

Cell Counting Kit-8 (CCK-8试剂盒)

产品编号	产品名称	包装
C0039	Cell Counting Kit-8 (CCK-8试剂盒)	2500次

产品简介:

- Cell Counting Kit-8, 简称CCK-8试剂盒或CCK8试剂盒, 是一种基于WST-8而广泛应用于细胞增殖和细胞毒性的快速、高灵敏度检测的试剂盒。
- WST-8是一种类似于MTT的化合物, 在电子耦合试剂存在的情况下, 可以被线粒体内的一些脱氢酶还原生成橙黄色的formazan (参考图1)。细胞增殖越多越快, 则颜色越深; 细胞毒性越大, 则颜色越浅。对于同样的细胞, 颜色的深浅和细胞数目呈线性关系。

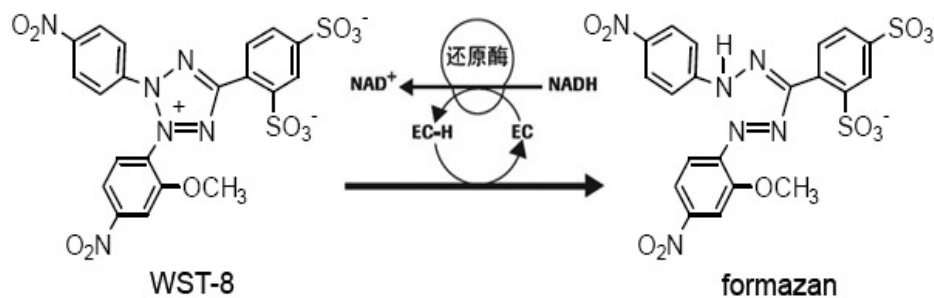


图1. WST-8检测原理图 (EC=electron coupling reagent, 即电子耦合试剂)

- WST-8是MTT的一种升级替代产品, 和MTT或其它MTT类似产品如XTT、MTS等相比有明显的优点。首先, MTT被线粒体内的一些脱氢酶还原生成的formazan不是水溶性的, 需要有特定的溶解液来溶解; 而WST-8和XTT、MTS产生的formazan都是水溶性的, 可以省去后续的溶解步骤。其次, WST-8产生的formazan比XTT和MTS产生的formazan更易溶解。再次, WST-8比XTT和MTS更加稳定, 使实验结果更加稳定。另外, WST-8和MTT、XTT等相比线性范围更宽, 灵敏度更高。
- WST-8和WST-1相比, 检测灵敏度更高, 更易溶解, 并且更加稳定。
- 本试剂盒可以用于细胞因子等诱导的细胞增殖检测, 也可以用于抗癌药物等对细胞有毒试剂诱导的细胞毒性检测, 或一些药物诱导的细胞生长抑制检测。
- 本试剂盒检测非常便捷。试剂盒仅一管已经配制好的含有WST-8的CCK-8溶液, 无须再进行任何配制等操作。无须使用同位素, 所有的检测步骤仅在同一块96孔板内完成。不必洗涤细胞, 不必收集细胞, 也不必采用额外的步骤去溶解formazan。可以用于大批量样品的检测。
- 酚红和血清对本试剂盒的测定无明显影响。
- WST-8对细胞无明显毒性。加入CCK-8溶液显色后, 可以在不同时间反复用酶标仪读板, 使检测时间更加灵活, 便于找到最佳测定时间。
- 碧云天各种细胞增殖和细胞毒性检测试剂盒的比较和选择, 请参考<http://www.beyotime.com/support/cell-proliferation.htm>。
- 本试剂盒可以测定2500个样品。

包装清单:

产品编号	产品名称	包装
C0039	CCK-8溶液	25ml
—	说明书	1份

保存条件:

4°C避光保存一年有效, -20°C避光保存两年有效。

注意事项:

- 由于使用96孔板进行检测, 如果细胞培养时间较长, 一定要注意蒸发问题。一方面, 由于96孔板周围一圈最容易蒸发, 可以采取弃用周围一圈的办法, 改加相同量的PBS、水或培养液; 另一方面, 可以把96孔板置于靠近培养箱内水源的地方, 以缓解蒸发。
- 本试剂盒的检测依赖于脱氢酶催化的反应, 所以还原剂(例如一些抗氧化剂)会干扰检测, 如果待检测体系中存在较多的还原剂, 需设法去除。

- 用酶标仪检测前需确保每个孔内没有气泡，否则会干扰测定。
- 本产品仅限于专业人员的科学研究用，不得用于临床诊断或治疗，不得用于食品或药品，不得存放于普通住宅内。
- 为了您的安全和健康，请穿实验服并戴一次性手套操作。

使用说明：

- 通常细胞增殖实验每孔加入100微升2000个细胞，细胞毒性实验每孔加入100微升5000个细胞(具体每孔所用的细胞的数目，需根据细胞的大小、细胞增殖速度的快慢等因素决定)。按照实验需要，进行培养并给予0-10微升特定的药物刺激。
- 每孔加入10微升CCK-8溶液。如果起始的培养体积为200微升，则需加入20微升CCK-8溶液，其它情况以此类推。可以用加了相应量细胞培养液和CCK-8溶液但没有加入细胞的孔作为空白对照。如果担心所使用的药物会干扰检测，需设置加了相应量细胞培养液、药物和CCK-8溶液但没有加入细胞的孔作为空白对照。
- 在细胞培养箱内继续孵育0.5-4小时，对于大多数情况孵育1小时就可以了。时间的长短根据细胞的类型和细胞的密度等实验情况而定，初次实验时可以在0.5、1、2和4小时后分别用酶标仪检测，然后选取吸光度范围比较适宜的一个时间点用于后续实验。
- 在450nm测定吸光度。如无450nm滤光片，可以使用420-480nm的滤光片。可以使用大于600nm的波长，例如650nm，作为参考波长进行双波长测定。
- 将不同数量的HeLa细胞按照每孔100微升培养液接种到96孔板中，培养至细胞贴壁充分后，每孔加入10微升的CCK-8溶液孵育2小时后测定A450的检测效果图参考图2。检测效果仅供参考，实测数据会因检测仪器等的不同而存在差异。

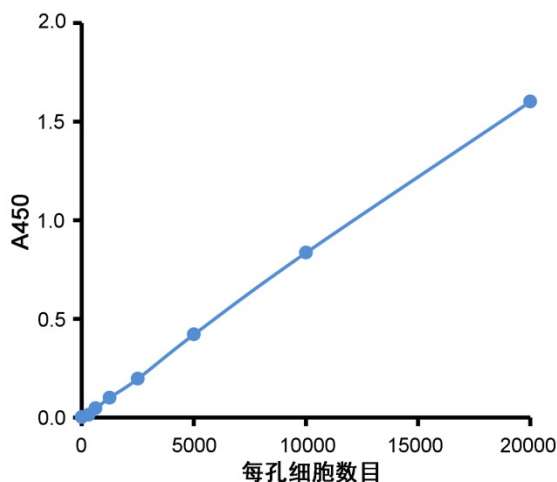


图2. CCK-8试剂盒测定不同数量HeLa细胞的检测效果图。实测数据会因检测仪器等的不同而存在差异，图中数据仅供参考。

常见问题：

1. CCK-8溶液对细胞的毒性大小如何？

CCK-8溶液对细胞的毒性非常低，通常观察不到细胞毒性。细胞在CCK-8法检测后仍然可以正常生长，并可以用于其它的细胞实验。但为了避免CCK-8溶液可能带来的对于后续检测的影响，除非该细胞极难获得，否则不推荐把CCK-8溶液孵育过的细胞用于其它实验。

2. 如果吸光度值太低，可以采取什么办法？

- 适当增加细胞数量。
- 延长加入CCK-8溶液后的孵育时间。

相关产品：

产品编号	产品名称	包装
C0009	MTT细胞增殖及细胞毒性检测试剂盒	500次
C0035	WST-1细胞增殖及细胞毒性检测试剂盒	100次
C0036	WST-1细胞增殖及细胞毒性检测试剂盒	500次
C0037	Cell Counting Kit-8 (CCK-8试剂盒)	100次
C0038	Cell Counting Kit-8 (CCK-8试剂盒)	500次
C0039	Cell Counting Kit-8 (CCK-8试剂盒)	2500次
C0040	Cell Counting Kit-8 (CCK-8试剂盒)	10000次
C0041	Enhanced Cell Counting Kit-8 (增强型CCK-8试剂盒)	100次
C0042	Enhanced Cell Counting Kit-8 (增强型CCK-8试剂盒)	500次
C0043	Enhanced Cell Counting Kit-8 (增强型CCK-8试剂盒)	2500次
C0046	Enhanced Cell Counting Kit-8 (增强型CCK-8试剂盒)	10000次

使用本产品的文献:

