In-Cell Western Immunofluorescent Assay

The In-Cell Western (ICW) Assay uses immunofluorescent staining for fast, accurate measurement of protein levels in fixed cultured cells. ICW assays are also called cytoblots, cell-based ELISA, In-Cell ELISA (ICE), or cLISA. Find out how to transition from traditional Western blots to In-Cell Western Assays.

Watch www.licor.com/transition

Moderate-throughput assay based on standard immunofluorescent techniques.

Cells are grown in 96- or 384-well microplates, exposed to the desired treatments or conditions, then fixed and permeabilized for immunostaining.

Total fluorescent signal from each well is imaged and ratiometric analysis is performed.

Two fluorescent channels can be used to simultaneously quantify two different protein targets, normalize against a housekeeping protein, or normalize for cell number using a DNA stain.

Normalization increases accuracy by correcting for well-to-well variation in cell number.

“Snapshot” of protein expression or signal transduction status of the cell population in each well.

ICW assays are a useful alternative to Western blotting. Because cell lysates, gels, and blotting are eliminated, many samples or replicates can easily and quickly be processed in parallel. Variability is greatly reduced, enabling enhanced reproducibility and more accurate analysis of changes in protein levels (Aguilar et al. 2010).
**Apoptosis**

*Doxorubicin induces apoptosis in Jurkat cells by mitochondria-dependent and mitochondria-independent mechanisms under normoxic and hypoxic conditions.*

Miguel Mendivil-Perez, Carlos Velez-Pardo, and Marlene Jimenez-Del-Rio


*Tim-3 protects decidual stromal cells from toll-like receptor-mediated apoptosis and inflammatory reactions and promotes Th2 bias at the maternal-fetal interface.*

Song Cun Wang, Chun Mei Cao, Hai Lan Piao, Yan Hong Li, Yu Tao, Xiao Ming Zhang, Di Zhang, Chan Sun, Rui Zhu, Yan Wang, Min Min Yuan, Da Jin Li, and Mei Rong Dua


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4355741/

*Mesenchymal progenitors expressing TRAIL induce apoptosis in sarcomas.*

Giulia Grisendi, Carlotta Spano, Naomi D’souza, Valeria Rasini, Elena Veronesi, Malvina Prapa, Tiziana Petrachi, Serena Piccinno, Filippo Rossignoli, Jorge S. Burns, Stefania Fiorcari, Donatella Granchi, Nicola Baldini, Edwin M. Horwitz, Valentina Guarneri, Pierfranco Conte, Paolo Paolucci, and Massimo Dominici


*Podocyte apoptosis is prevented by blocking the Toll-like receptor pathway.*


**Cancer / Oncology**

*Combined pan-RAF and MEK inhibition overcomes multiple resistance mechanisms to selective RAF inhibitors.*

Steven R. Whittaker, Glenn S. Cowley, Steve Wagner, Flora Luo, David E. Root, and Levi A. Garraway

*Mol. Cancer Ther.*, Sep 2015; DOI: 10.1158/1535-7163.MCT-15-0136-T [Epub ahead of print]


*Mechanisms of growth-promoting and tumor-protecting effects of epithelial nicotinic acetylcholine receptors.*

Alex I. Chernyavsky, Igor B. Shchepotin, and Sergei A. Grando

*Int. Immunopharmacol.*, Jun 2015; DOI: 10.1016/j.intimp.2015.05.033 [Epub ahead of print]


*Efficacy of SERD/SERM Hybrid-CDK4/6 inhibitor combinations in models of endocrine therapy resistant breast cancer.*


*The role of c-Src in the invasion and metastasis of hepatocellular carcinoma cells induced by association of cell surface GRP78 with activated α2M.*

Song Zhao, Hongdan Li, Qingjun Wang, Chang Su, Guan Wang, Huijuan Song, Liang Zhao, Zhidong Luan, and Rongjian Su


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4455704/
Cancer Cell, Mar 2015; 27: 397–408.

