 157-169.	1.0	22
39	Viscoelastic properties of acid- and alkaline-treated human dermis: a correlation between total surface charge and elastic modulus. <i>Skin Research and Technology</i> , 2006, 12, 190-198.	1.6	22
40	Material properties of living soft tissue composites. <i>Journal of Biomedical Materials Research Part B</i> , 1988, 22, 311-326.	3.1	20
41	Relationship Between Mechanical Properties and Collagen Structure of Closed and Open Wounds. <i>Journal of Biomechanical Engineering</i> , 1988, 110, 352-356.	1.3	20
42	Comparative virtual biopsies of normal skin and skin lesions using vibrational optical coherence tomography. <i>Skin Research and Technology</i> , 2019, 25, 743-749.	1.6	20
43	Increased aortic root stiffness associated with osteogenesis imperfecta. <i>Annals of Biomedical Engineering</i> , 1987, 15, 91-99.	2.5	19
44	Analysis of Mineral Deposition in Turkey Tendons and Self-Assembled Collagen Fibers Using Mechanical Techniques. <i>Connective Tissue Research</i> , 2004, 45, 131-141.	2.3	19
45	Morphomechanics of dermis: A method for non-destructive testing of collagenous tissues. <i>Skin Research and Technology</i> , 2017, 23, 399-406.	1.6	19
46	The Effects of Prestrain and Collagen Fibril Alignment on In Vitro Mineralization of Self-Assembled Collagen Fibers. <i>Connective Tissue Research</i> , 2005, 46, 107-115.	2.3	17
47	Cartilage wound healing. An overview. <i>Otolaryngologic Clinics of North America</i> , 1995, 28, 847-64.	1.1	17
48	Viscoelastic properties of self-assembled type I collagen fibers: molecular basis of elastic and viscous behaviors. <i>Connective Tissue Research</i> , 2002, 43, 569-80.	2.3	17
49	The Importance of Collagen Fibers in Vertebrate Biology. <i>Journal of Engineered Fibers and Fabrics</i> , 2009, 4, 155892500900400.	1.0	15
50	Molecular Basis for Mechanical Properties of ECMs: Proposed Role of Fibrillar Collagen and Proteoglycans in Tissue Biomechanics. <i>Biomolecules</i> , 2021, 11, 1018.	4.0	15
51	Biomechanical analysis of decellularized dermis and skin: Initial <i>in vivo</i> observations using optical coherence tomography and vibrational analysis. <i>Journal of Biomedical Materials Research - Part A</i> , 2018, 106, 1421-1427.	4.0	14
52	Measurement of Mechanical Properties of Natural and Engineered Implants. <i>Advances in Tissue Engineering & Regenerative Medicine Open Access</i> , 2016, 1, .	0.1	13
53	A Mechanical Model of Porcine Vascular Tissues-Part I: Determination of Macromolecular Component Arrangement and Volume Fractions. <i>Cardiovascular Engineering (Dordrecht, Netherlands)</i> , 2004, 4, 281-294.	1.0	10
54	Vibrational analysis of implants and tissues: Calibration and mechanical spectroscopy of multi-component materials. <i>Journal of Biomedical Materials Research - Part A</i> , 2017, 105, 1666-1671.	4.0	9

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55	Mechanical spectroscopy and imaging of skin components in vivo: Assignment of the observed moduli. <i>Skin Research and Technology</i> , 2019, 25, 47-53.	1.6	9
56	Mechano-vibrational spectroscopy of skin: Are changes in collagen and vascular tissue components early signs of basal cell carcinoma formation?. <i>Skin Research and Technology</i> , 2021, 27, 227-233.	1.6	7
57	Characterization of the Biomechanical Properties of Skin Using Vibrational Optical Coherence Tomography: Do Changes in the Biomechanical Properties of Skin Stroma Reflect Structural Changes in the Extracellular Matrix of Cancerous Lesions?. <i>Biomolecules</i> , 2021, 11, 1712.	4.0	7
58	Structure and behavior of collagen fibers. , 2018, , 345-365.		6
59	Virtual Biopsies of Normal Skin and Thermal and Chemical Burn Wounds. <i>Advances in Skin and Wound Care</i> , 2020, 33, 307-312.	1.0	6
60	A method for preparation of etched collagen fibers that support neurite outgrowth. <i>Journal of Applied Biomaterials: an Official Journal of the Society for Biomaterials</i> , 1990, 1, 225-232.	1.2	4
