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	Stanford University	VERSITY OF NEY
POSTER #	TITLE	AUTHORS
1	Telomere and Mitochondrial Dysfunction in Duchenne Muscular Dystrophy	Alex C.Y. Chang <sup>1,2,3,5</sup> , Vittavat Termglinchan <sup>4,5</sup> , Alexandre Ribeiro <sup>4,6</sup> , Ioannis Karakikes <sup>4,5</sup> , Sang-Ging Ong <sup>4,5</sup> , Edward LaGory <sup>7</sup> , Amato J. Giaccia <sup>7</sup> , Beth Pruitt <sup>4,6</sup> , Joseph Wu <sup>4,5</sup> , Helen M. Blau <sup>1,2,3,5</sup> Baxter Laboratory for Stem Cell Biology <sup>1</sup> , Institute for Stem Cell Biology & Regenerative Medicine <sup>2</sup> , Departments of Microbiology & Immunology <sup>3</sup> , Medicine (Division of Cardiology) <sup>4</sup> , Mechanical Engineering <sup>6</sup> , and Radiation Oncology (Division of Radiation & Cancer Biology) <sup>7</sup> , and Stanford Cardiovascular Institute <sup>5</sup> , Stanford University
2	Engineering Pre-Vascularized Skeletal Muscle with Physiologically-Relevant Cellular Organization for Treatment of Volumetric Muscle Loss	Karina Nakayama <sup>1,2</sup> , Marco Quarta <sup>1</sup> , Victor Garcia <sup>1</sup> , Zachary Strassberg <sup>1</sup> , Oscar Abilez <sup>2</sup> , Thomas A. Rando <sup>1,3</sup> , Ngan F. Huang <sup>1,2,4</sup> Veterans Affairs Palo Alto Health Care System <sup>1</sup> ; Stanford Cardiovascular Institute <sup>2</sup> and Departments of Neurology & Neurological Sciences <sup>3</sup> and Cardiothoracic Surgery <sup>4</sup> , Stanford University
3	Maintenance of Neural Progenitor Cell Stemness in 3D Hydrogels Requires Matrix Remodeling	Christopher M. Madl <sup>1</sup> , Ruby E. Dewi <sup>2</sup> , Cong Dinh <sup>2</sup> , Kyle J. Lampe <sup>2,3</sup> , Duong Nguyen <sup>4</sup> , Annika Enejder <sup>4</sup> , Sarah C. Heilshorn <sup>2</sup> Departments of Bioengineering <sup>1</sup> and Materials Science & Engineering <sup>2</sup> , Stanford University; Department of Chemical Engineering <sup>3</sup> , University of Virginia; Departments of Biology & Biological Engineering and Chemical Biology <sup>4</sup> , Chalmers University of Technology, Sweden
4	Human Bone Marrow-Derived Mesenchymal Stem Cells Delivery Using Biomimetic Cell-Laden Hydrogels	Deepti Rana <sup>1</sup> *, Murugan Ramalingam <sup>1,2</sup> (*corresponding author) 1Centre for Stem Cell Research, A Unit of Institute for Stem Cell Biology and Regenerative Medicine- Bengaluru <sup>1</sup> , Christian Medical College Campus, India; WPI-Advanced Institute for Materials Research <sup>2</sup> , Tohoku University, Japan
5	Engineering Three-Dimensional Microenvironments for Primary Intestinal Organoids	Rebecca DiMarco <sup>1</sup> , James Su <sup>2</sup> , Kelley Yan <sup>3</sup> , Ruby Dewi <sup>2</sup> , Gabriela Bernal <sup>2</sup> , Calvin Kuo <sup>3</sup> , Sarah Heilshorn <sup>2</sup> Departments of Bioengineering <sup>1</sup> , Materials Science & Engineering <sup>2</sup> , and Medicine (Division of Hematology) <sup>3</sup> , Stanford University
6	Reconstruction of Large Segmental Bone Defects in Sheep Tibiae Using Novel Baghdadite Scaffolds as Bone Graft Substitutes	Jiao Jiao Li <sup>1</sup> , Seyed-Iman Roohani-Esfahani <sup>1</sup> , Colin R. Dunstan <sup>1</sup> , Terrence Quach <sup>1</sup> , Roland Steck <sup>2</sup> , Siamak Saifzadeh <sup>2</sup> , Peter Pivonka <sup>3</sup> , Hala Zreiqat <sup>1</sup>