Retinoblastoma protein potentiates the innate immune response in hepatocytes: significance for hepatocellular carcinoma.
Jack Hutcheson, Ryan J. Bourgo, Uthra Balaji, Adam Ertel, Agnieszka K. Witkiewicz, and Erik S. Knudsen
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4482134/

KRAS and YAP1 converge to regulate EMT and tumor survival.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4110062/

mTOR inhibition potentiates HSP90 inhibitor activity via cessation of HSP synthesis.
Jaime Acquaviva, Suqin He, Jim Sang, Donald L. Smith, Manuel Sequeira, Chaohua Zhang, Richard C. Bates, and David A. Proia

Differentiation / Proliferation

Centrin 3 is an inhibitor of centrosomal Mps1 and antagonizes Centrin 2 function.
Dwitiya B. Sawant, Shubhra Majumder, Jennifer L. Perkins, Ching-Hui Yang, Patrick A Eyers, and Harold A. Fisk
Mol. Biol. Cell, Sep 2015; DOI: 10.1091/mbc.E14-07-1248 [Epub ahead of print]

TLR4 Activation Promotes the Secretion of IL-8 Which Enhances the Invasion and Proliferation of Endometrial Stromal Cells in an Autocrine Manner via the FAK Signal Pathway.
Xue-zhen Luo, Wen-jie Zhou, Yu Tao, Xiao-qiu Wang, and Da-jin Li

Critical role of the miR-200 family in regulating differentiation and proliferation of neurons.
Ankita Pandey, Parul Singh, Abhishek Jauhari, Tanisha Singh, Farah Khan, Aditya B. Pant, Devendra Parmar, and Sanjay Yadav

Cigarette smoke enhances proliferation and extracellular matrix deposition by human fetal airway smooth muscle.
Elizabeth R. Vogel, Sarah K. VanOosten, Michelle A. Holman, Danielle D. Hohbein, Michael A. Thompson, Robert Vassallo, Hitesh C. Pandya, Y. S. Prakash, Christina M. Pabelick

A selective thyroid hormone β receptor agonist enhances human and rodent oligodendrocyte differentiation.
Emily G. Baxi, Jason T. Schott, Amanda N. Fairchild, Leslie A. Kirby, Rabia Karani, Prech Uapinyoying, Carlos Pardo-Villamizar, Jeffrey R. Rothstein, Dwight E. Bergles, and Peter A. Calabresi
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4107024/
Drug Discovery / Medicinal Chemistry

The novel PAR2 ligand C391 blocks multiple PAR2 signalling pathways in vitro and in vivo.
Scott Boitano, Justin Hoffman, Andrea N Flynn, Marina N. Asiedu, Dipti V. Tillu, Zhenyu Zhang, Cara L. Sherwood, Candy M. Rivas, Kathryn A. DeFea, Josef Vagner, and Theodore J. Price

Discovery of Novel CXCR2 Inhibitors Using Ligand-Based Pharmacophore Models.
Helen Ha, Bikash Debnath, Srinivas Odde, Tim Bensman, Henry Ho, Paul M. Beringer, and Nouri Neamati

Structure-Activity Relationship Studies of Functionally Selective Kappa Opioid Receptor Agonists that Modulate ERK 1/2 Phosphorylation While Preserving G Protein Over β Arrestin2 Signaling Bias.
Kimberly M. Lovell, Kevin J. Frankowski, Edward L. Stahl, Stephen R. Slauson, Euna Yoo, Thomas E. Prisinzano, Jeffrey Aubé, and Laura M. Bohn

Potency enhancement of the κ-opioid receptor antagonist probe ML140 through sulfonamide constraint utilizing a tetrahydroisoquinoline motif.
Kevin J. Frankowski, Stephen R. Slauson, Kimberly M. Lovell, Angela M. Phillips, John M. Streicher, Lei Zhou, David A. Whipple, Frank J. Schoenen, Thomas E. Prisinzano, Laura M. Bohn, and Jeffrey Aubé

