

# The xCELLigence System

## Relevant Data, Remarkable Publications

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### Cell Proliferation

**Dynamic monitoring of cell adhesion and spreading on microelectronic sensor arrays.**

Atienza JM, Zhu J, Wang X, Xu X, Abassi YA. J Biomol Screen. 2005 Dec; 10(8):795-805. Epub 2005 Oct 18.

**Live cell quality control and utility of real-time cell electronic sensing for assay development.**

Kirstein SL, Atienza JM, Xi B, Zhu J, Yu N, Wang X, Xu X, Abassi YA. Assay Drug Dev Technol. 2006 Oct; 4(5):545-53.

**A functional screen identifies miR-34a as a candidate neuroblastoma tumor suppressor gene.**

Cole KA, Attiyeh EF, Mosse YP, La Guaglia MJ, Diskin SJ, Brodeur GM, Mar JM. Mol Cancer Res 2008 May; 6(5): 735-42.

**Down-regulation of hepatoma-derived growth factor inhibits anchorage-independent growth and invasion of non-small cell lung cancer cells.**

Zhang J, Ren H, Yuan P, Lang W, Zhang L, Mao L. Cancer Res 2006 Jan; 66(1): 18-23.

**(Delta)DNMT3B variants regulate DNA methylation in a promoter-specific manner.**

Wang J, Bhutani M, Pathak AK, Lang W, Ren H, Jelinek J, He R, Shen L, Issa J-P, Mao L. Cancer Res 2007 Nov; 67(22): 10647-52.

**IL-20 is an arteriogenic cytokine that remodels collateral networks and improves functions of ischemic hind limbs.**

Tritsaris K, Myren M, Ditlev SB, Hubschmann MV, van der Blom I, Jon Hansen A, Olsen UB, Cao R, Zhang J, Jia T, Wahlberg E, Dissing S, Cao Y. PNAS 2007 Sep; 104(39): 15364-69.

**Breast carcinoma-associated fibroblasts and their counterparts display neoplastic-specific changes.**

Hawsawi NM, Ghebeh H, Hendrayani S-F, Tulbah A, Al-Eid M, Al-Tweigeri T, Ajarim D, Alajja A, Dermime S, Aboussekhra A. Cancer Res 2008 Apr; 68(8): 2717-25.

**Astragaloside IV improved barrier dysfunction induced by acute high glucose in human umbilical vein endothelial cells.**

Li H-B, Ge Y-K, Zhang L, Zheng X-X. Life Sciences 2006; 79: 1186-1193.

**Role of Gab2 in mammary tumorigenesis and metastasis.**

Ke Y, Wu D, Princen F, Nguyen T, Pang Y, Lesperance J, Muller WJ, ROshima RG, Feng G-S. Oncogene 2007; 26: 4951-4960.

**An orally available small-molecule inhibitor of c-Met, PF-2341066, exhibits cytoreductive antitumor efficacy through antiproliferative and antiangiogenic mechanisms.**

Zou HY, Li Q, Lee JH, Arango ME, McDonnell SR, Yamazaki S, Koudriakova TB, Alton G, Cui JJ, Kung P-P, Nambu MD, Los G, Bender SL, Mroczkowski B, Christensen JG. Cancer Res 2007 May; 67: (9): 4408-17.

**Deletion of Shp2 in the brain leads to defective proliferation and differentiation in neural stem cells and early postnatal lethality.**

Ke Y, Zhang EE, Hagihara K, Wu D, Pang Y, Klein R, Curran T, Ranscht B, Feng G-S. Molecular and Cellular Biology 2007 Oct.; 27 (19): 6706-6717.

**Identification of ALK as a major familial neuroblastoma predisposition gene.**

Mossé, YP, Laudenslager M, Longo L, Cole KA, Wood A, Attiyeh EF, Laquaglia MJ, Sennett R, Lynch JE, Perri P, Laureys G, Speleman F, Kim C, Hou C, Hakonarson H, Torkamani A, Schork NJ, Brodeur GM, Tonini GP, Rappaport E, Devoto M, Maris JM. Nature advance online publication 2008, August 24; doi: 10.1038/nature07261.

### Receptor Activity

**Label-free and real-time cell-based kinase assay for screening selective and potent receptor tyrosine kinase inhibitors using microelectronic sensor array.**

Atienza JM, Yu N, Wang X, Xu X, Abassi YA. J Biomol Screen. 2006 Sep; 11(6):634-43. Epub 2006 Jul 20.

