

胰酶细胞消化液(0.25%胰酶)

产品编号	产品名称	包装
C0201-100ml	胰酶细胞消化液(0.25%胰酶)	100ml
C0201-500ml	胰酶细胞消化液(0.25%胰酶)	500ml

产品简介:

- 碧云天生产的胰酶细胞消化液(Trypsin-EDTA Solution)含0.25%胰酶和0.02%EDTA, pH值为7.2-7.8。该消化液经过过滤除菌,可以直接用于培养细胞的消化,或者一些组织的消化。
- 本胰酶细胞消化液具有方便快捷的特点,通常室温消化1分钟左右就可以消化下大多数贴壁细胞。使用本产品消化细胞的效果参考图1。通常在细胞出现明显的轻微形态变化,并且完全无需等细胞变圆时,即可吹打下细胞。

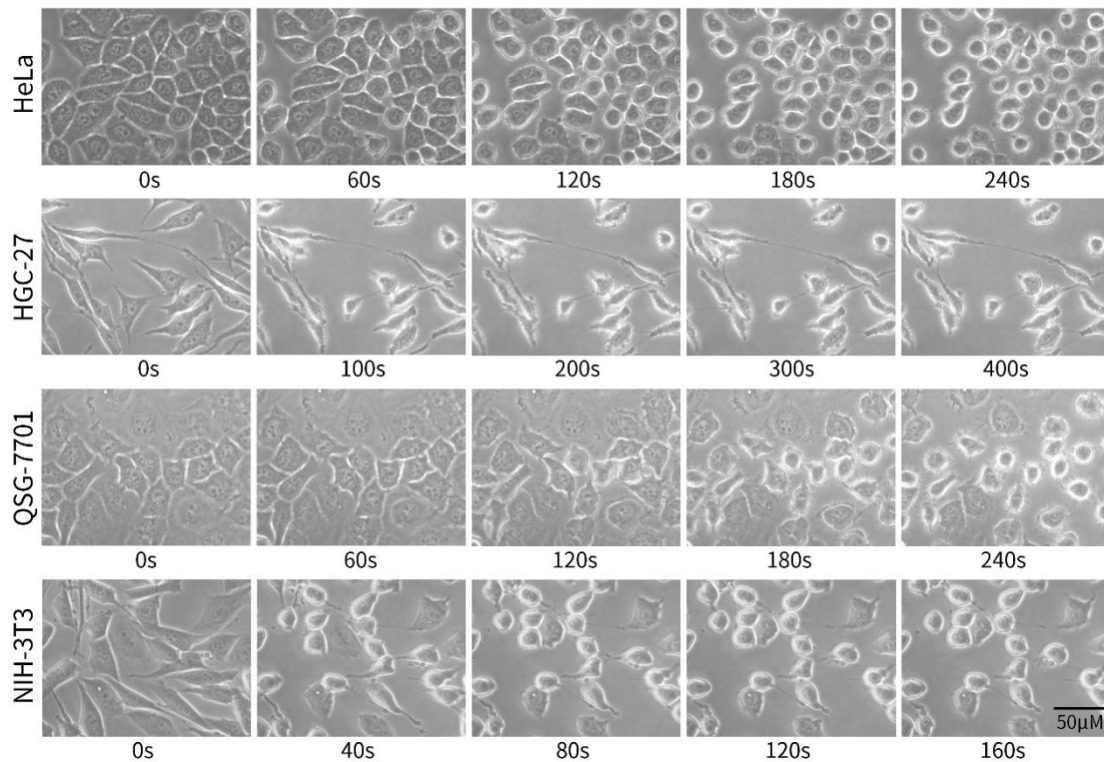


图1. 胰酶细胞消化液(0.25%胰酶)消化不同细胞的效果图。用胰酶细胞消化液(0.25%胰酶)分别消化HeLa、HGC-27、QSG-7701、NIH-3T3细胞,在1-2分钟内,显微镜下可观察到细胞边缘明显收缩,紧密贴合的细胞离散成单个细胞。注:本实验中,胰酶消化液室温放置10分钟左右,未经预热;细胞未经PBS洗涤,在吸净细胞培养液后直接加入适量胰酶消化液在约20°C室温进行消化,如果用PBS或HBSS等洗涤细胞用于去除残余的血清或室温达到25°C,消化效果会更好。实际效果会因细胞和实验条件的不同而略有差异,本图仅供参考。

包装清单:

产品编号	产品名称	包装
C0201-100ml	胰酶细胞消化液(0.25%胰酶)	100ml
C0201-500ml	胰酶细胞消化液(0.25%胰酶)	500ml
—	说明书	1份

保存条件:

4°C保存,一年有效。短期内不使用,推荐-20°C保存,-20°C可以保存更长时间。

注意事项:

- 在使用胰酶细胞消化液的过程中要特别注意避免消化液被细菌污染。
- 胰酶细胞消化液消化细胞时间不宜过长,否则细胞铺板后生长状况会较差。

- 本产品不宜整体回复至室温或37°C预热，室温存放或37°C加热会导致本产品酶活性下降。如果需要预热本产品后使用，宜仅取出所需使用的量进行预热。
- 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：

1. 贴壁细胞的消化：

- 吸去培养液，用无菌的PBS、Hanks液或无血清培养液洗涤细胞一次，以去除残余的血清。
- 加入少量胰酶细胞消化液，略盖过细胞即可，室温放置30秒至2分钟。不同的细胞消化时间有所不同。
- 显微镜下观察，细胞明显收缩，并且肉眼观察培养器皿底部发现细胞的形态发生明显的变化；或者用枪吹打细胞发现细胞刚好可以被吹打下来。此时吸除胰酶细胞消化液。加入含血清的完全细胞培养液，吹打下细胞，即可直接用于后续实验。
- 如果发现消化不足，则加入胰酶细胞消化液重新消化。
如果发现细胞消化时间过长，未及吹打细胞，细胞已经有部分直接从培养器皿底部脱落，直接用胰酶细胞消化液把细胞全部吹打下来。1000-2000g离心1分钟，沉淀细胞，尽量去除胰酶细胞消化液后，加入含血清的完全培养液重新悬浮细胞，即可用于后续实验。