Identification of GDC-0810 (ARN-810), an Orally Bioavailable Selective Estrogen Receptor Degrader (SERD) that Demonstrates Robust Activity in Tamoxifen-Resistant Breast Cancer Xenografts.
Andiliy Lai, Mehmet Kahraman, Steven Govek, Johnny Nagasawa, Celine Bonnefous, Jackie Julien, Kärensa Douglas, John S. Streicher, Lei Zhou, Vuong V. Tran, Rene Prudente, Michael J. Moon, James D. Joseph, Beatrice Darimont, Daniel Brigham, Kate Grillot, Richard Heyman, Peter J. Rix, Jeffrey H. Hager, and Nicholas D. Smith

Bis-aryl urea derivatives as potent and selective LIM kinase (Limk) inhibitors.
Yan Yin, Ke Zheng, Nibal Eid, Shannon Howard, Ji-Hak Jeong, Fei Yi, Jia Guo, Chul Min Park, Mathieu Bibian, Weilin Wu, Pamela Hernandez, Ha Jeong Park, Yuntao Wu, Jun-Li Luo, Philip V. LoGrasso, and Yangbo Feng

A High Through-Put Screen for Small Molecules Modulating MCM2 Phosphorylation Identifies Ryuvidine as an Inducer of the DNA Damage Response.
Jennifer FitzGerald, Laura S. Murillo, Gemma O'Brien, Enda O'Connell, Aisling O'Connell, Kevin Wu, Guan-Nan Wang, Michael D. Rainey, Alessandro Natoni, Sandra Healy, Michael O'Dwyer, and Corrado Santocanale
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4047068/
**Fertility**

Interferon-γ differentially modulates the impact of tumor necrosis factor-α on human endometrial stromal cells.
Julia Spratte, Anne Oemus, Marek Zygmunta, and Herbert Fluhr

NOD1 and NOD2 control the invasiveness of trophoblast cells via the MAPK/p38 signaling pathway in human first-trimester pregnancy.

Co-expression of CXCR4 and CXCR7 in human endometrial stromal cells is modulated by steroid hormones.
Wen-Hui Zhou, Xia Wu, Wei-Dong Hu, and Mei-Rong Du
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4440060/

Different expression of NOD2 in decidual stromal cells between normal and unexplained recurrent spontaneous abortion women during first trimester gestation.
Yuanyuan Zhang, Chunfeng Yang, Shuai Fu, Xin Chen, Shining Zhang, Yi-yang Li, Meirong Du, Jianping Zhang
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4313979/

Expression and Functional Characterization of NOD2 in Decidual Stromal Cells Isolated during the First Trimester of Pregnancy.
Yuanyuan Zhang, Hui Chen, Chan Sun, Hua-zhao Wang, Mei-lan Liu, Yi-yang Li, Xiao-lu Nie, Mei-Rong Du, Da-jin Li, and Jian-ping Zhang
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4059701/

**Gene Regulation / Mutation**

A rapid and sensitive high-throughput screening method to identify compounds targeting protein–nucleic acids interactions.
Nicole Alonso, Roboan Guillen, Jeremy W. Chambers, and Fenfei Leng
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4417145/

The Melatonin Agonist Ramelteon Induces Duration-Dependent Clock Gene Expression through cAMP Signaling in Pancreatic INS-1 β-Cells.
Keiji Nishiyama and Keisuke Hirai
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4094524/

Pro32Pro33 Mutations in the Integrin β3 PSI Domain Result in αIIbβ3 Priming and Enhanced Adhesion: Reversal of the Hypercoagulability Phenotype by the Src Inhibitor SKI-606.
Kendra H. Oliver, Tammy Jessen, Emily L. Crawford, Chang Y. Chung, James S. Sutcliffe, and Ana M. Carneiro
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4014669/
**Inflammation / Immunology**

**Anti-inflammatory Effects of Ganoderma lucidum Triterpenoid in Human Crohn’s Disease Associated with Downregulation of NF-κB Signaling.**
Changda Liu, David Dunkin, Joanne Lai, Ying Song, Clare Ceballos, Keith Benkov, and Xiu-Min Li

**Vitamin D attenuates cytokine-induced remodeling in human fetal airway smooth muscle cells.**

**Inhibition of Inflammatory Arthritis Using Fullerene Nanomaterials.**
Anthony L. Dellinger, Pierre Cunin, David Lee, Andrew L. Kung, D. Bradford Brooks, Zhiguo Zhou, Peter A. Nigrovic, and Christopher L. Kepley

