

Society for Biomaterials Annual Meeting and Exposition 2021

**BIOMATERIALS RESEARCH: Hitting all
the right notes, and avoiding the
translational blues**

Transactions of the 43rd Annual Meeting

Volume XLI

Online
20 – 23 April 2021

ISBN: 978-1-7138-3443-4

Copyright and Disclaimer

Society For Biomaterials
Transactions of the 43rd Annual Meeting
Volume XLI

Published by:
Society For Biomaterials
1120 Route 73 Suite 200
Mount Laurel, NJ 08054
(856)439-0826

Copyright © 2021
Society For Biomaterials, USA
ISSN# 1526-7547

All rights reserved. No part of this publication may be reproduced in any form by Photostat, microfilm, retrieval system, or any other means, without written permission from the publisher. The materials published in this volume are not intended to be considered by the reader as statements of standards of care or definitions of the state of the art in patient care or applications of the scientific principles described in the contents. The statements of fact and opinions expressed are those of the respective authors who are identified in the abstracts. Publications of these materials by the Society For Biomaterials does not express or imply approval or agreement of the officers, staff, or agents of the Society with the items presented herein and should not be viewed by the reader as an endorsement thereof. Neither the Society For Biomaterials nor its agents are responsible for inaccuracies or omissions in this Publication.

Every effort has been made to faithfully reproduce these Transactions as submitted. No responsibility is assumed by the Organizers for any injury and/or damage to persons or property as a matter of product liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advances in all sciences, we recommend that independent verification of the material presented should be made.

This product was produced for the Society For Biomaterials by Omnipress.

Duplication of this product and its content in print or digital form for the purpose of sharing with others is prohibited without permission from the Society For Biomaterials.

In no event will Omnipress or its suppliers be liable for any consequential or incidental damages to your hardware or other software resulting from the installation and/or use of this product.

No part of the product navigation and "Help" files may be reproduced or used without written permission from Omnipress.

©2021 Omnipress - All rights reserved.

TABLE OF CONTENTS

IMPROVED BIOMATERIALS BY SURFACE TEXTURING AND NITRIC OXIDE RELEASE..... <i>C. Siedlecki, L. Xu</i>	1
ADVANCED GLYCATION-END PRODUCT CROSS-LINKS ON COLLAGEN REGULATES MYOBLAST PROLIFERATION AND DIFFERENTIATION <i>L. Olson, Z. Schwartz, B. Boyan, M. McClure</i>	2
DYNAMIC MICROGELS FOR EXPANSION OF MESENCHYMAL STEM CELLS	3
<i>H. Nguyen, Z. Jiang, C. Chang, C. Lin</i>	
VARIATION OF CHITOSAN-HYALURONIC ACID SCAFFOLD PROCESSING PARAMETERS PRODUCES IN VITRO BREAST CANCER TUMOR MICROENVIRONMENTS THAT PROMOTE DIFFERENT PHENOTYPES	4
<i>Z. Wang, K. Xu, D. Rowley, M. Le, A. Khaled, S. Florkzyk</i>	
DESIGN BUILD AND VALIDATE STRATEGY TO 3D PRINT BIOMIMETIC BIOGLASS GRADIENT MATRICES FOR ACL RECONSTRUCTION	5
<i>N. Kajave, T. Schmitt, V. Kishore</i>	
GENE EXPRESSION ANALYSIS IN TISSUE-MICROELECTRODE INTERFACE OF CD14-/- AND WT MICE REVEALS POTENTIAL SECONDARY MOLECULAR TARGET IN NEUROINFLAMMATORY PATHWAY	6
<i>S. Song, H. Bedell, E. Ereifej, R. Chan, J. Capadona</i>	
TEACHING STANDARDIZATION OF BIOPRINTING	7
<i>L. Kuhn, S. Varma</i>	
TEACHING STUDENTS IN THE FIELD OF DENTAL MATERIALS SCIENCE IN THE COVID-19 PANDEMIC SETTING IN VARNA, BULGARIA	8
<i>M. Milkov, M. Stoykov, I. Parushev, S. Peev, D. Petrova</i>	
CUSTOMER DISCOVERY PROCESSES TO REALIZE COMMERCIALLY READY BIOMATERIALS TECHNOLOGIES	9
<i>K. Burg, T. Burg</i>	
THERAPEUTIC DELIVERY OF SMOOTH MUSCLE CELLS ENCAPSULATED IN POROUS COLLAGEN SCAFFOLDS FOR TREATMENT OF ABDOMINAL AORTIC ANEURYSM.....	10
<i>N. Huang, J. Mularz, C. Alcazar, C. Hu, M. Shayan, Y. Wen, M. Briggs, J. Spin, B. Chen, P. Tsao</i>	
MACHINE LEARNING GUIDED BIOMATERIALS DEVELOPMENT	11
<i>Y. Mei, S. Silver, J. Hu</i>	
ANTIBACTERIAL AND BIOMATERIALS CO-CR SURFACE VIA SPUTTERING-BASED METAL ION ETCHING.....	12
<i>M. Lee, C. Hwang, T. Jang, H. Kim</i>	
DIELECTRIC BARRIER DISCHARGE PLASMA ENHANCES CELLULAR RESPONSE OF MSCS AND OSTEOBLASTS IN VITRO AND IMPROVES OSSEointegration IN VIVO IN A RABBIT FEMUR MODEL	13
<i>M. Berger, D. Cohen, K. Bosh, M. Levit, B. Boyan, Z. Schwartz</i>	

IMPROVED MECHANICAL PROPERTY AND BIOCOMPATIBILITY OF BINARY ZINC ALLOYS	14
<i>Y. Su, Y. Zheng, Y. Wang, D. Zhu</i>	
USE OF TRANSIENT CUFF ELECTRODES FOR CHRONIC HFAC CONDUCTION NERVE BLOCK IMPLANTS.....	15
<i>E. Ray, S. Genovese, G. Lee, H. Yoon, Y. Yan, M. Macewan, W. Ray, J. Rogers</i>	
CONTROLLING MULTI-PEPTIDE ORGANIZATION IN 3D-PRINTED SCAFFOLDS TO DRIVE OSTEOCHONDRAL TISSUE FORMATION.....	16
<i>P. Camacho, M. Fainor, A. Behre, H. Dailey, L. Chow</i>	
NAIL MATRIX REGENERATIVE ENGINEERING: IN VITRO EVALUATION OF POLY(LACTIDE-CO-GLYCOLIDE)/GELATIN FIBROUS SUBSTRATES.....	17
<i>A. Montgomery, A. McClinton, L. Nair, C. Laurencin</i>	
ENGINEERING INJECTABLE ARTIFICIAL T-CELL STIMULATION MICROPARTICLES	18
<i>N. Livingston, J. Hickey, S. Salathe, H. Mao, J. Schneck</i>	
STIMULI-RESPONSIVE NANOREPORTER FOR EARLY MONITORING OF IMMUNOTHERAPY RESPONSE.....	19
<i>A. Nguyen, A. Kulkarni</i>	
HARNESSING SUSTAINED RELEASE TO PRODUCE ROBUST, DURABLE, AND HIGH-QUALITY INFLUENZA IMMUNITY	20
<i>E. Appel, G. Roth, O. Saouaf</i>	
PLASTICITY OF PRIMARY HUMAN MACROPHAGES IN CROSSTALK WITH SCAFFOLDS AND TISSUE-ENGINEERED BLOOD VESSELS	21
<i>B. Hernaez-Estrada, E. Santos-Vizcaino, R. Hernandez, K. Spiller</i>	
TAKE-OUT OR DINE-IN: IMMUNOGENICITY OF PEPTIDE NANOFIBERS PRESENTING EXOGENOUS OR ENDOGENOUS FORMS OF THE SAME ANTIGEN	22
<i>P. Shrimali, J. Buck, D. Kim, J. Rudra</i>	
THE EXTRACELLULAR MATRIX SCAFFOLD TYPE-2 HOST IMMUNE RESPONSE FACILITATES CANCER PROTECTION	23
<i>M. Wolf, S. Ganguly, R. Narain, D. Pardoll, J. Elisseeff</i>	
EFFECTS OF MACROPHAGE PHENOTYPE ON OSTEOPENIC DIFFERENTIATION OF MSCS IN THE PRESENCE OF WEAR PARTICLES.....	24
<i>Q. Gao, C. Rhee, M. Maruyama, Z. Li, H. Shen, N. Zhang, T. Utsunomiya, E. Huang, Z. Yao, B. Bunnell, H. Lin, R. Tuan, S. Goodman</i>	
SERIAL ASSESSMENT OF PANCREATIC ISLETS IN 3D ORGANOID MICROPHYSIOLOGICAL SYSTEM DEMONSTRATES RETENTION OF FUNCTION	25
<i>S. Patel, M. Ishahak, D. Chaimov, A. Velraj, D. Lashoto, D. Hagan, P. Buchwald, E. Phelps, A. Agarwal, C. Stabler</i>	
ENGINEERED HUMAN TISSUES FOR ASSESSING COSMIC RADIATION DAMAGE	26
<i>G. Garty, K. Yeager, J. Nooij, D. Brenner, G. Vunjak-Novakovic</i>	
CARTIFLO: A GLIOBLASTOMA-ON-CHIP PLATFORM TO ASSESS IN VITRO POTENCY OF CAR T CELL THERAPY	27
<i>C. Tondepu, M. Logun, Y. Liu, L. Mao, L. Karumbaiah</i>	

CONDUCTIVE MICRO-CONTAINERS FOR CONTROLLED RELEASE OF ANTI-BRAIN TUMOR THERAPEUTIC	28
<i>O. Toussi, M. Eslamian, M. Khorrami, M. Abidian</i>	
CONDUCTING POLYMER NANOFIBERS FOR BIOROBOTICS.....	29
<i>M. Eslamian, F. Mirab, V. Raghunathan, S. Majd, M. Abidian</i>	
IDENTIFYING FABRICATION PARAMETERS FOR TUNING MATERIAL PROPERTIES OF ELECTROCHEMICALLY ALIGNED COLLAGEN THREADS WITH DEEP NEURAL NETWORKS.....	30
<i>W. Sun, V. Webster-Wood</i>	
WIRELESS SMART CONTACT LENS FOR DIABETIC DIAGNOSIS AND THERAPY.....	31
<i>S. Kim, S. Hahn</i>	
WATER-IN-OIL EMULSION BIOINK FOR 3D BIOPRINTING OF LIVING RIGID SCAFFOLDS	32
<i>Y. Ding, C. Sun, G. Ameer</i>	
NUCLEIC ACID-COLLAGEN COMPLEXES (NACCS) STABILIZATION VIA PHYSIOLOGICAL IONS	33
<i>P. Guerin, B. James, J. Allen</i>	
NUCLEIC ACID ELASTIN COLLAGEN COMPLEX (NAECC) FIBERS AND GELS WORKING TOWARDS AN ECM MIMIC	34
<i>S. Saenz, B. James, J. Allen</i>	
NOVEL 3D PRINTED POLY (ETHYLENE GLYCOL) DIMETHACRYLATE BASED PHOTOCURABLE SCAFFOLDS FOR CRANIAL BONE REGENERATION IN THE LEWIS RAT MODEL.....	35
<i>J. Unagolla, A. Jayasuriya</i>	
BIO-MIMETIC PEPTIDE NANOFIBER HYDROGEL PROMOTES REGENERATIVE HEALING IN THE MURINE AND PORCINE IN VIVO MODELS.....	36
<i>N. Rijal, M. Krutko, S. Carr, A. Kaul, E. Stumpf, K. Cornuelle, S. Balaji, D. Narmoneva</i>	
ROS DEGRADABLE URETHANE SCAFFOLD MEDIATED REPAIR OF PORCINE EXCISIONAL WOUNDS.....	37
<i>P. Patil, K. Russo, J. McCune, A. Pollins, N. Cardwell, J. Davidson, S. Guelcher, C. Duvall</i>	
ANTAGONISTIC EFFECT OF MAGNESIUM HYDROXIDE NANOPARTICLE ON VASCULAR ENDOTHELIAL ACTIVATION INDUCED BY ACIDIC PLGA DEGRADATION PRODUCT	38
<i>K. Ko, D. Han</i>	
DECEASING TISSUE STIFFNESS IMPROVES EXTRACELLULAR MATRIX HYDROGEL THERAPEUTIC EFFICACY FOR MYOCARDIAL INFARCTION	39
<i>X. Wang, P. Park, S. Senyo</i>	
MODEL-DIRECTED DESIGN OF KINK RESISTANT VASCULAR GRAFTS WITH HIGH COMPLIANCE	40
<i>A. Robinson, D. Jiang, L. Timmins, E. Cosgriff-Hernandez</i>	
REVELATION OF VASCULATURE TREE STRUCTURE INSIDE SESAMOID BONE AND ITS IMPACT ON BONE MECHANICAL INTEGRITY	41
<i>E. Davis, J. Janes, J. Macleod, G. Zhang, F. Halcomb III</i>	

HYDROGEL CULTURES REVEAL SEX DIFFERENCES IN VALVULAR MYOFIBROBLASTS WITH LINKS TO GENES THAT ESCAPE X-CHROMOSOME INACTIVATION	42
<i>B. Aguado, C. Walker, J. Grim, M. Schroeder, D. Batan, B. Vogt, A. Gonzalez-Rodriguez, D. Heistad, R. Weiss, L. Leinwand, K. Anseth</i>	
LAMININ INTERACTIONS WITH THE ISLET IN A 3D REVERSE THERMAL GEL SCAFFOLD PROTECT AGAINST CYTOKINE-MEDIATED $\tilde{\alpha}$ -CELL DEATH.....	43
<i>M. Murthy, R. Piscopio, R. Benninger, N. Farnsworth</i>	
INVESTIGATING OVERLOAD IN TRIGGERING HYPERTROPHIC CARDIOMYOPATHY PATHOGENESIS USING IPSC CARDIOMYOCYTES.....	44
<i>J. Guo, H. Jiang, K. Oguntuyo, B. Rios, A. Boodram, N. Huebsch</i>	
MYOFIBROBLAST PERSISTENCE PROMOTES INFLAMMATION VIA IL-8 SECRETION IN VALVULAR INTERSTITIAL CELLS	45
<i>C. Walker, M. Schroeder, L. Leinwand, K. Anseth</i>	
SLIDING HYDROGELS WITH TUNABLE MOLECULAR MOBILITY ENHANCE CARTILAGE FORMATION BY CHONDROCYTES AND STEM CELLS IN A DOSE- DEPENDENT MANNER	46
<i>X. Tong, M. Ayushman, F. Yang</i>	
SUPRAMOLECULAR CLICK PRODUCT INTERACTIONS INDUCE DYNAMIC STIFFENING OF EXTRACELLULAR MATRIX-MIMETIC HYDROGELS	47
<i>S. E. Holt, J. Arroyo, E. Pou, M. Heintschel, A. Fricks, I. Agurcia, A. Rakoski, D. L. Alge</i>	
MULTI-FUNCTIONAL CERIUM OXIDE NANOPARTICLES PROTECT AGAINST IRRADIATION-INDUCED CELLULAR DAMAGE WHILE AUGMENTING OSTEOGENESIS IN VITRO	48
<i>F. Wei, C. Neal, T. Sakthivel, S. Seal, T. Kean, M. Razavi, M. Coathup</i>	
REPAIR OF RAT CALVARIA DEFECT WITH INJECTABLE STRONTIUM (SR2+)-DOPED POLYMERIC BRUSHITE CERAMICS	49
<i>D. Markel, T. Bou-Akl, P. Dietz, B. Wu, T. Shi, P. Begeman, W. Ren</i>	
TEMPORALLY CONTROLLED RELEASE OF PERIOSTEAL PARACRINE FACTOR MIMETICS FOR EFFICIENT BONE ALLOGRAFT HEALING: A CELL AND GROWTH FACTOR FREE APPROACH	50
<i>S. Basu, A. Van Hove, Y. Li, D. Benoit</i>	
COMPARISON OF TWO NERVE ABLATION MODELS AND THEIR IMPACT ON TITANIUM IMPLANT OSSEointegration	51
<i>J. Deng, D. Cohen, Z. Schwartz, B. Boyan</i>	
MICRORIBBON-BASED MACROPOROUS MATRICES ENHANCE CARTILAGE REPAIR IN RAT OSTEOCHONDRAL DEFECT MODEL	52
<i>X. Tong, M. Maruyama, D. Barati, S. Goodman, F. Yang</i>	
USING CHEMICAL IMAGING IN PROBING SPECTRAL BIOMARKER OF PSEUDO- CAPSULE MACROPHAGES IN RESPONSE TO METAL DEBRIS	53
<i>S. Liu, D. J. Hall, S. M. McCarthy, J. J. Jacobs, R. Pourzal</i>	
SULFATED HYDROGELS TO PROLONG LOCALIZED AVAILABILITY OF THE STROMAL CELL SECRETOME	55
<i>M. Gionet-Gonzales, D. Diloretto, C. Ginnell, J. Leach</i>	