2. 组织的消化：

- 不同的组织需要消化的时间相差很大，通常以消化后可以充分打散组织为宜。

附录：不同胰酶细胞消化液的比较和选择

- 如果希望消化能力比较强，推荐选择C0201 胰酶细胞消化液(0.25%胰酶)和C0203 胰酶细胞消化液(0.25%胰酶，含酚红)，这两种胰酶细胞消化液都含有EDTA，消化能力相对更强一些。
- 如果希望观察比较方便，推荐选择含酚红的C0203 胰酶细胞消化液(0.25%胰酶，含酚红)和C0207 胰酶细胞消化液(0.25%胰酶，含酚红，不含EDTA)。
- 对于酚红可能会干扰后续的分析，推荐选择不含酚红的C0201 胰酶细胞消化液(0.25%胰酶)和C0205 胰酶细胞消化液(0.25%胰酶，不含EDTA)。
- 对于EDTA可能会干扰后续的分析时，推荐选择不含EDTA的C0205 胰酶细胞消化液(0.25%胰酶，不含EDTA)和C0207 胰酶细胞消化液(0.25%胰酶，含酚红，不含EDTA)。
- 对于胰酶特别敏感的细胞，即对于消化时间特别快、消化时间比较难控制的情况，推荐选择C0202胰酶细胞消化液(0.05%胰酶)或C0204 胰酶细胞消化液(0.05%胰酶，含酚红)。

相关产品：

产品编号	产品名称	包装
C0201-100ml	胰酶细胞消化液(0.25%胰酶)	100ml
C0201-500ml	胰酶细胞消化液(0.25%胰酶)	500ml
C0202	胰酶细胞消化液(0.05%胰酶)	100ml
C0203-100ml	胰酶细胞消化液(0.25%胰酶，含酚红)	100ml
C0203-500ml	胰酶细胞消化液(0.25%胰酶，含酚红)	500ml
C0204	胰酶细胞消化液(0.05%胰酶，含酚红)	100ml
C0205	胰酶细胞消化液(0.25%胰酶，不含EDTA)	100ml
C0207	胰酶细胞消化液(0.25%胰酶，含酚红，不含EDTA)	100ml

使用本产品的文献：

- Zhang M, Zhang H, Sun C, Shan X, Yang X, Li-Ling J, Deng Y. Targeted constitutive activation of signal transducer and activator of transcription 3 in human hepatocellular carcinoma cells by cucurbitacin B. *Cancer Chemother Pharmacol*. 2009 Mar;63(4):635-42.
- Li Y, Yao Y, Sheng Z, Yang Y, Ma G. Dual-modal tracking of transplanted mesenchymal stem cells after myocardial infarction. *Int J Nanomedicine*. 2011;6:815-23.
- Wang Q, Zhu J, Zou L, Yang Y. Role of axonal guidance factor netrin-1 in human placental vascular growth. *J Huazhong Univ Sci Technolog Med Sci*. 2011 Apr;31(2):246-50.
- Qian-hua W, Shao-ping Z, Jian-wen Z, Yun Y, Li Z. Reduced expression of netrin-1 is associated with fetal growth restriction. *Mol Cell Biochem*. 2011 Apr;350(1-2):81-7.
- Wan SY, Zhang TF, Ding Y. Galectin-3 enhances proliferation and angiogenesis of endothelial cells differentiated from bonemarrow mesenchymal stem cells. *Transplant Proc*. 2011 Dec;43(10):3933-8.
- Yi C, Zhong H, Tong S, Cao X, Firempong CK, Liu H, Fu M, Yang Y, Feng Y, Zhang H, Xu X, Yu J. Enhanced oral bioavailability of a sterol-loaded microemulsion formulation of Flammulina velutipes, a potential antitumor drug. *Int J Nanomedicine*. 2012;7:5067-78.
- Liu M, Sun Y, Liu Y, Yuan M, Zhang Z, Hu W. Modulation of the differentiation of dental pulp stem cells by different concentrations of β -glycerophosphate. *Molecules*. 2012 Jan 31;17(2):1219-32.
- Li J, Zhang G, Liu T, Gu H, Yan L, Chen B. Construction of a novel vector expressing the fusion suicide gene γ CDglyTK and hTERT-shRNA and its antitumoreffects. *Exp Ther Med*. 2012 Sep;4(3):442-448.
- Wu X, Zhao J, Yu S, Chen Y, Wu J, Zhao Y. Sulforaphane protects primary cultures of cortical neurons against injury induced by oxygen-glucose deprivation/reoxygenation via antiapoptosis. *Neurosci Bull*. 2012 Oct;28(5):509-16.
- Feng X, Zhou Q, Liu C, Tao ML. Drug screening study using glioma