**Lipopolysaccharide-Induced Middle Ear Inflammation Disrupts the cochlear Intra-Strial Fluid–Blood Barrier through Down-Regulation of Tight Junction Proteins.**
Jinhui Zhang, Songlin Chen, Zhiqiang Hou, Jing Cai, Mingmin Dong, and Xiaorui Shi

**Astaxanthin prevents TGFβ1-induced pro-fibrogenic gene expression by inhibiting Smad3 activation in hepatic stellate cells.**
Yue Yang, Bohkyung Kim, Young-Ki Park, Sung I. Koo, and Ji-Young Lee

**Berberine and limonin suppress IgE production by human B cells and peripheral blood mononuclear cells from food-allergic patients.**
Nan Yang, Julie Wang, Changda Liu, Ying Song, Shuwei Zhang, Jiachen Zi, Jixun Zhan, Madhan Masilamani, Amanda Cox, Anna Nowak-Wegrzyn, Hugh Sampson, and Xu-Min Li

**Opposite role of CD44-standard and CD44-variant-3 in tubular injury and development of renal fibrosis during chronic obstructive nephropathy.**
Elena Rampanelli, Kasper M A Rouschop, Nike Claessen, Gwendoline J. D. Teske, Steven T. Pals, Jaklien C. Leemans, and Sandrine Florquin

**Azelastine desensitization of transient receptor potential vanilloid 1: a potential mechanism explaining its therapeutic effect in nonallergic rhinitis.**
Umesh Singh, Jonathan A. Bernstein, Lauren Haar, Kristin Luther, and Walter K. Jones

**Anti-Inflammatory Effects of the Nicotinergic Peptides SLURP-1 and SLURP-2 on Human Intestinal Epithelial Cells and Immucocytes.**
Alex I. Chernyavsky, Valentin Galitovskiy, Igor B. Shchepotin, and Sergei A. Grando
Microbiology / Virology / Parasitology / Infectious Diseases

Serotonin Receptor Agonist 5-Nonyloxytryptamine Alters the Kinetics of Reovirus Cell Entry.
Bernardo A. Mainou, Alison W. Ashbrook, Everett Clinton Smith, Daniel C. Dorset, Mark R. Denison, and Terence S. Dermody

Annexin 2 is a host protein binding to classical swine fever virus E2 glycoprotein and promoting viral growth in PK-15 cells.
Zhi Yang, Zixue Shi, Huancheng Guo, Hui Qu, Yan Zhang, and Changchun Tu

Epithelial cell ADAM17 activation by Helicobacter pylori: role of ADAM17 C-terminus and Threonine-735 phosphorylation.
Urszula L. McClurg, Kazuma Danjo, Harry O. King, Gina B. Scott, Philip A. Robinson, and Jean E. Crabtree

The membrane proximal external regions of gp41 from HIV-1 strains HXB2 and JRFL have different sensitivities to alanine mutation.
Hyun Ah Yi, Barbara Diaz-Rohrer, Priyanka Saminathan, and Amy Jacobs

Fungal metabolite myriocin promotes human herpes simplex virus-2 infection.
Jingjing Wang, Xuancheng Guo, Ziyong Yang, Ren-Xiang Tan, Xiaoqing Chen, and Erguang Li

Downregulation of cellular c-Jun N-terminal protein kinase and NF-κB activation by berberine may result in inhibition of herpes simplex virus replication.
Siwei Song, Min Qiu, Ying Chu, Deyan Chen, Xiaohui Wang, Airon Su, and Zhiwei Wu
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4135844/

Apigenin inhibits enterovirus 71 replication through suppressing viral IRES activity and modulating cellular JNK pathway.
Xiaowen Lv, Min Qiu, Deyan Chen, Nan Zheng, Yu Jin, and Zhiwei Wu
http://www.ncbi.nlm.nih.gov/pmc/articles/24971492