MODIFYING MINERALIZED COLLAGEN SCAFFOLDS TO MODULATE THE INFLAMMATORY RESPONSE IN CRANIMAXILLOFACIAL DEFECTS AND ENHANCE BONE REGENERATION	56
<i>V. Koliopoulos, M. Dewey, M. Ngo, B. Harley</i>	
SINGLE-STEP PEPTIDE FUNCTIONALIZATION FOR SPATIALLY ORGANIZED 3D-PRINTED SCAFFOLDS.....	57
<i>P. Camacho, K. Seims, H. Busari, H. Dailey, L. Chow</i>	
CHARACTERIZATION OF HIGHLY ELASTIC, BIODEGRADABLE CITRATE-BASED ELASTOMER FOR TISSUE ENGINEERING	58
<i>T. Nguyen, M. Goedegebuure, A. Sharma, G. Ameer</i>	
ARTIFICIAL MENINGES REDUCE FIBROBLASTIC AND ASTROGLIAL RESPONSES IN A RABBIT CORD TRANSECTION.....	59
<i>B. Varghese, A. Shereen, A. Seifert, L. Bright, A. Merolli</i>	
ECM COMPONENTS RECRUITED WITH PERITONEAL PREIMPLANTATION AND CORRELATION WITH VASCULAR GRAFT OUTCOMES	60
<i>V. Mendoza, M. Sameti, L. Moore, C. Bashur</i>	
TOLL-LIKE RECEPTOR MEDIATED MACROPHAGE RESPONSES TO ADSORBED CELLULAR DAMAGE MOLECULES	61
<i>L. McKiel, K. Woodhouse, L. Fitzpatrick</i>	
GENERATION OF MESENCHYMAL META-TISSUES USING MULTI-PHOTON LITHOGRAPHY.....	62
<i>C. Wang, Z. Vangelatos, T. Winston, C. Grigoropoulos, Z. Ma</i>	
TUNABLE CAPROGLU ADHESIVES FOR ENHANCED TISSUE COMPATIBILITY	63
<i>I. Solic, I. Djordjevic, M. Singh, T. Steele</i>	
GLYCOSAMINOGLYCANS AND DEXAMETHASONE INFLUENCE TRABECULAR MESHWORK CELL BEHAVIOR ON 3D SCAFFOLDS	64
<i>B. Adhikari, M. Pantcheva, M. Krebs</i>	
POLYMERIC COATINGS FOR PERCUTANEOUS DEVICES DIRECT PERICELLULAR LAMININ FOR HEMIDESMOSOME FORMATION	65
<i>N. Fischer, D. De Jong, C. Aparicio</i>	
A NEW APPROACH TO EVALUATE THE BOND STRENGTH OF DENTAL RESTORATIONS	66
<i>C. Montoya, A. Jain, S. Orrego</i>	
DO QUATERNARY AMMONIUM BASED-DENTAL COMPOSITES AFFECT THE SUBGINGIVAL MICROBIOTA STUDY ON MICROCOISM BIOFILMS CULTURED FROM SUBGINGIVAL PLAQUE	67
<i>A. Balhaddad, I. Garcia, L. Mokeem, M. Ibrahim, F. Collares, M. Weir, H. Xu, M. Melo</i>	
TRANSLATION OF 3D-PAINTED HYPERELASTIC BONE® ADVANCED BIOMATERIAL PRODUCTS FOR OFF-THE-SHELF AND PATIENT-MATCHED DENTAL AND MAXILLOFACIAL REPAIR AND REGENERATION	68
<i>A. Jakus</i>	
SILOXANE-CONTAINING SHAPE MEMORY POLYMER (SMP) SCAFFOLDS FOR CRANIAL BONE DEFECT REPAIR	69
<i>F. Beltran, C. Houk, M. Grunlan</i>	

SURPASSING SHORT-TERM ANTIBACTERIAL ACTIVITY FOR BIOACTIVE DENTAL COMPOSITES WITH QUATERNARY AMMONIUM COMPOUND: A LONG-TERM EVALUATION AFTER ARTIFICIAL AGING.....	70
<i>A. Balhaddad, L. Mokeem, M. Weir, H. Xu, M. Melo</i>	
AN ANTIGEN-SPECIFIC MICROPARTICLE SYSTEM SHOWS EFFICACY IN A MOUSE MODEL OF MULTIPLE SCLEROSIS	71
<i>A. Kwiatkowski, J. Stewart, E. Helm, T. Drashansky, D. Avram, B. Keselowsky</i>	
LIPID NANOPARTICLE-MEDIATED mRNA DELIVERY FOR CAR T CELL ENGINEERING	72
<i>M. Billingsley, S. Patel, A. Hamilton, N. Singh, P. Ravikumar, C. June, M. Mitchell</i>	
EXOGENOUS DELIVERY OF INDOLEAMINE 2,3-DIOXYGENASE REVERSES DISEASE SEVERITY IN PSORIASIS.....	74
<i>S. Macias, M. Zovko, I. Verma, A. Wanchoo, G. Hudalla, B. Keselowsky</i>	
QUALITY OF CD8+ T CELL IMMUNITY EVOKED IN LYMPH NODES IS COMPARTMENTALIZED BY ROUTE OF ANTIGEN TRANSPORT AND FUNCTIONAL IN TUMOR CONTEXT.....	75
<i>M. O'Melia, N. Rohner, M. Manspeaker, D. Francis, H. Kissick, S. Thomas</i>	
PEGYLATION OF INDOLEAMINE 2,3-DIOXYGENASE FOR ADDRESSING SYSTEMIC IMMUNE REGULATION.....	76
<i>J. Simonovich, A. Wanchoo, A. Kwiatkowski, D. Avram, G. Hudalla, B. Keselowsky</i>	
LIVER TARGETING SYNTHETIC GLYCOSYLATIONS: ENGINEERING HUMORAL TOLERANCE TO PROTEIN THERAPEUTICS	77
<i>D. Wilson, K. Brunggel, M. Raczy, R. Wallace, A. Tremain, J. Hubbell</i>	
SUSTAINED & LOCALIZED CYCLOSPORINE DELIVERY AND ACTIVITY USING NANOMICELLES AND NANOFIBRILS	78
<i>D. Velluto, D. Bojadzic, T. De Toni, P. Buchwald, A. Tomei</i>	
APPLICATION OF MAGNETIC PARTICLE IMAGING TECHNOLOGY TO UNDERSTAND NANOPARTICLE BIODISTRIBUTION IN OSTEOARTHRITIC JOINTS	79
<i>T. Ajayi, S. Liu, C. Rinaldi, S. Blanka</i>	
DUAL-NANOPARTICLE SYSTEM FOR ENHANCED DRUG ACCUMULATION AND PROLONGED RETENTION IN METASTATIC CANCERS	80
<i>M. Prado, P. Dosta, P. Hurtado, N. Artzi</i>	
MULTI-STEP COMPOSITIONAL SCREENING OF PDNA LIPID NANOPARTICLES TO OPTIMIZE TRANSFECTION EFFICIENCY FOR ORAL GENE DELIVERY	81
<i>Y. Zhu, Y. Hu, H. Mao</i>	
PROTEIN CORONA FORMED ON NANOPARTICLES IS SENSITIVE TO ISOMERIC DIFFERENCES IN SURFACE CHEMISTRY.....	82
<i>S. Conjeevaram, R. Blanchard, I. Adjei</i>	
TARGETING SCAVENGER RECEPTOR TYPE B1 AND CELLULAR CHOLESTEROL WITH HIGH-DENSITY LIPOPROTEIN MIMETIC NANOPARTICLES INHIBITS SARS-COV-2 INFECTION	83
<i>S. Henrich, K. McMahon, N. Palacio, P. Penalosa-McMaster, C. Thaxton</i>	
A GELATIN HYDROGEL MODEL OF THE ENDOMETRIUM AND TROPHOBlast INVASION.....	84
<i>S. Zambuto, I. Jain, S. Rattila, K. Clancy, G. Dveksler, G. Underhill, B. Harley</i>	

ENGINEERING LIPID NANOPARTICLES FOR IN UTERO mRNA DELIVERY	85
<i>M. Billingsley, R. Riley, M. Kashyap, B. White, P. Zoltick, A. Cheng, R. Zhang, W. Peranteau, M. Mitchell</i>	
FULLY ABSORBABLE POLY-4-HYDROXYBUTYRATE (P4HB) SCAFFOLD PROVIDES MECHANICAL SUPPORT AT 12 MONTHS FOLLOWING VAGINAL IMPLANTATION IN AN OVINE MODEL.....	87
<i>Z. Guler, L. Kaestner, L. Ras, E. Vodegel, C. Diedrich, L. Hympanova, J. Deprest, S. Jeffrey, J. Roovers</i>	
DESIGN AND PROTOTYPING OF DYNAMIC MIDURETHRAL SLING FOR THE TREATMENT OF STRESS URINARY INCONTINENCE	88
<i>S. Tasnim, P. Zimmern, T. Ware</i>	
EVALUATION OF IMMUNOMODULATORY MESH FOR PELVIC FLOOR RECONSTRUCTION IN A RABBIT COLPOPEXY MODEL	89
<i>B. Brown, A. Iftikhar, A. Nolfi, C. Skillen, B. Popovic, M. Ambrose, P. Moalli</i>	
POLY-4-HYDROXYBUTYRATE (P4HB) FULLY ABSORBABLE SCAFFOLDS FOR SOFT TISSUE SUPPORT IN 3D APPLICATIONS.....	90
<i>D. Martin, K. Guo, J. Scott, A. Fosco, A. Ganatra, S. Rizk</i>	
CONTROLLING OSTEOGENESIS BY GRAFTING PEPTIDE MIMETICS VIA ORTHOGONAL CLICK CHEMISTRIES TO ALGINATE HYDROGELS	91
<i>S. Neal, E. Jain, X. Tan, H. Graf, R. Balasubramaniam, N. Heubsch</i>	
NEUROTIZATION OF DECELLULARIZED MUSCLE MATRIX IMPROVES FUNCTIONAL RECOVERY AND PROMOTES UNIQUE mRNA PROFILES IN A VOLUMETRIC MUSCLE LOSS MODEL	92
<i>J. Redden, D. Cohen, L. Olson, L. Krebs, G. Bendale, J. Isaacs, Z. Schwartz, M. McClure</i>	
THE MACROARCHITECTURE OF BIOMIMETIC PROTEOGLYCANS IS RESPONSIBLE FOR THE MICROMOLECULAR ENGINEERING OF CARTILAGE PERICELLULAR MATRIX	93
<i>E. Kahle, B. Han, P. Chandrasekaran, K. Prudnikova, M. Marcolongo, L. Han</i>	
ENHANCED SATELLITE CELL DIFFERENTIATION AND MUSCLE REGENERATION BY SEMI-SYNTHETIC HYALURONIC ACID HYDROGEL-MEDIATED DELIVERY OF FIBRO-ADIPOGENIC PROGENITORS IN VOLUMETRIC MUSCLE LOSS	94
<i>S. Browne, A. Killiaars, M. Liu, X. Liu, H. Kim, B. Feeley, K. Healy</i>	
RANDOMIZED PEPTIDE ASSEMBLIES FOR IMPROVING THE EFFICACY OF EPITOPE-BASED INFLUENZA VACCINES.....	95
<i>N. Votaw, L. Shores, A. Miranda, A. Harding, N. Heaton, J. Collier</i>	
SYNTHETIC SELF-ASSEMBLED NANOROD VACCINE CONFERS PROTECTION AGAINST INFLUENZA A VIRUS	96
<i>M. Cote-Cyr, X. Zottig, S. Al-Halifa, D. Archambault, S. Bourgault</i>	
METHACRYLATE-MODIFIED GOLD NANOPARTICLES ENABLE NON-INVASIVE MONITORING OF PHOTOPOLYMERIZED HYDROGEL SCAFFOLDS.....	97
<i>L. Li, C. Gil, V. Serpooshan, R. Roeder</i>	
DEVELOPMENT OF NEEDLE FREE TRANSDERMAL MICROPARTICULATE VACCINE FOR CORONAVIRUS DISEASE	98
<i>S. Vijayanand, S. Patil, D. Joshi, M. D'Souza</i>	

A POLYMERIC PARTICULATE VACCINE FOR ZIKA FOR TRANSDERMAL IMMUNIZATION USING MICRONEEDLE PATCH	99
<i>A. Kale, M. D'Souza</i>	
DEVELOPMENT OF A FULLY REVERSIBLE IN VITRO PLATFORM TO SPATIOTEMPORALLY CONTROL MULTIPLE BIOACTIVE PEPTIDES USING DNA HANDLES	100
<i>S. Vijayanand, K. Gomes, K. Gomes, S.-M. Kang, M. D'Souza</i>	
LAMB-TYPE SURFACE ACOUSTIC WAVE EXCITATION FOR GENERATING TUNABLE MHZ-GHZ ULTRASONIC WAVES	101
<i>G. Zhang</i>	
CONTROLLING MICROBIAL INFECTION BY SUBMICRON TEXTURED SURFACES	102
<i>L.-C. Xu, C. Siedlecki</i>	
SMART ZNO NANOROD ARRAYS AND PLGA HYBRID COATINGS – A BIODEGRADABLE AND MULTIFUNCTIONAL DRUG RELEASE SYSTEM ON TITANIUM IMPLANTS	103
<i>J. Zhou, D. Zhu</i>	
TANNIN/GLYCOSAMINOGLYCAN-BASED POLYELECTROLYTE MULTILAYERS IMPROVE THE ENDOTHELIALIZATION OF TiO ₂ NANOTUBES	104
<i>R. Sabino, M. Kipper, A. Martins, K. Popat</i>	
ULTRAVIOLET FUNCTIONALIZED SURFACE TREATMENT OF 3D PRINTED PEEK RESULTED IN CALCIUM PHOSPHATE LAYER FORMATION	105
<i>P. Desantis, T. Yu, C. Basgul, S. Kurtz, M. Marcolongo</i>	
DEVELOPMENT OF A FULLY REVERSIBLE IN VITRO PLATFORM TO SPATIOTEMPORALLY CONTROL MULTIPLE BIOACTIVE PEPTIDES USING DNA HANDLES	106
<i>F. Fumasi, T. Macculloch, N. Stephanopoulos, J. Holloway</i>	
DELIVERY OF STING AGONIST USING PBAES NANOPARTICLES INHIBITS TUMOR GROWTH IN DIFFERENT TUMOR MODELS	107
<i>P. Dosta, A. Cryer, S. Kalash, M. Dion, S. Ferber, N. Artzi</i>	
IMMUNOENGINEERED CCL21 AND BETA-CELL ANTIGEN HYDROGEL PLATFORM TO INDUCE TOLERANCE IN TYPE 1 DIABETES	108
<i>F. Tegou, D. Velluto, F. Badillo, A. Bayer, S. Zustiak, A. Tomei</i>	
SUCCINATE BASED ADJUVANT-LESS CANCER VACCINE MODIFIES IMMUNOMETABOLISM AND PREVENT MELANOMA GROWTH IN MICE	109
<i>S. Inamdar, J. Mangal, X. Shi, M. Curtis, H. Gu, A. Acharya</i>	
CHEMICALLY-INDUCED CROSS-LINKING OF PEPTIDIC FIBRILS FOR SCAFFOLDING POLYMERIC PARTICLES AND MACROPHAGES	110
<i>J. Armen, N. Schueler, N. Abraham, K. Velankar, R. Palchesko, Y. Fan, W. Meng, E. Gawalt</i>	
MACROPHAGE DEPLETION INCREASES TARGET SPECIFICITY OF BONE-TARGETED NPS	111
<i>M. Ackun-Farmmer, B. Xiao, D. Benoit</i>	
SCALABLE PARALLELIZED MICROFLUIDIC DEVICE FOR PRECISE RNA LIPID NANOPARTICLE FORMULATIONS	112
<i>S. Shepherd, D. Issadore, M. Mitchell</i>	

URICASE FUNCTIONALIZED HYDROGEL FOR THE LOCALIZED TREATMENT OF GOUT.....	113
<i>M. Fuchs, G. Hudalla, B. Keselowsky</i>	
A POTENT BRANCHED TAIL LIPID NANOPARTICLE ENABLES MULTIPLEXED mRNA DELIVERY AND GENE EDITING IN VIVO.....	114
<i>J. Melamed, K. Hajj, K. Whitehead</i>	
IN VITRO EVALUATION OF A DRUG-LOADED SELF-ASSEMBLING PEPTIDE HYDROGEL FOR TREATING GLIOBLASTOMA MULTIFORME	115
<i>A. Nukovic, M. Pitz, M. Elpers, S. Wilde, A. Gregory, A. Alexander-Bryant</i>	
SCALABLE PRODUCTION OF PDNA/LPEI NANOPARTICLES VIA KINETICALLY CONTROLLED ASSEMBLY FOR GENE DELIVERY WITH ENHANCED EFFICIENCY AND BIOCOMPATIBILITY	117
<i>Y. Hu, I. Minn, M. Pomper, H.-Q. Mao</i>	
BIOENGINEERED TISSUE MIMETIC HYDROGELS TO STUDY BRAIN TUMOR BIOLOGY	118
<i>S. Pedron, B. Harley</i>	
NEUROTROPHIN-3 LOADED HYALURONIC ACID HYDROGELS PROMOTE AXONAL GROWTH IN VITRO	119
<i>P. Ferrer, S. Sakiyama-Elbert</i>	
UNDERSTANDING THE ROLE OF SUBCUTANEOUS PRIMING FOR IMPROVING TISSUE ENGINEERED SCAFFOLDS FOR SPINAL CORD INJURY TREATMENT	120
<i>M. Hamrangsekachae, H. Baumann, D. Pukale, L. Shriver, N. Leipzig</i>	
GUIDING OLIGODENDROCYTE PRECURSOR CELL FATE VIA UROKINASE PLASMINOGEN ACTIVATOR-DEGRADABLE HYDROGELS	121
<i>K. Lampe, E. Meco, A. Sharma</i>	
COMBINATION THERAPEUTICS FOR NEURAL INJURY USING NATURAL-BASED HYDROGELS AND CHONDROITINASE ABC-GALECTIN-3.....	123
<i>N. Hlavac, D. Seroski, N. Agrawal, L. Astrab, G. Hudalla, C. Schmidt</i>	
ASSESSING THE POTENTIAL OF A DECELLULARIZED PERIPHERAL NERVE-BASED HYDROGEL AS A SPINAL CORD INJURY THERAPEUTIC DELIVERY VEHICLE	124
<i>D. Bousalis, M. McCrary, N. Hlavac, A. Evering, N. Vaughn, C. Schmidt</i>	
SYNTHETIC HYDROGELS TO STUDY ECM DYNAMICS OF INTESTINAL ORGANODS.....	125
<i>M. Blatchley, K. Gunay, F. Yavitt, P. Dempsey, K. Anseth</i>	
DISSECTING THE MICROENVIRONMENTAL CONTROL OF LIVER STELLATE CELL EPIGENETICS AND FIBROGENIC PHENOTYPES	126
<i>I. Jain, A. Brougham-Cook, G. Underhill</i>	
BIASING HEMATOPOIETIC RESPONSE IN SINGLE-CELL MICROENVIRONMENTS.....	127
<i>A. Gilchrist, J. Serrano, M. Hunckler, A. Garcia, B. Harley</i>	
PROTEASE-ACTIVATABLE CONJUGATES FOR CELL-SPECIFIC TARGETTING	128
<i>E. Pashuck, S. Rozans, K. Atanasoff, A.-N. Syed, J. Tosh, A. Ferrante</i>	
DEVELOPMENT OF AN IN-VITRO MICROPHYSIOLOGICAL MODEL OF THE TRACHEAL EPITHELIUM	129
<i>S. Miar, Y. Pillai, Z. Hela, G. Dion, J. Ong, R. Bizios, T. Guda</i>	