- stem-like cells. *Mol Med Rep*. 2012 Nov;6(5):1117-20.
11. Yan Y, He T, Shen Y, Chen X, Diao B, Li Z, Zhou F, Xing YQ. Modeling of diseases of retinal ischemia in vitro: possible participation of autocrine vascular endothelial growthfactor signaling. *Ophthalmic Res*. 2013;49(2):90-9.
 12. Sun SN, Jia WD, Chen H, Ma JL, Ge YS, Yu JH, Li JS. Docosaheaxaenoic acid (DHA) induces apoptosis in human hepatocellular carcinoma cells. *Int J Clin Exp Pathol*. 2013;6(2):281-9.
 13. Wu YR, Gong QF, Fang H, Liang WW, Chen M, He RJ. Effect of *Sophora flavescens* on non-specific immune response of tilapia (*GIFT Oreochromis niloticus*) and disease resistance against *Streptococcus agalactiae*. *Fish Shellfish Immunol*. 2013 Jan;34(1):220-7.
 14. Jiao H, Zhang Z, Ma Q, Fu W, Liu Z. Mechanism underlying the inhibitory effect of Apelin-13 on glucose deprivation-induced autophagy in ratcardiomyocytes. *Exp Ther Med*. 2013 Mar;5(3):797-802.
 15. Wang HG, Huang XD, Shen P, Li LR, Xue HT, Ji GZ. Anticancer effects of sodium butyrate on hepatocellular carcinoma cells in vitro. *Int J Mol Med*. 2013 Apr;31(4):967-74.
 16. Liu G, Kong Z, Shen Y. Synthesis, characterization, and in vitro antiproliferative activity of novel β -elemene monosubstituted derivatives. *Medicinal Chemistry Research*. 2013 Jul;(7):3536-40.
 17. Zheng LN, Wang M, Wang B, Chen HQ, Ouyang H, Zhao YL, Chai ZF, Feng WY. Determination of quantum dots in single cells by inductively coupled plasma mass spectrometry. *Talanta*. 2013 Nov 15;116:782-7.
 18. Feng C, Xu Z, Li Z, Zhang D, Liu Q, Lu L. Down-regulation of Wnt10a by RNA interference inhibits proliferation and promotes apoptosis in mouse embryonic palatal mesenchymal cells through Wnt/ β -catenin signaling pathway. *J Physiol Biochem*. 2013 Dec;69(4):855-63.
 19. Sun L, Li H, Qu L, Zhu R, Fan X, Xue Y, Xie Z, Fan H. Immobilized lentivirus vector on chondroitin sulfate-hyaluronate acid-silk fibroin hybrid scaffold for tissue-engineered ligament-bone junction. *Biomed Res Int*. 2014;2014:816979.
 20. Liu J, Mao Z, Huang J, Xie S, Liu T, Mao Z. Blocking the NOTCH pathway can inhibit the growth of CD133-positive A549 cells and sensitize to chemotherapy. *Biochem Biophys Res Commun*. 2014 Feb 21;444(4):670-5.
 21. Wang HW, Wang JQ, Zheng BQ, Li SL, Zhang YD, Li FD, Zheng N. Cytotoxicity induced by ochratoxin A, zearalenone, and α -zearalenol: effects of individual and combined treatment. *Food Chem Toxicol*. 2014 Sep;71:217-24.
 22. Yuan-Yuan Bian, Jia Guo, Ke-Xue Zhu, Xiao-Na Guo, Wei Peng, Hamid Majeeda and Hui-Ming Zhou. Macroporous adsorbent resin-based wheat bran polyphenol extracts inhibition effects on H₂O₂-induced oxidative damage in HEK293 cells. *RSC Advances*. 2015;5(27): 20931-8.
 23. Peng Y, Fu ZZ, Guo CS, Zhang YX, Di Y, Jiang B, Li QW. Effects and Mechanism of Baicalin on Apoptosis of Cervical Cancer HeLa Cells In vitro. *Iran J Pharm Res*. 2015 Winter;14(1):251-61.
 24. Zheng LN, Wang M, Zhao LC, Sun BY, Wang B, Chen HQ, Zhao YL, Chai ZF, Feng WY. Quantitative analysis of Gd@C82(OH)₂₂ and cisplatin uptake in single cells by inductively coupled plasma massspectrometry. *Anal Bioanal Chem*. 2015 Mar;407(9):2383-91.
 25. Peng Y, Guo C, Yang Y, Li F, Zhang Y, Jiang B, Li Q. Baicalein induces apoptosis of human cervical cancer HeLa cells in vitro. *Mol Med Rep*. 2015 Mar;11(3):2129-34.
 26. Sun LH, Lei MY, Zhang NY, Gao X, Li C, Krumm CS, Qi DS. Individual and combined cytotoxic effects of aflatoxinB, zearalenone, deoxynivalenol and fumonisinB1 on BRL3A rat liver cells. *Toxicol*. 2015 Mar;95:6-12.
 27. Cao Z, Yu W, Li W, Cheng F, Rao T, Yao X, Zhang X, Larré S. Oxidative Damage and Mitochondrial Injuries Are Induced byVarious Irrigation Pressures in Rabbit Models of Mildand Severe Hydronephrosis. *PLoS One*. 2015 Jun 19;10(6):e0127143.
 28. Bian YY, Guo J, Majeed H, Zhu KX, Guo XN, Peng W, Zhou HM. Ferulic acid renders protection to HEK293 cells against oxidative damage and apoptosis induced by hydrogenperoxide. *In Vitro Cell Dev Biol Anim*. 2015 Aug;51(7):722-9.
 29. Guo Z, Li CS, Wang CM, Xie YJ, Wang AL. CSE/H2S system protects mesenchymalstemcells from hypoxia and serum deprivation induced apoptosis viamitochondrial injury, endoplasmicreticulumstress and PI3K/Akt activation pathways. *Mol Med Rep*. 2015 Aug;12(2):2128-34.
 30. Wei X, Zhu X, Hu N, Zhang X, Sun T, Xu J, Bian X. Baicalin attenuates angiotensin II-induced endothelial dysfunction. *Biochem Biophys Res Commun*. 2015 Sep 11;465(1):101-7.
 31. Li J, Li X, Cai W, Liu Y. Comparison of different polar compounds-induced cytotoxicity in human hepatocellular carcinomaHepG2 cells. *Lipids Health Dis*. 2016 Feb 16;15:30.
 32. Li H, Fan J, Sun L, Liu X, Cheng P, Fan H. Functional regeneration of ligament-bone interface using a triphasic silk-based graft. *Biomaterials*. 2016 Nov;106:180-92.
 33. Yang M, Pi H, Li M, Xu S, Zhang L, Xie J, Tian L, Tu M, He M, Lu Y, Yu Z, Zhou Z. Autophagy Induction Contributes to Cadmium Toxicity in Mesenchymal Stem Cells viaAMPK/FOXO3a/BECN1 Signaling. *Toxicol Sci*. 2016 Nov;154(1):101-114.
 34. Gao X, Xu H, Shang J, Yuan L, Zhang Y, Wang L, Zhang W, Luan X, Hu G, Chu H, Zhu T, Jia G. Ozonized carbon black induces mitochondrial dysfunction and DNA damage. *Environ Toxicol*. 2017 Mar;32(3):944-955.
 35. Wu Y,Yuan T,Wang WW,Ge PL,Gao ZQ,Zhang G,Tang Z,Dang XW,Zhao YF,Zhang JY,Jiang GZ. Long Noncoding RNA HOST2 Promotes Epithelial-Mesenchymal Transition, Proliferation, Invasion and Migration of Hepatocellular Carcinoma Cells by Activating the JAK2-STAT3 Signaling Pathway. *Cell Physiol Biochem*. 2018;51(1):301-314.
 36. Zhou T,Xiang DK,Li SN,Yang LH,Gao LF,Feng C. MicroRNA-495 Ameliorates Cardiac Microvascular Endothelial Cell Injury and Inflammatory Reaction by Suppressing the NLRP3 Inflammasome Signaling Pathway. *Cell Physiol Biochem*. 2018;49(2):798-815.
 37. Jiang Y,Du W,Chu Q,Qin Y,Tuguzbaeva G,Wang H,Li A,Li G,Li Y,Chai L,Yue E,Sun X,Wang Z,Pavlov V,Yang B,Bai Y. Downregulation of Long Non-Coding RNA Kcnq1ot1: An Important Mechanism of Arsenic Trioxide-Induced Long QT Syndrome. *Cell Physiol Biochem*. 2018;45(1):192-202.
 38. Wang S,Jiang Y,Chen J,Dai C,Liu D,Pan W,Wang L,Fasae MB,Sun L,Wang L,Liu Y. Activation of M3 Muscarinic Acetylcholine Receptors Delayed Cardiac Aging by Inhibiting the Caspase-1/IL-1 β Signaling Pathway. *Cell Physiol Biochem*. 2018;49(3):1208-1216.
 39. Xu J,Xiao X,Yang D. In Vitro Methods for Analyzing miRNA Roles in Cancer Cell Proliferation, Invasion, and Metastasis. *Methods Mol Biol*. 2018;1733:159-171.
 40. Wu B,Tan M,Cai W,Wang B,He P,Zhang X. Arsenic trioxide induces autophagic cell death in osteosarcoma cells via the ROS-TFEB signaling pathway. *Biochem Biophys Res Commun*. 2018 Jan 29;496(1):167-175.
 41. Wang X,Zhang W,Sun X,Lin Y,Chen W. Cancer-associated fibroblasts induce epithelial-mesenchymal transition through secreted cytokines in endometrial cancer cells. *Oncol Lett*. 2018 Apr;15(4):5694-5702.
 42. Chen L,Lu Z,Yang Y,Du L,Zhou X,Chen Y. Effects of purified Omphalia lapidescens protein on metastasis, cell cycle, apoptosis and the

