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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet | 1 | of | 17

Complete if Known	
Application Number	17/962,055
Filing Date	10-07-2022
First Named Inventor	POUDINEH; Mahla
Art Unit	3791
Examiner Name	Christian Y Jang
Attorney Docket Number	21846

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	001	US-20090005667-A1	01-01-2009	CUI; Xinyan et al.	
	002	US-20090101498-A1	04-23-2009	PAPADIMITRAKOPOULOS; Fotios et al.	
	003	US-20160157764-A1	06-09-2016	DI PALMA; Vincenza et al.	
	004	US-20160235347-A1	08-18-2016	BAIG; Maarij et al.	
	005	US-20170131298-A1	05-11-2017	LI; Xiujun	
	006	US-20200016567-A1	01-16-2020	WOODBURY; Neal et al.	
	007	US-20200181710-A1	06-11-2020	STEELMAN; Brandon	
	008	US-20200377929-A1	12-03-2020	IRVINE; Darrell J. et al.	

FOREIGN PATENT DOCUMENTS

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	001	WO-2011114475-A1	09-22-2011	DENKI KAGAKU KOGYO KK [JP], et al.		☒
	002	WO-2021232109-A1	11-25-2021	COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, et al.		☐

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	001	ALKHAMIS et al., "Innovative Engineering and Sensing Strategies for Aptamer- Based Small-Molecule Detection," TrAC Trends in Analytical Chemistry, 2019, Vol. 121 (12), pp. 1-30.	☐
	002	ARMBRUSTER et al., "Limit of Blank, Limit of Detection and Limit of Quantitation," The Clinical biochemist. Reviews, 2008, pp. 1-4.	☐
	003	ARMSTRONG "Blood Sample Processing: Clinical Perspectives on Recent Developments in Technology and Laboratory Operations," Laboratory Medicine, 2012, Vol. 43(1), pp. 7-10.	☐
	004	BANDODKAR et al., " Non-invasive Wearable Electrochemical Sensors: a Review," Trends Biotechnology, 2014, Vol. 32 (7), pp. 363-371.	☐
	005	BARIYA et al., "Microneedles: An Emerging Transdermal Drug Delivery System," Journal of Pharmacy and Pharmacology, 2012, Vol. 64 (1), pp. 11-29.	☐
	006	BARIYA et al., "Wearable Sweat Sensors," Nature Electronics, 2018, Vol. 1, pp. 160-171.	☐
	007	BENCHERIF et al., "Influence of the Degree of Methacrylation on Hyaluronic Acid Hydrogels Properties," Biomaterials, 2008, Vol.29 (12), pp. 1739-1749.	☐
	008	BOLLELLA et al., "Microneedle-based Biosensor for Minimally-invasive Lactate Detection," Biosens Bioelectron, 2018, Vol. 123, 20 Pages.	☐
	009	BOLLELLA et al., "Minimally Invasive Glucose Monitoring Using a Highly Porous Gold Microneedles-Based Biosensor: Characterization and Application in Artificial Interstitial Fluid," Catalysts, 2019, Vo. 9, pp. 1-14.	☐
	010	BOLTON et al., "Hollow Silicon Microneedle Fabrication Using Advanced Plasma Etch Technologies for Applications in Transdermal Drug Delivery," The Royal Society of Chemistry, Lab Chip, 2020, Vol. 20(15), pp. 2788-2795.	☐
	011	BOYNE et al., "Timing of Changes in Interstitial and Venous Blood Glucose Measured With a Continuous Subcutaneous Glucose Sensor," Diabetes, 2003, Vol.52 (11), pp. 2790-2794.	☐