SARS-COV-2 SPIKE PROTEIN-INDUCED TOXICITY IN 3D ENGINEERED VASCULAR NETWORKS.....	130
<i>B. Stern, J. Zoldan</i>	
MAGNESIUM CATIONIC NICHE IN BONE TISSUE MICROENVIRONMENT FACILITATES INTRAMEMBRANOUS OSSIFICATION	131
<i>J. Shen, K. Cheung, K. Yeung</i>	
MULTI-FUNCTIONAL CERIUM OXIDE NANOPARTICLES INCREASE OSTEOGENESIS AND DELIVER A DISPARATE BUT PROTECTIVE EFFECT TO MACROPHAGES WHEN UNDER EITHER ACUTE OR CHRONIC INFLAMMATORY CONDITIONS IN VITRO.....	132
<i>F. Wei, C. Neal, T. Sakthivel, S. Seal, T. Kean, M. Coathup</i>	
BIOMIMETIC MG-DOPED TYPE I COLLAGEN / HYDROXYAPATITE SCAFFOLD AND MEMBRANE INDUCES OSTEOGENESIS IN MESENCHYMAL STEM CELLS FASTER THAN IN 2D ENVIRONMENT.....	133
<i>A. Brozovich, S. Lenna, F. Paradiso, S. Serpelloni, P. McCulloch, A. Mikos, B. Weiner, F. Taraballi</i>	
ARE LYMPHOCYTE-DOMINATED ADVERSE LOCAL TISSUE REACTIONS ASSOCIATED WITH A CHEMICAL ATTACK ON PREFERENTIAL CORROSION SITES OF COCRMO HEADS IN MOP THA?.....	134
<i>D. Hall, S. McCarthy, J. Wright, M. Je, J. Jacobs, R. Pourzal</i>	
WOULD ULTRAFINE GRAINED METALLIC BIOMATERIALS ENHANCE MECHANICAL PROPERTIES OF ORTHOPEDIC IMPLANTS?.....	135
<i>B. Saleh, S. Kelkar, F. Yusa, Y. Suzuki, T. Komatsu, K. Kalantari, H. Serhan, T. Webster</i>	
MULTIFUNCTIONAL NANOPARTICLES CONTAINING SDF1-ELP AND VRAGE-ELP ACCELERATE DIABETIC WOUND HEALING.....	136
<i>H. Kang, S. Kumar, B. Dash, H. Hsia, M. Yarmush, F. Berthiaume</i>	
DEVELOPMENT OF ZONATED ARTIFICIAL LIVER TISSUE VIA SPATIAL GENE PATTERNING.....	137
<i>D. Corbett, W. Fabyan, B. Grigoryan, C. O'Connor, F. Johansson, I. Batalov, M. Regier, C. Deforest, J. Miller, K. Stevens</i>	
FRESH 3D BIOPRINTING FULL-SCALE COLLAGEN CONSTRUCTS FOR SURGICAL TRAINING MODELS	138
<i>A. Lee, R. Patten, T. Hinton</i>	
TRI-LAYERED HYDROGEL SCAFFOLD FOR VOCAL FOLD TISSUE ENGINEERING	139
<i>R. Tindell, M. McPhail, C. Myers, J. Naubauer, J. Hintz, D. Lott, J. Holloway</i>	
3D PRINTING OF CLICK FUNCTIONALIZED, PEPTIDE PATTERNED SCAFFOLDS FOR OSTEOCHONDRAL TISSUE ENGINEERING.....	140
<i>J. Guo, L. Diaz-Gomez, V. Xie, S. Bittner, E. Jiang, B. Wang, A. Mikos</i>	
MECHANICAL PERFORMANCE OF A HYDROGEL-FIBER MESH COMPOSITE AS A SYNTHETIC HEART VALVE MATERIAL.....	141
<i>S. Motiwale, M. Russell, M. Wancura, A. Robinson, E. Cosgriff-Hernandez, M. Sacks</i>	
MULTIPHASE, VASCULARIZED BONE CONSTRUCTS COMPRISED OF MODULAR VASCULAR AND OSTEOGENIC MICROTISSUES	142
<i>N. Schott, J. Stegemann</i>	

VASCULARIZATION OF DEGRADABLE PEG-NORBORNENE HYDROGELS VIA COCULTURE OF ENDOTHELIAL AND STROMAL CELLS.....	143
<i>N. Friend, J. Stegemann, A. Putnam</i>	
NUCLEIC ACID-COLLAGEN COMPLEXES (NACC): ENGINEERING TUNABLE HARD AND SOFT ECM MIMICS	144
<i>B. James, S. Saenz, P. Guerin, J. Allen</i>	
UNCONVENTIONAL BIOMATERIALS FOR REGENERATIVE ENGINEERING	145
<i>G. Camci-Unal</i>	
DESIGNER, INJECTABLE GELS TO PREVENT TRANSPLANTED SCHWANN CELL LOSS DURING SPINAL CORD INJURY THERAPY	146
<i>V. Doulames, L. Marquardt, A. Wang, K. Dubbin, R. Suhar, M. Kratochvil, Z. Medress, G. Plant, S. Heilshorn</i>	
DEVELOPMENT OF A HYALURONAN POLYMER-PROTEIN CONJUGATE FOR PERIPHERAL NERVE APPLICATIONS	147
<i>M. Kasper, M. Cydis, A. Agirdi, C. Schmidt</i>	
HEPARIN COATING IMPROVES THROMBORESISTANCE IN GLUTARALDEHYDE PROCESSED BOVINE PERICARDIUM: A POSSIBLE APPLICATION FOR BIOPROSTHETIC HEART VALVE	148
<i>S. Devika, M. Gurudas, P. Jesna, A. Bhatt, P. Umashankar</i>	
SURFACE FUNCTIONALIZED STEM CELL-DERIVED EXTRACELLULAR VESICLES FOR AUGMENTED REGENERATIVE REPAIR OF VASCULAR ELASTIC MATRIX	149
<i>S. Sajeesh, A. Ramamurthi</i>	
NEW FLUORINATED ALKOXYPHOSPHAZENE BIOMATERIALS WITH IMPROVED BIOCOMPATIBILITY	150
<i>L.-C. Xu, C. Chen, H. Allcock, C. Siedlecki</i>	
BIOVESICLE DELIVERY OF CONNEXIN 43 IMPROVES SYNCHRONOUS BEATING OF HIPSC DERIVED CARDIOMYOCYTES	151
<i>G. Rodriguez-Rivera, M. Chwatko, A. Post, M. John, S. Buchan, C. Waldron, M. Razavi, E. Cosgriff-Hernandez</i>	
BIOVESICLE DELIVERY OF CONNEXIN 43 IMPROVES SYNCHRONOUS BEATING OF HIPSC DERIVED CARDIOMYOCYTES	152
<i>N. Momtahan, C. Crosby, J. Zoldan</i>	
PERITONEAL PRE-CONDITIONING IMPACTS VASCULAR GRAFT LONG-TERM PATENCY AND REMODELING.....	153
<i>M. Sameti, M. Shojaee, B. Saleh, C. Bashur</i>	
TREATMENT OF ORAL MUCOSITIS THROUGH CURCUMIN POLY(BETA AMINO ESTER) MICROPARTICLES	154
<i>K. Wiegman, C. Jordan, B. Howerton, J. Hilt, T. Dziubla</i>	
BIO-RESPONSIVE HYDROGELS FOR ON-DEMAND DELIVERY OF ANTI-CANCER THERAPEUTICS	155
<i>F. Fan, G. Petrosini, S. Stack, D. Hanjaya-Putra</i>	
EFFECTS OF SPATIAL ORGANIZATION AND HISTIDINE TAG ON EFFICACY OF INTRACELLULAR PROTEIN DELIVERY SYSTEM.....	156
<i>W. Lv, A. Dhankher, T. Studstill, J. Champion</i>	

DRUG RELEASE FROM ACE-DEX PARTICLES: AN EXPERIMENTAL AND MATHEMATICAL MODEL.....	157
<i>R. Stiepel, E. Pena, M. Galloovic, C. Genito, E. Bachelder, K. Ainslie</i>	
MIR-451 INHIBITION MAY MITIGATE OA DEVELOPMENT AND PROGRESSION FOLLOWING ANTERIOR CRUCIATE LIGAMENT INJURY	158
<i>K. Scott, D. Cohen, D. Nielson, G. Kim, M. Grinstaff, A. Joenathan, B. Snyder, Z. Schwartz, B. Boyan</i>	
SIMPLE BIODEGRADABLE POLYESTER FOR STENT-BASED DRUG DELIVERY	159
<i>K. Young, A. Lord, S. Kozawa, H. Von Recum</i>	
MESENCHYMAL STEM CELL MODULATION OF THE SYNTHETIC BIOMATERIAL IMMUNE MICROENVIRONMENT	160
<i>K. Martin, R. Schneider, A. Garcia</i>	
DYNAMIC 3D TRACKING OF PANCREATIC ISLET AND IMMUNE CELL INTERACTIONS IN VITRO	161
<i>M. Samojlik, S. Patel, Y. Li, S. Stimpson, L. Peters, C. Mathews, T. Brusko, E. Phelps, C. Stabler</i>	
ENGINEERING A SYNTHETIC HYDROGEL PLATFORM TO SUPPORT TOLEROGENIC TROPHOBlast ORGANoIDS	162
<i>E. Slaby, C. O'Brien, J. Weaver</i>	
INJECTABLE T CELL-LOADED HYDROGEL AS A LOCALISED IMMUNOTHERAPY REDUCES TUMOUR GROWTH IN MICE	163
<i>N. Cunningham, T. Malaret, J. Stagg, P. Thebault, D. Trudel, R. Lapointe, S. Lerouge</i>	
IN VITRO GENERATION OF ANTIBODY CLASS-SWITCHED PRIMARY B CELLS USING LIPOSOME-BASED PRESENTATION OF ANTIGEN	164
<i>L. Kramer, H. Song, A. Singh, K. Roy</i>	
RELIABILITY OF FUSED FILAMENT FABRICATION FOR 3D PRINTING MULTIFUNCTIONAL AG-DOPED BIOACTIVE GLASS-CERAMIC SCAFFOLDS TOWARDS BONE TISSUE REGENERATION	165
<i>A. Marsh, Y. Zhang, A. Roch, X. Chatzistavrou</i>	
BIOMIMETIC SCAFFOLDS COMPOSED OF DEGRADABLE POLYMERS TO ENHANCE BONE REGENERATION	167
<i>B. Zhang, Y. Su, J. Zhou, D. Zhu</i>	
UVA-ACTIVATED, INJECTABLE BIOADHESIVE COMPOSITES WITH CONTROLLED MECHANICAL PROPERTIES	168
<i>I. Djordjevic, G. Wicaksono, F. Baino, T. Steele</i>	
COMPARISON OF SILICONE ADHESIVES IN SKIN CONTACT APPLICATIONS: HOW MATERIAL PROPERTIES INFLUENCE ADHESIVE PERFORMANCE AND WEAR	169
<i>S. Steichen, R. Gibas, S. Benemann, S. Yocom</i>	
POLYURETHANE SHAPE MEMORY POLYMER FOAMS WITH OFF-THE-SHELF PHYSICAL BLOWING AGENTS	170
<i>N. Petryk, A. Vakil, M. Monroe</i>	
3D PRINTING WITH SILICONE ELASTOMER FOR BIOMEDICAL APPLICATIONS	171
<i>K. Du, T. Hughes</i>	

ABSORBANCE IMAGING AND ARTIFICIAL INTELLIGENCE FOR ASSESSING QUALITY OF MANUFACTURED RETINAL PIGMENT EPITHELIUM	172
<i>N. Schaub, N. Hotaling, P. Bajcsy, K. Bharti, C. Simon Jr.</i>	
INCOMPATIBILITY OF BIOCOMPATIBILITY STANDARDS FOR BIOLOGICALLY-SOURCED BIOMATERIALS.....	173
<i>R. Ritchie, T. Zeigler, J. Kuske, M. Spicer, M. Hiles, C. Soendergaard</i>	
MECHANICAL EVALUATION OF MEDICAL GRADE BIORESORBABLE MATERIALS FOR ADDITIVE MANUFACTURING SCAFFOLDS.....	174
<i>C. Culbreath, B. Gaerke, M. Taylor, S. McCullen, O. Mefford</i>	
ENGINEERING A HIGHLY ELASTIC BIOADHESIVE HYDROGEL FOR SEALING SOFT AND DYNAMIC TISSUES.....	175
<i>M. Ghovvati, S. Baghdasarian, A. Baidya, J. Dhal, N. Annabi</i>	
ROLE OF NITRIC OXIDE-RELEASING GLYCOSAMINOGLYCANs ON IN VITRO WOUND HEALING	176
<i>S. Maloney, M. Schoenfisch</i>	
CONTROLLED OXYGEN RELEASE TO ACCELERATE DIABETIC WOUND HEALING BY SIMULTANEOUSLY PROMOTING EPITHELIALIZATION AND ANGIOGENESIS, AND DECREASING TISSUE INFLAMMATION	177
<i>Y. Guan, H. Niu, J. Guan</i>	
RUPTURE OF FIBRIN CLOTS: STRUCTURAL AND THERMODYNAMIC MECHANISMS	178
<i>V. Tutwiler, F. Maksudov, R. Litvinov, J. Weisel, V. Barsegov</i>	
THROMBIN-TRIGGERED SHAPE CHANGING NANOGELS FOR DEVELOPMENT OF SYNTHETIC PLATELETS	179
<i>E. Chee, E. Mihalko, A. Brown</i>	
INJURY-TARGETED ENZYME-RESPONSIVE DIRECT DELIVERY OF THROMBIN FOR HEMOSTATIC TREATMENT OF COAGULOPATHY	180
<i>A. Girish, K. Jolly, U. Sekhon, A. Gupta</i>	
EFFECT OF HYALURONIC ACID MOLECULAR WEIGHT ON VISCOELASTIC PROPERTIES AND GLIOBLASTOMA INVASION	181
<i>E. Carvahlo, S. Kumar</i>	
STABILIZATION OF CHONDROITINASE ABC USING SINGLE ENZYME NANOPARTICLES FOR SPINAL CORD INJURY REPAIR	182
<i>S. Kosuri, H. Mugnier, M. Tamasi, Z. Finkel, I. Perez, L. Cai, R. Schloss, M. Yarmush, A. Gormley</i>	
HUMAN SCHWANN CELL STIMULATION THROUGH HA-CNT NANOFIBERS	183
<i>J. Sensnyake, H. Sundaraghavan</i>	
INVESTIGATING OLFACTORY MUCOSA DERIVED MESENCHYMAL STEM CELLS (OM-MSCs) FOR PERIPHERAL NERVE REPAIR	184
<i>K. Neuman, A. Kenney, R. Koppes</i>	
CONTROLLING STROMAL CELL-DERIVED FACTOR-1 α DELIVERY THROUGH NORBORNENE HYALURONIC ACID MICROGELS	185
<i>K. Hickey, S. Grassi, J. Veldhuizen, F. Fumasi, M. Nikkhah, J. Holloway, S. Stabenfeldt</i>	