- Zhu HL, Shen W, Chen ZY. Apoptosis of hepatic stellate cells induced by sulfasalazine. *Acta academiae medicinae militaris tertiae*. 2005 Jan;128(1):108-20.
- Hou G, Xue L, Lu Z, Fan T, Tian F, Xue Y. An activated mTOR/p70S6K signaling pathway in esophageal squamous cell carcinoma cell lines and inhibition of the pathway by rapamycin and siRNA against mTOR. *Cancer Lett*. 2007 Aug 18;253(2):236-48.
- Ye CL, Jin YL, Zhou GX, Qin L. Effects of EGB761 on the antioxidant and cell apoptosis induced by H₂O₂ in RIN2m beta cells. *Zhong Yao Cai*. 2007 Apr;30(4):424-8.
- Yang M, Zhou H. Grass carp transforming growth factor-beta 1 (TGF-beta 1): molecular cloning, tissue distribution and immunobiological activity in teleost peripheral blood lymphocytes. *Mol Immunol*. 2008 Mar;45(6):1792-8.
- Zhou JR, Xu Z, Jiang CL. Neuropeptide Y promotes TGF-beta1 production in RAW264.7 cells by activating PI3K pathway via Y1 receptor. *Neurosci Bull*. 2008 Jun;24(3):155-9.
- Li XT, Zhang Y, Chen GQ. Nanofibrous polyhydroxyalkanoate matrices as cell growth supporting materials. *Biomaterials*. 2008 Sep;29(27):3720-8.
- Cheng ST, Chen ZF, Chen GQ. The expression of cross-linked elastin by rabbit blood vessel smooth muscle cells cultured in polyhydroxyalkanoate scaffolds. *Biomaterials*. 2008 Nov;29(31):4187-94.
- Lu J, Yue BH, Wang CM, Bai ST, Sheng GY. Efficacy of RNAi-induced down-regulation of wild-type FLT3 on NF-kB pathway in THP-1 cell line. *Life Science Journal*. 2008; 5(2):15-20.
- Pan J, Li G, Chen Z, Chen X, Zhu W, Xu K. Alternative block polyurethanes based on poly(3-hydroxybutyrate-co-4-hydroxybutyrate) and poly(ethylene glycol). *Biomaterials*. 2009 Jun;30(16):2975-84.
- Dai ZW, Zou XH, Chen GQ. Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) as an injectable implant system for prevention of post-surgical tissue adhesion. *Biomaterials*. 2009 Jun;30(17):3075-83.
- Su X, Zheng X, Ni J. Lanthanum citrate induces anoikis of HeLa cells. *Cancer Lett*. 2009 Nov 28;285(2):200-9.
- Wang H, Kwok DT, Wang W, Wu Z, Tong L, Zhang Y, Chu PK. Osteoblast behavior on polytetrafluoroethylene modified by long pulse, high frequency oxygen plasma immersion ion implantation. *Biomaterials*. 2010 Jan;31(3):413-9.
- Zhang HY, Sun H. Up-regulation of Foxp3 inhibits cell proliferation, migration and invasion in epithelial ovarian cancer. *Cancer Lett*. 2010 Jan 1;287(1):91-7.
- Chen S, Chen Y, Hu C, Jing H, Cao Y, Liu X. Association of clinicopathological features with UbcH10 expression in colorectal cancer. *J Cancer Res Clin Oncol*. 2010 Mar;136(3):419-26.
- Wang L, Xue L, Yan H, Li J, Lu Y. Effects of ROCK inhibitor, Y-27632, on adhesion and mobility in esophageal squamous cell cancer cells. *Mol Biol Rep*. 2010 Apr;37(4):1971-7.
- Wang P, Xu CS, Xu J, Wang X, Leung AW. Hypocrellin B enhances ultrasound-induced cell death of nasopharyngeal carcinoma cells. *Ultrasound Med Biol*. 2010;36(2):336-42.
- Duan W, Li X, Shi J, Guo Y, Li Z, Li C. Mutant TAR DNA-binding protein-43 induces oxidative injury in motor neuron-like cell. *Neuroscience*. 2010;169(4):1621-9.
- Wang L, Wang ZH, Shen CY, You ML, Xiao JF, Chen GQ. Differentiation of human bone marrow mesenchymal stem cells grown in terpolyesters of 3-hydroxyalkanoates scaffolds into nerve cells. *Biomaterials*. 2010 Feb;36(2):336-42.
- Xu M, Qiu J, Lin Y, Shi X, Chen H, Xiao T. Surface biocompatible modification of polypropylene by entrapment of polypropylene-block-poly(vinylpyrrolidone). *Colloids Surf B Biointerfaces*. 2010 Sep 15;169(4):1621-9.
- Yao QL, Zhang MF, Wang CH, Hu F, Lan AP, Guo RX, Chen PX, Feng JQ. Protective effects of early hypoxic post-conditioning in cultured cortical neurons. *Brain Inj*. 2010 Mar;31(7):1691-8.
- Liu X, Lv Y, Xie Y, Hong Q, Cai G, Zhang S, Liu W, Chen X. Change of MAX interactor 1 expression in an anti-Thy1 nephritis model and its effect on mesangial cell proliferation. *Cell Physiol Biochem*. 2010 Oct 15;80(2):200-5.
- Gao T, Wang F, Li S, Luo X, Zhang K. Manganese regulates manganese-containing superoxide dismutase (MnSOD) expression in the primary broiler myocardial cells. *Biol Trace Elem Res*. 2011 Dec;144(1-3):695-704.
- Jin H, Ma S, Song B, Ma L, Pi J, Chen X, Chen Y, Cai J. Liposome impaired the adhesion and spreading of HEK293 cells: an AFM study. *Scanning*. 2011 Nov-Dec;33(6):413-8.
- Zhou C, Yang B, Tian Y, Jiao H, Zheng W, Wang J, Guan F. Immunomodulatory effect of human umbilical cord Wharton's jelly-derived mesenchymal stem cells on lymphocytes. *Cell Immunol*. 2011;272(1):33-8.
- Xiangyou Liu, Wei Wei, Chunlei Wang, Hua Yue, Ding Ma, Cheng Zhu, Guanghui Ma and Yuguang Du. Apoferritin-camouflaged Pt nanoparticles: surface effects on cellular uptake and cytotoxicity. *J. Mater. Chem.*, 2011 Apr;20:7105-10.
- Wang F, Zhou XL, Yang QG, Xu WH, Wang F, Chen YP, Chen GH. A peptide that binds specifically to the beta-amyloid of Alzheimer's disease: selection and assessment of anti-beta-amyloid neurotoxic effects. *PLoS One*. 2011;6(11):e27649.
- Wu ZS, Wu Q, Wang CQ, Wang XN, Huang J, Zhao JJ, Mao SS, Zhang GH, Xu XC, Zhang N. miR-340 inhibition of breast cancer cell migration and invasion through targeting of oncoprotein c-Met. *Cancer*. 2011 Jul 1;117(13):2842-52.
- Yang X, Zhang M, Zhang Y, Li W, Yang B. Mesenchymal stem cells derived from Wharton jelly of the human umbilical cord ameliorated damage to human endometrial stromal cells. *Fertil Steril*. 2011 Oct;96(4):1029-36.
- Mo W, Xu X, Xu L, Wang F, Ke A, Wang X, Guo C. Resveratrol inhibits proliferation and induces apoptosis through the hedgehog signaling pathway in pancreatic cancer cell. *Pancreatology*. 2011 Nov;11(6):601-9.
- Fu F, Li X, Lang Y, Yang Y, Tong G, Li G, Zhou Y, Li X. Co-expression of ubiquitin gene and capsid protein gene enhances the potency of DNA immunization of PCV2 in mice. *Virology*. 2011 May 30;438:264.
- Duan W, Guo Y, Jiang H, Yu X, Li C. MG132 enhances neurite outgrowth in neurons overexpressing mutant TAR DNA-binding protein-43 via increase of HO-1. *Brain Res*. 2011 Jun 23;1397:1-9.
- Cai Y, Xiong S, Zheng Y, Luo F, Jiang P, Chu Y. Trichosanthen enhances anti-tumor immune response in a murine Lewis lung cancer model by boosting the interaction between TSLC1 and CRTAM. *Cell Mol Immunol*. 2011 Jul;8(4):359-67.
- Wang YC, Yu SQ, Wang XH, Han BM, Zhao FJ, Zhu GH, Hong Y, Xia SJ. Differences in phenotype and gene expression of prostate stromal cells from patients of varying ages and their influence on tumour formation by prostate epithelial cells. *Asian J Androl*. 2011 Sep;13(5):732-41.
- Zheng F, Li H, Liang K, Du Y, Guo D, Huang S. Imatinib has the potential to exert its antileukemia effects by down-regulating hERG1 K(+) channels in chronic myelogenous leukemia. *Med Oncol*. 2012 Sep;29(3):2127-35.
- Bai J, Mei PJ, Liu H, Li C, Li W, Wu YP, Yu ZQ, Zheng JN. BRG1 expression is increased in human glioma and controls glioma cell proliferation, migration and invasion in vitro. *J Cancer Res Clin Oncol*. 2012 Jun;138(6):991-8.
- Zhang Y, Wang Z, Chen M, Peng L, Wang X, Ma Q, Ma F, Jiang B. MicroRNA-143 targets MACC1 to inhibit cell invasion and migration in colorectal cancer. *Mol Cancer*. 2012 Apr 25;11:23.
- Liu Y, Yu C, Qiu Y, Huang D, Zhou X, Zhang X, Tian Y. Downregulation of EphA2 expression suppresses the growth and metastasis in squamous-cell carcinoma of the head and neck in vitro and in vivo. *J Cancer Res Clin Oncol*. 2012 Feb;138(2):195-202.
- An S, Ling J, Gao Y, Xiao Y. Effects of varied ionic calcium and phosphate on the proliferation, osteogenic differentiation and mineralization of human periodontal ligament cells in vitro. *J Periodontol Res*. 2012 Jun;47(3):374-82.
- Liu X, Zhang B, Guo Y, Liang Q, Wu C, Wu L, Tao K, Wang G, Chen J. Down-Regulation of AP-4 Inhibits Proliferation, Induces Cell Cycle Arrest and Promotes Apoptosis in Human Gastric Cancer Cells. *PLoS One*. 2012;7(5):e37096.
- Chen JH, Yu YS, Chen XH, Liu HH, Zang GQ, Tang ZH. Enhancement of CTLs induced by DCs loaded with ubiquitinated hepatitis B virus core antigen. *World J Gastroenterol*. 2012 Mar 28;18(12):1319-27.
- Xu B, Chen G, Shi P, Guo X, Xiao P, Wang W, Zhou S. shRNA-Mediated BAALC knockdown affects proliferation and apoptosis in human acute myeloid leukemia cells. *Hematology*. 2012 Jan;17(1):35-40.
- Huang N, Lin J, Ruan J, Su N, Qing R, Liu F, He B, Lv C, Zheng D, Luo R. MiR-219-5p inhibits hepatocellular carcinoma cell proliferation by targeting glypican-3. *FEBS Lett*. 2012 Mar 23;586(6):884-91.
- Wang C, Sheng G, Lu J, Xie L, Bai S, Wang Y, Liu Y. Effect of RNAi-induced down regulation of nuclear factor kappa-B p65 on acute monocytic leukemia THP-1 cells in vitro and vivo. *Mol Cell Biochem*. 2012 Jan;359(1-2):125-33.
- An S, Gao Y, Ling J, Wei X, Xiao Y. Calcium ions promote osteogenic differentiation and mineralization of human dental pulp cells: implications for pulp capping materials. *J Mater Sci Mater Med*. 2012 Mar;23(3):789-95.
- Liu Z, Zhao Y, Li J, Xu S, Liu C, Zhu Y, Liang S. The venom of the spider *Macrothele raveni* induces apoptosis in the myelogenous leukemia K562 cell line. *Leuk Res*. 2012 Aug;36(8):1063-6.
- Bei K, Du Z, Xiong Y, Liao J, Su B, Wu L. BMP7 can promote osteogenic differentiation of human periosteal cells in vitro. *Mol Biol Rep*. 2012 Sep;39(9):8845-51.
- Cen Y, Guo W, Luo B, Lin Y, Zhang Q, Zhou S, Luo G, Xiao S, Xie XX. Knockdown of OY-TES-1 by RNAi causes cell cycle arrest and migration decrease in bone marrow derived mesenchymal stem cells. *Cell Biol Int*. 2012 Oct 1;36(10):917-22.
- Ren F, Chen X, Hesketh J, Gan F, Huang K. Selenium promotes T-cell response to TCR-stimulation and ConA, but not PHA in primary porcine splenocytes. *PLoS One*. 2012;7(4):e35375.
- Shi W, Nie D, Jin G, Chen W, Xia L, Wu X, Su X, Xu X, Ni L, Zhang X, Zhang X, Chen J. BDNF blended chitosan scaffolds for human umbilical cord MSC transplants in traumatic brain injury therapy. *Biomaterials*. 2012 Apr;33(11):3119-26.
- Gao X, Lu Y, Xing Y, Ma Y, Lu J, Bao W, Wang Y, Xi T. A novel anticancer and antifungal phenazine derivative from a marine actinomycete BM-17. *Microbiol Res*. 2012 Dec 20;167(10):616-22.
- Huang G, Ji S, Luo P, Zhang Y, Wang G, Zhu S, Xiao S, Xia Z. Evaluation of dermal substitute in a novel co-transplantation model with autologous epidermal sheet. *PLoS One*. 2012 Nov;7(11):e49448.
- Liu S, Sun L, Wang J, Ma G, Su Z, Hu T. Mono-PEGylation of ribonuclease A: High PEGylation efficiency by thiolation with small molecular weight reagent. *Process Biochemistry*. 2012 Sep, 47(9):1364-70.