- JAK-STAT signaling pathway in SGC-7901 human gastric cells. *Oncol Lett.* 2018 Apr;15(4):4161-4170.
43. Li JW,Wang XY,Zhang X,Gao L,Wang LF,Yin XH. (-)-Epicatechin protects against myocardial ischemia-induced cardiac injury via activation of the PTEN/PI3K/AKT pathway. *Mol Med Rep.* 2018 Jun;17(6):8300-8308.
 44. Zhang ZL,Liu GC,Peng L,Zhang C,Jia YM,Yang WH,Mao L. Effect of PAK1 gene silencing on proliferation and apoptosis in hepatocellular carcinoma cell lines MHCC97-H and HepG2 and cells in xenograft tumor. *Gene Ther.* 2018 Jul;25(4):284-296.
 45. Zhou H,Wang ZS,Liu XH,Chen FH. Novel amidrazone derivatives: Design, synthesis and activity evaluation. *Bioorg Med Chem.* 2018 Jul 23;26(12):3158-3165.
 46. Wu J, Chen J, Xi Y, Wang F, Sha H, Luo L, Zhu Y, Hong X, Bu S. High glucose induces epithelial-mesenchymal transition and results in the migration and invasion of colorectal cancer cells. *Exp Ther Med.* 2018 Jul;16(1):222-230.
 47. Zhou L,Tu J,Fang G,Deng L,Gao X,Guo K,Kong J,Lv J,Guan W,Yang C. Combining PLGA Scaffold and MSCs for Brain Tissue Engineering: A Potential Tool for Treatment of Brain Injury. *Stem Cells Int.* 2018 Aug 5;2018:5024175.
 48. Li H, Ye AQ, Su M. Application of Stem Cells and Advanced Materials in Nerve Tissue Regeneration. *Stem Cells Int.* 2018 Sep 16;2018:4243102.
 49. Liu X,Tian F,Wang S,Wang F,Xiong L. Astrocyte Autophagy Flux Protects Neurons Against Oxygen-Glucose Deprivation and Ischemic/Reperfusion Injury. *Rejuv Res.* 2018 Oct;21(5):405-415.
 50. Zhang R,Xu Y,Niu H,Tao T,Ban T,Zheng L,Ai J. Lycium barbarum polysaccharides restore adverse structural remodelling and cardiac contractile dysfunction induced by overexpression of microRNA-1. *J Cell Mol Med.* 2018 Oct;22(10):4830-4839.
 51. Chen J,Yue J,Liu J,Liu Y,Jiao KL,Teng MY,Hu CY,Zhen J,Wu MX,Zhou M,Li Z,Li Y. Salvianolic acids improve liver lipid metabolism in ovariectomized rats via blocking STAT-3/SREBP1 signaling. *Chin J Nat Med.* 2018 Nov;16(11):838-845.
 52. Zhong J,Zhang Y,Chen J,Huang R,Yang Y,Chen H,Huang Y,Tan W,Tan Z. In Vitro Study of Colon Cancer Cell Migration Using E-Jet 3D Printed Cell Culture Platforms. *Macromol Biosci.* 2018 Nov;18(11):e1800205.
 53. Wang X,Fan M,Chu X,Zhang Y,Rahman SU,Jiang Y,Chen X,Zhu D,Feng S,Li Y,Wu J. Deoxynivalenol induces toxicity and apoptosis in piglet hippocampal nerve cells via the MAPK signaling pathway. *Toxicon.* 2018 Dec 1;155:1-8.
 54. Yang S,Bao H,Wang H,Li Q. Anti-tumour Effect and Pharmacokinetics of an Active Ingredient Isolated from *Inonotus hispidus*. *Biol Pharm Bull.* 2019;42(1):10-17.
 55. Zhang J,Yang M,Yang AK,Wang X,Tang YH,Zhao QY,Wang T,Chen YT,Huang CX. Insulin gene enhancer binding protein 1 induces adipose tissue-derived stem cells to differentiate into pacemaker-like cells. *Int J Mol Med.* 2019 Feb;43(2):879-889.
 56. Meng B,Xing Y,Li H,Gao F,Liu YC. Knockdown of Long Noncoding RNA POU5F1B Promotes Radiosensitivity in Esophageal Carcinoma. *Med Sci Monit.* 2019 Feb 14;25:1214-1219.
 57. Chen H,Zhong J,Wang J,Huang R,Qiao X,Wang H,Tan Z. Enhanced growth and differentiation of myoblast cells grown on E-jet 3D printed platforms. *Int J Nanomedicine.* 2019 Feb 4;14:937-950.
 58. Wu J,Wang A,Wang X,Li G,Jia P,Shen G,Chen B,Yuan Y,Zhang H,Yang F,Xu Y. Rapamycin improves bone mass in high-turnover osteoporosis with iron accumulation through positive effects on osteogenesis and angiogenesis. *Bone.* 2019 Apr;121:16-28.