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	012	CALIO et al., "Polymeric Microneedles Based Enzymatic Electrodes for Electrochemical Biosensing of Glucose and Lactic Acid," Sensors and Actuators B: Chemical, Vol. 236, pp. 343-349.	☐
	013	CARAMES et al., "Design of a Fog Computing, Blockchain and IoT-Based Continuous Glucose Monitoring System for Crowdsourcing mHealth," Proceedings, 2019, Vol. 4(37), pp. 01-07.	☐
	014	CENCER et al., "Effect of pH on the Rate of Curing and Bioadhesive Properties of Dopamine Functionalized Poly(ethylene glycol) Hydrogels," Biomacromolecules, 2014, vol. 15 (8), pp. 2861–2869.	☐
	015	CHANG et al., "A Swellable Microneedle Patch to Rapidly Extract Skin Interstitial Fluid for Timely Metabolic Analysis," Advanced Materials, 2017, Vol. 29 (37), pp. 1-8.	☐
	016	CHEN et al., "Functional Human Vascular Network Generated in Photocrosslinkable Gelatin Methacrylate Hydrogels," Advanced Functional Materials, 2012, Vol. 22 (10), pp. 2027–2039.	☐
	017	CHEW et al., "A Self-adhesive Microneedle Patch With Drug Loading Capability Through Swelling Effect," Bioengineering & Translational Medicine, 2020, Vol. 5 (2), pp.1-9.	☐
	018	CHIKAKANE et al., "Measurement of Skin PH and Its Significance in Cutaneous Diseases," Clinics in Dermatology, 1995, Vol. 13, pp. 299-306.	☐
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	021	CHUNG et al., "Wearable Flexible Sweat Sensors for Healthcare Monitoring: a Review," The Royal Society Interface, 2019, Vol. 16, pp. 1-15.	☐
	022	DAMAGHI et al., "pH Sensing and Regulation in Cancer," Frontiers in Physiology," 2013, pp. 1-11.	☐

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	023	DAVIS et al., "Insertion of Microneedles Into Skin: Measurement and Prediction of Insertion Force and Needle Fracture Force," Journal of biomechanics, 2004, Vol. 37 (8), pp.1155-1163.	☐
	024	DERVISEVIC et al., "Transdermal Electrochemical Monitoring of Glucose via High-density Silicon Microneedle Array Patch," Advanced Functional Materials, 2021, 2009850, pp. 1-10.	☐
	025	DHANABALAN et al., "Wearable Label-Free Optical Biodetectors: Progress and Perspectives," Advanced Photonics Research, 2020, Vol. 2 (2), pp. 1-32.	☐
	026	DONNELLY et al., "Hydrogel-forming Microneedle Arrays Exhibit Antimicrobial Properties: Potential for Enhanced Patient Safety," International Journal of Pharmaceutics, 2013, Vol. 451(1-2), pp. 76-91.	☐
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	028	FEAGIN et al., "High-throughput Enantiopurity Analysis Using Enantiomeric DNA-based Sensors," Journal of the American Chemical Society, 2015, Vol.137 (12), pp.1-7.	☐
	029	GAO et al., "Simultaneous Detection of Glucose, Uric Acid and Cholesterol Using Flexible Microneedle Electrode Array-based Biosensor and Multi-channel Portable Electrochemical Analyzer," Sensors and Actuators B: Chemical, 2019, Vol.287, pp.102-110.	☐
	030	GARCIA-GUZMAN et al., "Toward in Vivo Transdermal Ph Sensing With a Validated Microneedle Membrane Electrode," ACS Sensors, 2021, Vol. 6 (3), pp. 1129-1137.	☐
	031	GHAVAMINEJAD et al., "Glucose-responsive Composite Microneedle Patch for Hypoglycemia-triggered Delivery of Native Glucagon," Advanced Materials, 2019, Vol.31 (30), pp. 1-7.	☐
	032	GHAVAMINEJAD et al., "Immobilization of Silver Nanoparticles on Electropolymerized Polydopamine Films for Metal Implant Applications," Colloids and Interface Science Communications, 2015, Vol. 6, pp. 5-8.	☐