12   Spatial Organization of Multiple Peptide Gradients within a Surface Modification of poly(L-lactic acid) Bioactive Peptide Conjugates for Nerve Regeneration Tube   Tay-hum Lin <sup>1</sup> , Emmanuel Gibbon <sup>1</sup> , Florence Loi <sup>1</sup> , Jacka Lui <sup>2</sup> , Zhenyu Yao <sup>3</sup> , Stuatt B, Godoma <sup>1,2</sup> , Michael B, Morey <sup>1</sup> , Factor University, Or Dentistry, University of Chile- Cells through Early Printitive Ecoderm - Like Cell, Dentitive Ectoderm - Like and Neureschoem Populations L-Proline Regulates Mouse Embryonic Stem Differentiation To Neural Cells     10   Isolation of Undifferentiated iPS Cell Based on Cell Rolling Phenotype in Anthodoy Immobilized Microfluidic Channel     11   Improving Cell Transplantation Therapies for Spinal Cord Injury using Injectable Hydrogels     12   Spatial Organization of Multiple Peptide Gradients within a Single Scaffold to Guide Osteochondral Interface Regeneration Inspectation of Multiple Peptide Gradients within a Single Scaffold to Guide Osteochondral Interface Regeneration Inspectation Tube   Athread Mart <sup>2</sup> , Tetus I Yanaoka <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> , National Cerebral Activity and Mart <sup>2</sup> , Tetus I Yanaoka <sup>1</sup> Department of Materials Science & Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University, Departments of Materials <sup>1</sup> , Antonal Cerebral Activity and Mart <sup>2</sup> , Tetus I Yanaoka <sup>1</sup> Department of Materials Science & Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University, Departments of Materials <sup>1</sup> , Antonal Cerebral Activity and Mart <sup>2</sup> , Tetus I Yanaoka <sup>1</sup> Department of Materials Science & Engineering <sup>1</sup> , Antonal Cerebral Activity and Mart <sup>2</sup> , Tetus I Yanaoka <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> , Antonal Cerebral Activity and Mart <sup>2</sup> , Tetus I Yanaoka <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> and Materials <sup>1</sup> , Anton College Ionion			Biomaterials & Tissue Engineering Research Unit <sup>1</sup> , School of AMME, University of Sydney, Australia; Institute of Health & Biomedical Innovation (IHBI) <sup>2</sup> , Queensland University of Technology, Australia; St Vincent's Department of Surgery <sup>3</sup> , University of Melbourne, Australia
A Novel Growth Factor-Like Role for the Amino Acid L-proline Rachel Shparberg <sup>1,2</sup> , Timothy Mason <sup>1,2</sup> , Michael B.   8 in Driving Neural Lineage Commitment of Embryonic Stem Cells through Early Primitive Ectoderm-Like Cell, Definitive   9 Differentiation to Neural Cells Homan Glover <sup>1</sup> , Holly Holliday <sup>1</sup> , Michael Moris <sup>1</sup> 9 Differentiation to Neural Cells Hanaha Glover <sup>1</sup> , Holly Holliday <sup>1</sup> , Michael Moris <sup>1</sup> 10 Isolation of Undifferentiated iPS Cell Based on Cell Rolling Phenotype in Antibody Immobilized Microfluide Channel Akihisa Otaka <sup>1</sup> , Atsushi Mahara <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> 11 Improving Cell Transplantation Therapies for Spinal Cord Injury using Injectable Hydrogels Akihisa Otaka <sup>1</sup> , Marquard <sup>1,2</sup> , Yaness M. Doulames <sup>2</sup> , Karen Dubbin <sup>1</sup> , James Weiman <sup>2</sup> , Giles W. Plant <sup>2</sup> , Sarah C. Heilshon <sup>1</sup> 12 Spatial Organization of Multiple Peptide Gradients within a Single Scaffold to Guide Ostcochondral Interface Regeneration Morials <sup>2,1</sup> , Amn Solank <sup>2,1</sup> , Molly M. Stevens <sup>2,4</sup> 13 with oligo(D-lactic acid) Naofiber Conduits with oligo(D-lactic acid) Bioactive Peptide Conjugates for Nerve Regeneration Tube Yui Har <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> 14 Viscoclastic Elastin-like Protein – Hyaluronic Acid (ELP – HAI Hydrogels for Organotypic Cultures Stanford