An interferon-beta promoter reporter assay for high throughput identification of compounds against multiple RNA viruses.
Fang Guo, Xuesen Zhao, Tina Gill, Yan Zhou, Matthew Campagna, Lijuan Wang, Fei Liu, Pinghu Zhang, Laura DiPaolo, Yanming Du, Xiaodong Xu, Dong Jiang, Lai Wei, Andrea Cucconi, Timothy M Block, Ju-Tao Guo, and Jinhong Chang
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4143146/

The Toxoplasma pseudokinase ROP5 forms complexes with ROP18 and ROP17 kinases that synergize to control acute virulence in mice.
Ronald D. Etheridge, Aditi Alaganan, Keliang Tang, Hua Jane Lou, Benjamin E. Turk, and L. David Sibley
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4086214/
Motility / Invasion

Nanoparticles inhibit cancer cell invasion and enhance antitumor efficiency by targeted drug delivery via cell surface-related GRP78.
Liang Zhao, Hongdan Li, Yijie Shi, Guan Wang, Livwei Liu, Chang Su, and Rongjian Su
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4283987/

The acetylcholine signaling network of corneal epithelium and its role in regulation of random and directional migration of corneal epithelial cells.
Alex I. Chernyavsky, Valentin Galitovskiy, Igor B. Shchepotin, James V. Jester, and Sergei A. Grando
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4580077/

HRG-1 enhances cancer cell invasive potential and couples glucose metabolism to cytosolic/extracellular pH gradient regulation by the vacuolar-H(+) ATPase.
F. M. Fogarty, J. O'Keeffe, A. Zhadanov, D. Papkovsky, V. Aylton, and R. O'Connor
Oncogene, Sep 2014; 33: 4653–4663.

Neuroscience / Neurology

Cannabidiol is a negative allosteric modulator of the type 1 cannabinoid receptor.
R. B. Laprairie, A. M. Bagher, M. E. M. Kelly, and E. M. Denovan-Wright

Histamine induces the production of matrix metalloproteinase-9 in human astrocytic cultures via H1-receptor subtype.
Aarti Patel, Vishnu Vasanthan, Wen Fu, Richard P. Fahlman, David MacTavish, and Jack H. Jhamandas

Chronic baclofen desensitizes GABAB-mediated G-protein activation and stimulates phosphorylation of kinases in mesocorticolimbic rat brain.
Bradley M. T. Keegan, Thomas J. R. Beveridge, Jeffrey J. Pezor, Ruoyu Xiao, Tammy Sexton, Steven R. Childers, and Allyn C. Howlett

Enhancement of the FGFR1 signaling in the FGFR1-5-HT1A heteroreceptor complex in midbrain raphe 5-HT neuron systems. Relevance for neuroplasticity and depression.

Heat shock protein defenses in the neocortex and allocortex of the telencephalon.
Jessica M. Posimo, Justin N. Weinhaus, Amanda M. Gleixner, Matthew T. Broeren, Nicole L. Weiland, Jeffrey L. Brodsky, Peter Wipf, and Rehana K. Leak
Convergence of melatonin and serotonin (5-HT) signaling at MT2/5-HT2C receptor heteromers.

A potential role for cannabinoid receptors in the therapeutic action of fenofibrate.
Richard S. Priestley, Sarah A. Nickolls, Stephen P. H. Alexander, and David A. Kendall

A novel manganese-dependent ATM-p53 signaling pathway is selectively impaired in patient-based neuroprogenitor and murine striatal models of Huntington’s disease.
Andrew M. Tidball, Miles R. Bryan, Michael A. Uhouse, Kevin K. Kumar, Asad A. Aboud, Jack E. Feist, Kevin C. Ess, M. Diana Neely, Michael Aschner, and Aaron B. Bowman

Cannabinoid receptor interacting protein (CRIP1a) attenuates CB1R signaling in neuronal cells.
Lawrence C. Blume, Khalil Eldeeb, Caroline E. Bass, Dana E. Selley, and Allyn C. Howlett

The Aβ peptides-activated calcium-sensing receptor stimulates the production and secretion of vascular endothelial growth factor-A by normoxic adult human cortical astrocytes.
Ilaria Dal Prà, Ubaldo Armato, Franco Chioffi, Raffaella Pacchiana, James F. Whitfield, Balu Chakravarthy, Li Gui, and Anna Chiarini