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	033	GHAVAMINEJAD et al., "In Situ Synthesis of Antimicrobial Silver Nanoparticles Within Antifouling Zwitterionic Hydrogels by Catecholic Redox Chemistry for Wound Healing Application," Biomacromolecules, 2016, Vol. 17 (3), pp. 1213-1223.	☐
	034	GHAVAMINEJAD et al., "In-situ Immobilization of Silver Nanoparticles on ZSM-5 Type Zeolite by Catechol Redox Chemistry, A Green Catalyst for A3-Coupling Reaction," Microporous and Mesoporous Materials, 2016, Vol. 225, pp. 296-302.	☐
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	036	GHONEIM et al., "Recent Progress in Electrochemical pH-Sensing Materials and Configurations for Biomedical Applications," Chemical Reviews, 2019, Vol. 119 (8), pp. 5248-5297.	☐
	037	GLICKSBERG et al., "The Next Generation of Precision Medicine: Observational Studies, Electronic Health Records, Biobanks and Continuous Monitoring, "Human Molecular Genetics, 2018, Vol. 27, pp. 1-22.	☐
	038	GOMEZ et al., "Carbon Nanomaterials Embedded in Conductive Polymers: A State of the Art," Polymers, 2021, Vol. 13(9745), pp. 1-51.	☐
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	041	GUINOVART et al., "Bandage-Based Wearable Potentiometric Sensor for Monitoring Wound pH," Electroanalysis, 2014, Vol. 26, pp. 1-9.	☐
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	043	HAO et al., "Highly Sensitive Non-enzymatic Glucose Sensor Based on Pt Nanoparticle Decorated Graphene Oxide Hydrogel," Sensors and Actuators B: Chemical, 2015, Vol. 210, pp. 618-623.	☐
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	045	HEGARTY et al., "Design of Composite Microneedle Sensor Systems for the Measurement of Transdermal pH," Materials Chemistry and Physics, 2019, Vol. 227, pp. 340-346.	☐
	046	HERMANNS et al., "Impact of CGM on the Management of Hypoglycemia Problems: Overview and Secondary Analysis of the Hypode Study," Journal of Diabetes Science and Technology, 2019, Vol. 13 (4), pp. 1-9.	☐
	047	HUANG et al., "Flexible 3D Porous CuO Nanowire Arrays for Enzymeless Glucose Sensing: In Situ Engineered Versus Ex Situ Piled," The Royal Society of Chemistry, Nanoscale, 2013, Vol. 7(2), pp. 559-569.	☐
	048	HWANG et al., "Recent Advances in Electrochemical Non-enzymatic Glucose Sensors – a Review, "Analytica Chimica Acta, 2018, Vol. 1033 (29), pp. 1-34.	☐
	049	ILICHEVA et al., "Ultrasonic Cleavage of Nicked DNA," Journal of Biomolecular Structure & Dynamics," 2009, Vol.27 (3), pp. 391-397.	☐
	050	KASHANINEJAD et al., "Microneedle Arrays for Sampling and Sensing Skin Interstitial Fluid," Chemosensors, 2021, Vol. 9(83), pp.1-39.	☐
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	052	KIM et al., "Continuous Glucose Monitoring Using a Microneedle Array Sensor Coupled With a Wireless Signal Transmitter," Sensors and Actuators B: Chemical, 2019, Vol. 281, pp. 14-21.	☐
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	054	KIM et al., "Sensitive Sensing of Biomarkers in Interstitial Fluid," Nature Biomedical Engineering, 2021, Vol. 5 (1), pp. 3-5.	☐
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	065	LIH et al., "Optimal Conjugation of Catechol Group Onto Hyaluronic Acid in Coronary Stent Substrate Coating for the Prevention of Restenosis," Journal of Tissue Engineering, 2016, Vol. 7, pp. 1-11.	☐
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	076	MARUNAKA "Roles of Interstitial Fluid PH in Diabetes Mellitus: Glycolysis and Mitochondrial Function," World Journal of Diabetes, 2015, Vol. 6(1), pp. 125-135.	☐
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	086	NAKATSUKA et al., "Aptamer-field-effect Transistors Overcome Debye Length Limitations for Small-molecule Sensing," Science, 2019, Vol.362 (6412), pp. 1-10.	☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

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Application Number	17/962,055
Filing Date	10-07-2022
First Named Inventor	POUDINEH; Mahla
Art Unit	3791
Examiner Name	Christian Y Jang
Attorney Docket Number	21846