HYDROGELS FABRICATED FROM CO-ASSEMBLING PEPTIDES FOR IMMUNOMODULATORY ENZYME DELIVERY	187
<i>B. Soto-Morales, R. Liu, G. Hudalla</i>	
NANOMETER-SCALE ASSEMBLY AND HIGH-THROUGHPUT SCREENING OF BISPECIFIC T CELL ENGAGING CYTOKINE (BITEOKINE) IMMUNOTHERAPIES	188
<i>P. Do, L. Perdue, A. Chyong, R. Hunter, J. Dougan, C. Henry, C. Porter, E. Dreden</i>	
COMPARISON OF IMMUNOISOLATION PLATFORMS FOR PANCREATIC ISLET TRANSPLANTATION: POLYETHYLENE GLYCOL CONFORMAL COATING, ALGINATE SINGLE AND DOUBLE CAPSULES	189
<i>T. Toni, A. Stock, F. Devaux, S. Safley, C. Weber, O. Alcazar, N. Ziebarth, P. Buchwald, A. Tomei</i>	
REAL-TIME IMAGING OF MACROPHAGE IMMUNOTHERAPY USING A NOVEL NITRIC OXIDE NANOREPORTER.....	190
<i>A. Ramesh, S. Kumar, A. Brouillard, D. Nandi, A. Kulkarni</i>	
DUAL INHIBITION OF CSF1R AND MAPK PATHWAYS USING SUPRAMOLECULAR NANOPARTICLES ENHANCES MACROPHAGE IMMUNOTHERAPY	191
<i>A. Brouillard, A. Kulkarni</i>	
THY-1 NEGATIVE FIBROBLASTS ARE AN IMMUNO-RESPONSIVE SUBPOPULATION CRITICAL FOR BIOMATERIAL-MEDIATED FIBROSIS	192
<i>D. Abebayehu, G. Bingham, D. Miller, D. Griffin, T. Barker</i>	
INJECTABLE ACYLHYDRAZONE HYDROGELS FOR SUSTAINED PROTEIN RELEASE.....	193
<i>F. Lin, N. Dimmitt, C. Lin</i>	
POLYDOPAMINE-MESOPOROUS SILICA CORE-SHELL NANOPARTICLES FOR COMBINED PHOTOTHERMAL-IMMUNOTHERAPY	194
<i>A. Seth, H. Derami, P. Gupta, Z. Wang, P. Rathi, R. Gupta, T. Cao, J. Morrissey, S. Singamaneni</i>	
HYDROLYTICALLY DEGRADABLE HYDROGELS FOR THERAPEUTIC DELIVERY	195
<i>M. Coronel, K. Martin, R. Shah, P. Kelkar, A. Garcia</i>	
MODULAR OXYGEN-GENERATING BIOMATERIALS FOR IN SITU SUPPORT OF CELL-BASED THERAPIES	196
<i>R. Accolla, J. Liang, C. Stabler</i>	
ULTRASOUND-CONTROLLED RELEASE OF BASIC FIBROBLAST GROWTH FACTOR (BFGF) FROM ACOUSTICALLY-RESPONSIVE SCAFFOLDS IMPROVES RECOVERY IN THE MURINE MODEL OF HIND LIMB ISCHEMIA	197
<i>H. Jin, C. Quesada, M. Aliabouzar, O. Kripfgans, J. Fowlkes, R. Franceschi, J. Liu, A. Putnam, M. Fabiilli</i>	
SPATIALLY-DIRECTED ANGIOGENESIS VIA THE ULTRASOUND-CONTROLLED RELEASE OF BASIC FIBROBLAST GROWTH FACTOR (BFGF) FROM ACOUSTICALLY-RESPONSIVE SCAFFOLDS	198
<i>L. Huang, C. Quesada, M. Aliabouzar, O. Kripfgans, R. Franceschi, Z. Liu, A. Putnam, M. Fabiilli</i>	
TARGETED DELIVERY OF A TGF- β RECEPTOR II INHIBITOR USING MULTIFUNCTIONAL NANOGENELS TO CONTROL CARDIAC FIBROSIS AFTER HEART FAILURE	199
<i>Y. Dang, H. Niu, Z. Fan, Y. Guan, N. Gao, J. Guan</i>	

TERNARY COMPLEX NANOPARTICLES ENABLE SUSTAINED RELEASE OF BORTEZOMIB FOR LOCAL CHEMOTHERAPY OF HEPATOCELLULAR CARCINOMA.....	200
<i>Y. Zhang, Y. Hu, L. Li, F. Selaru, H. Mao</i>	
CD4 TARGETED NANOPARTICLE DELIVERY OF EGGMANONE FOR T CELL MODULATION IN AUTOIMMUNITY	201
<i>C. Haycock, J. Balsamo, E. Glass, C. Williams, C. Hong, A. Major, T. Giorgio</i>	
OXIDATION-RESPONSIVE MAGNETIC NANOSTRUCTURE-LOADED Bicontinuous NANOSPHERES FOR DRUG DELIVERY.....	202
<i>M. Modak, S. Bobbala, C. Lescott, Y. Liu, V. Nandwana, V. Dravid, E. Scott</i>	
NANOMEDICINE TARGETING TO ACTIVATED NEUTROPHIL-PLATELET COMPLEXES AS A NOVEL TREATMENT FOR DVT.....	203
<i>A. Gupta, M. Cruz, J. Alvikas, N. Masters, S. Halderman, K. Bane, M. Fuente, M. Nieman, K. Neeves, M. Neal, E. Stavrou</i>	
FABRICATION OF NANOFIBER MICROSPHERES WITH TUNABLE MORPHOLOGY VIA GAS BUBBLE-MEDIATED CO-AXIAL ELECTROSPRAY	204
<i>J. John, J. Xie</i>	
MECHANISTIC STUDY OF SYNTHESIZING TUNABLE GELATIN METHACRYLATE (GELMA) BIOINKS FOR RAPID AND HIGH-RESOLUTION STEREOLITHOGRAPHY BIOPRINTING	205
<i>H. Kumar, K. Sakthivel, M. Gamal, E. Boras, S. Sin, K. Keekyoung</i>	
CHARACTERIZATION OF DEGRADATION AND BIOACTIVE GROWTH FACTOR RELEASE FOR 3D PRINTED POLY(PROPYLENE FUMARATE)-BASED CONSTRUCTS	206
<i>G. Koons, P. Kontoyiannis, M. Diba, L. Chim, D. Scott, A. Mikos</i>	
APTAMERS ASSISTED CONTROLLED GROWTH FACTOR DELIVERY ENABLES SELF-ORGANIZING.....	207
<i>D. Rana, V. Trikalitis, V. Rangel, J. Rouwkema</i>	
3D PRINTED MICRONIZED FAT-LADEN COLLAGEN CONSTRUCTS FOR TREATMENT OF CHRONIC WOUNDS	208
<i>T. Schmitt, N. Katz, V. Kishore</i>	
ZINC IN COMPOSITE SCAFFOLDS PROMOTES CELL GROWTH AND MINERALIZED MATRIX PRODUCTION.....	209
<i>J. Moy, T. Arinze</i>	
EVALUATING THE BACTERIAL BIOFILM INHIBITION OF A NOVEL SILORANE-BASED BIOMATERIAL FOR ORTHOPEDIC APPLICATIONS	210
<i>G. Funk, E. Menuy, M. Dold, A. Brown, W. Osterhage, K. Kilway, T. McIff</i>	
BACTERIA-RESPONSIVE SHAPE MEMORY POLYMER WOUND DRESSING.....	211
<i>M. Ramezani, M. Monroe</i>	
RESPONSIVE POLYMER-COATED GELATIN NANOPARTICLES TO COMBAT BACTERIAL BIOFILMS	212
<i>Y. Wang, A. Shukla</i>	
ENGINEERED FIBRIN NANOPARTICLES FOR EFFICIENT DRUG DELIVERY TO BIOFILMS	213
<i>G. Scull, J. Gilbertie, L. Schnabel, A. Brown</i>	

GUT ORGANOID AS A PLATFORM FOR EVALUATING DELIVERY OF NANOPARTICLES TO TREAT INFLAMMATORY BOWEL DISEASE	214
<i>Z. Davoudi, N. Peroutka-Bigus, B. Bellaire, A. Jergens, M. Wannemuehler, Q. Wang</i>	
PHOTOINDUCED HYDROGEL NETWORK REORGANIZATION FACILITATES IN SITU MODULATION OF INTESTINAL ORGANOID EPITHELIAL SHAPE	215
<i>F. Yavitt, M. Blatchley, P. Dempsey, K. Anseth</i>	
ENGINEERED ORGANOTYPIC BREAST TUMOR MODEL ELUCIDATES THE ROLE OF TUMOR-STROMAL INTERACTIONS ON DYNAMIC REMODELING OF TUMOR MICROENVIRONMENT.....	216
<i>S. Singh, G. Luker, H. Tavana</i>	
A HYALURONIC ACID-BASED HYDROGEL CULTURE PLATFORM FOR IPSC-DERIVED MIDBRAIN NEURONAL CULTURE.....	217
<i>Z. Wang, J. Liang, Z. Shu, S. Sances, C. Svendsen, N. Maidment, S. Seidlits</i>	
MICROPATTERN-GUIDED CARDIAC ORGANOID PRODUCTION FOR DEVELOPMENTAL TOXICITY SCREENING	218
<i>P. Hoang, A. Kowalczewski, S. Sun, J. Amack, Z. Ma</i>	
MICROSTRUCTURED HYDROGELS TO GUIDE SELF-ASSEMBLY AND SCALABLE GROWTH OF LUNG ALVEOLAR EPITHELIAL ORGANOIDS.....	219
<i>C. Loebel, L. Cardenas, A. Weinert, A. Vaughan, E. Morrissey, J. Burdick</i>	
SELF-HEALING, INJECTABLE PHOTO-ZWITTERIONIC HYDROGELS FOR CHRONIC DIABETIC WOUNDS.....	220
<i>M. Stager, M. Osmond, J. Bardill, C. Zgheib, S. Seal, K. Liechty, M. Krebs</i>	
A NANOFIBER-HYDROGEL COMPOSITE TO TREAT FISTULA IN CROHN'S DISEASE IN A PORCINE MODEL.....	221
<i>Z. Yao, L. Li, S. Gearhart, C. Chang, J. Kong, J. Chao, A. Parian, F. Selaru, H. Mao</i>	
COMPUTERIZED-TOMOGRAPHY (CT) ANALYSIS OF 3D-PRINTED POROUS BONE INGROWTH MATERIALS	222
<i>R. Kane, J. Auger, B. English, R. Nemiraj, W. Tong</i>	
INTERLINKED PEG-4MAL MICROGELS FOR RAPID IMMUNE CELL MIGRATION	223
<i>A. Widener, E. Phelps</i>	
ELECTROSPUN CHITOSAN-ELASTIN FOR IMPROVED WOUND HEALING.....	224
<i>A. Bryan, J. Bumgardner</i>	
STARCH-BASED SHAPE MEMORY POLYMERS FOR CROHN'S FISTULA HEALING	225
<i>H. Beaman, P. Ganesh, M. Monroe</i>	
INVESTIGATING OXIDATIVE SUSCEPTIBILITY OF PEPTOID-BASED MATERIALS FOR SELECTIVE BIOSENSING APPLICATIONS	226
<i>H. Schunk, A. Rosales, L. Suggs</i>	
STABLE THERMALLY MODULATED NANODROPLET ULTRASOUND CONTRAST AGENTS	227
<i>A. Vasiukhina, J. Eshraghi, A. Ahmadzadegan, C. Goergen, P. Vlachos, L. Solorio</i>	
NON-VIRAL NANOCARRIERS FOR CRISPR-BASED GENOME EDITING TOOL DELIVERY	228
<i>Y. Wang, S. Gong</i>	

EFFECT OF PHYSICOCHEMICAL PROPERTIES OF POLYMERIC NANOPARTICLES ON IN VITRO AND IN VIVO TOXICITY	229
<i>B. Mahaling, D. Rao, N. Baruah, N. Ahamad, S. Sivakumar, E. Lavik, D. Katti</i>	
FABRICATION OF HYDROGEL-COATED GOLD NANOSHells AS A BIOSENSOR FOR PROTEIN BIOMARKER QUANTIFICATION.....	230
<i>A. Murphy, M. Wechsler, K. Bahrami, C. Ludolph, A. Sahu, H. Dang, N. Peppas</i>	
IN SITU MAGNETIC RELAXATION LOCALIZATION AND HYDROGEL COATING OF A NANOMATERIAL BIOSENSOR DEVICE FOR CONTINUOUS BIOCHEMICAL SURVEILLANCE.....	231
<i>R. Murdock, M. Cima</i>	
INTRAVITREAL INJECTABLE HYDROGEL INCORPORATING MICROGEL FOR PROLONGED PROTEIN DELIVERY	232
<i>S. Lee, J. Son, H. Hong, M. Ham, S. Woo, K. Park</i>	
TARGETING PEPTIDE-MEDIATED DELIVERY OF SIRNAS INTO OVARIAN CANCER CELLS.....	233
<i>S. Gilmore, T. Samec, A. Hazelton, A. Alexander-Bryant</i>	
USING VESICLE LIPID DOMAINS TO ENHANCE LIPOSOMAL TRAIL	234
<i>T. Vu, J. Peruzzi, S. Sridhar, M. Mrksich, N. Kamat</i>	
THE DEVELOPMENT OF LUBRICATED DRUG-ELUTING COMPOSITE COATINGS FOR ENDOTRACHEAL TUBES	235
<i>S. Miar, F. Fernandes, Y. Pillai, G. Dion, J. Ong, R. Bizios, T. Guda</i>	
ACYLATION OF ELECTROSPUN CHITOSAN MEMBRANES WITH MEDIUM CHAIN FATTY ACIDS	236
<i>L. Choi, C. Wells, Z. Harrison, J. Bumgardner, T. Fujiwara, J. Jennings</i>	
EFFECTS OF ZWITTERIONIC POLYMER BRUSH DENSITY AND CHAIN LENGTH ON RESISTING PROTEIN ADSORPTION.....	237
<i>J. King, P. Kaur, B. Ratner</i>	
SUB-NANO TO NANOSCALE WEAR OF TITANIUM OXIDE-METAL SURFACES USING ATOMIC FORCE MICROSCOPY.....	238
<i>Y. Liu, D. Zhu, J. Gilbert</i>	
TUNABLE MEMBRANE MODIFICATION OF MILK EXOSOMES FOR MUCUS PENETRATION	239
<i>C. Zhang, A. Vedadghavami, M. Warren, A. Bajpayee</i>	
EVALUATION OF ELECTROSPRAYED CHITOSAN COATINGS WITH INCORPORATED CALCIUM PHOSPHATE NANOSHells.....	240
<i>A. Watson, J. Bumgardner, R. Gopalakrishnan, T. Fujiwara, S. Mishra</i>	
QUANTIFYING CROSSLINKING DENSITY OF PHOTOPOLYMERIZED HYDROGELS WITH NMR	241
<i>J. Zatorski, E. Parker, J. Ellena, R. Pompano</i>	
BIORESORBABLE STENTS FOR CONGENITAL HEART DISEASE.....	242
<i>T. Welch, J. Wright</i>	
SFB 2021 BUSINESS PLAN COMPETITION-CELLFIELD TECHNOLOGIES LLC.....	243
<i>R. Saraswat, S. Wood</i>	

IMMUNO-PROTECTION DEVICE FOR HYPOXIA REDUCTION IN CELLULAR THERAPY	244
<i>C. Yang, T. Nam, P. Chi, D. Tram</i>	
METASTATIC PRECISION – RAPID DIAGNOSTIC TEST FOR CANINE LYMPHOMA.....	245
<i>K. Collins, S. Taylor, K. Burg</i>	
BIODEGRADABLE PIEZOELECTRIC SURGICAL MASK TEAM NAME: PIEZOMEMBRANE.....	246
<i>V. Mishra</i>	
IN VITRO COMPARISON OF HARVESTING SITE EFFECTS ON CARDIAC EXTRACELLULAR MATRIX HYDROGELS	247
<i>E. Mulvany, S. McMahan, Z. Xu, N. Yazdani, R. Willits, J. Liao, G. Zhang, Y. Hong</i>	
EFFECTIVE DELIVERY OF PEPTIDES BY JANUS-TYPE DRESSINGS FOR COMBATING BIOFILMS IN CHRONIC WOUNDS.....	248
<i>J. Xie, Y. Su, H. Wang, G. Wang</i>	
ADDITION OF MANUKA HONEY TO MINERALIZED COLLAGEN SCAFFOLDS FOR BONE REPAIR AND PREVENTING BACTERIAL ADHESION	249
<i>M. Dewey, A. Collins, V. Koliopoulos, A. Tiffany, R. Whitaker, B. Harley</i>	
ABSORPTION OF A NOVEL ANTIMICROBIAL PEPTIDE INTO ORTHOPEDIC BONE CEMENT	250
<i>G. Funk, K. Boone, C. Tamerler, T. McIff</i>	
NOVEL POLYPEPTIDE COATINGS WITH CONTROLLED DUAL DRUG DELIVERY	251
<i>B. Li, S. Zhang</i>	
IN VITRO EVALUATION OF ANESTHETIC-LOADED CHITOSAN MEMBRANES FOR INFECTION PREVENTION	252
<i>Z. Harrison, J. Bumgardner, T. Fujiwara, D. Baker, A. Jennings</i>	
A CLEAR(LY) PROMISING SOLUTION: GLUTATHIONE-CONJUGATED HYDROGELS FOR THE TREATMENT OF BACTERIAL INFECTIONS	253
<i>K. Sokolowski, C. Dial, Z. Bulman, E. Wenzler, R. Gemeinhart</i>	
DRUG-ELUTING ENDOTRACHEAL TUBES FOR PREVENTING BACTERIAL INDUCED SUBGLOTTIC STENOSIS.....	254
<i>M. Aronson, R. Gottardi</i>	
AUGMENTATION OF ORAL IMMUNOTHERAPY WITH TOLERANCE-INDUCE NANOPARTICLES	255
<i>R. Harriman, H. Kakwere, K. Alvarez, S. Miakicheva, B. Noorafkan, J. Lewis</i>	
HIGHLY ADHESIVE COATINGS ON ORTHOPEDIC PINS TO PREVENT INFECTION	256
<i>M. Bredikhin, C. Gross, I. Luzinov, A. Vertegel</i>	
A DUAL-RESPONSIVE NANOPARTICLE FOR TREATING ANTIMICROBIAL RESISTANT INFECTIONS.....	257
<i>M. Ye, Y. Zhao, Y. Wang, M. Zhao, N. Yodsanit, R. Xie, D. Andes, S. Gong</i>	
MICROPARTICLE-BASED DELIVERY OF BACTERIOPHAGE TO TREAT STAPHYLOCOCCUS AUREUS AND PSEUDOMONAS AERUGINOSA CO-INFECTIONS	258
<i>P. Kalelkar, M. Riddick, D. Moustafa, J. Goldberg, N. McCarty, A. Garcia</i>	