Activation of adult rat CNS endothelial cells by opioid-induced toll-like receptor 4 (TLR4) signaling induces proinflammatory, biochemical, morphological, and behavioral sequelae.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4250379/

Protein kinase A mediates adenosine A2a receptor modulation of neurotransmitter release via synapsin I phosphorylation in cultured cells from medulla oblongata.
Joao Paulo Pontes Matsumoto, Marina Gomes Almeida, Emerson Augusto Castilho-Martins, Maisa Aparecida Costa, and Debora Rejane Fior-Chadi
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4250379/

Impact of aging on heat shock protein expression in the substantia nigra and striatum of the female rat.
Oxidative Stress / Reactive Oxygen Species

Harmine blocks herpes simplex virus infection through downregulating cellular NF-κB and MAPK pathways induced by oxidative stress.
Deyan Chen, Airong Su, Yuxuan Fu, Xiaohui Wang, Xiaowen Lv, Wentao Xu, Shijie Xu, Huanru Wang, and Zhiwei Wu

The immune receptor Tim-3 mediates activation of PI3 kinase/mTOR and HIF-1 pathways in human myeloid leukaemia cells.
Alexandr Prokhorov, Bernhard F. Gibbs, Marco Bardelli, Laura Rüegg, Elizaveta Fasler-Kan, Luca Varani, and Vadim V. Sumbayev

Curcumin-Induced Heme Oxygenase-1 Expression Prevents H2O2-Induced Cell Death in Wild Type and Heme Oxygenase-2 Knockout Adipose-Derived Mesenchymal Stem Cells
Niels A. J. Cremers, Ditte M. S. Lundvig, Stephanie C. M. van Dalen, Rik F. Schelbergen, Peter L. E. M. van Lent, Walter A. Szarek, Raymond F. Regan, Carine E. Carels, and Frank A. D. T. G. Wagener
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4227200/

Protein Trafficking / Receptor Cycling

WASH and Tsg101/ALIX-dependent diversion of stress-internalized EGFR from the canonical endocytic pathway.
Alejandra Tomas, Simon O. Vaughan, Thomas Burgoyne, Alexander Sorkin, John A. Hartley, Daniel Hochhauser, and Clare E. Futter
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4490399/

TPC1 Has Two Variant Isoforms, and Their Removal Has Different Effects on Endo-Lysosomal Functions Compared to Loss of TPC2.
Margarida Ruas, Kai-Ting Chuang, Lianne C. Davis, Areej Al-Douri, Patricia W. Tynan, Ruth Tunn, Lydia Teboul, Antony Galione, and John Parrington
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4386455/

Huntingtin regulates Ca2+ chemotaxis and K+-facilitated cAMP chemotaxis, in conjunction with the monovalent cation/H+ exchanger Nhe1, in a model developmental system: Insights into its possible role in Huntington’s disease.
Deborah Wessels, Daniel F. Luuche, Amanda Scherer, Spencer Kuhl, Michael A. Myre, and David R. Soil
Regenerative Medicine / Tissue Engineering

Ultrasound Stimulation of Mouse Skin Reverses the Healing Delays in Diabetes and Aging by Activation of Rac1.
James A. Roper, Rosalind C. Williamson, Blandine Bally, Christopher A. M. Cowell, Rebecca Brooks, Phil Stephens, Andrew J. Harrison, and Mark D. Bass

TIPS to manipulate myogenesis: retention of myoblast differentiation capacity using microsphere culture.
N. Parmar and R. M. Day

A Novel Method for Differentiation of Human Mesenchymal Stem Cells into Smooth Muscle-Like Cells on Clinically Deliverable Thermally Induced Phase Separation Microspheres.
Nina Parmar, Raheleh Ahmadi, and Richard M. Day
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4382826/

Identification of biomarkers involved in differential profiling of hypertrophic and keloid scars versus normal skin.
Edna Suarez, Farhatullah Syed, Teresa Alonso-Rasgado, and Ardeshir Bayat

Nanoscale stimulation of osteoblastogenesis from mesenchymal stem cells: nanotopography and nanokicking.
Gabriel D. Pemberton, Peter Childs, Stuart Reid, Habib Nikukar, P. Monica Tsimbouri, Nikolaj Gadegaard, Adam S. G. Curtis, and Matthew J. Dalby

Signal Transduction

Regulation of Latent Membrane Protein 1 Signaling through Interaction with Cytoskeletal Proteins.
Kirsten Holthusen, Pooja Talaty, and David N. Everly Jr.