 59. Pi H,Li M,Zou L,Yang M,Deng P,Fan T,Liu M,Tian L,Tu M,Xie J,Chen M,Li H,Xi Y,Zhang L,He M,Lu Y,Chen C,Zhang T,Wang Z,Yu Z,Gao F,Zhou Z. AKT inhibition-mediated dephosphorylation of TFE3 promotes overactive autophagy independent of MTORC1 in cadmium-exposed bone mesenchymal stem cells. *Autophagy.* 2019 Apr;15(4):565-582.
 60. Yang L,Li J,Fu S,Ren P,Tang J,Wang N,Shi X,Wu J,Lin S. Up-regulation of Insulin-like Growth Factor Binding Protein-3 Is Associated with Brain Metastasis in Lung Adenocarcinoma. *Mol Cells.* 2019 Apr 30;42(4):321-332.
 61. Li W,Cao Z,Yu W,Yao X,Ting R,Cheng F. Acute Kidney Injury Induced by Pneumoperitoneum Pressure Via a Mitochondrial Injury-dependent Mechanism in a Rabbit Model of Different Degrees of Hydronephrosis. *Urology.* 2019 May;127:134.e1-134.e7.
 62. Zhang J,Bian Z,Jin G,Liu Y,Li M,Yao S,Zhao J,Feng Y,Wang X,Yin Y,Fei B,Han X,Huang Z. Long non-coding RNA IQCJ-SCHIP1 antisense RNA 1 is downregulated in colorectal cancer and inhibits cell proliferation. *Ann Transl Med.* 2019 May;7(9):198.
 63. Li Q,Cheng K,Wang AY,Xu QG,Fu ZF,He SY,Xu PX. microRNA-126 inhibits tube formation of HUVECs by interacting with EGFL7 and down-regulating PI3K/AKT signaling pathway. *Biomed Pharmacother.* 2019 Aug;116:109007.
 64. Wu Z,Li H,Wang Y,Yang D,Tan H,Zhan Y,Yang Y,Luo Y,Chen G. Optimization extraction, structural features and antitumor activity of polysaccharides from *Z. jujuba* cv. Ruoqianguo seeds. *Int J Biol Macromol.* 2019 Aug 15;135:1151-1161.
 65. Dong P,Ji X,Han W,Han H. Oxymatrine exhibits anti-neuroinflammatory effects on $\text{A}\beta$ 1-42-induced primary microglia cells by inhibiting NF- κ B and MAPK signaling pathways. *Int Immunopharmacol.* 2019 Sep;74:105686.
 66. Zhang F,Fan B,Mao L. Radiosensitizing effects of Cyclocarya paliurus polysaccharide on hypoxic A549 and H520 human non-small cell lung carcinoma cells. *Int J Mol Med.* 2019 Oct;44(4):1233-1242.
 67. Ma J,Ren C,Yang H,Zhao J,Wang F,Wan Y. The Expression Pattern of p32 in Sheep Muscle and Its Role in Differentiation, Cell Proliferation, and Apoptosis of Myoblasts. *Int J Mol Sci.* 2019 Oct 18;20(20).
 68. Shan W,Cheng C,Huang W,Ding Z,Luo S,Cui G,Lu W,Liu F,Xu J,He W,Yin Z. Angiopoietin-like 2 upregulation promotes human chondrocyte injury via NF- κ B and p38/MAPK signaling pathway. *J Bone Miner Metab.* 2019 Nov;37(6):976-986.
 69. Yin L,Liu MX,Li W,Wang FY,Tang YH,Huang CX. Over-Expression of Inhibitor of Differentiation 2 Attenuates Post-Infarct Cardiac Fibrosis Through Inhibition of TGF- β 1/Smad3/HIF-1 α /IL-11 Signaling Pathway. *Front Pharmacol.* 2019 Nov 13;10:1349.
 70. Chi H,Jiang A,Wang X,Chen G,Song C,Prajapati RK,Li A,Li Z,Li J,Zhang Z,Ji Y,Yan J. Dually optimized polycaprolactone/collagen I microfiber scaffolds with stem cell capture and differentiation-inducing abilities promote bone regeneration. *J Mater Chem B.* 2019 Nov 28;7(44):7052-7064.
 71. Ma H,Zhu L,Ren J,Rao B,Sha M,Kuang Y,Shen W,Xu Z. Myricetin inhibits migration and invasion of hepatocellular carcinoma MHCC97H cell line by inhibiting the EMT process. *Oncol Lett.* 2019 Dec;18(6):6614-6620.
 72. Wan Y,Li D,Lv Y,Wu M,Li L,Yin Z. Elevated levels of 15-lipoxygenase-1 contribute to the abnormal phenotypes of osteoblasts in human osteoarthritis. *Life Sci.* 2019 Dec 15;239:116980.
 73. Shao Y,Guo L,Li A,Zhang K,Liu W,Shi J,Liu J,Zhang Z. US-triggered ultra-sensitive "thrombus constructor" for precise tumor therapy. *J Control Release.* 2020 Feb;318:136-144.
 74. Zhou J,Zhang Y,Zou X,Kuai L,Wang L,Wang J,Shen F,Hu J,Zhang X,Huang Y,Chen Y. Aberrantly Expressed Timeless Regulates Cell