53. Cao X, Yue L, Song J, Wu Q, Li N, Luo L, Lan L, Yin Z. Inducible HSP70 antagonizes IL-1 β cytotoxic effects through inhibiting NF- κ B activation via destabilizing TAK1 in HeLa cells. *PLoS One*. 2012;7(11):e50059.
54. Chen L, Hu P, Zhang L, Huang S, Luo L, Huang C. Toxicity of graphene oxide and multi-walled carbon nanotubes against human cells and zebrafish. *Science China Chemistry*. 2012 Oct;55(10):2209-16.
55. He Q, Ma M, Wei C, Shi J. Mesoporous carbon@silicon-silica nanotheranostics for synchronous delivery of insoluble drugs and luminescence imaging. *Biomaterials*. 2012 Jun;33(17):4392-402.
56. Miao S, Sun L, Wang P, Liu R, Su Z, Zhang S. Soybean oil - based polyurethane networks as candidate biomaterials: Synthesis and biocompatibility. *European Journal of Lipid Science and Technology*. 2012 Oct;Vol.114(10):1165-1174.
57. Cai L, Cai JJ, Liu HP, Fan DQ, Peng H, Wang KJ. Recombinant medaka (*Oryzias melastigmus*) pro-hepcidin: Multifunctional characterization. *Comp Biochem Physiol B Biochem Mol Biol*. 2012 Feb;161(2):140-7.
58. Yao W, Yu X, Fang Z, Yin P, Zhao C, Li N, Wang L, Li Z, Zha X. Profilin1 facilitates staurosporine-triggered apoptosis by stabilizing the integrin β 1-actin complex in breast cancer cells. *J Cell Mol Med*. 2012 Apr;16(4):824-35.
59. Shi SF, Jia JF, Guo XK, Zhao YP, Chen DS, Guo YY, Cheng T, Zhang XL. Biocompatibility of chitosan-coated iron oxide nanoparticles with osteoblast cells. *Int J Nanomedicine*. 2012;7:5593-602.
60. Yang ZR, Dong WG, Lei XF, Liu M, Liu QS. Overexpression of Dickkopf-3 induces apoptosis through mitochondrial pathway in human colon cancer. *World J Gastroenterol*. 2012 Apr 14;18(14):1590-601.
61. Qing H, Gong W, Che Y, Wang X, Peng L, Liang Y, Wang W, Deng Q, Zhang H, Jiang B. PAK1-dependent MAPK pathway activation is required for colorectal cancer cell proliferation. *Tumour Biol*. 2012 Aug;33(4):985-94.
62. Su Y, Bi J, Wang Y, Tan Y, Yang J, Liu H, Gu W. Chemical constituents from *Chirita longgangensis* var. *hongyao* with inhibitory activity against porcine respiratory and reproductive syndrome virus. *J. Braz. Chem. Soc*. 2012 Oct;vol.23(10):1925-32.
63. Wang M, Liu X, Cao C, Wang L. Highly luminescent CuInS₂-ZnS nanocrystals: achieving phase transfer and nuclear homing property simultaneously through simple TTAB modification. *J. Mater. Chem*. 2012 Aug;41:21979-86.
64. Shen Y, Zhao L, Qi L, Qiao J, Mao L, Chen Y. Reactive polymer as a versatile toolbox for construction of multifunctional superparamagnetic nanocomposites. *Chemistry*. 2012 Oct 22;18(43):13755-61.
65. Li XX, He GR, Mu X, Xu B, Tian S, Yu X, Meng FR, Xuan ZH, Du GH. Protective effects of baicalin against rotenone-induced neurotoxicity in PC12 cells and isolated rat brain mitochondria. *Eur J Pharmacol*. 2012 Jan 15;674(2-3):227-33.
66. Feng YJ, Zhang BY, Yao RY, Lu Y. Muscarinic acetylcholine receptor M3 in proliferation and perineural invasion of cholangiocarcinoma cells. *Hepatobiliary Pancreat Dis Int*. 2012 Aug 15;11(4):418-23.
67. Lin SZ, Wei WT, Chen H, Chen KJ, Tong HF, Wang ZH, Ni ZL, Liu HB, Guo HC, Liu DL. Antitumor activity of emodin against pancreatic cancer depends on its dual role: promotion of apoptosis and suppression of angiogenesis. *PLoS One*. 2012;7(8):e42146.
68. Yue X, Zhang Z, Liang X, Gao L, Zhang X, Zhao D, Liu X, Ma H, Guo M, Spear BT, Gong Y, Ma C. Zinc fingers and homeobox 2 inhibits hepatocellular carcinoma cell proliferation and represses expression of Cyclins A and E. *Gastroenterology*. 2012 Jun;142(7):1559-70.
69. Shi S, Jia J, Guo X, Zhao Y, Liu B, Chen D, Guo Y, Zhang X. Toxicity of iron oxide nanoparticles against osteoblasts. *Journal of Nanoparticle Research*. 2012 Aug;14:1091.
70. Yang ZR, Liu M, Peng XL, Lei XF, Zhang JX, Dong WG. Noscipine induces mitochondria-mediated apoptosis in human colon cancer cells in vivo and in vitro. *Biochem Biophys Res Commun*. 2012 May 11;421(3):627-33.
71. Wang M, Liu X, Cao C, Shi C. Synthesis of band-gap tunable Cu-In-S ternary nanocrystals in aqueous solution. *RSC Advances*. 2012 Feb;7:2666-2670.
72. Wu D, Guo Z, Min W, Zhou B, Li M, Li W, Luo D. Upregulation of TCTP expression in human skin squamous cell carcinoma increases tumor cell viability through anti-apoptotic action of the protein. *Exp Ther Med*. 2012 Mar;3(3):437-442.
73. He H, Yang T, Jia S, Zhang R, Tu P, Gao J, Yuan Y, Han W, Yu Y. Expression and purification of bioactive high-purity human S100A6 in *Escherichia coli*. *Protein Expr Purif*. 2012 May;83(1):98-103.
74. Shao X, Hu Z, Hu C, Bu Q, Yan G, Deng P, Lv L, Wu D, Deng Y, Zhao J, Zhu R, Li Y, Li H, Xu Y, Yang H, Zhao Y, Cen X. Taurine protects methamphetamine-induced developmental angiogenesis defect through antioxidant mechanism. *Toxicol Appl Pharmacol*. 2012 May 1;260(3):260-70.
75. Zhang L, Yang M, Gan L, He T, Xiao X, Stewart MD, Liu X, Yang L, Zhang T, Zhao Y, Fu J. DLX4 upregulates TWIST and enhances tumor migration, invasion and metastasis. *Int J Biol Sci*. 2012;8(8):1178-87.
76. Sun Q, Kawamura T, Masutani K, Peng X, Sun Q, Stolz DB, Pribis JP, Billiar TR, Sun X, Bermudez CA, Toyoda Y, Nakao A. Oral intake of hydrogen-rich water inhibits intimal hyperplasia in arterialized vein grafts in rats. *Cardiovasc Res*. 2012 Apr 1;94(1):144-53.
77. Li X, Zheng SL, Li X, Li JL, Qiang O, Liu R, He L. Synthesis and anti-breast cancer activity of new indolylquinone derivatives. *Eur J Med Chem*. 2012 Aug;54:42-8.
78. Ning L, Li X, Ding X, Yin Y, Li G. An iRGD Based Strategy to Study Electrochemically the Species Inside a Cell. *Int J Mol Sci*. 2012;13(8):10424-31.