REPURPOSING BIODEGRADABLE TISSUE ENGINEERING SCAFFOLDS FOR LOCALIZED CHEMOTHERAPEUTIC DELIVERY	259
<i>E. Cyphert, M. Bil, H. Recum, W. Swieszkowski</i>	
COMBINATORIAL DRUG FORMULATION WITH RANDOM HETEROPOLYMERS PREPARED BY POLYMER AUTOMATION	260
<i>R. Upadhyay, A. Punia, M. Kanagala, L. Liu, T. Rhodes, M. Lamm, A. Gormley</i>	
EFFECTS OF PARTICLE SIZE AND SURFACE FUNCTIONALIZATION ON THE ASSOCIATION OF NANOPARTICLES WITH HUMAN COLON CANCER CELLS	261
<i>F. Yang, M. Cabe, H. Nowak, K. Langer</i>	
POLYMERIC NANOPARTICLE DEPOTS FOR CONTROLLED AND SUSTAINED GENE DELIVERY	262
<i>X. Xu, Z. Li</i>	
ULTRA-HIGH VISCOS ALGINATE AND THE DEVELOPMENT OF FUTURE COCHLEAR IMPLANTS	263
<i>V. Schepel, J. Schwieger, T. Rau, T. Lenarz</i>	
A NOVEL FUSOGENIC PEPTIDE DELIVERY SYSTEM TARGETING CSNK2A1 IN OVARIAN CANCER CELLS	264
<i>T. Samec, J. Boulos, S. Gilmore, A. Hazleton, A. Alexander-Bryant</i>	
MULTIFUNCTIONAL MICROPARTICLES INCORPORATING GOLD COMPOUND INHIBIT LUNG CANCER XENOGRAFT	265
<i>W. Kao, P. Lee, C. Lok, C. Che</i>	
TOWARDS THE ORAL DELIVERY OF HIGH ISOELECTRIC POINT THERAPEUTIC PROTEINS USING POLY(ACRYLAMIDE-CO-ITACONIC ACID) NANOPARTICLE CARRIERS	266
<i>H. Oldenkamp, D. Gupta, I. Fuente, A. Mohanty, N. Peppas</i>	
A PLATFORM FOR MACROPHAGE-MEDIATED DELIVERY OF POLYMERIC PRODRUGS TO SOLID TUMORS	267
<i>C. Lopez, K. Brembelis, J. Matthaei, K. Montgomery, S. Srinivasan, D. Roy, S. Kreuser, J. Chiefari, C. Crane, P. Stayton</i>	
CELL MEMBRANE REPAIR PROTEIN DELIVERED BY A ROS-SCAVENGING HYDROGEL PROMOTES DIABETIC WOUND HEALING	268
<i>H. Niu, Haichang, Y. Guan, J. Ma, J. Guan</i>	
TEMPERATURE-CONTROLLED MULTI-DRUG RELEASING WITH CORE-SHELL STRUCTURED PHASE CHANGE NANOPARTICLES	269
<i>Q. Li, M. Su</i>	
EXTENDED STATIN-DRUG RELEASE FROM BIOPRINTED TRIPLE-NETWORKED HYDROGELS COMPOSED OF MODIFIED CHITOSAN AND PLA-PEG MICELLES	270
<i>T. Ferdous, N. Chowdhury, E. Coleman, K. Cisnero, S. J. Jennings, J. Bumgardner, T. Fujiwara</i>	
PHOTOTUNABLE INTERPENETRATING POLYMER NETWORK HYDROGELS STIMULATE IPSC-EP VASCULOGENESIS	271
<i>C. Crosby, A. Hillsley, S. Kumar, S. Parekh, A. Rosales, J. Zoldan</i>	

DEVELOPMENT OF AN IN VITRO DUAL HYDROGEL SYSTEM FOR STUDYING ANGIOGENESIS AND VASCULARIZATION.....	272
<i>S. Kim, S. Lin, Y. Yang</i>	
MODULATING WOUND HEALING PARAMETERS VIA TRI-LAYERED, MULTIPHASIC DRESSING FOR DIABETIC FOOT ULCER.....	273
<i>E. Gianino, J. Gilmore</i>	
CUTANEOUS WOUND HEALING OF CHRONIC ULCER IN DIABETIC MICE BY CONTROLLING THE GENERATION OF REACTIVE OXYGEN SPECIES IN CATECHOL-FUNCTIONALIZED MICROGELS	274
<i>P. Forooshani, Z. Zhang, A. Smies, R. Rajachar, B. Lee</i>	
DERMAL FULL THICKNESS WOUND HEALING: EQUINE AMNIOTIC MEMBRANE VERSUS COMMERCIALLY AVAILABLE XENOGRAFTS	275
<i>R. Early, R. Depa, H. Aberman</i>	
ENGINEERING A SYNTHETIC MACROENCAPSULATION DEVICE FOR THE TREATMENT OF TYPE ONE DIABETES	276
<i>M. Quizon, G. Barber, C. Stabler, A. Garcia</i>	
FUNCTIONALIZED PLGA SCAFFOLDS EMBEDDED WITH MESENCHYMAL STEM CELL-ENCAPSULATED ALGINATE HYDROGEL MICROSPHERES FOR TISSUE REGENERATION	277
<i>H. Li, L. Zheng, M. Wang</i>	
CONTROL OF FIBROBLAST DIFFERENTIATION IN ACOUSTICALLY-RESPONSIVE SCAFFOLDS USING ULTRASOUND-INDUCED MATRIX STIFFENING.....	278
<i>E. Farrell, M. Aliabouzar, C. Quesada, B. Baker, A. Putnam, R. Franceschi, M. Fabiilli</i>	
NOVEL LONGER LASTING CROSSLINKED HYALURONIC ACID-BASED GEL FOR USE AS A DERMAL FILLER.....	279
<i>D. Gravett, B. Acampora, D. Evans, J. Corbett, H. Busari</i>	
A DUAL CROSSLINKABLE BIOINK FOR 3D PRINTING OF SCAFFOLDS TOWARDS WOUND HEALING	280
<i>M. Monfared, D. Mawad, J. Rnjak-Kovacina, M. Stenzel</i>	
SILK FIBROIN NANOFIBERS CONTAINING CHONDROITIN SULFATE AND SILVER SULFADIAZINE FOR WOUND HEALING TREATMENT.....	281
<i>E. Muniz, M. Cestari, B. Caldas, D. Fonseca, R. Balbinot, D. Lazarin-Bidoia, I. Otsuka, C. Nakamura, R. Borsali</i>	
MECHANICAL PROPERTIES OF CHITOSAN/STARCH/JATROPHA DIOCA COMPOSITES FOR SKIN ENGINEERING	282
<i>D. Ochoa, A. Castillo, M. Mendoza-Duarte, S. Estrada</i>	
MICROSCOPIC LOCAL STIFFENING IN SUPRAMOLECULAR HYDROGEL NETWORK EXPEDITES STEM CELL MECHANOSENSING IN 3D	283
<i>W. Yuan, H. Wang, C. Fang, Y. Yang, X. Xia, Y. Lin, G. Li, L. Bian</i>	
ONE-STEP HARVEST AND DELIVERY OF HONEYCOMB-SHAPED MICROTISSUES USING TEMPERATURE-RESPONSIVE HYDROGEL.....	284
<i>S. Kim, H. Shin</i>	

BACTERIAL DERIVED CELLULOSE WITH TUNABLE OPTICAL CLARITY FOR WOUND DRESSING APPLICATIONS	285
<i>E. Zyl, J. Coburn</i>	
SYNERGISTIC EFFECT OF PLACENTAL MEMBRANE EXTRACT AND HYPOXIA ON HUMAN ADIPOCYTE DIFFERENTIATION	286
<i>A. Magana, R. Giovanni, M. Kotecha, M. Mathew, S. Hagarty, D. Bijukumar</i>	
INVESTIGATION OF UV CURING OF DIAZIRINE-GRAFTED BIOADHESIVES AT ELEVATED TEMPERATURE	287
<i>A. Elwin, T. Steele</i>	
SINGLE MICRO-ASPERITY FRETTING CORROSION OF COCRMO, Ti6AL4V, AND 316 STAINLESS STEEL	288
<i>A. Mace, J. Gilbert</i>	
MULTIPLE CHANNELS IN \AA -TRICALCIUM PHOSPHATE (\AA -TCP) SCAFFOLD PROMOTE CRANIOFACIAL BONE TISSUE REGENERATION	289
<i>Y. Kang, X. Wang</i>	
DOES MICROSTRUCTURE INFLUENCE THE CORROSION BEHAVIOR OF Ti-6AL-4V ORTHOPEDIC IMPLANTS?	290
<i>M. Neto, S. Radice, D. Hall, J. Jacobs, M. Mathew, R. Pourzal</i>	
IMPACTS OF CONDITIONED MEDIUM ON TENOCYTE AND FIBROBLAST GROWTH WITHIN POROUS TITANIUM SCAFFOLDS.....	291
<i>P. Dietz, T. Bou-Akl, R. Chatterji, J. Seta, W. Ren, D. Markel</i>	
SYSTEMATIC ANALYSIS OF CORROSION, WEAR DEBRIS, COMPOSITIONAL CHANGES, AND PHYSICAL PROPERTIES OF EXPLANTED MAGNETICALLY CONTROLLED GROWING RODS.....	292
<i>B. Khader, K. Jepsen, Y. Li</i>	
DRUG-FREE ANTIBACTERIAL ACTIVITY OF SILVER-RELEASING BIOACTIVE GLASS NANOPARTICLES FOR BONE REGENERATION	293
<i>N. Pajares-Chamorro, S. Hernadez-Escobar, Y. Wagley, N. Hammer, P. Acevedo, K. Hankenson, X. Chatzistavrou</i>	
COCRMO ALLOY FEATURES AFFECTING MATERIAL LOSS IN SEVERELY DAMAGED THA FEMORAL HEAD TAPERS	294
<i>S. McCarthy, M. Neto, M. Je, D. Hall, J. Jacobs, R. Pourzal</i>	
SUBSTITUTED APATITES AS REGENERATIVE BONE SCAFFOLDS.....	296
<i>C. Nielson, R. Kon, J. Shea, J. Agarwal, J. Beck, S. Jayapalina</i>	
ABRASION PROPERTIES OF Ti6AL4V ADDITIVELY MANUFACTURED POROUS STRUCTURE AND THE IMPACT OF BLASTING.....	297
<i>M. Aghazadeh, Y. Zhai, T. Gunther, W. Tong</i>	
EFFECT OF BUILD ORIENTATION ON STRUT-TO-SUBSTRATE WELD AREAS IN ADDITIVELY MANUFACTURED POROUS COATINGS.....	298
<i>Y. Zhai, B. English, R. Nemiraj, W. Tong</i>	
BIOACTIVE ALTERATIONS TO MINERALIZED COLLAGEN SCAFFOLDS TO ENHANCE CRANIOFACIAL BONE REPAIR	299
<i>A. Tiffany, M. Dewey, D. Gray, T. Woods, K. Subedi, B. Harley</i>	

A COMPARATIVE STUDY TO ASSESS THE OSTEOGENIC POTENTIAL OF DIFFERENT BIOCERAMICS FOR BONE TISSUE ENGINEERING	300
<i>N. Patrawalla, N. Kajave, V. Kishore</i>	
MULTIFUNCTIONAL FULLERENE BIOCATALYST FOR REGENERATIVE APPLICATION	301
<i>G. Gulseren</i>	
VARIATIONS IN DENTAL IMPLANT ELECTROCHEMICAL BEHAVIOR IN THE PRESENCE OF TI-IONS AND TI-PARTICLES: A PILOT STUDY	302
<i>M. Alhamad, V. Barao, C. Sukotjo, L. Cooper, M. Mathew</i>	
A NOVEL SYNTHESIS METHOD OF CARBIDE DERIVED CARBON (CDC) SURFACE MODIFICATION FOR HIP IMPLANTS	303
<i>Y. Sun, K.-Y. Cheng, M. Mathew, M. McNallan</i>	
METFORMIN IMPROVES CHONDROGENIC POTENTIAL OF INFRAPATELLAR FAT PAD DERIVED MESENCHYMAL STEM CELLS IN AN INFLAMMATORY MICROENVIRONMENT	304
<i>S. Hazra, K. Jain, D. Katti</i>	
Biodegradable piezoelectric scaffold for cartilage regeneration	305
<i>Y. Liu, T. Nguyen</i>	
RESORBABLE COMPOSITE POLYMER CERAMIC SCAFFOLDS SUPPORT BONE GROWTH AND BONDING IN VIVO	306
<i>G. Figueroa, D. Gonzales, E. Villalobos, L. Arciniaga, D. Loy, K. Murahlidharan, B. Potter, J. Szivek, D. Margolis</i>	
ESTIMATION OF DUAL SIMVASTATIN AND RASPBERRY KETONE EFFECT ON MACROPHAGE PHENOTYPE AND EVALUATION OF ITS POTENTIAL LOCALIZED ANTI-INFLAMMATORY ACTIVITY FROM HEXANOIC ANHYDRIDE TREATED CHITOSAN GUIDED BONE REGENERATION (GBR) MEMBRANES	307
<i>M. Kurakula, R. Smith, J. Bumgardner</i>	
INCORPORATION OF PEPTIDE-MODIFIED CHONDROITIN SULFATE TO A COLLAGEN I/II BLEND HYDROGEL FOR CARTILAGE ENGINEERING	308
<i>C. Battistoni, C. Kilmer, T. Walimbe, A. Panitch, J. Liu</i>	
DEVELOPMENT OF POLYHIPE AUTOGRAPH EXTENDERS FOR IMPROVED BONE REGENERATION	309
<i>D. Jenkins, D. Laverty, B. Saunders, E. Cosgriff-Hernandez</i>	
OSTEOINDUCTIVE OXYGEN CARRYING NANOPARTICLE FOR BONE REPAIR	310
<i>C.-S. Lee, J. Fan, T. Aghaloo, M. Lee</i>	
SAFETY AND EFFICACY STUDIES ON SILK FIBROIN-BASED BONE VOID FILLER: SERIOSS®	311
<i>R. Deshpande, R. Sayyad, S. Shukla, A. Nisal, P. Venugopalan</i>	
PLANT-DERIVED ZEIN PROTEIN AS A SCAFFOLD MATERIAL FOR CELL GROWTH AND OSTEOGENESIS	312
<i>A. Limaye, T. Arinze</i>	
BILAYERED, CLICK BIOFUNCTIONALIZED HYDROGELS FOR OSTEOCHONDRAL REPAIR	313
<i>J. Guo, Y. Kim, G. Koons, J. Lam, S. Barrios, A. Navara, V. Xie, E. Watson, B. Smith, H. Pearce, E. Orchard, J. Van Den Beucken, J. Jansen, A. Mikos</i>	

MULTICELLULAR SPHEROIDS INCORPORATING OSTEOINDUCTIVE AND ROS SCAVENGING SYNTHETIC FIBERS WITH BIOMINERAL COATING	314
<i>H. Byun, H. Shin</i>	
BIOFABRICATION OF SPHEROIDS POSITIONED MICRO-CHAMBER WITH DUAL GROWTH FACTORS DELIVERY FOR BONE TISSUE REGENERATION	315
<i>J. Lee, S. Huh, H. Shin</i>	
LDH NANOPARTICLE-INTEGRATED SCAFFOLDS FOR BONE TISSUE ENGINEERING APPLICATIONS.....	316
<i>Z. Akguner, E. Alarcin, E. Karaoz, A. Ozturk</i>	
IMPROVING THE POROSITY OF THE SUBCHONDRAL BONE PHASE OF A MULTI-LAYERED OSTEOCHONDRAL BIOMATERIAL	317
<i>A. Martinez, J. Mercuri</i>	
THE MECHANICAL MODIFICATION OF A NOVEL SCAFFOLD TO TREAT FOCAL CARTILAGE DEFECTS	318
<i>V. Thomas, A. Marionneaux, J. Mercuri</i>	
EFFECT OF TOPOLOGICAL STRUCTURE ON PHYSICO-MECHANICAL AND BIOLOGICAL PROPERTIES OF SURFACE-MODIFIED MAGNESIUM HYDROXIDES	319
<i>S.-W. Baek, E. Kang, Y. Heo, C. Park, D. Han</i>	
OPTIMIZATION OF DECELLULARIZATION METHODS IN BLOOD VESSEL TISSUE ENGINEERING	320
<i>B. Lefebvre, D. Simionescu, A. Simionescu</i>	
MITRAL VALVE TISSUE ENGINEERING FOR MITRAL VALVE PROLAPSE PREVENTION.....	321
<i>C. Owens, A. Simionescu</i>	
VALIDATION OF A HIGH-THROUGHPUT BIOREACTOR FOR CARDIAC TISSUE MODELING.....	322
<i>H. Herbert, A. Simionescu</i>	
IMMOBILIZATION OF A COLLAGEN-MIMICKING PEPTIDE TO THE SURFACE OF POLY(VINYL ALCOHOL) HYDROGELS PROMOTES ENDOTHELIALIZATION WHILE MINIMIZING THROMBOSIS	323
<i>N. Bates, H. Heidenreich, M. Fallon, Y. Yao, E. Yim, M. Hinds, D. Anderson</i>	
WNT AND BMP SIGNALING IN VASCULAR CALCIFICATION	324
<i>K. Bundy, C. Simpson</i>	
IN VITRO FIBROTIC CARDIAC TISSUE THROUGH BIOARTIFICIAL SCAFFOLDS	325
<i>A. Zoso, G. Ruocco, M. Spedicati, I. Carmagnola, V. Chiono</i>	
SIROLIMUS DELIVERY FROM AN ELECTROSPUN VASCULAR ACCESS GRAFT MATERIAL	326
<i>J. Chakravarty, R. Kassab, N. Long, N. Agrawal, Y. Vin, M. Contreras, L. Fitzgerald, M. Phaneuf, P. Hayden</i>	
USING DESIGN OF EXPERIMENT (DOE) TO ESTABLISH REPEATABLE IN VITRO ACCELERATED USE MODEL FOR THROMBOGENICITY	327
<i>C. Quach, J. Ciciliano, Z. Hales, C. Augustine, J. Freasier, B. Dickinson</i>	