- Proliferation and Cisplatin Efficacy in Cervical Cancer. *Hum Gene Ther.* 2020 Mar;31(5-6):385-395.
75. Xiao J,Yao R,Xu B,Wen H,Zhong J,Li D,Zhou Z,Xu J,Wang H. Inhibition of PDE4 Attenuates TNF- α -Triggered Cell Death Through Suppressing NF- κ B and JNK Activation in HT-22 Neuronal Cells. *Cell Mol Neurobiol.* 2020 Apr;40(3):421-435.
 76. Zhou J,Zhang Y,Zou X,Kuai L,Wang L,Wang J,Shen F,Hu J,Zhang X,Huang Y,Chen Y. Aberrantly Expressed Timeless Regulates Cell Proliferation and Cisplatin Efficacy in Cervical Cancer. *Hum Gene Ther.* 2020 Mar;31(5-6):385-395.
 77. Xiao J,Yao R,Xu B,Wen H,Zhong J,Li D,Zhou Z,Xu J,Wang H. Inhibition of PDE4 Attenuates TNF- α -Triggered Cell Death Through Suppressing NF- κ B and JNK Activation in HT-22 Neuronal Cells. *Cell Mol Neurobiol.* 2020 Apr;40(3):421-435.
 78. Mei-Ling Yan,Shuai Zhang,Hong-Mei Zhao,Sheng-Nan Xia,Zhuo Jin,Yi Xu,Lin Yang,Yang Qu,Si-Yu Huang,Ming-Jing Duan,Meng Mao,Xiao-Bin An,Chandan Mishra,Xin-Yu Zhang,Li-Hua Sun,Jing Ai. MicroRNA-153 impairs presynaptic plasticity by blocking vesicle release following chronic brain hypoperfusion. *Cell Commun Signal.* 2020 Apr 6;18(1):57.
 79. Zhen-Yu She,Yue-Ling Li,Yang Lin,Ming-Hui Lu,Ya-Lan Wei,Kai-Wei Yu,Ning Zhong,Yu Xiao. Kinesin-6 family motor KIF20A regulates central spindle assembly and acrosome biogenesis in mouse spermatogenesis. *BBA-MOL CELL RES.* 2020 Apr;1867(4):118636.
 80. Xianxian Cao,Bin Li,Xuejie Han,Xiuling Zhang,Mengqiu Dang,Hongxia Wang,Fenghe Du,Xiangjun Zeng,Caixia Guo. Soluble receptor for advanced glycation end-products promotes angiogenesis through activation of STAT3 in myocardial ischemia/reperfusion injury. *Apoptosis.* 2020 Jun;25(5-6):341-353.
 81. Wei Wang,Mei Wang,Jing Xu,Fei Long,Xianbao Zhan. Overexpressed GATA3 enhances the sensitivity of colorectal cancer cells to oxaliplatin through regulating MiR-29b. *Cancer Cell Int.* 2020 Jul 24;20:339.
 82. Tianqing Yan,Chang Liang,Haidi Fan,Wei Zhou,Linyan Huang,Suhua Qi,Wan Wang,Ping Ma. KAP1 silencing relieves OxLDL-induced vascular endothelial dysfunction by down-regulating LOX-1. *BIOSCIENCE REP.* 2020 Aug 28;40(8):BSR20200821.
 83. Dong Sun,Haichang Wang,Yanhui Su,Jie Lin,Mingming Zhang,Wanrong Man,Xinglong Song,Liang Zhang,Baolin Guo,Kaikai Hao,Dongdong Sun. Exercise alleviates cardiac remodelling in diabetic cardiomyopathy via the miR-486a-5p-Mst1 pathway. *Iran J Basic Med Sci.* 2021 Feb;24(2):150-159.
 84. Ling Zhou,Zeming Liu,Sichao Chen,Jing Qiu,Qianqian Li,Shipei Wang,Wei Zhou,Danyang Chen,Guang Yang,Liang Guo. Transcription factor EB-mediated autophagy promotes dermal fibroblast differentiation and collagen production by regulating endoplasmic reticulum stress and autophagy-dependent secretion. *Int J Mol Med.* 2021 Feb;47(2):547-560.
 85. Bin Li,Jiming Yin,Jing Chang,Jia Zhang,Yangjia Wang,Haixia Huang,Wei Wang,Xiangjun Zeng.Apelin/APJ relieve diabetic cardiomyopathy by reducing microvascular dysfunction. *J Endocrinol.* 2021 Apr;249(1):1-18.
 86. Mian Zhang, Yi-Shan Lei, Xiao-Wen Meng, Hua-Yue Liu, Lin-Gui Li, Jun Zhang, Jia-Xin Zhang, Wen-Hui Tao, Ke Peng, Jun Lin, Fu-Hai Ji. Igaratimod Alleviates Myocardial Ischemia/Reperfusion Injury Through Inhibiting Inflammatory Response Induced by Cardiac Fibroblast Pyroptosis via COX2/NLRP3 Signaling Pathway. *Front Cell Dev Biol.* 2021 Oct 25;9:746317.
 87. Ling Jin, Liang Ren, Jing Lu, Xue Wen, Siying Zhuang, Ting Geng, Yuanzhen Zhang. CXCL12 and its receptors regulate granulosa cell apoptosis in PCOS rats and human KGN tumor cells. *Reproduction.* 2021 Feb;161(2):145-157.