University. Jourabe Lou <sup>1</sup> , Check Zhang <sup>2</sup> , Yam Xia <sup>2</sup> , Calvin J. Xuo <sup>2</sup> , Santh C. Heilshom <sup>1</sup> 15 Extracellular Matrix Promote Survival and Phenotype of Huma iPSC-Derived Endothelial C	7	Decreased Osteogenesis in Mesenchymal Stem Cells Derived from the Aged Mouse is Associated with Enhanced NF-KB Activity	Tzu-hua Lin <sup>1</sup> , Emmanuel Gibon <sup>1,4</sup> , Florence Loi <sup>1</sup> , Jukka Pajarinen <sup>1</sup> , Luis A. Córdova <sup>1,3</sup> , Akira Nabeshima <sup>1</sup> , Laura Lu <sup>1</sup> , Zhenyu Yao <sup>1</sup> , Stuart B. Goodman <sup>1,2</sup> Departments of Orthopaedic Surgery <sup>1</sup> and Bioengineering <sup>2</sup> , Stanford University; Department of Oral & Maxillofacial Surgery <sup>3</sup> , Faculty of Dentistry, University of Chile - Conicyt, Chile; Biomecanics & Bone & Joint Biomaterials Laboratory <sup>4</sup> , Paris University, France
L-Proline Regulates Mouse Embryonic Stem Cell Pluripotency Differentiation to Neural CellsHannah Glover <sup>1</sup> , Holly Holliday <sup>1</sup> , Michael Morris <sup>1</sup> Bosch Institute, Discipline of Physiology <sup>1</sup> , School of Medical Sciences, The University of Sydney9Isolation of Undifferentiated iPS Cell Based on Cell Rolling Phenotype in Antibody Immobilized Microfluidic ChannelAklihsa Otaka <sup>1</sup> , Atsushi Mahar <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , National Cerebral & Cardiovascular Center Research Institute, Japan Laura M. Marquardt <sup>12</sup> , Vanessa M. Doulames <sup>2</sup> , Karen Dubbin <sup>1</sup> , Janes Weinam <sup>2</sup> , Giles W. Plan <sup>2</sup> , Sarah C. Heilshon <sup>1</sup> Department of Materials Science & Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University Lesly W. Chow <sup>1–2</sup> , Jennifer L. Puetzer <sup>34</sup> , Hölène Autefage <sup>24</sup> , Anu Solanki <sup>34</sup> , Molly M. Stevens <sup>34</sup> Department of Materials Science and Engineering <sup>1</sup> and Bioengineering Program <sup>2</sup> , Lehigh University; Departments of Materials <sup>2</sup> and Bioongineering <sup>1</sup> , Imperial College London12Spatial Organization of Multiple Peptide Gradients within a single Scaffold to Guide Osteochondral Interface RegenerationSolanki <sup>34</sup> , Molly M. Stevens <sup>34</sup> Department of Biomedical Engineering <sup>1</sup> , Interial College London13with oligo(D-lactic acid) Bioactive Peptide Conjugates for Nerve Regeneration TubeYu-Hsu <sup>1</sup> , Tetsuj Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , Mational Cerebral & Cardiovascular Center Research Institute, Japan Huiyuan Wan <sup>2</sup> , Xingnan L <sup>2</sup> , Junzhe Lou <sup>1</sup> , Chuck Zhan <sup>2</sup> , Yun Xia <sup>2</sup> , Cardiovascular Center Research Institute, Japan Huiyuan Wan <sup>2</sup> , Xingnan L <sup>2</sup> , Junzhe Lou <sup>1</sup> , Chuck Zhan <sup>2</sup> , Yun Xia <sup>3</sup> , Calvin J. Kuo <sup>3</sup> , Sarah C. Heilshon <sup>1</sup> Departments of Homatology <sup>3</sup> , and Chenistory <sup>3</sup> , Stanford University Vara Kai <sup>4</sup> , Cardiovascular Institute	8	A Novel Growth Factor-Like Role for the Amino Acid L-proline in Driving Neural Lineage Commitment of Embryonic Stem Cells through Early Primitive Ectoderm-Like Cell, Definitive Ectoderm-Like and Neurectoderm Populations	Rachel Shparberg <sup>1,2</sup> , Timothy Mason <sup>1,2</sup> , Michael B. Morris <sup>1,2</sup> Bosch Institute <sup>1</sup> and Discipline of Physiology <sup>2</sup> , School of Medical Sciences, University of Sydney, Australia