OPTICAL COHERENCE TOMOGRAPHY FOR ASSESSING THE BLOOD FLOW PATTERNS IN CORONARY ARTERY BYPASS GRAFTS	328
<i>R. Fratus, J. Yang, S. Ma, L. Schmidt, T. Fair, B. Gao</i>	
REDUCED THROMBOGENICITY OF SYNDECAN-4 FUNCTIONALIZED ENGINEERED VASCULAR BIOMATERIAL	329
<i>Y. Wu, W. Wagner</i>	
DOSAGE AND BIODISTRIBUTION OF DRUG LOADED NANOGELS IN DISSEMINATED INTRAVASCULAR COAGULATION	330
<i>E. Mihalko, N. Moiseiwitsch, A. Brown</i>	
ELECTROSPUN SCAFFOLDS WITH ELECTROCONDUCTIVE CARBON NANOTUBES FOR CARDIAC TISSUE ENGINEERING APPLICATIONS.....	331
<i>T. Suh, J. Gluck</i>	
DOES A CONDUCTIVE SCAFFOLD WITH POLYANILINE IMPROVES VENTRICULAR REMODELING WHEN INCORPORATED IN A DENSE LAMELLAR COLLAGEN CARDIAC PATCH?	332
<i>F. Leite, J. Marana, L. Sa, D. Diogenes, D. Grotto, M. Chaud, L. Silveira-Filho</i>	
DESIGN OF HYDROGEL COATINGS OF ELECTROSPUN VASCULAR GRAFTS VIA DIFFUSION-MEDIATED REDOX POLYMERIZATION	333
<i>M. Wancura, A. Robinson, E. Cosgriff-Hernandez</i>	
TEXTILE/HYDROGEL COMPOSITE VASCULAR GRAFT ATTENUATES INFLAMMATORY MACROPHAGE RESPONSE WHILE AMELIORATING MECHANICAL PERFORMANCE	334
<i>F. Zhang, O. Akkus, M. Daneshmand, M. King</i>	
PHYSIOLOGICAL POLYANIONS, INTERACTING WITH THE SARS-COV-2 VIRUS-CELL- DOCKING MACHINERY	335
<i>W. Muller, X. Wang</i>	
INHIBITION OF GLYCOLYSIS IN THE PRESENCE OF SELF-ANTIGEN GENERATES SUPPRESSIVE ANTIGEN-SPECIFIC RESPONSES AND RESTRAINS AUTOIMMUNITY	336
<i>J. Mangal, S. Inamdar, X. Shi, M. Curtis, H. Gu, A. Acharya</i>	
SUPRAMOLECULAR NANOMOLECULES ABROGATE INFLAMMATION IN A MOUSE MODEL OF ULCERATIVE COLITIS.....	337
<i>M. Bury, B. Nolan, N. Fuller, M. Karver, A. Sharma</i>	
TUNABLE LIPID-POLYMER NANOPARTICLES FOR ANTI-INFLAMMATORY POLARIZATION OF MACROPHAGES.....	338
<i>E. Bender, L. Suggs</i>	
ALGINATE INSTIGATES ADJUVANT EFFECTS ON INDIRECT ANTIGEN RECOGNITION AND T CELL ACTIVATION FOR ENCAPSULATED CELL THERAPIES	339
<i>Y. Li, A. Frei, A. Bayer, C. Stabler</i>	
CO-ASSEMBLED PEPTIDE NANOPARTICLES FOR ENZYME DELIVERY	340
<i>R. Liu, G. Hudalla</i>	
SYNTHESIS AND IMMUNE-COMPATIBILITY EVALUATION OF DEGRADABLE POLYSTYRENE ANALOGUE.....	341
<i>T. Truong, S. Mothe, A. Jackson, P. Kanaujia, J. Min, H. Tan, D. Nguyen, D. Ye, P. Thoniyot, T. Dang</i>	

SECRETOME-LOADED PLASMA-ALGINATE COMPOSITE GELS MODULATE THE INFLAMMATORY RESPONSE IN VITRO	342
<i>M. Thompson, S. Natesan, R. Christy</i>	
ENGINEERED EXOSOMES FOR IMMUNOMODULATORY THERAPY IN TYPE 1 DIABETES.....	343
<i>M. Becker, L. Peters, T. Brusko, E. Phelps</i>	
INTRAVASCULAR INFUSIBLE EXTRACELLULAR MATRIX FOR THE MITIGATION OF SEVERE SYSTEMIC INFLAMMATION RELEVANT TO COVID-19 PATHOLOGY COVID-19 PATHOLOGY.....	344
<i>R. Wang, A. Lyons, R. Middleton, M. Hepokoski, K. Christman</i>	
3D PRINTED BARRIER CONSTRUCT FOR BONE ENGINEERING IN SYSTEMIC INFLAMMATORY CONDITIONS	345
<i>Z. Qiryaqoz, R. Swenson, L. Hong, K. Brogden, A. Akkouch</i>	
ULTRASOUND-MEDIATED DRUG RELEASE FROM PEGYLATED AND TARGETED LIPOSOMES.....	346
<i>G. Husseini, N. Awad, V. Paul, M. Mahmoud, N. Sawaftah, P. Kawak, M. Sayah</i>	
ULTRASOUND-MEDIATED DRUG RELEASE FROM TRANSFERRIN-PEG LIPOSOMES	347
<i>G. Husseini, N. Sawaftah, N. Awad, V. Paul, P. Kawak, M. Sayah</i>	
DRUG RELEASE FROM PEGYLATED AND TARGETED LIPOSOMES USING HIGH-FREQUENCY ULTRASOUND	348
<i>G. Husseini, N. Sawaftah, V. Paul</i>	
ULTRASOUND MEDIATED RELEASE FROM HYALURONIC ACID TARGETED LIPOSOMES.....	349
<i>S. Daya, N. Awad, G. Husseini, V. Paul, M. Sayah</i>	
IN VITRO CELL WORK OF TWO TYPES OF TARGETED NANOPARTICLES WITH ULTRASOUND TRIGGERING.....	350
<i>G. Husseini, W. Abuwatfa, D. Mukhopadhyay, N. Sawaftah</i>	
MAGNETICALLY-RESPONSIVE SHAPE MEMORY POLYMERS FOR DRUG DELIVERY.....	351
<i>A. Vakil, M. Monroe</i>	
LIGHT-TRIGGERED IMMUNE ACTIVATION BY PHOTOLABILE PEG-MODIFIED CYTOKINES	352
<i>L. Perdue, P. Do, C. David, A. Chyong, A. Kellner, Ruggieri, H. Kim, K. Salaita, G. Lesinski, C. Porter, E. Dreaden</i>	
ULTRASOUND SENSITIVE MICROBUBBLES WITH CARBON MONOXIDE FOR DELIVERY TO BLOOD BRAIN BARRIER	353
<i>J. Vansant, S. Changizi, I. Marquette, O. Alghazwat, Y. Liao, C. Bashur</i>	
USING SHAPE TO MODULATE BIOPHYSICAL INTERACTIONS BETWEEN POLYMERSOMES AND THE BLOOD-BRAIN BARRIER	354
<i>C. Pierce, J. Larsen</i>	
CHARGE-BASED TARGETING OF THE INFLAMED COLON MUCOSA IN INFLAMMATORY BOWEL DISEASE (IBD) USING POLYMER-DRUG COMPLEXES	355
<i>C. Valiveti, R. Ahmad, B. Kumar, A. Singh, H. Tummala</i>	

CURCUMIN AND SILVER NANOPARTICLES INCORPORATED IN POLYELECTROLYTE COMPLEXES AIMING METAL ENHANCED SINGLET OXYGEN GENERATION EFFECT OF PHOTODYNAMIC THERAPY	356
<i>E. Muniz, C. Freitas, E. Kimura, A. Rubira</i>	
THERMO-REVERSIBLE HYDROGELS AS INJECTABLE LOCALIZED PROTEIN DELIVERY SYSTEM FOR APPLICATIONS IN CENTRAL NERVOUS SYSTEM.....	357
<i>T. Nguyen, C. Pan, L. Teo, M. Mueller, J. Bourne, T. Hughes, J. Basuki</i>	
A DE NOVO FIBRIN-SPECIFIC BINDING PEPTIDE FOR BIOIMAGING AND DRUG DELIVERY APPLICATIONS.....	358
<i>Y. Nam, M. Yang, J. Yu</i>	
MINERAL-COATED MICROPARTICLE DELIVERY SYSTEM FOR INTERLEUKIN-15	359
<i>H. Martin, J. Choe, W. Murphy</i>	
TISSUE-ENGINEERED VASCULAR GRAFT OF SMALL DIAMETER USING HUMAN AMNION MEMBRANE.....	360
<i>B. Wang, X. Wang</i>	
NANOCOMPOSITE HYDROGELS FOR CARDIAC TISSUE REGENERATION IN MYOCARDIAL INFARCTED RAT.....	361
<i>V. Sharma, S. Dash, A. Manhas, J. Radhakrishnan, K. Jagavelu, R. Verma</i>	
HUMAN-DERIVED 3D MICROVESSELS TO STUDY PULMONARY VASCULAR BARRIER FUNCTION.....	362
<i>C. Cho, E. Doherty, L. Antczak, R. Heise, W. Polacheck</i>	
CONDUCTIVE AEROGEL FOR SKELETAL MUSCLE REPAIR.....	363
<i>M. Xing</i>	
MICROPATTERNED HUMAN PLURIPOTENT STEM CELLS ENABLE MODELING OF THE EARLIEST DEVELOPMENTAL STAGES OF CARDIAC VASCULARIZATION	364
<i>O. Abilez, H. Yang, K. Wilson, L. Tian, Y. Zhuge, F. Jia, H. Wo, G. Zhou, B. Aldana, C. Zarins, J. Wu</i>	
AORTIC ADVENTITIA-DERIVED EXTRACELLULAR MATRIX HYDROGEL ENHANCES CONTRACTILITY OF PERICYTES.....	365
<i>K. Wintruba, J. Hill, T. Richards, M. Billaud, T. Gleason, J. Phillipi</i>	
ENGINEERED HUMAN INDUCED PLURIPOTENT STEM CELL DERIVED FOUR-LINEAGE CARDIAC MUSCLE PATCH FOR MYOCARDIAL REPAIR	366
<i>X. Lou, D. Pretorius, A. Kahn-Krell, V. Fast, J. Zhang</i>	
TRANSLATING BIOMEDICAL TECHNOLOGIES FROM BENCH TO BEDSIDE: ASIA PERSPECTIVE AND OPPORTUNITY	367
<i>W. Kao</i>	
TRANSLATING POROUS AND BIOACTIVE PEEK TO INTERBODY SPINAL FUSIONS IMPLANTS: PATIENCE IS A VIRTUE IN THE JOURNEY FORM BENCH TO BEDSIDE	368
<i>R. Roeder, J. Nagle, D. Snell</i>	
THREE-DIMENSIONAL, LABEL-FREE CELL VIABILITY MEASUREMENTS IN TISSUE ENGINEERING SCAFFOLDS USING OPTICAL COHERENCE TOMOGRAPHY	369
<i>G. Babakhanova, D. Arora, A. Horenberg, J. Budhathoki, J. Dunkers, J. Chalfoun, P. Bajcsy, A. Agrawal, C. Simon Jr.</i>	

MODIFIED POLYLACTIDE WITH INCREASED TOUGHNESS FOR ORTHOPEDIC IMPLANTS	370
<i>M. Taylor, B. Gaerke, P. Patel, S. Nuckles, S. McCullen</i>	
AN ENGINEERED DRY POWDER DISPERSION DEVICE FOR IN SITU TISSUE SEALANT APPLICATION	371
<i>P. Charron, J. Reilly, R. Oldinski-Foreani</i>	
ANISOTROPIC NANOFIBRILLAR SCAFFOLDS ENHANCE THE SURVIVAL OF INDUCED PLURIPOTENT STEM CELL-DERIVED ENDOTHELIAL CELLS FOR TREATMENT OF PERIPHERAL ARTERIAL DISEASE.....	372
<i>G. Yang, C. Alcazar, C. Hu, T. Zaitseva, M. Paukshto, N. Huang</i>	
Biodegradable nanofiber bone-tissue scaffold as remotely- controlled and self-powered electrical stimulator	373
<i>R. Das, T. Nguyen</i>	
ENGINEERING POROUS ASSEMBLED MICROGEL SCAFFOLDS TO INCREASE RAT MESENCHYMAL STROMAL CELL SECRETOME FOR BONE REGENERATION APPLICATIONS.....	374
<i>V. Rao, S. Wojda, C. Ferreira, A. Caldwell, S. Donahure, K. Anseth</i>	
SURFACE FEATURES OF 3D-PRINTED BONE INGROWTH LATTICES TO TAILOR COEFFICIENT OF FRICTION	375
<i>R. Kane, S. Leisinger, W. Tong</i>	
EVALUATION OF RASPBERRY KETONE, A NATURAL ANTIOXIDANT, ON BONE CELL DIFFERENTIATION.....	376
<i>M. Atwill, J. Bumgardner, M. Kurakula</i>	
Biopolymeric hydrogel delivered recombinant BMP-9 versus BMP-2 mediated rat calvarial bone defect healing.....	377
<i>A. Bharadwaz, B. Gaihre, J. Unagolla, A. Jayasuriya</i>	
ULTRA-STIFF AND STRONG ELECTROSTATIC, POLY(N-ISOPROPYLACRYLAMIDE) TRIPLE NETWORK HYDROGELS FOR ORTHOPEDIC TISSUE REPLACEMENT	378
<i>C. Demott, M. Jones, M. Grunlan</i>	
BIODEGRADABLE SHAPE MEMORY POLYMER (SMP) BONE SCAFFOLDS WITH IMPROVED SELF-FITTING PROPERTIES.....	379
<i>M. Pfau, K. McKinsey, A. Roth, L. Graul, D. Maitland, M. Grunlan</i>	
A FLIPPED ESTER GROUP DESIGN BASED METHACRYLATE MACROMER FOR IMPROVED STABILITY UNDER HYDROLYTIC AND ENZYMATIC CONDITIONS	380
<i>D. Kumar, D. Ghose, R. Bolkskar, I. Mutreja, C. Aparicio, R. Jones</i>	
BIODEGRADABLE POLYURETHANE/REDUCED GRAPHENE OXIDE FIBERS FOR C2C12 GROWTH	381
<i>A. Taylor, J. Xu, H. Fu, S. McMahan, J. Liao, Y. Hong</i>	
MICRO-CT AND HISTOLOGICAL EVALUATION OF A TISSUE ENGINEERED ENTHESIS IN A RAT MODEL: COMPARISON TO NATIVE TISSUE	382
<i>C. Mayer, S. Muller, M. Coenen, A. Motta, C. Migliaresi, C. Evans, M. Griensven, E. Balmayor</i>	