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	087	NASIRI et al., "Progress and Challenges in Fabrication of Wearable Sensors for Health Monitoring," Sensors and Actuators A: Physical, 2020, Vol. 312, pp. 1-17.	☐
	088	NEZAKATI et al., "Conductive Polymers: Opportunities and Challenges in Biomedical Applications," Chemical Reviews, 2018, Vol. 118 (14), pp. 6766-6843.	☐
	089	NIEDZWIECKI et al., "Human Suction Blister Fluid Composition Determined Using High-Resolution Metabolomics," Analytical Chemistry, 2018, Vol. 90 (6), pp. 3786-3792.	☐
	090	OH et al., "Effect of Current, Ionic Strength and Temperature on the Electrical Properties of Skin," Journal of Controlled Release, 1993, Vol. 27 (2), pp. 115-125.	☐
	091	PANDEY et al., "Current Advancements in Transdermal Biosensing and Targeted Drug Delivery," Sensors, 2019, Vol. 19 (5), pp. 571-606.	☐
	092	PARK et al., "Rapid Extraction and Detection of Biomolecules via a Microneedle Array of Wet-crosslinked Methacrylated Hyaluronic Acid," Advance Materials Technologies, 2021, Vol. 7(3), 10 pages.	☐
	093	PETTY et al., "Conducting Polymers for Tissue Regeneration in Vivo," Chemistry of Materials, 2020, Vol. 32, pp. 4095-4115.	☐
	094	POLDERVAART et al., "3D Bioprinting of Methacrylated Hyaluronic Acid (Meha) Hydrogel With Intrinsic Osteogenicity," PloS One, 2017, Vol.12 (6), pp. 1-15.	☐
	095	POUDINEH et al., "A Fluorescence Sandwich Immunoassay for the Real-time Continuous Detection of Glucose and Insulin in Live Animals," Nature Biomedical Engineering, 2021, Vol.5 (1), pp. 53-63.	☐
	096	RAMADON et al., "Enhancement Strategies for Transdermal Drug Delivery Systems: Current Trends and Applications," Drug Delivery and Translational Research, Springer, 2021, Vol. 12, pp. 758-791.	☐
	097	RANAMUKHAARACHCHI et al., "Integrated Hollow Microneedle-optofluidic Biosensor for Therapeutic Drug Monitoring in Sub-Nanoliter Volumes," Scientific Reports, 2016, Vol. 6, pp. 1-10.	☐

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	098	REDDY et al., "Monitoring Technologies- Continuous Glucose Monitoring, Mobile Technology, Biomarkers of Glycemic Control," Endotext, 2000, 56 Pages. (Note: The 2000 version was reviewed but is no longer available, and is nonetheless believed to contain the same information).	☐
	099	RIBET et al., "Real-time Intradermal Continuous Glucose Monitoring Using a Minimally Invasive Microneedle-based System, "Biomedical Microdevices, 2018, Vol. 20, pp. 1-10.	☐
	100	ROSSITER "The Electrical Resistivity of Metals and Alloys," Cambridge University Press, 1991, 448 pages.	☐
	101	SAFO et al.,"The Role of Polyvinylpyrrolidone (PVP) as a Capping and Structure-directing Agent in the Formation of Pt Nanocubes," Nanoscale Advances, 2019, Vol. 1 (8), pp. 3095-3106.	☐
	102	SALVADOR et al., "Hydrogel-Forming Microneedle Arrays Allow Detection of Drugs and Glucose In Vivo: Potential for Use in Diagnosis and Therapeutic Drug Monitoring," Plos One, Vol. 10(12), pp.1-12.	☐
	103	SAM et al., "A Simple Electropolymer Based Voltammetric Sensor for the Simultaneous Determination of Melanoma Biomarkers-L-Dopa and L-Tyrosine," Journal of The Electrochemical Society, 2022, Vol. 169(2), 7 Pages.	☐
	104	SAMANT et al., "Sampling Interstitial Fluid From Human Skin Using a Microneedle Patch," Science Translational Medicine, 2020, Vol.12 (571), pp. 1-15.	☐
	105	SAMANT et al., "Mechanisms of Sampling Interstitial Fluid From Skin Using a Microneedle Patch," PNAS Latest Articles, 2018, Vol. 115 (8), pp. 1-6.	☐
	106	SERRANO-CASTANEDA et al., "Microneedles as Enhancer of Drug Absorption through the Skin and Applications in Medicine and Cosmetology," Journal of Pharmacy and Pharmaceutical Sciences, 2018, Vol. 21 (1), pp. 73-93.	☐
	107	SIONKOWSKA et al., "Hyaluronic Acid as a Component of Natural Polymer Blends for Biomedical Applications: A Review," Molecules, 2020, Vol. 25 (18), pp. 1-18.	☐