Molecular mechanisms of synergy of corneal muscarinic and nicotinic acetylcholine receptors in upregulation of E-cadherin expression.
Alexander I. Chernyavsky, Valentin Galitovsky, and Sergei A. Grando
Int. Immunopharmacol., May 2015; DOI: 10.1016/j.intimp.2015.04.036. [Epub ahead of print]

A global microRNA screen identifies regulators of the ErbB receptor signaling network.
Annabell Bischoff, Michaela Bayerlová, Michaela Strotbek, Simone Schmid, Tim Beissbarth, and Monilola A. Olayiye
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4314810/

The inhibin/activin signalling pathway in human gonadal and adrenal cancers.
Francesco Elia Mannio, Gail Risbridger, and Elspeth Gold
**Toxicology**

Molecular Mechanism of Switching of TrkA/p75NTR Signaling in Monocrotophos Induced Neurotoxicity.
Vivek Kumar, Amit Kumar Gupta, Rajendra Kumar Shukla, Vinay Kumar Tripathi, Sadaf Jahan, Ankita Pandey, Akriti Srivastava, Megha Agrawal, Sanjay Yadav, Vinay Kumar Khanna, and Aditya Bhushan Pant
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4570211/

Use of alternative assays to identify and prioritize organophosphorus flame retardants for potential developmental and neurotoxicity.

The impact of caffeine on connexin expression in the embryonic chick cardiomyocyte micromass culture system.
Bhavesh K. Ahir and Margaret K. Pratten

Bioenergetic mechanisms in astrocytes may contribute to amyloid plaque deposition and toxicity.
Wen Fu, Diya Shi, David Westaway, and Jack H. Jhamandas

Quantitative determination of α(2B)-adrenoceptor-evoked myosin light chain phosphorylation in vascular smooth muscle cells.
Susann Björk, Anna Huhtinen, Anne Vuorenpää, and Mika Scheinin

PVP formulated fullerene (C60) increases Rho-kinase dependent vascular tissue contractility in pregnant Sprague Dawley rats.
Achini K. Vidanapathirana, Leslie C. Thompson, Erin. E. Mann, Jillian T. Odom, Nathan A. Holland, Susan J. Sumner, Li Han, Anita H. Lewin, Timothy R. Fennell, Jared M. Brown, and Christopher J. Wingard
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4312756/
**On-Cell Western**

**Decidual natural killer cells regulate vessel stability: implications for impaired spiral artery remodeling.**
Rupsha Fraser, Guy St. J. Whitley, Baskaran Thilaganathan, and Judith E. Cartwright
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4502446/

**Intrinsic relative activities of κ opioid agonists in activating Gα proteins and internalizing receptor: Differences between human and mouse receptors.**
Kelly M. DiMattio, Frederick J. Ehlert, and Lee-Yuan Liu-Chen

**Regulation of β2-adrenergic receptor cell surface expression by interaction with cystic fibrosis transmembrane conductance regulator-associated ligand (CAL).**
Longyan Yang, Junfang Zheng, Ying Xiong, Ran Meng, Qian Ma, Hua Liu, Hui Shen, Shuai Zheng, Songlin Wang, and Junqi He

**Cell surface levels of endothelial ICAM-1 influence the transcellular or paracellular T-cell diapedesis across the blood-brain barrier.**
Michael Abadier, Neda Haghayegh Jahromi, Ludmila Cardoso Alves, Rémy Boscacci, Dietmar Vestweber, Scott Barnum, Urban Deutsch, Britta Engelhardt, and Ruth Lyck