EVALUATING THE VALIDITY OF AN ELASTIC MODULUS MEASUREMENT METHOD FOR POLYMERIC MATERIALS	383
<i>M. Satpathy, J. Mecholsky Jr., N. Abdulhameed, J. Griggs</i>	
BIOLOGICAL AND BIOMECHANICAL INVESTIGATION OF RECOMBINANT HUMAN INSULIN-LIKE GROWTH FACTOR-1 AND ITS BIOTHERAPEUTIC DELIVERY IN ROTATOR CUFF REPAIR	384
<i>A. Prabhath, C. Esdaille, V. Vernekar, A. Labaschi, M. Golman, L. Rojas, J. Walker, T. Schmidt, X. Xin, S. Thomopoulos, N. Dymant, A. Deymier, E. Weber, C. Laurencin</i>	
BIOMINERAL COATING ENHANCES PERFORMANCE OF PEEK IMPLANTS.....	385
<i>L. Jongpaiboonkit, J. Badura</i>	
SERICIN-BASED GADOLINIUM NANOPARTICLES AS SYNERGISTICALLY ENHANCING CONTRAST AGENTS FOR PH-RESPONSIVE AND TUMOR TARGETING MAGNETIC RESONANCE IMAGING	386
<i>Z. Huang, Y. Wang, J. Wu, H. He, Q. Xia</i>	
ORTHOPEDIC CEMENTS AS CARRIERS OF DOXORUBICIN FOR LOCAL CHEMOTHERAPY TREATMENT	387
<i>G. Funk, E. Horn, Z. Denton, D. Pitz, K. Kilway, T. McIff</i>	
MIMICKING PANCREATIC TUMOR MICROENVIRONMENT VIA SEQUENTIAL CLICK REACTIONS.....	388
<i>C. Chang, C. Lin</i>	
DENDRITIC CELLS PERFORM VOMOCYTOSIS OF CRYPTOCOCCUS NEOFORMANS	389
<i>N. Pacifici, M. Cruz-Acuna, N. Senthil, J. Lewis</i>	
ANISOTROPIC-MORPHOLOGY NITRODOPAMINE PEGYLATED IRON OXIDE NANOPARTICLES AS MAGNETIC ACTUATORS FOR BREAST CANCER TREATMENT	390
<i>M. Nabavinia, J. Beltran-Huarac</i>	
EVALUATING MECHANICAL FORCE IN THE TUMOR MICROENVIRONMENT THROUGH ACTUATING BIOMIMETIC LUNG PLATFORM	391
<i>S. Libring, A. Enriquez, T. Field, J. Jimenez, T. Lee, H. Park, D. Satoski, M. Wendt, S. Calve, A. Tepole, L. Solorio, H. Lee</i>	
REVERSING TUMOR MICROENVIRONMENT HYPOXIA WITH NOVEL MANGANESE DIOXIDE NANOPARTICLES IMPROVES NATURAL KILLER CELL RESPONSE IN 3-D TUMOR CELL SPHEROIDS	392
<i>D. Murphy, H. Cheng, X. Yan, I. Adjei</i>	
REGULATORY T CELL INDUCTION IN CHRONIC LYMPHOCYTIC LEUKEMIA PATIENTS MANIFEST ALTERED RESPONSE TO SUBSTRATE STIFFNESS COMPARED TO HEALTHY INDIVIDUALS	393
<i>J. Lim, L. Shi, L. Kam</i>	
THE ANTI-TUMOR EFFECT OF M1 MACROPHAGES ON HEPATOCELLULAR CARCINOMA (HCC).....	394
<i>W. Kao, A. Guerra, O. Yeung, K. Man</i>	
ALTERING MACROPHAGE PHENOTYPE TO PROMOTE ANGIOGENESIS IN MURINE HINDLIMB ISCHEMIA MODEL.....	395
<i>G. Risser, D. Li, S. Sung, K. Spiller</i>	

CHARACTERIZATION OF A SELF-ASSEMBLING PEPTIDE HYDROGEL FOR DELIVERY OF ACTIVE TEMOZOLOMIDE IN GLIOBLASTOMA TREATMENT	396
<i>M. Pitz, M. Elpers, A. Nukovic, S. Wilde, A. Alexander-Bryant</i>	
ENABLING COMPLEX 3D CANCER-STROMA CO-CULTURES WITH MODULAR HYDROGELS IN A HIGH-THROUGHPUT MICROFLUIDIC PLATE.....	397
<i>A. Bonteanu, D. Iyer, P. Shepherd, R. Kitchens, N. Navone, D. Dexter, K. Bircsak, D. Harrington</i>	
HYDROGEL MATRIX PRESENCE AND COMPOSITION INFLUENCES DRUG RESPONSES OF ENCAPSULATED GLIOBLASTOMA SPHEROIDS.....	398
<i>J. Bruns, L. Hill, S. Zustiak</i>	
DOXORUBICIN-LOADED INORGANIC MAGNESIUM NANOPARTICLES AS SMART DELIVERY SYSTEM: AN IMPROVED THERAPY FOR MAMMARY CARCINOMA CELLS.....	399
<i>A. Bakhtiar, V. Mok, G. Chan, C. Yi</i>	
SYNTHESIS AND CHARACTERIZATION OF INJECTABLE POLYSACCHARIDE HYDROGEL TO TREAT PEDIATRIC SOLID TUMORS	400
<i>J. Patel, K. Boone, N. Peoples, E. Barker</i>	
USING THE LARGE-SCALE MINING OF PUBLICLY AVAILABLE IMMUNOHISTOCHEMICAL DATA TO UNCOVER THE DISTRIBUTION OF EXTRACELLULAR MATRIX PROTEINS IN NORMAL AND CANCEROUS HUMAN TISSUES	401
<i>Y. Lam, P. Lam, S. Tang</i>	
DECOUPLING THE BIOPHYSICAL INFLUENCES OF STIFFNESS AND DIFFUSIVITY IN 3D ENCAPSULATION HYDROGEL SCAFFOLDS.....	402
<i>N. Richbourg, N. Peppas</i>	
FACILE SYNTHESIS OF RAPIDLY DEGRADING POLY(ETHYLENE GLYCOL)-BASED THIOL-NORBORNENE HYDROGELS	403
<i>F.-Y. Lin, M. Arkenberg, C.-C. Lin</i>	
7-NITROINDOLINE-BASED PHOTOCLEAVABLE CROSSLINKERS	404
<i>H. Vazquez, P. Baily, K. Michael</i>	
PEG-HA DUAL NETWORKS THAT MODULATE THE SECRETORY PROFILE OF MESENCHYMAL STEM CELLS	405
<i>A. Borelli, M. Young, M. Blatchley, V. Rao, M. Wechsler, K. Anseth</i>	
INJECTABLE ALGINATE HYDROGELS LOADED WITH PLEIOTROPHIN ENHANCE ANGIOGENESIS IN VIVO.....	406
<i>F. Munarin, I. Rountree, C. Polucha, K. Coulombe</i>	
A PHASE INVERSION-BASED TECHNIQUE FOR FABRICATING Bicontinuous POROUS SCAFFOLDS.....	407
<i>J. Li, H. Sun, M. Wang</i>	
MODELING SYMPATHETIC HYPERACTIVITY IN ALZHEIMER'S RELATED OSTEOPENIA	408
<i>R. Culibrk, A. Arabiyat, C. Dekalb, M. Hahn</i>	

EVALUATION OF THE ANTI-OXIDATIVE AND ROS SCAVENGING PROPERTIES OF BIOMATERIALS COATED WITH EPIGALLOCATECHIN GALLATE FOR TISSUE ENGINEERING	409
<i>S. Lee, H. Shin</i>	
ENGINEERING PROTEIN-BASED MATERIALS FOR SCAFFOLD NEOVASCULARIZATION	410
<i>G. Mendes, D. Howell, C. Abbey, M. Murphy, H. Gibbs, A. Yeh, K. Bayless, S. Bondos</i>	
ENHANCED GRANULAR HYDROGEL PROPERTIES THROUGH DYNAMIC COVALENT INTERPARTICLE CROSSLINKING	411
<i>V. Muir, J. Burdick</i>	
LEVERAGING THE CHEMOMECHANICAL TUNABILITY OF SILK FIBROIN IN A FUNCTIONALLY MODULAR SCAFFOLD DESIGN	412
<i>M. Wojnowski, J. Coburn</i>	
INTERROGATING THE RELATIONSHIP BETWEEN HYDROGEL ELECTRICAL AND PHYSICAL PROPERTIES USING A CUSTOM BENCHTOP CONDUCTIVITY SETUP.....	413
<i>A. Casella, A. Panitch, J. Leach</i>	
DEVELOPMENT AND CHARACTERIZATION OF AN AUTOMATED HYDROGEL BIOINK PREPARATION DEVICE	414
<i>J. Li, T. Shelby, H. Shelby, Y. Yang</i>	
HYBRID BIOPRINTING VIA INTEGRATED ADDITIVE MANUFACTURING HIGH-THROUGHPUT ACOUSTIC PATTERNING (IMHAP).....	415
<i>J. Li, C. Kim, S. Moeinzadeh, C.-C. Pan, Y. Yang</i>	
NORBORNENE-FUNCTIONALIZED METHYLCELLULOSE AS A THERMAL AND PHOTO-RESPONSIVE BIOINK	416
<i>M. Kim, C.-C. Lin</i>	
SOLVENT-CAST 3D PRINTING WITH BIODEGRADABLE POLYMERS FOR TUNABLE SCAFFOLD PROPERTIES	417
<i>J. Tolbert, D. Hammerstone, N. Yuchimiuk, L. Chow</i>	
3D ELECTROWRITING OF GO/PEDOT-DMSO ELECTROACTIVE NANCOMPOSITE FOR BONE ENGINEERING APPLICATION	418
<i>M. Kenter, Z. Qiryaqoz, A. Akkouch</i>	
BIOINK OPTIMIZATION AND EFFECTS OF MICROGRAVITY ON 3D PRINTED CELL LADEN CONSTRUCTS.....	419
<i>L. Somasekhar, N. Huynh, Y. Zhang, K. Nunes, K. Mitra, V. Kishore, C. Bashur</i>	
DOUBLE NETWORK HYDROGELS WITH COMB ARCHITECTURE TO ACHIEVE REDUCED MESH SIZES	420
<i>P. Dong, A. Means, B. Schott, G. Cote, M. Grunlan</i>	
MICROFLUIDIC 3D BIOPRINTING OF CELL-LADEN HOLLOW AND CORE-SHELL FIBRES	421
<i>E. Bedford, Z. Xu, S. Steiner, Y. Tsubota, R. Agarwal, K. Grode, S. Getsios, S. Beyer, T. Mohamed, S. Wadsworth</i>	

IMMOBILIZING SPLIT GFP BIOSENSORS IN PROTEIN MATERIALS: SALT TUNES ANALYTE BINDING AND RELEASE	422
<i>A. Jons, R. Booth, L. Kustigan, X. Gong, H. Rye, S. Banerjee, K. Kilpatrick, C. Bystroff, S. Bondos</i>	
SHAPE-MORPHING MATERIALS FOR DEPLOYABLE INTRACORTICAL PROBES	424
<i>M. Javed, R. Rihani, J. Pancrazio, T. Ware</i>	
IMMOBILIZATION OF ANTIBODIES ON SOLUTION BLOW SPUN MATS FOR BIOSENSING APPLICATIONS	425
<i>S. Thammana, C. Miller, M. Livingstone, J. Gilmore</i>	
3D-PATIENT DERIVED OVARIAN TUMOUR MODEL TO ELUCIDATE BIOPHYSICAL STROMAL RESPONSE DURING HIGH-GRADE SEROUS OVARIAN CANCER PROGRESSION.....	426
<i>F. Paradiso, S. Lenna, S. Serpelloni, L. Francis, F. Taraballi</i>	
SYNTHETIC HYDROGELS REVEAL THE ROLE OF THE MATRIX ENVIRONMENT ON SEX-SPECIFIC AORTIC VALVE CALCIFICATION AND OSTEOPOONTIN ACTIVITY	427
<i>M. Schroeder, A. Rodriguez, K. Speckl, D. Peters, C. Walker, B. Aguado, J. Grim, R. Weiss, K. Anseth</i>	
DESIGNING A SYNTHETIC SCAFFOLD TO SUPPORT HUMAN FOLLICULOGENESIS IN VIVO	428
<i>M. Wall, H. Kinnear, A. Shikanov</i>	
A 3D BREAST TUMOR MODEL TO STUDY THE ROLE OF EXTRACELLULAR MATRIX COMPONENTS ON CANCER CELL INVASION	429
<i>J. Heiss, H. Tavana</i>	
GENDER-RELATED HOST FACTORS MODULATE HUMAN CRANIOFACIAL BONE REGENERATION WITH BIOACTIVE TRICALCIUM PHOSPHATE GRAFTS.....	430
<i>C. Knabe, A Mele, P. Kann, D. Adel-Khattab, H. Renz, A. Reuss, M. Stiller</i>	
EXTRACELLULAR MATRIX-SEQUESTERING AND ADHESION PEPTIDE LOCALIZATION PROMOTES PRIMORDIAL FOLLICLE DEVELOPMENT IN VITRO FOR FERTILITY PRESERVATION	431
<i>C. Tomaszewski, D. Matera, B. Baker, A. Shikanov</i>	
THERMOSENSITIVE POLYISOCYANOPEPTIDE HYDROGEL FOR TISSUE REGENERATION IN THE PELVIC FLOOR: AN IN VITRO STUDY WITH VAGINAL FIBROBLASTS	432
<i>A. Gudde, M. Velthoven, P. Kouwer, J. Roovers, Z. Guler</i>	
IMPLANTATION OF HUMAN OVARIAN CORTEX TISSUE ENCAPSULATED IN IMMUNE-ISOLATING POLY-ETHYLENE GLYCOL-BASED CAPSULES	433
<i>M. Brunette, J. Day, H. Kinnear, P. Hashim, M. Cascalho, A. Shikanov</i>	
ENGINEERED SYNTHETIC MATRIX-INDUCED DORMANCY IN ORGANOTROPIC BREAST CANCER.....	434
<i>C. Farino, S. Pradhan, J. Slater</i>	
TREATMENT OF ORAL MUCOSITIS THROUGH CURCUMIN POLY(BETA AMINO ESTER) MICROPARTICLES	435
<i>K. Wiegman, C. Jordan, B. Howerton, J. Hilt, T. Dziubla</i>	

NANONET-NANO FIBER ELECTROSPUN MESH OF PCL-CHITOSAN FOR CONTROLLED RELEASE OF HYDROPHILIC DRUGS	436
<i>S. Saudi, J. Sankar, S. Aravamudhan, N. Bhattarai</i>	
MULTIFUNCTIONAL BIOMATERIAL WITH ANTIMICROBIAL AND REMINERALIZATION CAPABILITIES	437
<i>C. Montoya, J. Kurylec, S. Orrego</i>	
ENHANCED ANTIBACTERIAL PROPERTY OF TITANIUM BY NANOSCALE MODIFICATION USING HYDROTHERMAL TREATMENT AND SURFACE COATING	438
<i>V. Manivasagam, K. Popat</i>	
SOLID LIPID NANOPARTICLES FOR THERAPEUTIC STABILIZATION AND DELIVERY	439
<i>M. Wright, V. Stagnaro, K. Johnson, J. Mao, Z. You, C. Tison, L. Costella</i>	
EXAMINING INTRACELLULAR TRAFFICKING OF NUCLEIC ACID CONTAINING LIPID NANOPARTICLES FOR NON-VIRAL GENE DELIVERY	440
<i>C. Bailey-Hytholt, G. Ulinski, J. Dugas, P. Piepenhagen, I. Zarraga, A. Bandekar</i>	
NANO-SCALE LIPOSOMES WITH CONTROLLABLE MECHANICS FOR DRUG DELIVERY APPLICATIONS.....	441
<i>F. Mirab, D. Dang, V. Raghunathan, S. Majd</i>	
TOWARDS IMPROVED KERATITIS TREATMENT: ATTACHMENT OF GOLD NANOPARTICLES TO BACTERIA AND NANOPARTICLE PENETRATION IN CORNEAS	442
<i>B. Bednarke, K. Reeser, D. Eversole, S. Pantanelli, A. Doiron</i>	
MAGNETIC DRUG SCREENING NANOPLATFORM BASED ON IMMOBILIZED TRANSMEMBRANE KINASE RECEPTOR PROTEINS	443
<i>Y. Bao, Z. Arituluk, J. Horne, J. Steltzner, S. Mansur, L. Ciesla</i>	
ULTRA-ABSORPTIVE NANOFIBER SWABS FOR IMPROVED COLLECTION AND TEST SENSITIVITY OF SARS-COV-2.....	444
<i>A. McCarthy, L. Saldana, D. Ackerman, J. Santarpia, J. Xie</i>	
MITIGATING CARDIAC FIBROSIS PHENOTYPE IN VITRO WITH DRUG LOADED NANOGELS TREATING ACUTE AND CHRONIC COMPLICATIONS OF MYOCARDIAL INFARCTION.....	446
<i>A. Simpson, E. Mihalko, A. Brown</i>	
COMPARATIVE EFFICACY OF RESORBABLE FIBER WRAPS LOADED WITH GENTAMICIN SULFATE OR GALLIUM MALTOLATE IN THE TREATMENT OF OSTEOMYELITIS.....	447
<i>T. Buie, M. Whiteley, A. Jose, A. Balakrishnan, J. McCune, Z. Lan, J. Wenke, E. Cosgriff-Hernandez</i>	
CAPROGLU BIOADHESIVES FOR BACTERIAL INFECTION DETECTION	448
<i>E. Ellis, I Djordjevic, T. Steele</i>	
SINGLE CELL ANALYSIS OF THE EFFECT OF CARDIOVASCULAR DEVICE TOPOGRAPHY ON ENDOTHELIAL IMMUNOGENICITY	449
<i>M. Fallon, M. Hinds</i>	
A PHASE INVERSION-BASED TECHNIQUE FOR FABRICATING Bicontinuous POROUS SCAFFOLDS.....	450
<i>J. Li, H. Sun, M. Wang</i>	