 88. Zhengwei Zhang, Jie Chen, Xiuhao Huo, Gang Zong, Kebin Huang, Meng Cheng, Libo Sun, Xiaoyu Yue, Erbao Bian, Bing Zhao. Identification of a mesenchymal-related signature associated with clinical prognosis in glioma. *Aging (Albany NY).* 2021 Apr 19;13(9):12431-12455.
 89. Ming Deng, Ping Xie, Zhonghui Chen, Yan Zhou, Junqi Liu, Jianghua Ming, Jianwei Yang. Mash-1 modified neural stem cells transplantation promotes neural stem cells differentiation into neurons to further improve locomotor functional recovery in spinal cord injury rats. *Gene.* 2021 May 20;781:145528.
 90. Feifei Shao, Lingmin Zhou, Yu Zhang, Hongping Chen, Yu Zhang, Zhihui Guan. Gastrodin alleviates inflammatory injury of cardiomyocytes in septic shock mice via inhibiting NLRP3 expression. *In Vitro Cell Dev Biol Anim.* 2021 May;57(5):571-581.
 91. Jun-Wei Liu, Yong-Li Wu, Wei Wei, Yan-Ling Zhang, Di Liu, Xiao-Xiu Ma, Chun Li, Yu-Yuan Ma. Effect of Warm Acupuncture Combined with Bone Marrow Mesenchymal Stem Cells Transplantation on Cartilage Tissue in Rabbit Knee Osteoarthritis. *Evid Based Complement Alternat Med.* 2021 Aug 11;2021:5523726.
 92. Guoyu Dai, Xiang Chen, Yao He. The Gut Microbiota Activates AhR Through the Tryptophan Metabolite Kyn to Mediate Renal Cell Carcinoma Metastasis. *Front Nutr.* 2021 Aug 11;8:712327.
 93. Hui Yang, He Wang, Xiaodan Zhang, Yuehan Yang, Hongbin Li. Upregulated LINC00319 aggravates neuronal injury induced by oxygen-glucose deprivation via modulating miR-200a-3p. *Exp Ther Med.* 2021 Aug;22(2):844.
 94. Lijun Zhong, Jiaqiang Deng, Congwei Gu, Lihong Shen, Zhihua Ren, Xiaoping Ma, Qigui Yan, Junliang Deng, Zhicai Zuo, Ya Wang, Suizhong Cao, Shumin Yu. Protective effect of MitoQ on oxidative stress-mediated senescence of canine bone marrow mesenchymal stem cells via activation of the Nrf2/ARE pathway. *In Vitro Cell Dev Biol Anim.* 2021 Aug;57(7):685-694.
 95. Xin Huang, Yan Yan, Wen Zheng, Youcai Ma, Xiao Wang, Wei Gong, Shaoping Nie. Secreted Frizzled-Related Protein 5 Protects Against Cardiac Rupture and Improves Cardiac Function Through Inhibiting Mitochondrial Dysfunction. *Front Cardiovasc Med.* 2021 Sep 9;8:682409.
 96. Dongdong Li, Luobing Wang, Jiaoying Ou, Chuanxu Wang, Jiabao Zhou, Lili Lu, Yansheng Wu, Jiandong Gao. Reactive oxygen species induced by uric acid promote NRK-52E cell apoptosis through the NEK7-NLRP3 signaling pathway. *Mol Med Rep.* 2021 Oct;24(4):729.
 97. Wen-Hao Chen, Yu-Xiang Lin, Ling Lin, Bao-Quan Zhang, Shu-Xia Xu, Wei Wang. Identification of potential candidate proteins for reprogramming spinal cord-derived astrocytes into neurons: a proteomic analysis. *Neural Regen Res.* 2021 Nov;16(11):2257-2263.
 98. Ruihua Jing, Conghui Hu, Tiantian Qi, Jiaqi Yue, Guangyan Wang, Ming Zhang, Chan Wen, Cheng Pei, Bo Ma. FILIP1L-mediated cell apoptosis, epithelial-mesenchymal transition and extracellular matrix synthesis aggravate posterior capsular opacification. *Life Sci.* 2021 Dec 1;286:120061.
 99. Yun-Fei Li, Tao Cheng, Ying-Jie Zhang, Xin-Xin Fu, Jing Mo, Guo-Qin Zhao, Mao-Guang Xue, Ding-Hao Zhuo, Yan-Yi Xing, Ying Huang, Xiao-Zhi Sun, Dan Wang, Xiang Liu, Yang Dong, Xiao-Sheng Zhu, Feng He, Jun Ma, Dong Chen, Xi Jin, Peng-Fei Xu. Mycn regulates intestinal development through ribosomal biogenesis in a zebrafish model of Feingold syndrome 1. *PLoS Biol.* 2022 Nov 1;20(11):e3001856.
 100. Bei Yan, Panpan Liu, Xiaoqin Yi, Jie Li, Nian Liu, Wu Zhu, Yehong Kuang, Xiang Chen, Cong Peng. Topical VX-509 attenuates psoriatic inflammation through the STAT3/FABP5 pathway in keratinocytes.