79. Zhou X, Meng Q, Xu X, Zhi T, Shi Q, Wang Y, Yu R. Bex2 regulates cell proliferation and apoptosis in malignant glioma cells via the c-Jun NH2-terminal kinase pathway. *Biochem Biophys Res Commun*. 2012 Oct 26;427(3):574-80.
80. Xie Y, Liao J, Li M, Wang X, Yang Y, Ge J, Chen R, Chen H. Impaired cardiac microvascular endothelial cells function induced by Coxsackievirus B3 infection and its potential role in cardiac fibrosis. *Virus Res*. 2012 Oct;169(1):188-94.
81. Wang W, Tao R, Tong Z, Ding Y, Kuang R, Zhai S, Liu J, Ni L. Effect of a novel antimicrobial peptide chrysothinsin-1 on oral pathogens and *Streptococcus mutans* biofilms. *Peptides*. 2012 Feb;33(2):212-9.
82. Du X, Zhao B, Li J, Cao X, Diao M, Feng H, Chen X, Chen Z, Zeng X. Astragalus polysaccharides enhance immune responses of HBV DNA vaccination via promoting the dendritic cell maturation and suppressing Treg frequency in mice. *Int Immunopharmacol*. 2012 Dec;14(4):463-70.
83. Zhou BR, Yin HB, Xu Y, Wu D, Zhang ZH, Yin ZQ, Permatasari F, Luo D. Baicalin protects human skin fibroblasts from ultraviolet A radiation-induced oxidative damage and apoptosis. *Free Radic Res*. 2012 Dec;46(12):1458-71.
84. Zhang J, Song W, Guo J, Zhang J, Sun Z, Li L, Ding F, Gao M. Cytotoxicity of different sized TiO₂ nanoparticles in mouse macrophages. *Toxicol Ind Health*. 2013 Jul;29(6):523-33.
85. Liu Z, Zhang J, Huang X, Huang L, Li S, Wang Z. Magnesium sulfate inhibits the secretion of high mobility group box 1 from lipopolysaccharide-activated RAW264.7 macrophages in vitro. *J Surg Res*. 2013 Jan;179(1):e189-95.
86. Xia H, Liang W, Song Q, Chen X, Chen X, Hong J. The in vitro study of apoptosis in NB4 cell induced by citral. *Cytotechnology*. 2013 Jan;65(1):49-57.
87. Wu Q, Wang C, Guo L, Ge Q, Lu Z. Identification and characterization of novel microRNA candidates from deep sequencing. *Clin Chim Acta*. 2013 Jan 16;415:239-44.
88. Hu Y, Qi Y, Liu H, Fan G, Chai Y. Effects of celastrol on human cervical cancer cells as revealed by ion-trap gas chromatography-mass spectrometry based metabolic profiling. *Biochim Biophys Acta*. 2013 Mar;1830(3):2779-89.
89. Shen XL, Zhang Y, Xu W, Liang R, Zheng J, Luo Y, Wang Y, Huang K. An iTRAQ-based proteomics approach for profiling the nephrotoxicity mechanisms of ochratoxin A in HEK293 cells. *J Proteomics*. 2013 Jan 14;78:398-415.
90. Su Y, Xu JJ, Bi JL, Wang YH, Hu GW, Yang J, Yin GF, Long CL. Chemical constituents of *Arisaema franchetianum* tubers. *J Asian Nat Prod Res*. 2013;15(1):71-7.
91. Guo Z, Zhou B, Liu W, Xu Y, Wu D, Yin Z, Permatasari F, Luo D. MiR-23a regulates DNA damage repair and apoptosis in UVB-irradiated HaCaT cells. *J Dermatol Sci*. 2013 Jan;69(1):68-76.
92. Ma GF, Chen SY, Sun ZR, Miao Q, Liu YM, Zeng XQ, Luo TC, Ma LL, Lian JJ, Song DL. FoxP3 inhibits proliferation and induces apoptosis of gastric cancer cells by activating the apoptotic signaling pathway. *Biochem Biophys Res Commun*. 2013 Jan 11;430(2):804-9.
93. Zhao L, Wang H, Huo K, Zhang X, Wang W, Zhang Y, Wu Z, Chu PK. The osteogenic activity of strontium loaded titania nanotube arrays on titanium substrates. *Biomaterials*. 2013 Jan;34(1):19-29.
94. Pang H, Wu XH, Fu SL, Luo F, Zhang ZH, Hou TY, Li ZQ, Chang ZQ, Yu B, Xu JZ. Co-culture with endothelial progenitor cells promotes survival, migration, and differentiation of osteoclast precursors. *Biochem Biophys Res Commun*. 2013 Jan 11;430(2):729-34.
95. Gao C, Cai Y, Kong X, Han G, Yao J. Development and characterization of injectable chitosan-based hydrogels containing dexamethasone/rhBMP-2 loaded hydroxyapatite nanoparticles. *Materials Letters*. 2013 Feb 15;93:312-315.
96. Chang Y, Huang X, Liu Z, Han G, Huang L, Xiong YC, Wang Z. Dexmedetomidine inhibits the secretion of high mobility group box 1 from lipopolysaccharide-activated macrophages in vitro. *J Surg Res*. 2013 May;181(2):308-14.
97. Wang Y, Wang K, Li H, Chen L, Xu F, Wu T. Effects of different sustained hydrostatic pressures on connexin 43 in human bladder smooth muscle cells. *Urol Int*. 2013;90(1):75-82.
98. Alibrahim A, Zhao LY, Bae CY, Barszczyk A, Sun CL, Wang GL, Sun HS. Neuroprotective effects of volume-regulated anion channel blocker DCPIB on neonatal hypoxic-ischemic injury. *Acta Pharmacol Sin*. 2013 Jan;34(1):113-8.
99. Shu G, Xie B, Ren F, Liu DC, Zhou J, Li Q, Chen J, Yuan L, Zhou J. Restoration of klotho expression induces apoptosis and autophagy in hepatocellular carcinoma cells. *Cell Oncol (Dordr)*. 2013 Apr;36(2):121-9.
100. Kuang P, Zhao W, Su W, Zhang Z, Zhang L, Liu J, Ren G, Yin Z, Wang X. 18 β -glycyrrhetic acid inhibits hepatocellular carcinoma development by reversing hepatic stellate cell-mediated immunosuppression in mice. *Int J Cancer*. 2013 Apr 15;132(8):1831-41.
101. Liu Z, Chang Y, Zhang J, Huang X, Jiang J, Li S, Wang Z. Magnesium deficiency promotes secretion of high-mobility group box 1 protein from lipopolysaccharide-activated macrophages in vitro. *J Surg Res*. 2013 Apr;180(2):310-6.
102. Zhang M, Qiu Z, Li Y, Yang Y, Zhang Q, Xiang Q, Su Z, Huang Y. Construction and characterization of a recombinant human beta defensin 2 fusion protein targeting the epidermal growth factor receptor: in vitro study. *Appl Microbiol Biotechnol*. 2013 May;97(9):3913-23.
103. Shan D, Shi Y, Duan S, Wei Y, Cai Q, Yang X. Electrospun magnetic poly(L-lactide) (PLLA) nanofibers by incorporating PLLA-stabilized Fe₃O₄ nanoparticles. *Mater Sci Eng C Mater Biol Appl*. 2013 Aug 1;33(6):3498-505.
104. Xie H, Li J, Li L, Dong Y, Chen GQ, Chen KC. Enhanced proliferation and differentiation of neural stem cells grown on PHA films coated with