OPTIMIZING EXTRACELLULAR MATRIX CUES FOR MULTIPOTENT STROMAL CELLS EXPANSION AND DIFFERENTIATION.....	451
<i>A. Chan, K. Sung, N. Huang</i>	
PROFILING THE RESPONSIVENESS OF FOCAL ADHESIONS OF HUMAN CARDIOMYOCYTES TO EXTRACELLULAR DYNAMIC NANO-TOPOGRAPHY	452
<i>H. Shi, S. Sun, C. Wang, J. Henderson, Z. Ma</i>	
MICROCONTACT PRINTING ON SHAPE MEMORY POLYMERS FOR ALTERING CELL MORPHOLOGY	453
<i>F. Donelson, J. Kochanowski, C. Turner, J. Henderson</i>	
THERMO-RESPONSIVE POLY(OLIGOETHYLENE GLYCOL METHACRYLATE) (POEGMA)-BASED NANOFIBROUS HYDROGELS FOR FAST CELL DELAMINATION AND CELL ADHESION	454
<i>F. Xu, A. Lam, Z. Pan, G. Randhawa, M. Lamb, H. Sheardown, T. Hoare</i>	
IN SITU CROSSLINKING CHITOSAN-GENIPIN HYDROGEL AS AN INJECTABLE CELL MATRIX	455
<i>T. Priddy-Arrington, H. Zhang, Y. Dong, M. Caldorera-Moore</i>	
ENGINEERING INJECTABLE SYNTHETIC ECM-BASED HYDROGELS AS VEHICLES FOR RETINAL PROGENITOR CELLS TRANSPLANTATION	456
<i>P. Zhao, J. Kundu, A. Desai, S. Bencherif, M. Young, R. Carrier</i>	
ASSESSING BUNDLING OF WICKING FIBERS FOR CELLULAR DIAGNOSTIC SYSTEMS	457
<i>A. Mehranian, T. Burg, K. Burg</i>	
CONTROLLING CELL-MATERIAL INTERACTIONS TO TUNE THERAPEUTIC EXTRACELLULAR VESICLE PRODUCTION	458
<i>S. Lenzini, S. Wong, A. Song, R. Bargi, D. Mehta, J.-W. Shin</i>	
ENDOTOXIN AND CELLULAR ACTIVITY	459
<i>J. Olijve</i>	
NATURAL SELECTION IMPOSED BY MECHANICAL PROPERTIES OF A BIOMATERIAL RESULTS IN NOVEL CELLULAR PHENOTYPES.....	460
<i>P. Purkayastha, K. Pendyala, A. Saxena, H. Hakimjavadi, S. Chamala, P. Dixit, C. Baer, T. Lele</i>	
ELECTROSPINNING LIVE CELLS USING GELATIN AND PULLULAN	461
<i>N. Nosoudi, A. Oommen, S. Stultz, M. Jordan, S. Aldabel, C. Hohne, J. Mosser, B. Archacki, A. Turner, P. Turner</i>	
HYDROGELS WITH TUNABLE GLYCAN CONTENT TO PROBE EXTRACELLULAR MATRIX-LECTIN INTERACTIONS	462
<i>J. Olguin, M. Molinaro, L. Renjie, E. Hill, A. Restuccia, G. Hudalla</i>	
DEVELOPMENT OF PHOSPHATIDYL SERINE PRESENTING PARTICLES FOR TARGETING MACROPHAGES IN TISSUE REGENERATION	463
<i>K. Atube, R. Gower</i>	
ATRA-LOADED PLG MICROPARTICLES TO DIRECT MACROPHAGE REGENERATIVE FUNCTION.....	464
<i>C. Cheung, G. Carter, R. Gower</i>	

STRONTIUM-BASED NANOCOMPOSITE HYDROGELS FOR IMPROVED ANTI-INFECTIVE AND OSTEOGENIC DIFFERENTIATION ACTIVITY	465
<i>I. Mutreja, D. Kumar, T. Nies, K. Mansky, C. Aparicio</i>	
FORMATION OF A PRIMARY MURINE PERIVASCULAR MODEL TO STUDY HEMATOPOIETIC STEM CELLS IN VITRO.....	466
<i>V. Barnhouse, B. Harley</i>	
ELECTROSPUN HYDROGEL NANOFIBER SCAFFOLDS FOR THE DIFFERENTIATION OF MESENCHYMAL STEM CELLS INTO VASCULAR CELLS	467
<i>A. Rickel, J. Hu, Z. Hong</i>	
BIOCOMPATIBILITY OF COLLAGEN FIBER-DERIVED SCAFFOLDS FOR TISSUE ENGINEERING APPLICATIONS.....	468
<i>K. Ali, A. Amanah, J. Gluck</i>	
IN-VIVO EVALUATION OF MACROPHAGE POLARIZATION IN RESPONSE TO RASPBERRY KETONE-LOADED ELECTROSPUN CHITOSAN MEMBRANE	469
<i>M. Rad, F. Guerra, K. Anderson, O. Skalli, J. Bumgardner</i>	
COLLAGEN I AND MODIFIED HYALURONIC ACID HYDROGELS FOR TISSUE ENGINEERING	470
<i>J. Torres, F. Meng, K. Buno, Y. Yeo, L. Solorio, J. Liu</i>	
MECHANICAL APPROXIMATION OF EX VIVO MYOCARDIUM FOR COLLAGEN MATRIX PRINTING.....	471
<i>A. Baker, B. Gao</i>	
TUNING GRANULAR HYDROGEL POROSITY TO MODULATE 3D ENDOTHELIAL CELL SPROUTING.....	473
<i>T. Qazi, J. Burdick</i>	
CHARACTERIZATION OF A TUBULAR SYNTHETIC ELASTOMERIC SCAFFOLD FOR THE POTENTIAL USE IN URETHRAL SUBSTITUTION	474
<i>L. Wang, M. Bury, Y. Chan, X. Wang, G. Ameer, A. Sharma</i>	
MICROFLUIDIC-ASSISTED FABRICATION OF MACROPOROUS HYDROGEL ALLOWS TUNABLE SPHEROIDS ASSEMBLY.....	475
<i>Z. Jiang, F.-Y. Lin, K. Jiang, C.-C. Lin</i>	
NORBORNENE-MODIFIED POL(γ -GLUTAMIC ACID) FOR ORTHOGONAL HYDROGEL CROSSLINKING AND 3D CELL CULTURE	476
<i>M. Kim, C.-C. Lin</i>	
ENABLING TUNABLE MUCOADHESION THROUGH THIOLATION OF THERMORESPONSIVE HYDROGEL SCAFFOLDS.....	477
<i>N. Kanetkar, A. Ekenseair</i>	
CHEMICALLY-DEFINED HYDROGELS FOR GENERATION OF PANCREATIC ORGANOID.....	478
<i>M. Arkenberg, C.-C. Lin</i>	
FROZEN FILMS: POROUS THIN FILMS FOR IN VITRO CULTURE.....	479
<i>K. Xu, T. Dieffenthaler, Z. Wang, A. Copik, S. Florczyk</i>	

CONTROLLING EXTRACELLULAR MATRIX ENVIRONMENT IN GUIDING 3D RETINAL ORGANOID FORMATION	480
<i>R. Ansaripour, J. Kundu, P. Baranov, J. Oswald, R. Carrier</i>	
HIGH-THROUGHPUT ANALYSIS REVEALS MICROENVIRONMENTAL REGULATION OF PRIMARY HUMAN LIVER SINUSOIDAL ENDOTHELIAL CELL PHENOTYPE	481
<i>A. Brougham-Cook, C. Monckton, D. Owen, S. Khetani, G. Underhill</i>	
3D-PRINTED LIVING COMPOSITES WITH PROGRAMMABLE SHAPE TRANSFORMATIONS	482
<i>L. Rivera-Tarazona, T. Shukla, Z. Campbell, T. Ware</i>	
HYDROGEL-BASED MICROFLUIDIC DEVICE AS A 3D IN VITRO DRUG SCREENING PLATFORM	483
<i>J. Bruns, A. Clancy, D. Chen, J. Nadella, A. Timperman, S. Zustiak</i>	
DEGRADABLE, NANOFIBER-REINFORCED HYDROGEL MEMBRANES FOR GUIDED EARDRUM REPAIR	484
<i>K. Broderick, M. Gasbarre, K. Smith, B. Janet, L. Costella, B. Kesser, C. Tison, L. Woodard</i>	
IMPROVING BRAIN ORGANOID MODELS WITH A BIOFUNCTIONALIZED HYDROGEL	485
<i>K. Balotin, L. Drake, N. Bute, B. O'Grady, E. Lippmann</i>	
PHOTOPATTERNING OF SPATIALLY ORGANIZED 3D CULTURES IN MICROFLUIDIC DEVICES	486
<i>T. Ozulumba, J. Ortiz-Cardenas, J. Zatorski, A. Salaheen, R. Pompano</i>	
INCORPORATION OF EXTRACELLULAR MATRIX-DERIVED BIOMATERIALS INTO AN INTERVERTEBRAL DISC ORGANOID MODEL	487
<i>K. Smith, J. Mercuri</i>	
ENGINEERING SINGLE CELL POLARITY IN THREE-DIMENSIONAL MATRICES	488
<i>I. Cho, S. Wong, S. Lenzini, J.-W. Shin</i>	
EFFECT OF MECHANICAL STRAIN ON MYOKINE SECRETION AND ITS ROLE IN DIABETIC BONE DISEASE	489
<i>E. Barnett, E. Kalaitzoglou, J. Fowlkes, R. Annamalai</i>	
DEVELOPMENT OF A PHYSIOMIMETIC MICROSYSTEM FOR THE STUDY OF METABOLIC ACTIVITY ZONATION OF THE LIVER	490
<i>M. Helm, D. McDuffie, A. Agarwal</i>	
NOVEL BIOMATERIALS FOR CORNEAL REPAIR	491
<i>N. Annabi, I. Khalil, B. Saleh, D. Ibrahim</i>	
PREDICTION OF LONG TERM BIOSTABILITY OF POLYMERIC MEDICAL DEVICE USING AN IN VITRO MODEL	492
<i>J. Wu, X. Shi, R. Rice</i>	
MUCOADHESION AND MUCOPENETRATION OF SELF-ASSEMBLED POLY(LACTIC ACID)-BLOCK-POLY(OLIGOETHYLENE GLYCOL METHACRYLATE) BLOCK COPOLYMER NANOPARTICLES WITH DIFFERENT ETHYLENE OXIDE SIDE-CHAIN LENGTHS	493
<i>R. Dave, A. Singh, M. Ziolkowska, H. Sheardown, T. Hoare</i>	

ENGINEERING SYNTHETIC ECM USING PEPTIDE MODIFIED ALGINATE HYDROGEL TO STUDY HUMAN NUCLEUS PULPOSUS CELL FATE	494
<i>X. Tan, E. Jain, M. Barcellona, S. Neal, M. Gupta, J. Buchowski, M. Kelly, L. Setton, N. Huebsch</i>	
CHARACTERIZING THE EFFECT OF CEREBRAL AMYLOID ANGIOPATHY-INDUCED VESSEL STIFFENING ON THE BLOOD-BRAIN BARRIER.....	495
<i>A. Bosworth, H. Kim, K. O'Grady, J. Snider, I. Richter, L. Lee, M. Schrag, W. Merryman, E. Lippmann</i>	
THERMOGELLING POLYMER MOLECULAR WEIGHT EFFECT ON SUITABILITY AS A VITREOUS REPLACEMENT	496
<i>K. Xue, Z. Liu, Q. Lin, X. Su, X. Loh</i>	
THERAPEUTIC DELIVERY BY POLYDOPAMINE NANOPARTICLES FOR TREATMENT OF OCULAR INFLAMMATION AND ANGIOGENESIS.....	497
<i>M. Allyn, A. Choi, A. Palmer, K. Swindle-Reilly</i>	
EVALUATION OF POLYMETHYL METHACRYLATE CHANGES AS GLAUCOMA DRAINAGE IN THE RABBIT.....	498
<i>V. Asrory</i>	
HUMAN-DERIVED COLLAGEN: AN ALLOGENIC APPROACH FOR TISSUE ENGINEERING IN NEUROSURGERY AND OTOLOGIC APPLICATIONS	499
<i>G. Cardoso-Hernandez, B. Aguilera-Estrada, G. Rho-Mas, B. Camacho-Perez, J. Aguilar-Aleman</i>	
CAN POLY-ETHYLENE GLYCOL BE A TRIGGER FOR A "SIDE-BY-SIDE" AXONAL FUSION MECHANISM?	500
<i>A. Merolli, C. Bektas, R. Schultz, Y. Mao</i>	
THE INFLUENCE OF LAMININ 511 HYDROGELS ON NEURAL STEM CELL FATE.....	501
<i>D. Philip, I. Shah, R. Willits</i>	
DEVELOPMENT OF A BOVINE INTERVERTEBRAL DISC HERNIATION ORGAN CULTURE MODEL TO EVALUATE REGENERATIVE BIOMATERIALS	502
<i>M. Krussig, C. Theos, J. Walters, J. Mercuri</i>	
PROGRESS IN THE STUDY OF AXONAL FUSION: SINGLE-AXON HAND-CUT WITH A STANDARD SURGICAL BLADE IN A 3D-PRINTED SCAFFOLD	503
<i>C. Bektas, J. Molde, Y. Mao, A. Merolli</i>	
INTEGRATING CLICKABLE, DECELLULARIZED EXTRACELLULAR MATRIX INTO PHOTOADDRESSABLE HYBRID-HYDROGELS.....	504
<i>R. Hewawasam, P. Serbedzija, K. Saleh, C. Magin</i>	
ANTIMICROBIAL AND ANTIOXIDANT SHAPE MEMORY POLYMER FOAMS	505
<i>C. Du, J. Liu, D. Fikhman, M. Monroe</i>	
IN VITRO PO ₂ MEASUREMENT OF ISLET ENCAPSULATION DEVICES IN OXYGEN MEASUREMENT CORE	506
<i>M. Kotecha, Z. Zhao, D. Bodero, E. Siddiqui, M. Gutierrez, J. Mitrevski, L. Wang, A. Ernst, L. Danielczak, S. Fernandez, M. Ma, C. Hoesli, C. Stabler, K. Papas, B. Epel</i>	
TRITYL RADICAL OX071, AN EPR OXYGEN IMAGING SPIN PROBE, IS NON-TOXIC TO CELLS.....	507
<i>Z. Zhao, D. Bodero, B. Epel, M. Kotecha</i>	

METHODOLOGY FOR BIOMATERIAL OXYGEN IMAGING USING TRITYL BASED PULSE ELECTRON PARAMAGNETIC RESONANCE.....	508
<i>B. Epel, M. Kotecha</i>	
USE OF ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY TO MONITOR OXYGEN AND OTHER PARAMETERS WITHIN BIOMATERIALS INCLUDING ENCAPSULATED DEVICES	509
<i>H. Swartz, A. Flood</i>	
OXYGEN MODELING-AIDED DESIGN OF HYDROGEL MACROENCAPSULATION DEVICE GEOMETRY FOR IMPROVED LONG-TERM ISLET SURVIVAL.....	510
<i>A. Emerson, A. McCall, S. Brady, J. Weaver</i>	
MAGNETICALLY AGGREGATED 3D HYDROGEL MICROSPHERE MODELS OF PULMONARY FIBROSIS	511
<i>T. Caracena, R. Hewawasam, C. Magin</i>	
BIOINSPIRED ELASTIN-BASED DOPA-MODIFIED PROTEIN LUNG SEALANTS.....	512
<i>J. Torres, J. Liu</i>	
UTILIZING A CLOSED BATH IMAGING CHAMBER FOR OXYGEN SENSING IN EX VIVO TISSUE MODELS	513
<i>P. Anbaei, D. Dixon, R. Pompano</i>	
ENGINEERED GEL COATING ENABLES MESENCHYMAL STROMAL CELLS TO RESOLVE PULMONARY FIBROSIS	514
<i>S.-W. Wong, C. Tamatam, I. Cho, P. Toth, R. Bargi, P. Belvitch, J. Lee, J. Rehman, S. Reddy, J.-W. Shin</i>	
NATURALLY DERIVED POWDER-BASED LUNG TISSUE SEALANT FOR PLEURAL DEFECTS UTILIZING A MURINE MODEL	515
<i>P. Charron, S. Fenn, M. Aliyeva, N. Daphtry, L. Lundblad, R. Oldinski-Floreani</i>	
HUVEC TUBULAR FORMATION ON BIO-INSPIRED SUBSTRATE FOR PROMOTING ANGIOGENESIS.....	516
<i>I. Tahir, P. Charron, L. Garcia, R. Oldinski-Floreani</i>	
ACTIVE LEARNING DRIVEN DESIGN OF ENZYME STABILIZING POLYMERS	517
<i>M. Tamasi, S. Kosuri, S. Selvarajan, A. Gormley</i>	
PREPARATION AND CHARACTERIZATION OF BIODEGRADABLE METAL PARTICLE INCORPORATED POLYCAPROLACTONE NANOFIBERS	518
<i>D. Davies, S. Saudi, J. Sankar, N. Bhattarai</i>	
PROBING THE TOPOGRAPHY AND MECHANICAL PROPERTIES OF BIOMATERIALS WITH ATOMIC FORCE MICROSCOPY	519
<i>A. Koernig, T. Mueller, T. Neumann</i>	
UNDERSTANDING NANOTOXICITY: GOLD NANOPARTICLES IMPACT CALCIUM INFLUX	520
<i>J. Nagi, A. Doiron</i>	
FLUORESCENT NANODIAMOND-HYALURONATE CONJUGATES FOR MOLECULAR IMAGING	521
<i>H. Han, S. Hahn</i>	

LOW TEMPERATURE PLASMA PROCESSING FOR FABRICATING METAL NANOPARTICLES COATED ANTIMICROBIAL SURFACES FOR POTENTIAL BIOMEDICAL APPLICATIONS.....	522
<i>V. Vijayan, Y. Vohra, V. Thomas</i>	
MECHANICAL TENSION IN SYNDECAN-1 IS REGULATED BY EXTRACELLULAR MECHANICAL CUES	523
<i>L. Mei, V. Le, P. Voyvodic, C. Zhao, D. Busch, J. Stachowiak, A. Baker</i>	
PREPARATION OF POLYPROLINE MATERIALS VIA TRANSITION-METAL CATALYSIS OF N-CARBOXYANHYDRIDES	524
<i>R. Detwiler, A. Schlirf, J. Kramer</i>	
ASSESSMENT OF REGENERATIVE BENEFITS OF MSC-DERIVED SMOOTH MUSCLE CELLS TO IN VIVO ELASTIC TISSUE REPAIR	525
<i>S. Dahal, A. Ramamurthi</i>	

Author Index