10Isolation of Undifferentiated iPS Cell Based on Cell Rolling Phenotype in Antibody Immobilized Microfluidic ChannelAkihisa Otaka <sup>1</sup> , Atsushi Mahara <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , National Cerebral & Cardiovascular Center Research Institute, Japan Laura M. Marquardt <sup>1,2</sup> , Vanessa M. Doulames <sup>3</sup> , Karen Dubbin <sup>1</sup> , James Weimann <sup>2</sup> , Giles W. Plant <sup>2</sup> , Sarah C. Heilshorn <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University Department of Materials Science and Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University Department of Materials Science and Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University; Departments of Materials <sup>3</sup> and Bioengineering <sup>1</sup> , Imperial College London13Surface Modification of poly(L-lactic acid) Nanofiber Conduits with oligo(D-lactic acid) Bioactive Peptide Conjugates for Nerve Regeneration TubeYu-1 Hsu <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , Mational Cerebral & Cardiovascular Center Research Institute, Japan Huiyuan Wang <sup>1</sup> , Xingnan Li <sup>2</sup> , Junzhe Lou <sup>1</sup> , Chuck Zhang <sup>2</sup> , Yan Xia <sup>2</sup> , Calvin J. Kuo <sup>2</sup> , Sarah C. Heilshorn <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> , Metional Cerebral & Cardiovascular Center Research Institute, Japan Huiyuan Wang <sup>1</sup> , Xingnan Li <sup>2</sup> , Junzhe Lou <sup>1</sup> , Chuck Zhang <sup>2</sup> , Yan Xia <sup>2</sup> , Calvin J. Kuo <sup>2</sup> , Sarah C. Heilshorn <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> , Metion of Hematology <sup>2</sup> , and Chemistry <sup>3</sup> , Stanford University Young Jung No <sup>3</sup> , Seyed-Imara Roohani-Esfahan <sup>1</sup> , Young Jung No <sup>3</sup> , Seyed-Imar	9	L-Proline Regulates Mouse Embryonic Stem Cell Pluripotency through the mTOR and MAPK Pathways to Initiate Differentiation to Neural Cells	Hannah Glover <sup>1</sup> , Holly Holliday <sup>1</sup> , Michael Morris <sup>1</sup> Bosch Institute, Discipline of Physiology <sup>1</sup> , School of Medical Sciences, The University of Sydney
11Improving Cell Transplantation Therapies for Spinal Cord Injury using Injectable HydrogelsLaura M. Marquardt <sup>1,2</sup> , Vanessa M. Doulames <sup>3</sup> , Karen Dubbin <sup>1</sup> , James Weimann <sup>2</sup> , Giles W. Plant <sup>2</sup> , Sarah C. Heilshorn <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> and Neurosurgy <sup>3</sup> , Stanford University. Departments of Materials Science and Engineering <sup>1</sup> and Bioengineering Program <sup>3</sup> , Lehigh University. Departments of Materials Science and Engineering <sup>1</sup> and Bioengineering Program <sup>3</sup> , Lehigh University. Departments of Materials Science and Engineering <sup>1</sup> and Bioengineering Program <sup>3</sup> , Lehigh University. Departments of Materials Science and Engineering <sup>1</sup> and 	10	Isolation of Undifferentiated iPS Cell Based on Cell Rolling Phenotype in Antibody Immobilized Microfluidic Channel	Akihisa Otaka <sup>1</sup> , Atsushi Mahara <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , National Cerebral & Cardiovascular Center Research Institute, Japan