- recombinantfusion proteins. *Acta Biomater.* 2013 Aug;9(8):7845-54.
105. Wang H, Jiang W, Yuan L, Wang L, Chen H. Reductase-like activity of silicon nanowire arrays. *ACS Appl Mater Interfaces.* 2013 Mar 13;5(5):1800-5.
 106. Zhan XX, Liu Y, Yang JF, Wang GY, Mu L, Zhang TS, Xie XL, Wang JH, Liu YM, Kong QF, Li HL, Sun B. Immunology. All-trans-retinoic acid ameliorates experimental allergic encephalomyelitis by affecting dendritic cell and monocyte development. *Immunology.* 2013 Apr;138(4):333-45.
 107. Bai J, Mei P, Zhang C, Chen F, Li C, Pan Z, Liu H, Zheng J. BRG1 is a prognostic marker and potential therapeutic target in human breast cancer. *PLoS One.* 2013;8(3):e59772.
 108. Yang Q, Sui G, Shi Y, Duan S, Bao J, Cai Q, Yang X. Osteocompatibility characterization of polyacrylonitrile carbon nanofibers containing bioactive glass nanoparticles. *Carbon.* 2013 May;56:288-95.
 109. Hu J, Zhang L, Wang N, Ding R, Cui S, Zhu F, Xie Y, Sun X, Wu D, Hong Q, Li Q, Shi S, Liu X, Chen X. Mesenchymal stem cells attenuate ischemic acute kidney injury by inducing regulatory T cells through splenocyteinteractions. *Kidney Int.* 2013 Sep;84(3):521-31.
 110. Wang S, Pang T, Gao M, Kang H, Ding W, Sun X, Zhao Y, Zhu W, Tang X, Yao Y, Hu X. HPV E6 induces eIF4E transcription to promote the proliferation and migration of cervical cancer. *FEBS Lett.* 2013 Mar 18;587(6):690-7.
 111. Yang L, Zhou L, Zong X, Cao X, Ji X, Gu W, Zhang S. Characterization of the molecular structure, expression and bioactivity of the TNFSF13B (BAFF) gene of the South African clawed frog, *Xenopus laevis*. *Int Immunopharmacol.* 2013 Mar;15(3):478-87.
 112. Wu K, Song W, Zhao L, Liu M, Yan J, Andersen MØ, Kjems J, Gao S, Zhang Y. MicroRNA functionalized microporous titanium oxide surface by lyophilization with enhanced osteogenic activity. *ACS Appl Mater Interfaces.* 2013 Apr 10;5(7):2733-44.
 113. Yao W, Cai X, Liu C, Qin Y, Cheng H, Ji S, Xu W, Wu C, Chen T, Xu J, Long J, Fang Z, Qu B, Hoth M, Ni Q, Zha X, Yu X. Profilin 1 potentiates apoptosis induced by staurosporine in cancer cells. *Curr Mol Med.* 2013 Mar;13(3):417-28.
 114. Bai J, Yong HM, Chen FF, Mei PJ, Liu H, Li C, Pan ZQ, Wu YP, Zheng JN. Cullin1 is a novel marker of poor prognosis and a potential therapeutic target in human breast cancer. *Ann Oncol.* 2013 Aug;24(8):2016-22.
 115. Zou X, Yu C, Zhang H. In Vitro Analyses of Effect of Light on Toxicity of Titanium Dioxide Nanoparticles to Tetrahymena Pyriformis Using Fourier Transform Infrared Spectra. *An International Journal for Rapid Communication.* 2013 Jan;46(8):597-608.
 116. Xu D, Yang W, Hu Y, Luo Z, Li J, Hou Y, Liu Y, Cai K. Surface functionalization of titanium substrates with cecropin B to improve their cytocompatibility and reduce inflammation responses. *Colloids Surf B Biointerfaces.* 2013 May 9;110C: 225-235.
 117. Shen Z, Jiang X, Zeng C, Zheng S, Luo B, Zeng Y, Ding R, Jiang H, He Q, Guo J, Jie W. High expression of ubiquitin-conjugating enzyme 2C (UBE2C) correlates with nasopharyngeal carcinomaprogression. *BMC Cancer.* 2013 Apr 15;13:192.
 118. Jia D, Duan F, Peng P, Sun L, Liu X, Wang L, Wu W, Ruan Y, Gu J. Up-regulation of RACK1 by TGF-β1 promotes hepatic fibrosis in mice. *PLoS One.* 2013;8(3):e60115.
 119. Zhu C, Qin H, Cheng T, Tan HL, Guo YY, Shi SF, Chen DS, Zhang XL. Staphylococcus aureus supernatant induces the release of mouse β-defensin-14 from osteoblasts via the p38MAPK and NF-κB pathways. *Int J Mol Med.* 2013 Jun;31(6):1484-94.
 120. Zhang X, Cai Z, Wang G, Wang H, Liu Z, Guo X, Yang C, Wang X, Wang H, Shu C, Xiao L. F-actin may play an important role in IL-1β-stimulated hippocampal neurons. *Behav Brain Res.* 2013 Apr 15;243:165-70.
 121. Wang Q, Shen L, Huang W, Song Y, Xiao L, Xu W, Liu Y. Vasculogenesis of decidua side population cells of first-trimester pregnancy. *Stem Cell Res Ther.* 2013 May 7;4(3):50.
 122. Zhen Y, Ye Y, Yu X, Mai C, Zhou Y, Chen Y, Yang H, Lyu X, Song Y, Wu Q, Fu Q, Zhao M, Hua S, Wang H, Liu Z, Zhang Y, Fang W. Reduced CTGF Expression Promotes Cell Growth, Migration, and Invasion in Nasopharyngeal Carcinoma. *PLoS One.* 2013 Jun 3;8(6):e64976.
 123. Shi SF, Zhang XL, Zhu C, Chen DS, Guo YY. Ultrasonically enhanced rifampin activity against internalized Staphylococcus aureus. *Exp Ther Med.* 2013 Jan;5(1):257-262.
 124. Duan S, Yang X, Mao J, Qi B, Cai Q, Shen H, Yang F, Deng X, Wang S. Osteocompatibility evaluation of poly(glycine ethyl ester-co-alanine ethyl ester)phosphazene with honeycomb-patterned surface topography. *J Biomed Mater Res A.* 2013 Feb;101(2):307-17.
 125. Li G, Liu Y, Su Z, Ren S, Zhu G, Tian Y, Qiu Y. MicroRNA-324-3p regulates nasopharyngeal carcinoma radio resistance by directly targeting WNT2B. *Eur J Cancer.* 2013 Jul;49(11):2596-607.
 126. Jiao Q, Wang H, Hu Z, Zhuang Y, Yang W, Li M, Yu X, Liang J, Guo Y, Zhang H, Chen X, Cheng R, Yao Z. Lidocaine inhibits staphylococcal enterotoxin-stimulated activation of peripheral blood mononuclear cells frompatients with atopic dermatitis. *Arch Dermatol Res.* 2013 Sep;305(7):629-36.
 127. Xu Y, Wu J, Wang H, Li H, Di N, Song L, Li S, Li D, Xiang Y, Liu W, Mo X, Zhou Q. Fabrication of Electrospun Poly(L-Lactide-co-ε-Caprolactone)/Collagen Nanoyarn Network as a Novel, Three-Dimensional, Macroporous, Aligned Scaffold for Tendon Tissue Engineering. *Tissue Eng Part C Methods.* 2013 Dec;19(12): 925-36.
 128. Lv L, Liu H, Chen X, Yang Z. Glutathione-triggered formation of molecular hydrogels for 3D cell culture. *Colloids Surf B Biointerfaces.* 2013 Aug 1;108: 352-7.
 129. Xia J, Wang F, Wang L, Fan Q. Elevated serine protease HtrA1 inhibits cell proliferation, reduces invasion, and induces apoptosis in esophageal squamous cell carcinoma by blocking the nuclear factor-κB signaling pathway. *Tumour Biol.* 2013 Feb;34(1):317-28.
 130. Jiang ZQ, Yan XJ, Bi L, Chen JP, Zhou Q, Chen WP. Mechanism for hepatoprotective action of Liangxue Huayu Recipe (LHR): Blockade of mitochondrial cytochrome c release and caspase activation. *J Ethnopharmacol.* 2013 Jul 30;148(3):851-60.
 131. Wu S, Ju GQ, Du T, Zhu YJ, Liu GH. Microvesicles derived from human umbilical cord Wharton's jelly mesenchymal stem cells attenuate bladder tumor cell growth in vitro and in vivo. *PLoS One.* 2013 Apr 12;8(4):e61366.
 132. Yang C, Wu D, Jia J, Liu D, Li Z, Zhang C, Li M, Xia Y. DLC1 as a regulator of proliferation, invasion, cell cycle, and apoptosis in cutaneous squamous cell carcinoma. *Tumour Biol.* 2013 Oct;34(5):2633-43.
 133. Zhou X, Qian J, Hua L, Shi Q, Liu Z, Xu Y, Sang B, Mo J, Yu R. Geranylgeranyltransferase I promotes human glioma cell growth through Rac1 membrane association andactivation. *J Mol Neurosci.* 2013 Jan;49(1):130-9.
 134. Jin Y, Peng D, Shen Y, Xu M, Liang Y, Xiao B, Lu J. MicroRNA-376c Inhibits Cell Proliferation and Invasion in Osteosarcoma by Targeting to Transforming GrowthFactor-Alpha. *DNA Cell Biol.* 2013 Jun;32(6):302-9.
 135. Hu X, Liu R, Zhu N. Enhancement of humoral and cellular immune responses by monophosphoryl lipid A (MPLA) as an adjuvant to the rabies vaccine in BALB/c mice. *Immunobiology.* 2013 Dec;218(12):1524-8.
 136. Xia L, Huang Q, Shi J, Nie D, Gong M, Gong P, Zhao L, Zuo H, Huang H, Ju S, Chen J, Shi W. PAX3 is overexpressed in human glioblastomas and critically regulates the tumorigenicity of glioma cells. *Brain Res.* 2013 Jul 12;1521:68-78.
 137. Han Y, Guo XH, Zheng QF, Zhu YL, Fan YY, Zhang XY. Down-regulation of platelet-derived growth factor-D expression blockades NF-κB pathway to inhibit cellproliferation and invasion as well as induce apoptosis in esophageal squamous cell carcinoma. *Mol Biol Rep.* 2013 Mar;40(3):2473-83.
 138. Wang L, Liang B, Li L, Liu W. Induction of HepG2 cell apoptosis by Irgarol 1051 through mitochondrial dysfunction and oxidative stresses. *Toxicol In Vitro.* 2013 Sep;27(6):1771-9.
 139. Gao F, Ding B, Zhou L, Gao X, Guo H, Xu H. Magnesium sulfate provides neuroprotection in lipopolysaccharide-activated primary microglia by inhibiting NF-κB pathway. *J Surg Res.* 2013 Oct;184(2):944-50.
 140. Chen Q, Xue Y, Sun J. Kupffer cell-mediated hepatic injury induced by silica nanoparticles in vitro and in vivo. *Int J Nanomedicine.* 2013;8:1129-40.
 141. Chen F, Bai J, Li W, Mei P, Liu H, Li L, Pan Z, Wu Y, Zheng J. RUNX3 suppresses migration, invasion and angiogenesis of human renal cell carcinoma. *PLoS One.* 2013;8(2):e56241.
 142. Chen Q, Sun J. Implication of Oxidative Stress in Dose-Dependent Toxicity of Silica Nanoparticles in Hepatocytes. *Advanced Materials Research,* 2013 Jan,647(1):42-5.
 143. Wang W, Liu Z, Qu P, Zhou Z, Zeng Y, Fan J, Liu Y, Guo Y, Qiu J. Knockdown of Regulator of Cullins-1 (ROC1) Expression Induces Bladder Cancer Cell Cycle Arrest at the G2Phase and Senescence. *PLoS One.* 2013 May 8;8(5):e62734.
 144. Zhao C, Yin P, Mei C, Li N, Yao W, Li X, Qi J, Fan K, Li Z, Wang L, Shi Y, Qiu S, Fan J, Zha X. Down-regulation of DNA methyltransferase 3B in staurosporine-induced apoptosis and its mechanism in humanhepa tocarcinoma cell lines. *Mol Cell Biochem.* 2013 Apr;376(1-2):111-9.
 145. Yu C, Xing F, Tang Z, Bronner C, Lu X, Di J, Zeng S, Liu J. Anisomycin suppresses Jurkat T cell growth by the cell cycle-regulating proteins. *Pharmacol Rep.* 2013;65(2):435-44.
 146. Tang Y, Wang F, Jin C, Liang H, Zhong X, Yang Y. Mitochondrial injury induced by nanosized titanium dioxide in A549 cells and rats. *Environ Toxicol Pharmacol.* 2013 Jul;36(1):66-72.
 147. Wang XX, Cheng Q, Zhang SN, Qian HY, Wu JX, Tian H, Pei DS, Zheng JN. PAK5-Egr1-MMP2 signaling controls the migration and invasion in breast cancer cell. *Tumour Biol.* 2013 Oct;34(5):2721-9.
 148. Pang XL, He G, Liu YB, Wang Y, Zhang B. Endoplasmic reticulum stress sensitizes human esophageal cancer cell to radiation. *World J Gastroenterol.* 2013 Mar 21;19(11):1736-48.
 149. Kong CZ, Liu J, Liu L, Zhang Z, Guo KF. Interactional expression of netrin-1 and its dependence receptor UNC5B in prostate carcinoma. *Tumour Biol.* 2013 Oct;34(5):2765-72.
 150. Xie B, Zhou J, Shu G, Liu DC, Zhou J, Chen J, Yuan L. Restoration of klotho gene expression induces apoptosis and autophagy in gastric cancer cells: tumorsuppressive role of klotho in gastric cancer. *Cancer Cell Int.* 2013 Feb 21;13(1):18.
 151. Luo DY, Wazir R, Tian Y, Yue X, Wei TQ, Wang KJ. Integrin αv mediates contractility whereas integrin α4 regulates proliferation of human bladder smooth musclecells via FAK pathway under physiological stretch. *J Urol.* 2013 Oct;190(4): 1421-9.
 152. Cai W, Dong F, Wang Z, Yang X, Zheng M, Che X. Heated and humidified CO₂ pneumoperitoneum inhibits tumour cell proliferation, migration and invasion in colon cancer. *Int J Hyperthermia.* 2014 May;30(3):201-9.
 153. Zhang GH, Qin R, Zhang SH, Zhu H. Effects of vascular endothelial growth factor