**Angiopoietin-4 inhibits angiogenesis and reduces interstitial fluid pressure.**

Olsen MWB, Ley CD, Junker N, Hansen AJ, Lund EL, Kristjansen PEG. Neoplasia. 2006 May; 8(5): 364-372.

**Real-time monitoring of morphological changes in living cells by electronic cell sensor arrays: an approach to study G-protein coupled receptors.**

Yu N, Atienza JM, Bernard J, Blanc S, Zhu J, Wang X, Xu X, Abassi YA. Anal Chem. 2006 Jan 1; 78(1): 35-43.

**Label-free, real-time monitoring of IgE-mediated mast cell activation on microelectronic cell sensor arrays.**

Abassi YA, Jackson JA, Zhu J, O'Connell J, Wang X, Xu X. J Immunol Methods. 2004 Sep; 292(1-2): 195-205.

**Yeast-derived beta-glucan augments the therapeutic efficacy mediated by anti-vascular endothelial growth factor monoclonal antibody in human carcinoma xenograft models.**

Salvador C, Li B, Hansen R, Cramer DE, Kong M, Yan J. Clin Cancer Res. 2008 Feb 15; 14(4): 1239-47.

**Inactivation of glycogen synthase kinase-3beta contributes to brain-derived neurotrophic factor/TrkB-induced resistance to chemotherapy in neuroblastoma cells.**

Li Z, Tan F, Thiele CJ. Mol Cancer Ther. 2007 Dec; 6: 3113 - 21.

**A human bone morphogenetic protein antagonist is down-regulated in renal cancer.**

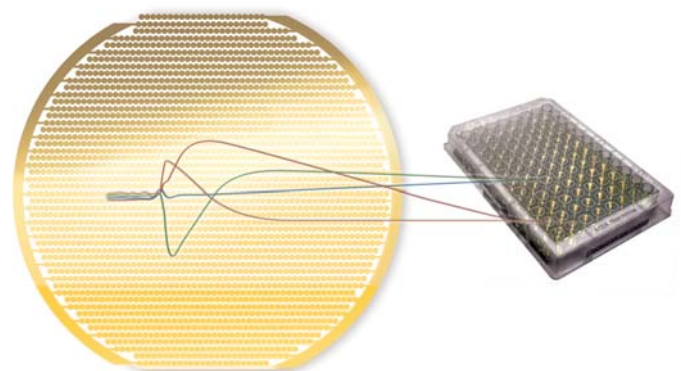
Blish KR, Wang W, Willingham MC, Du W, Birse CE, Krishnan SR, Brown JC, Hawkins GA, Julian Garvin AJ, D'Agostino RB, Torti FMi, Torti SV. Molecular Biology of the Cell, 2008 Feb; 19: 457-464.

**Prevalence and functional consequence of PHOX2B mutations in neuroblastoma.**

Raabe EH, Laudenslager M, Winter C, Wasserman N, Cole K, LaQuaglia M, Maris DJ, Mosse YP, Maris JM. Oncogene 2008; 27: 469-476.

**TLR7 agonist 852A inhibition of tumor cell proliferation is dependent on plasmacytoid dendritic cells and type I IFN.**

Inglefield JR, Dumitru CD, Alkan SS, Gibson SJ, Lipson KE, Tomai MA, Larson CJ, Vasilakos JP. Journal of Interferon & Cytokine Research 2008; 28: 253-263.



## Cytotoxicity and Cell Death

### Potent siRNA inhibitors of ribonucleotide reductase subunit RRM2 reduce cell proliferation in vitro and in vivo.

Heidel JD, Liu JY, Yen Y, Zhou B, Heale BS, Rossi JJ, Bartlett DW, Davis ME. Clin Cancer Res. 2007 April; 13(7): 2207-15.

### Dynamic detection of natural killer cell-mediated cytotoxicity and cell adhesion by electrical impedance measurements.

JGlamann J, Hansen AJ. Assay Drug Dev Technol. 2006 Oct; 4(5): 555-63.

### Synthesis and anti-tumor evaluation of new trisulfide derivatives.

An H, Zhu J, Wang X, Xu X. Bioorg Med Chem Lett. 2006 Sep 15;16(18): 4826-9. Epub 2006 Jul 7.

### Microelectronic cell sensor assay for detection of cytotoxicity and prediction of acute toxicity.

Xing JZ, Zhu L, Gabos S, Xie L. Toxicol In Vitro. 2006 Sep; 20(6): 995-1004. Epub 2006 Feb 14.