12Spatial Organization of Multiple Peptide Gradients within a Single Scaffold to Guide Osteochondral Interface RegenerationLesley W. Chow <sup>1,2</sup> , Jennifer L. Puetzer <sup>3,4</sup> , Hélène Autefage <sup>3,4</sup> , Molly M. Stevens <sup>3,4</sup> Department of Materials Science and Engineering <sup>1</sup> and Bioengineering Program <sup>2</sup> , Lehigh University; Departments of Materials <sup>3</sup> and Bioengineering <sup>4</sup> , Imperial College London13Surface Modification of poly(L-lactic acid) Nanofiber Conduits with oligo(D-lactic acid) Bioactive Peptide Conjugates for Nerve Regeneration TubeYu-I Hsu <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , National Cerebral 	11	Improving Cell Transplantation Therapies for Spinal Cord Injury using Injectable Hydrogels	Laura M. Marquardt <sup>1,2</sup> , Vanessa M. Doulames <sup>2</sup> , Karen Dubbin <sup>1</sup> , James Weimann <sup>2</sup> , Giles W. Plant <sup>2</sup> , Sarah C. Heilshorn <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> and Neurosurgery <sup>2</sup> , Stanford University
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14Viscoelastic Elastin-like Protein – Hyaluronic Acid (ELP – HA) Hydrogels for Organotypic CulturesHuiyuan Wang <sup>1</sup> , Xingnan Li <sup>2</sup> , Junzhe Lou <sup>1</sup> , Chuck Zhang <sup>2</sup> , Yan Xia <sup>3</sup> , Calvin J. Kuo <sup>2</sup> , Sarah C. Heilshorn <sup>1</sup> Departments of Materials Science & Engineering <sup>1</sup> , Medicine, (Division of Hematology) <sup>2</sup> , and Chemistry <sup>3</sup> , Stanford University15Extracellular Matrix Promote Survival and Phenotype of Human iPSC-Derived Endothelial Cell in HypoxiaLuqia Hou <sup>1.5</sup> , John Coller <sup>3</sup> , Vanita Natu <sup>3</sup> , Trevor Hastie <sup>4</sup> , Ngan Huang <sup>1,2,5</sup> 16Physicochemical Characterization of a Novel Bioactive Ion- Doped Calcium Silicate Phosphate Injectable Bone CementYoung Jung No <sup>1</sup> , Seyed-Iman Roohani-Esfahani <sup>1</sup> , Yogambha Ramaswamy <sup>1</sup> , Siti Mustaffa <sup>1</sup> , Hala Zreiqat <sup>1</sup> Biomaterials & Tissue Engineering Research Unit <sup>1</sup> , School of AMME, University of Sydney, Australia17Hydrogel Brain Delivery of Clustered VEGF for Post-Stroke Tissue RegenerationLina R. Nih <sup>1,2</sup> , S. Thomas Carmichael <sup>2</sup> , Tatiana Segura <sup>1</sup> Departments of Chemical & Biomolecular Engineering <sup>1</sup> and Neurology <sup>2</sup> , University of California, Los Angeles	13	Surface Modification of poly(L-lactic acid) Nanofiber Conduits with oligo(D-lactic acid) Bioactive Peptide Conjugates for Nerve Regeneration Tube	Yu-I Hsu <sup>1</sup> , Tetsuji Yamaoka <sup>1</sup> Department of Biomedical Engineering <sup>1</sup> , National Cerebral & Cardiovascular Center Research Institute, Japan
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16Physicochemical Characterization of a Novel Bioactive Ion- Doped Calcium Silicate Phosphate Injectable Bone CementYoung Jung No <sup>1</sup> , Seyed-Iman Roohani-Esfahani <sup>1</sup> , Yogambha Ramaswamy <sup>1</sup> , Siti Mustaffa <sup>1</sup> , Hala Zreiqat <sup>1</sup> Biomaterials & Tissue Engineering Research Unit <sup>1</sup> , School of AMME, University of Sydney, Australia Lina R. Nih <sup>1,2</sup> , S. Thomas Carmichael <sup>2</sup> , Tatiana Segura <sup>1</sup> Departments of Chemical & Biomolecular Engineering <sup>1</sup> and Neurology <sup>2</sup> , University of California, Los Angeles	15	Extracellular Matrix Promote Survival and Phenotype of Human iPSC-Derived Endothelial Cell in Hypoxia	Luqia Hou <sup>1,5</sup> , John Coller <sup>3</sup> , Vanita Natu <sup>3</sup> , Trevor Hastie <sup>4</sup> , Ngan Huang <sup>1,2,5</sup> Stanford Cardiovascular Institute <sup>1</sup> , Departments of Cardiothoracic Surgery <sup>2</sup> and Statistics <sup>4</sup> , and Stanford Functional Genomics Facility <sup>3</sup> , Stanford University; Veterans Affairs Palo Alto Health Care System <sup>5</sup> , Palo Alto
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