- B on proliferation and migration in EA.Hy926 cells. *Mol Biol Rep.* 2014 Feb;41(2):779-85.
154. Ben Q, An W, Fei J, Xu M, Li G, Li Z, Yuan Y. Downregulation of L1CAM inhibits proliferation, invasion and arrests cell cycle progression in pancreatic cancer cells in vitro. *Exp Ther Med.* 2014 Apr;7(4):785-790.
155. Yang X, Zhu H, Ge Y, Liu J, Cai J, Qin Q, Zhan L, Zhang C, Xu L, Liu Z, Yang Y, Yang Y, Ma J, Cheng H, Sun X. Melittin enhances radiosensitivity of hypoxic head and neck squamous cell carcinoma by suppressing HIF-1 α . *Tumour Biol.* 2014 Oct;35(10):10443-8.
156. Shao S, Li S, Qin Y, Wang X, Yang Y, Bai H, Zhou L, Zhao C, Wang C. Spautin-1, a novel autophagy inhibitor, enhances imatinib-induced apoptosis in chronic myeloid leukemia. *Int J Oncol.* 2014 May;44(5):1661-8.
157. Xu YY, Wu TT, Zhou SH, Bao YY, Wang QY, Fan J, Huang YP. Apigenin suppresses GLUT-1 and p-AKT expression and the chemosensitivity to cisplatin of laryngeal carcinoma Hep-2 cells: an in vitro study. *Int J Clin Exp Pathol.* 2014 Jun 15;7(7):3938-47.
158. Wang F, Xu H, Wang Y, Wang R, Yuan L, Ding H, Song C, Ma S, Peng Z, Peng Z, Zhao P, Xia Q. Advanced silk material spun by a transgenic silkworm promotes cell proliferation for biomedical application. *Acta Biomater.* 2014 Dec;10(12):4947-55.
159. Ma S, Liang S, Jiao H, Chi L, Shi X, Tian Y, Yang B, Guan F. Human umbilical cord mesenchymal stem cells inhibit C6 glioma growth via secretion of dickkopf-1 (DKK1). *Mol Cell Biochem.* 2014 Jan;385(1-2):277-86.
160. Cai XY, Xiong LM, Yang SH, Shao ZW, Xie M, Gao F, Ding F. Comparison of toxicity effects of ropivacaine, bupivacaine, and lidocaine on rabbit intervertebral disc cells in vitro. *Spine J.* 2014 Mar 1;14(3):483-90.
161. Feng X, Lu X, Huang D, Xing J, Feng G, Jin G, Yi X, Li L, Lu Y, Nie D, Chen X, Zhang L, Gu Z, Zhang X. 3D porous chitosan scaffolds suit survival and neural differentiation of dental pulp stem cells. *Cell Mol Neurobiol.* 2014 Aug;34(6):859-70.
162. Li Y, Wang S, Wang Z, Qian X, Fan J, Zeng X, Sun Y, Song P, Feng M, Ju D. Cationic poly(amidoamine) dendrimers induced cyto-protective autophagy in hepatocellular carcinoma cells. *Nanotechnology.* 2014 Aug 20;25(36):365101.
163. Guo D, Zhao Y, Zhang Y, Wang Q, Huang Z, Ding Q, Guo Z, Zhou X, Zhu L, Gu N. The cellular uptake and cytotoxic effect of silver nanoparticles on chronic myeloid leukemia cells. *J Biomed Nanotechnol.* 2014 Apr;10(4):669-78.
164. Li L, Lin M, Li L, Wang R, Zhang C, Qi G, Xu M, Rong R, Zhu T. Renal telocytes contribute to the repair of ischemically injured renal tubules. *J Cell Mol Med.* 2014 Jun;18(6):1144-56.
165. Li PP, Yao QM, Zhou H, Feng LL, Ge XL, Lv X, Chen N, Lu K, Wang X. Metadherin contribute to BCR signaling in chronic lymphocytic leukemia. *Int J Clin Exp Pathol.* 2014 Mar 15;7(4):1588-94.
166. Wang B, Lin Q, Shen C, Tang J, Han Y, Chen H. Hydrophobic modification of polymethyl methacrylate as intraocular lenses material to improve the cytocompatibility. *J Colloid Interface Sci.* 2014 Oct 1;431:1-7.
167. Tang Y, Tan B, Xiong X, Li F, Ren W, Kong X, Qiu W, Hardwidge PR, Yin Y. Methionine deficiency reduces autophagy and accelerates death in intestinal epithelial cells infected with enterotoxigenic Escherichia coli. *Amino Acids.* 2015 Oct;47(10):2199-204.
168. Duan S, Yang X, Mei F, Tang Y, Li X, Shi Y, Mao J, Zhang H, Cai Q. Enhanced osteogenic differentiation of mesenchymal stem cells on poly(L-lactide) nanofibrous scaffolds containing carbon nanomaterials. *J Biomed Mater Res A.* 2015 Apr;103(4):1424-35.
169. Wang J, Wang Z, Mo Y, Zeng Z, Wei P, Li T. Effect of hyperthermic CO₂-treated dendritic cell-derived exosomes on the human gastric cancer AGS cell line. *Oncol Lett.* 2015 Jul;10(1):71-76.
170. Chen B, Zhang B, Xia L, Zhang J, Chen Y, Hu Q, Zhu C. Knockdown of eukaryotic translation initiation factor 4E suppresses cell growth and invasion, and induces apoptosis and cell cycle arrest in human lung adenocarcinoma cell line. *Mol Med Rep.* 2015 Dec;12(6):7971-8.
171. Zhu Z, Song L, He J, Sun Y, Liu X, Zou X. Ectopic expressed long non-coding RNA H19 contributes to malignant cell behavior of ovarian cancer. *Int J Clin Exp Pathol.* 2015 Sep 1;8(9):10082-91.
172. Zhang J, Wang M, Zhang Z, Luo Z, Liu F, Liu J. Celecoxib derivative OSU-03012 inhibits the proliferation and activation of hepatic stellate cells by inducing cellsenescence. *Mol Med Rep.* 2015 Apr;11(4):3021-6.
173. Ma Y, She XG, Ming YZ, Wan QQ, Ye QF. MicroRNA 144 suppresses tumorigenesis of hepatocellular carcinoma by targeting AKT3. *Mol Med Rep.* 2015 Feb; 11(2):1378-83.
174. Lu M, Sun L, Zhou J, Zhao Y, Deng X. Dihydroartemisinin-Induced Apoptosis is Associated with Inhibition of Sarco/Endoplasmic Reticulum CalciumATPase Activity in Colorectal Cancer. *Cell Biochem Biophys.* 2015 Sep;73(1):137-45.
175. Yan J, Zhou Y, Chen D, Li L, Yang X, You Y, Ling X. Effects of mitochondrial translocation of telomerase on drug resistance in hepatocellular carcinoma cells. *J Cancer.* 2015 Jan 5;6(2):151-9.
176. Wang Z, Zhang D, Hu Z, Cheng J, Zhuo C, Fang X, Xing Y. MicroRNA-26a-modified adipose-derived stem cells incorporated with porous hydroxyapatite scaffold improve the repair of bone defects. *Mol Med Rep.* 2015 Sep;12(3):3345-50.
177. Jiang SL, Pan DY, Gu C, Qin HF, Zhao SH. Annexin A2 silencing enhances apoptosis of human umbilical vein endothelial cells in vitro. *Asian Pac J Trop Med.* 2015 Nov;8(11):952-957.
178. Zhou B, Yang J, Shu B, Liu K, Xue L, Su N, Liu J, Xi T. Overexpression of astrocyte-elevated gene-1 is associated with ovarian cancer development and progression. *Mol Med Rep.* 2015 Apr;11(4):2981-90.