61	Silicone Gel-Filled Breast Implants: Is Local Inflammation Associated With Fat Necrosis?. <i>Breast Journal</i> , 1995, 1, 17-21.	1.0	4
62	Energy Analysis of Flow Induced Harmonic Motion in Blood Vessel Walls. <i>Cardiovascular Engineering (Dordrecht, Netherlands)</i> , 2005, 5, 21-28.	1.0	4
63	The Role of Type I Collagen Molecular Structure in Tendon Elastic Energy Storage. <i>Materials Research Society Symposia Proceedings</i> , 2005, 874, 1.	0.1	4
64	Biochemical, Biophysical and Mechanical Characterization of Decellularized Dermal Implants. <i>Materials Sciences and Applications</i> , 2017, 08, 873-888.	0.4	4
65	Virtual Biopsy and Physical Characterization of Tissues, Biofilms, Implants and Viscoelastic Liquids Using Vibrational Optical Coherence Tomography. <i>World Journal of Mechanics</i> , 2019, 09, 1-16.	0.4	4
66	The Virtual Biopsy of Cancerous Lesions in 3D: Non-Invasive Differentiation between Melanoma and Other Lesions Using Vibrational Optical Coherence Tomography. <i>Dermatopathology (Basel, Switzerland)</i> , 2021, 10, 1-10.	0.0	4
67	In Vivo Determination of the Human Corneal Elastic Modulus Using Vibrational Optical Coherence Tomography. <i>Translational Vision Science and Technology</i> , 2022, 11, 11.	2.2	4
68	Collagenous Biocomposites for the Repair of Soft Tissue Injury. <i>Materials Research Society Symposia Proceedings</i> , 1991, 252, 151.	0.1	3
69	Physical properties of model viscoelastic materials. <i>Journal of Applied Biomaterials: an Official Journal of the Society for Biomaterials</i> , 1994, 5, 227-234.	1.2	3
70	A review of the etiology and treatment of skin ulcers with wound dressings: comparison of the effects of occlusive and nonocclusive dressings. <i>Journal of Long-Term Effects of Medical Implants</i> , 1992, 2, 267-88.	0.7	3
71	Tissue compatibility of tyrosine-derived polycarbonates and polyiminocarbonates: an initial evaluation. <i>Journal of Long-Term Effects of Medical Implants</i> , 1992, 1, 329-46.	0.7	3
72	Cartilage Grafts in Nasal Surgery. <i>American Journal of Rhinology & Allergy</i> , 1989, 3, 167-171.	2.2	2

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73	Vibrational Optical Coherence Tomography Detects Unique Skin Fibrotic States: Preliminary Results of Animal and Human Studies. <i>Journal of the American Academy of Dermatology</i> , 2020, 85, 780-782.	1.2	2
74	Viscoelastic Behavior of Allografts and Scaffolds Composed of Extracellular Matrices. <i>Advances in Tissue Engineering & Regenerative Medicine Open Access</i> , 2017, 2, .	0.1	2
75	Use of vibrational optical coherence tomography to measure viscoelastic properties of muscle and tendon: A new method to follow musculoskeletal injury and pathology In vivo. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2021, 119, 104479.	3.1	1
76	Effects of static axial strain on the tensile properties and failure mechanisms of self-assembled collagen fibers. <i>Journal of Applied Polymer Science</i> , 1997, 63, 1429-1440.	2.6	1
77	Use of Vibrational Optical Coherence Tomography to Analyze the Mechanical Properties of Composite Materials. <i>Sensors</i> , 2021, 21, 2001.	3.8	0
78	Mechanical Analysis of Multi-Component Tissues. <i>World Journal of Mechanics</i> , 2017, 07, 121-132.	0.4	0
79	A Matter of Gravity-Mechanotransduction: How Mechanical Forces Influence Biological Materials. <i>Material Science & Engineering International Journal</i> , 2017, 1, .	0.1	0
80	Vibrational Analysis of Extracellular Matrix Scaffolds: Comparison of Skin, Dermis, Cartilage and Subchondral Bone Using Oct and Vibrational Analysis. <i>Advances in Tissue Engineering & Regenerative Medicine Open Access</i> , 2017, 2, .	0.1	0
81	Virtual biopsies and vibrational-mechanical analysis of skin rejuvenation: comparison of results obtained with micro-needling and topical treatments. <i>Journal of Dermatology & Cosmetology</i> , 2020, 4, 50-57.	0.2	0