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	108	SIRIPONGPREDA et al., "Bacterial Cellulose-based Re-Swellable Hydrogel: Facile Preparation and Its Potential Application As Colorimetric Sensor of Sweat Ph and Glucose," Carbohydrate Polymers, 2021, Vol. 256, pp. 1-8.	☐
	109	SMITH et al., "Development of a Novel Highly Conductive and Flexible Cotton Yarn for Wearable pH Sensor Technology," Sensors and Actuators B, 2019, pp. 1-23.	☐
	110	SON et al., "Bioinspired Templating Synthesis of Metal-polymer Hybrid Nanostructures Within 3D Electrospun Nanofibers," ACS Applied Materials & Interfaces, 2013, Vol. 5 (13), pp. 6381-6390.	☐
	111	TANG et al., "Aptamer Switch Probe Based on Intramolecular Displacement," Journal of the American Chemical Society, 2008, Vol.130 (34), pp. 11268-11269.	☐
	112	TARIGAN et al., "Prevention of Needle-stick Injuries in Healthcare Facilities: A Meta-analysis," Infect Control Hosp Epidemiol, 2015, Vol. 36(7), pp.823-829.	☐
	113	TAURINO et al., "Fast Synthesis of Platinum Nanopetals and Nanospheres for Highly-sensitive Non-enzymatic Detection of Glucose and Selective Sensing of Ions," Scientific Reports, 2015, Vol. 5(1), pp. 1-10.	☐
	114	TEYMOURIAN et al., "Microneedle-Based Detection of Ketone Bodies along with Glucose and Lactate: Toward Real-Time Continuous Interstitial Fluid Monitoring of Diabetic Ketosis and Ketoacidosis," Analytical Chemistry, 2020, Vol. 92 (2), pp. 2291-2300.	☐
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	116	TIAN et al., "A Review of Recent Advances in Nonenzymatic Glucose Sensors, "Materials Science and Engineering: C, 2014, Vol. 41 (1), pp. 100-118.	☐
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	118	United States Patent Application No. 17/962,055, Non final office action dated September 12, 2025.	☐
	119	United States Patent Application No. 17/962,055 Restriction Requirement dated May 08, 2025.	☐
	120	United States Patent Application No. 17/963,646, Non final office action dated October 02, 2025.	☐
	121	United States Patent Application No. 17/963,646 Restriction Requirement dated April 30, 2025.	☐
	122	USFDA: "FDA-Approved Dermal Fillers" U.S Food & Drug Administration, 2 pages, Retrieved from [www.fda.gov/medical-devices/aesthetic-cosmetic-devices/fda-approved-dermal-fillers].	☐
	123	VENTRELLI et al., "Microneedles for Transdermal Biosensing: Current Picture and Future Direction," Advanced Healthcare Materials, 2015, Vol. 4, pp. 2606-2640.	☐
	124	VIANINI et al., "In Vitro Selection of DNA Aptamers That Bind L-Tyrosinamide," Bioorganic & Medicinal Chemistry, 2001, Vol. 9 (10), pp. 2543–2548.	☐
	125	WAEGELE et al., "How Cations Affect the Electric Double Layer and the Rates and Selectivity of Electrocatalytic Processes," The Journal of Chemical Physics, 2019, Vol. 151, pp. 160902-160926.	☐
	126	WANG et al., "An Antifouling Electrochemical Immunosensor for Carcinoembryonic Antigen Based on Hyaluronic Acid Doped Conducting Polymer PEDOT," RSC Advances, 2016, Vol. 6 (91), pp. 88411-88416.	☐
	127	WANG et al., "Microneedle Patch for the Ultrasensitive Quantification of Protein Biomarkers in Interstitial Fluid," Nature Biomedical Engineering, 2021, Vol.5 (1), pp.64-76.	☐
	128	WANG et al., "Three Decades of Nucleic Acid Aptamer Technologies: Lessons Learned, Progress and Opportunities on Aptamer Development, Biotechnology Advances, 2019, Vol. 37 (1), pp. 28-50.	☐