179. Zhu H, Zhu X, Cheng G, Zhou M, Lou W. Downregulation of microRNA-21 enhances radiosensitivity in nasopharyngeal carcinoma. *Exp Ther Med.* 2015 Jun; 9(6):2185-2189.
180. Fan Y, Patima A, Chen Y, Zeng F, He W, Luo L, Jie Y, Zhu Y, Zhang L, Lei J, Xie X, Zhang H. Cytotoxic effects of β -carboline alkaloids on human gastric cancer SGC-7901 cells. *Int J Clin Exp Med.* 2015 Aug 15;8(8):12977-82.
181. Chen X, Wang Y, Liu J, Xu P, Zhang XM, Tian YY, Xue YM, Gao XY, Liu Y, Wang JH. Synergistic effect of HMGB1 knockdown and cordycepin in the K562 human chronic myeloid leukemia cell line. *Mol Med Rep.* 2015 Sep;12(3):4462-8.
182. Wang J, Zhao YM, Zhang B, Guo CY. Protective Effect of Total Phenolic Compounds from Inula helenium on Hydrogen Peroxide-induced Oxidative Stress in SH-SY5Y Cells. *Indian J Pharm Sci.* 2015 Mar-Apr;77(2):163-9.
183. Wang H, Gao X, Lu X, Wang Y, Ma C, Shi Z, Zhu F, He B, Xu C, Sun Y. The mitotic regulator Hecl1 is a critical modulator of prostate cancer through the long non-coding RNA BX647187 in vitro. *Biosci Rep.* 2015 Nov 26;35(6):e00273.
184. Bai J, Lei Y, An GL, He L. Down-regulation of deacetylase HDAC6 inhibits the melanoma cell line A375.S2 growth through ROS-dependent mitochondrial pathway. *PLoS One.* 2015 Mar 16;10(3):e0121247.
185. Jian-Tao Wu, She-Min Lv, Chun-Hui Lu, Jun Gong, Jian-Bo An. Effect of 3,3'-Biisofraxidin on Apoptosis of Human Gastric Cancer BGC-823 Cells. *Tropical Journal of Pharmaceutical Research.* 2015 Oct;14(10):p1803.
186. Luo DY, Wazir R, Du C, Tian Y, Yue X, Wei TQ, Wang KJ. Magnitude-dependent proliferation and contractility modulation of human bladder smooth muscle cells under physiological stretch. *World J Urol.* 2015 Nov;33(11):1881-7.
187. Nie F, Liu T, Zhong L, Yang X, Liu Y, Xia H, Liu X, Wang X, Liu Z, Zhou L, Mao Z, Zhou Q, Chen T. MicroRNA-148b enhances proliferation and apoptosis in human renal cancer cells via directly targeting MAP3K9. *Mol Med Rep.* 2015 Nov;13(1):83-90.
188. Li L, Li X, The E, Wang LJ, Yuan TY, Wang SY, Feng J, Wang J, Liu Y, Wu YH, Ma XE, Ge J, Cui YY, Jiang XY. Low expression of lncRNA-GASS5 is implicated in human primary varicose great saphenous veins. *PLoS One.* 2015 Mar 25; 10(3):e0120550.
189. Xia L, Sun C, Li Q, Feng F, Qiao E, Jiang L, Wu B, Ge M. CELF1 is Up-Regulated in Glioma and Promotes Glioma Cell Proliferation by Suppression of CDKN1B. *Int J Biol Sci.* 2015 Sep 22;11(11):1314-24.
190. Xiang XH, Jiang TP, Zhang S, Song J, Li X, Yang JY, Zhou S. Pirfenidone inhibits proliferation, arrests the cell cycle, and downregulates heat shock protein-47 and collagen type I in rat hepatic stellate cells in vitro. *Mol Med Rep.* 2015 Jul; 12(1):309-14.
191. Wei B, Huang QY, Huang SR, Mai W, Zhong XG. MicroRNA 34a attenuates the proliferation, invasion and metastasis of gastric cancer cells via downregulation of MET. *Mol Med Rep.* 2015 Oct;12(4):5255-61.
192. Wei C, Xiao Q, Kuang X, Zhang T, Yang Z, Wang L. Fucoidan inhibits proliferation of the SKM-1 acute myeloid leukaemia cell line via the activation of apoptotic pathways and production of reactive oxygen species. *Mol Med Rep.* 2015 Nov;12(5):6649-55.
193. Ma J, Guo R, Wang T, Pan X, Lei X. Let-7b binding site polymorphism in the B-cell lymphoma-extra large 3'UTR is associated with fluorouracil resistance of hepatocellular carcinoma. *Mol Med Rep.* 2015 Jan;11(1):677-81.
194. Liu C, Zhang L, Huang Y, Lu K, Tao T, Chen S, Zhang X, Guan H, Chen M, Xu B. MicroRNA 328 directly targets p21 activated protein kinase 6 inhibiting prostate cancer proliferation and enhancing docetaxel sensitivity. *Mol Med Rep.* 2015 Nov;12(5):7389-95.
195. Pang T, Wang S, Gao M, Kang H, Zhao Y, Yao Y, Hu X. HPV18 E7 induces the over-transcription of eIF4E gene in cervical cancer. *Iran J Basic Med Sci.* 2015 Jul;18(7):684-90.
196. Zhang J, Wu D, Vikash, Song J, Wang J, Yi J, Dong W. Hesperetin Induces the Apoptosis of Gastric Cancer Cells via Activating Mitochondrial Pathway by Increasing Reactive Oxygen Species. *Dig Dis Sci.* 2015 Oct;60(10):2985-95.
197. S Zhang, X Zheng, Y Sun, Y Wang, Z Zhang. Alterations in oxidative stress and apoptosis in cultured PC12 cells exposed to fluoride. *Research report Fluoride* 2015 Jul-Sep; 48(3):213-22.
198. Song C, Wang J, Mo C, Mu S, Jiang X, Li X, Zhong S, Zhao Z, Zhou G. Use of Ferritin Expression, Regulated by Neural Cell-Specific Promoters in Human Adipose Tissue-Derived Mesenchymal Stem Cells, to Monitor Differentiation with Magnetic Resonance Imaging In Vitro. *PLoS One.* 2015 Jul 15;10(7):e0132480.
199. Zhang G, Na Z, Ren B, Zhao X, Liu W. Impacts of fluorescent superparamagnetic iron oxide (SPIO)-labeled materials on biological characteristics and osteogenesis of bone marrow mesenchymal stem cells (BMSCs). *Int J Clin Exp Med.* 2015 Aug 15;8(8):12172-81.
200. Xu ZZ, Xiu P, Lv JW, Wang FH, Dong XF, Liu F, Li T, Li J. Integrin α v β 3 is required for cathepsin B-induced hepatocellular carcinoma progression. *Mol Med Rep.* 2015 May;11(5):3499-504.
201. Shao XJ, Miao MH, Xue J, Xue J, Ji XQ, Zhu H. The Down-Regulation of MicroRNA-497 Contributes to Cell Growth and Cisplatin Resistance Through PI3K/Akt Pathway in Osteosarcoma. *Cell Physiol Biochem.* 2015;36(5):2051-62.
202. Bai X, Meng H, Ma L, Guo A. Inhibitory effects of evodiamine on human osteosarcoma cell proliferation and apoptosis. *Oncol Lett.* 2015 Feb;9(2):801-805.
203. An S, Gao Y, Huang Y, Jiang X, Ma K, Ling J. Short-term effects of calcium ions