### Dynamic and label-free monitoring of natural killer cell cytotoxic activity using electronic cell sensor arrays.

Zhu J, Wang X, Xu X, Abassi YA. J Immunol Methods. 2006 Feb 20; 309(1-2):25-33. Epub 2006 Jan 4.

### Yeast beta-glucan amplifies phagocyte killing of iC3b-opsonized tumor cells via complement receptor 3-Syk-phosphatidylinositol 3-kinase pathway.

Li B, Allendorf DJ, Hansen R, Marroquin J, Ding C, Cramer DE, Yan J. The Journal of Immunology.2006 Aug 1; 177(3):1661-9.

### Dynamic monitoring of cytotoxicity on microelectronic sensors.

Xing JZ, Zhu L, Jackson JA, Gabos S, Sun XJ, Wang XB, Xu X. Chem Res Toxicol. 2005 Feb; 18(2): 154-61.

### The ribonucleotide reductase subunit M2B subcellular localization and functional importance for DNA replication in physiological growth of KB cells.

Liu X, Zhou B, Xue L, Shih J, Tye K, Qi C, Yen Y. Biochem Pharm. 2005; 70: 1288-1297.

### Application of real-time cell electronic sensing (RT-CES) technology to cell-based assays.

Solly K, Wang X, Xu X, Strulovici B, Zheng W. Assay Drug Dev Technol. 2004 Aug;2(4): 363-72.

### Deletion of Shp2 in the brain leads to defective proliferation and differentiation in neural stem cells and early postnatal lethality.

Ke Y, Zhang E, Hagihara K, Wu D, Pang Y, Klein R, Curran T, Ranscht B, Feng G. Mol. Cell. Biol. doi: 10.1128/MCB.01225-07.

### Effects of promyelocytic leukemia zinc finger protein on the proliferation of cultured human corneal endothelial cells.

Joko T, Nanba D, Shiba F, Miyata K, Shiraishi A, Ohashi Y, Higashiyama S. Molecular Vision. 2007; 13:649-58.

### Combined yeast $\beta$ -glucan and antitumor monoclonal antibody therapy requires C5a-mediated neutrophil chemotaxis via regulation of decay-accelerating factor CD55.

Li B, Allendorf DJ, Hansen R, Marroquin J, Cramer DE, Harris CL, Yan J. Cancer Research. 2007 Aug 1; 67: (15).

### Compound cytotoxicity profiling using quantitative high-throughput screening.

Xia M, Huang R, Witt KL, Southall N, Fostel J, Cho MH, Jadhav A, Smith CS, Inglesse J, Portier CJ, Tice RR, Austin CP. Environmental Health Perspectives. 2007 Nov 22. doi: 10.1289/ehp.10727.

### Ectopic expression of methionine aminopeptidase-2 causes cell transformation and stimulates proliferation.

Tucker LA, Zhang Q, Sheppard GS, Lou P, Jian F, McKeegan E, Lesniewski R, Davidsen SK, Bell RL, Wang J. Cancer Research. 2008 GPRD, Abbott Laboratories, Abbott Park, IL, USA. Oncogene (2008), 1-10.

### A selective phosphatase of regenerating liver phosphatase inhibitor suppresses tumor cell anchorage-independent growth by a novel mechanism involving p130Cas cleavage.

Daouti S, Li W-H, Qian H, Huang K-S, Holmgren J, Levin W, Reik L, McGady DL, Gillespie P, Perrotta A, Bian H, Reidhaar-Olson JF, Bliss SA, Olivier AR, Sergi JA, Fry D, Danho W, Ritland S, Fotouhi N, Heimbrook D, Niu H. Cancer Res 2008 Feb; 68(4): 1162-69.

### Cell-electronic sensing of particle-induced cellular responses.

Huang L, Xie L, Boyd JM, Li X-F. Analyst 2008 Feb; 133: 643-648.

### A cell-microelectronic sensing technique for profiling cytotoxicity of chemicals.

Boyd JM, Huang L, Xie L, Moe B, Gabos S, Li X-F. Analytica Chimica Acta 2008 Apr; 615: 80-87.

### Thrombospondin 1 promotes tumor macrophage recruitment and enhances tumor cell cytotoxicity of differentiated U937 cells.

Martin-Manso G, Galli S, Ridnour LA, Tsokos M, Wink DA, Roberts DD. Cancer Res 2008 Sep; 68: (17): 1-10.

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