**Pro-Coagulant Endothelial Dysfunction Results from EHEC Shiga Toxins and Host Damage-Associated Molecular Patterns.**
Chad L. Mayer, Caitlin S. L. Parello, Benjamin C. Lee, Kiyoshi Itagaki, Shinichiro Kurosawa, and Deborah J. Stearns-Kurosawa
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4387861/

**A direct role for ATP1A1 in unconventional secretion of fibroblast growth factor 2.**
Sonja Zacherl, Giuseppe La Venuta, Hans-Michael Müller, Sabine Wegehingel, Eleni Dimou, Peter Sehr, Joe D. Lewis, Holger Erfle, Rainer Pepperkok, and Walter Nickel

**Restoration of NBD1 thermal stability is necessary and sufficient to correct ΔF508 CFTR folding and assembly.**
Lihua He, Andrei A. Aleksandrov, Jianli An, Lijing Cui, Zhengrong Yang, Christie G. Brouillette, and John R. Riordan

**The glucuronyltransferase B4GAT1 is required for initiation of LARGE-mediated α-dystroglycan functional glycosylation.**
Tobias Willer, Kei-ichiro Inamori, David Venzke, Corinne Harvey, Greg Morgensen, Yuji Hara, Daniel Beltrán Valero de Bernabé, Liping Yu, Kevin M Wright, and Kevin P Campbell
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4227050/

**Holo-APP and G-protein-mediated signaling are required for sAPPα-induced activation of the Akt survival pathway.**
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4454324/
Lipoprotein CD0873 is a novel adhesin of Clostridium difficile.
Andrea Kovacs-Simon, Rosanna Leuzzi, Magdalena Kasendra, Nigel Minton, Richard W. Titball, and Stephen L. Michell

Clostridium perfringens epsilon toxin mutant Y30A-Y196A as a recombinant vaccine candidate against enterotoxemia.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4022833/

Cell Proliferation Assay
Agonistic aptamer to the insulin receptor leads to biased signaling and functional selectivity through allosteric modulation.
Na-Oh Yunn, Ara Koh, Seungmin Han, Jong Hun Lim, Sehoon Park, Jiyoun Lee, Eui Kim, Sung Key Jang, Per-Olof Berggren, and Sung Ho Ryu

The DIONESUS algorithm provides scalable and accurate reconstruction of dynamic phosphoproteomic networks to reveal new drug targets.
Mark F. Ciaccio, Vincent C. Chen, Richard B. Jones, and Neda Bagheri

HSP105 recruits protein phosphatase 2A to dephosphorylate β-catenin.
Nancy Yu, Michael Kakunda, Victoria Pham, Jennie R. Lill, Pan Du, Matthew Wongchenko, Yibing Yan, Ron Firestein, and XiaoDong Huang
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4372692/

Measurement of PIP3 levels reveals an unexpected role for p110β in early adaptive responses to p110α-specific inhibitors in luminal breast cancer.
Carlotta Costa, Hiromichi Ebi, Miriam Martini, Sean A. Beausoleil, Anthony C. Faber, Charles T. Jakubik, Alan Huang, Youzhen Wang, Madhuri Nishtala, Ben Hall, Klara Rikova, Jean Zhao, Emilio Hirsch, Cyril H. Benes, and Jeffrey A. Engelman
Cancer Cell, Jan 2015; 27: 97–108.

Registered report: Widespread potential for growth factor-driven resistance to anticancer kinase inhibitors.
Edward Greenfield, Erin Griner, and Reproducibility Project: Cancer Biology
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4270159/

Signaling of the p21-activated kinase (PAK1) coordinates insulin-stimulated actin remodeling and glucose uptake in skeletal muscle cells.
Ragadeepthi Tunduguru, Tim T. Chiu, Latha Ramalingam, Jeffrey S. Elmendorf, Amira Klip, and Debbie C. Thurmond
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4418524/

Chromium Enhances Insulin Responsiveness via AMPK.
Nolan J. Hoffman, Brent A. Penque, Kirk M. Habegger, Whitney Sealls, Lixuan Tackett, and Jeffrey S. Elmendorf
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4030743/