- on the apoptosis and onset of mineralization of human dental pulp cells in vitro and in vivo. *Int J Mol Med*. 2015 Jul;36(1):215-21.
204. Han Y, Wang H, Huang Y, Cheng Z, Sun T, Chen G, Xie X, Zhou Y, Du Z. Isolation and characteristics of CD133⁺/A2B5⁺ and CD133⁻/A2B5⁻ cells from the SHG139s cell line. *Mol Med Rep*. 2015 Dec;12(6):7949-56.
 205. Li XR, Yang LZ, Huo XQ, Wang Y, Yang QH, Zhang QQ. Effects of silencing the ATP-binding cassette protein E1 gene by electroporation on the proliferation and migration of EC109 human esophageal cancer cells. *Mol Med Rep*. 2015 Jul;12(1):837-42.
 206. Wang L, Li X, Liu X, Lu K, Chen NA, Li P, Lv X, Wang X. Enhancing effects of indirubin on the arsenic disulfide-induced apoptosis of human diffuse large B-cell lymphoma cells. *Oncol Lett*. 2015 Apr;9(4):1940-1946.
 207. Mei H, Yu L, Ji P, Yang J, Fang S, Guo W, Liu Y, Chen X. Doxorubicin activates the Notch signaling pathway in osteosarcoma. *Oncol Lett*. 2015 Jun;9(6):2905-2909.
 208. An S, Gao Y, Ling J. Characterization of human periodontal ligament cells cultured on three-dimensional biphasic calcium phosphate scaffolds in the presence and absence of L-ascorbic acid, dexamethasone and β -glycerophosphate in vitro. *Experimental and Therapeutic Medicine*, 2015, 10(4): 1387-1393.
 209. Li F, Xu Y, Chen C, Chen SM, Xiao BK, Tao ZZ. Pro-apoptotic and anti-proliferative effects of 3,3'-diindolylmethane in nasopharyngeal carcinoma cells via downregulation of telomerase activity. *Mol Med Rep*. 2015 Sep;12(3): 3815-20.
 210. Zhou B, Shu B, Xi T, Su N, Liu J. Dub3 expression correlates with tumor progression and poor prognosis in human epithelial ovarian cancer. *Biomed Pharmacother*. 2015 Mar;70:84-9.
 211. Zhang Y, Wu H, Zhang M, Jiang Y, Zhuo W, Zhang Y, Hua S. Nicotinamide induces apoptosis of F9 mouse teratocarcinoma stem cells by downregulation of SATB1 expression. *Tumour Biol*. 2015 Jun;36(6):4339-48.
 212. Piao MX, Bai JW, Zhang PF, Zhang YZ. PCSK9 regulates apoptosis in human neuroglioma U251 cells via mitochondrial signaling pathways. *Int J Clin Exp Pathol*. 2015 Mar 1;8(3):2787-94.
 213. Yao J, Zhang YS, Feng GZ, Du Q. Chrysin inhibits human airway smooth muscle cells proliferation through the extracellular signal regulated kinase1/2 signaling pathway. *Mol Med Rep*. 2015 Sep;12(5):7693-8.
 214. Zhang X, Guo WG, Cui H, Liu HY, Zhang Y, Müller WE, Cui FZ. In vitro and in vivo enhancement of osteogenic capacity in a synthetic BMP-2 derived peptide-coated mineralized collagen composite. *J Tissue Eng Regen Med*. 2016 Feb;10(2):99-107.
 215. Zhang Y, Zhi L, Zhang Z. Study of the biological features of in vitro cultured $\gamma\delta$ T cells. *Biomedical Reports*, 2016 Jan;4(1): 87-91.
 216. Zhou J, Li W, Guo J, Li G, Chen F, Zhou J. Downregulation of miR-329 promotes cell invasion by regulating BRD4 and predicts poor prognosis in hepatocellular carcinoma. *Tumour Biol*. 2016 Mar;37(3):3561-9.
 217. Liu B, Shi Y, Peng W, Zhang Q, Liu J, Chen N, Zhu R. Diosmetin induces apoptosis by upregulating p53 via the TGF- β signal pathway in HepG2 hepatoma cells. *Mol Med Rep*. 2016 Jul;14(1):159-64.
 218. Xia P, Chen HY, Chen SF, Wang L, Strappe PM, Yang HL, Zhou CH, Zhang X, Zhang YX, Ma LL, Wang L. The stimulatory effects of eNOS/F92A-Cav1 on NO production and angiogenesis in BMSCs. *Biomed Pharmacother*. 2016 Feb;77:7-13.
 219. Wu YH, Ai X, Liu FY, Liang HF, Zhang BX, Chen XP. c-Jun N-terminal kinase inhibitor favors transforming growth factor- β to antagonize hepatitis B virus X protein-induced cell growth promotion in hepatocellular carcinoma. *Mol Med Rep*. 2016 Feb;13(2):1345-52.
 220. Dai J, Sun C, Yao Z, Chen W, Yu L, Long M. Exposure to concentrated ambient fine particulate matter disrupts vascular endothelial cell barrier function via the IL-6/HIF-1 α signaling pathway. *FEBS Open Bio*. 2016 May 24;6(7):720-8.
 221. Xu L, Liao WL, Lu QJ, Li CG, Yuan Y, Xu ZY, Huang SD, Chen HZ. ANG Promotes Proliferation and Invasion of the Cell of Lung Squamous Carcinoma by Directly Up-Regulating HMGA2. *J Cancer*. 2016 Apr 28;7(7):862-71.
 222. Tu P, Huang Q, Ou Y, Du X, Li K, Tao Y, Yin H. Aloe-emodin-mediated photodynamic therapy induces autophagy and apoptosis in human osteosarcoma cell line MG 63 through the ROS/JNK signaling pathway. *Oncol Rep*. 2016 Jun;35(6):3209-15.
 223. Chen H, Wu G, Sun Q, Dong Y, Zhao H. Hyperbaric oxygen protects mandibular condylar chondrocytes from interleukin-1 β -induced apoptosis via the PI3K/AKT signaling pathway. *Am J Transl Res*. 2016 Nov 15;8(11):5108-5117.
 224. Li RL, Lu ZY, Huang JJ, Qi J, Hu A, Su ZX, Zhang L, Li Y, Shi YQ, Hao CN, Duan JL. SRT1720, a SIRT1 specific activator, protected H2O2-induced senescent endothelium. *Am J Transl Res*. 2016 Jul 15;8(7):2876-88.
 225. Peng Z, Ouyang T, Pang D, Ma T, Chen X, Guo N, Chen F, Yuan L, Ouyang H, Ren L. Pseudorabies virus can escape from CRISPR-Cas9-mediated inhibition. *Virus Res*. 2016 Sep 2;223:197-205.
 226. Yue H, Zhu J, Xie S, Li F, Xu Q. MDC1-AS, an antisense long noncoding RNA, regulates cell proliferation of glioma. *Biomed Pharmacother*. 2016 Jul;81:203-9.
 227. Yang Y, Sun X, Yang Y, Yang X, Zhu H, Dai S, Chen X, Zhang H, Guo Q, Song Y, Wang F, Cheng H, Sun X. Gambogic acid enhances the radiosensitivity of human esophageal cancer cells by inducing reactive oxygen species via targeting Akt/mTOR pathway. *Tumour Biol*. 2016 Feb;37(2):1853-62.
 228. Shi Z, Wu D, Tang R, Li X, Chen R, Xue S, Zhang C, Sun X. Silencing of HMGA2 promotes apoptosis and inhibits migration and invasion of prostate cancer cells. *J Biosci*. 2016 Jun;41(2):229-36.
 229. Liu C, Chen Z, Fang J, Xu A, Zhang W, Wang Z. H19-derived miR-675 contributes to bladder cancer cell proliferation by regulating p53 activation. *Tumour Biol*. 2016 Jan;37(1):263-70.
 230. Zhu Y, Zhao H, Feng L, Xu S. MicroRNA-217 inhibits cell proliferation and invasion by targeting Runx2 in human glioma. *Am J Transl Res*. 2016 Mar 15;8(3):1482-91.
 231. Han Y, Wu Z, Wu T, Huang Y, Cheng Z, Li X, Sun T, Xie X, Zhou Y, Du Z. Tumor-suppressive function of long noncoding RNA MALAT1 in glioma cells by downregulation of MMP2 and inactivation of ERK/MAPK signaling. *Cell Death Dis*. 2016 Mar 3;7:e2123.
 232. Zhang X, Tang S, Zhang Q, Shao W, Han X, Wang Y, Du Y. Endoplasmic reticulum stress mediates JNK-dependent IRS-1 serine phosphorylation and results in Tau hyperphosphorylation in amyloid β oligomer-treated PC12 cells and primary neurons. *Gene*. 2016 Aug 10;587(2):183-93.
 233. Chen J, Wu FX, Luo HL, Liu JJ, Luo T, Bai T, Li LQ, Fan XH. Berberine upregulates miR-22-3p to suppress hepatocellular carcinoma cell proliferation by targeting Sp1. *Am J Transl Res*. 2016 Nov 15;8(11):4932-4941.
 234. Yang D, Jiang T, Lin P, Chen H, Wang L, Wang N, Zhao F, Wang A, Jin Y. Knock-down of apoptosis inducing factor gene protects endoplasmic reticulum stress-mediated goat granulosa cell apoptosis. *Theriogenology*. 2017 Jan 15;88:89-97.
 235. Ma T, Ouyang T, Ouyang H, Chen F, Peng Z, Chen X, Pang D, Ren L. Porcine circovirus 2 proliferation can be enhanced by stably expressing porcine IL-2 gene in PK-15 cell. *Virus Res*. 2017 Jan 2;227:143-149.
 236. Sun J, Jiang J, Lu K, Chen Q, Tao D, Chen Z. Therapeutic potential of ADAM17 modulation in gastric cancer through regulation of the EGFR and TNF- α signaling pathways. *Mol Cell Biochem*. 2017 Feb;426(1-2):17-26.

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