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	129	WILSON et al., "Independent Control of the Thermodynamic and Kinetic Properties of Aptamer Switches," Nature Communications, 2019, Vol.10 (1), pp.1-9.	☐
	130	WU et al., "Adsorption and Desorption of DNA on Graphene Oxide Studied by Fluorescently Labeled Oligonucleotides," Langmuir : the ACS Journal of Surfaces and Colloids, 2011, Vol.27 (6), pp. 2731-2738.	☐
	131	WU et al., "Electrochemical Aptamer-based Sensor for Real-time Monitoring of Insulin," ACS Sensors, 2019, Vol.4 (2), pp. 498-503.	☐
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	135	YANG et al., "Recent Progress in Microneedles-mediated Diagnosis, Therapy, and Theranostic Systems," Advanced Healthcare Materials, 2022, Vol. 11, pp. 1-29.	☐
	136	YE et al., "Microneedles Integrated with Pancreatic Cells and Synthetic Glucose-Signal Amplifiers for Smart Insulin Delivery," Advanced Materials, 2016, Vol. 28 (16), pp. 3115–3121.	☐
	137	YI et al., "Aptamer-decorated Porous Microneedles Arrays for Extraction and Detection of Skin Interstitial Fluid Biomarkers," Biosensors & Bioelectronics, 2021, Vol.190, pp. 1-18.	☐
	138	YOSHIDA et al., "Selection of DNA Aptamers Against Insulin and Construction of an Aptameric Enzyme Subunit for Insulin Sensing," Biosensors & Bioelectronics, 2009, Vol.24 (5), pp.1116-1120.	☐

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	139	YU et al., "Glucose-Responsive Insulin Patch for the Regulation of Blood Glucose in Mice and Minipigs," Nature Biomedical Engineering, 2020, Vol. 4 (5), pp. 1-10.	☐
	140	YUK et al., "Hydrogel Bioelectronics," Royal Society of Chemistry, 2019, Vol. 48, pp. 1642-1667.	☐
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	143	ZHANG et al., "Arginine Derivatives Assist Dopamine-hyaluronic Acid Hybrid Hydrogels to Have Enhanced Antioxidant Activity for Wound Healing," Chemical Engineering Journal, 2020, Vol. 392, pp. 1-10.	☐
	144	ZHANG et al., "Encoded Microneedle Arrays for Detection of Skin Interstitial Fluid Biomarkers," Advanced Materials, 2019, Vol.31 (37), pp. 1-8.	☐
	145	ZHANG et al., "Microneedle-Assisted Technology for Minimally Invasive Medical Sensing," Microchemical Journal, 2021, Vol. 162, 12 Pages.	☐
	146	ZHANG et al., "Thrombin-Responsive Transcutaneous Patch for Auto-Anticoagulant Regulation," Advanced Materials, 2017, Vol. 29 (4), pp. 1-7.	☐
	147	ZHENG et al., "A Hydrogel Microneedle-assisted Assay Integrating Aptamer Probes and Fluorescence Detection for Reagentless Biomarker Quantification," 2021, 32 pages.	☐
	148	ZHENG et al., "Osmosis-powered Hydrogel Microneedles for Microliters of Skin Interstitial Fluid Extraction Within Minutes," Advanced Healthcare Materials, 2020, Vol. 9 (10), pp. 1-11.	☐
	149	ZHU et al., "Gelatin Methacryloyl Microneedle Patches for Minimally Invasive Extraction of Skin Interstitial Fluid," Small, 2020, Vol.16(16), pp.1-9.	☐

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Examiner Name	Christian Y Jang
Attorney Docket Number	21846

IDS Size Fee Statement

Please see 37 CFR 1.98 to make the appropriate selection. For the information disclosure statement (IDS) submitted herewith, the applicant or patent owner certifies:

☐ No IDS size fee is required under 37 CFR 1.17(v) at this time.

☐ The IDS is accompanied by the IDS size fee under 1.17(v)(1).

☒ The IDS is accompanied by the IDS size fee under 1.17(v)(2).

☐ The IDS is accompanied by the IDS size fee under 1.17(v)(3).

DEPOSIT ACCOUNT

The Director is authorized to charge the fee indicated above in the amount of $ _____ for the IDS submitted herewith to deposit account _____

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Art Unit	3791
Examiner Name	Christian Y Jang
Attorney Docket Number	21846

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ A certification statement is not submitted herewith.

FEE

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

COPIES

☐ An identification of an earlier application pursuant to 37 CFR 1.98 (d) (1) is attached.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/WENDY M. SLADE/	Date (YYYY-MM-DD)	2026-10-10
Name/Print	Wendy M. Slade	Registration Number	53,604