- Pharmacol Res. 2022 Aug;182:106318.
101. Jianmei Yi, Feng Peng, Jingli Zhao, Xiaosong Gong. Prognostic Lnc-S100B-2 Affects Cell Apoptosis and Microenvironment of Colorectal Cancer through MLLT10 Signaling. *J Oncol*. 2022 Jan 25;2022:3565118.
102. Yinzheng Fan, Zhenli Cheng, Lejiao Mao, Ge Xu, Na Li, Mengling Zhang, Ping Weng, Lijun Zheng, Xiaomei Dong, Siyao Hu, Bin Wang, Xia Qin, Xuejun Jiang, Chengzhi Chen, Jun Zhang, Zhen Zou. PINK1/TAX1BP1-directed mitophagy attenuates vascular endothelial injury induced by copper oxide nanoparticles. *J Nanobiotechnology*. 2022 Mar 19;20(1):149.
103. Qingsong Yang, Sizhen Li, Zixiu Zhou, Xiaodong Yang, Yating Liu, Kuanxiao Hao, Min Fu. Trimetazidine mitigates high glucose-induced retinal endothelial dysfunction by inhibiting PI3K/Akt/mTOR pathway-mediated autophagy. *Bioengineered*. 2022 Mar;13(3):7515-7527.
104. Hai-Liang Qi, Zheng-Yi Chen, Yu-Huan Qin, Ya-Zhai Li. Curcumin ameliorates H₂O₂-induced inflammatory response in chondrocytes by inducing autophagy activation. *Exp Ther Med*. 2022 Apr;23(4):272.
105. Can Hou, Yong Wang, Yanjun Wang, Yaqing Zhou, Lei Hua, Jiabin Chen, Shu He, Sheng Zhang, Enzhi Jia. Circular RNA expression profile of H₂O₂ induced ferroptosis model of human coronary artery endothelial cells. *Atheroscler Plus*. 2022 May 6;49:1-11.
106. Xing Chen, Guixiang Wu, Jing Qing, Chunlin Li, Xudong Chen, Jian Shen. LINC00240 knockdown inhibits nasopharyngeal carcinoma progress by targeting miR-26a-5p. *J Clin Lab Anal*. 2022 May;36(5):e24424.
107. Yu Yan Xie, Yun Wei Lu, Gu Ran Yu. The protective effects of hyperoside on Ang II-mediated apoptosis of bEnd.3 cells and injury of blood-brain barrier model in vitro. *BMC Complement Med Ther*. 2022 Jun 13;22(1):157.
108. Yu He, Lu Lin, Yurong Ou, Xiaowen Hu, Chi Xu, Caizhi Wang. Endothelial cell-specific molecule 1 (ESM1) promoted by transcription factor SPI1 acts as an oncogene to modulate the malignant phenotype of endometrial cancer. *Open Med (Wars)*. 2022 Aug 26;17(1):1376-1389.
109. Chao Zhang, Zhaoyong Li, Linghui Li, Shuofu Li, Lei Yang, Long Chen, Xiao Zhang, Shaofeng Yang, Yantao Guo. Achyranthoside D (AD) improve intervertebral disc degeneration through affect the autophagy and the activation of PI3K/Akt/mTOR pathway. *J Orthop Surg (Hong Kong)*. 2022 Sep-Dec;30(3):10225536221135474.
110. You Peng, Bin Liao, Yan Zhou, Wei Zeng, Zhi-Yu Zeng. Atorvastatin Inhibits Ferroptosis of H9C2 Cells by regulating SMAD7/Hepcidin Expression to Improve Ischemia-Reperfusion Injury. *Cardiol Res Pract*. 2022 Nov 8;2022:3972829.
111. Yang Chen, Yiheng Liu, Kai Jiang, Zi Wen, Xu Cao, Song Wu. Linear ubiquitination of LKB1 activates AMPK pathway to inhibit NLRP3 inflammasome response and reduce chondrocyte pyroptosis in osteoarthritis. *J Orthop Translat*. 2022 Dec 1:39:1-11.
112. Ziqi Jiang, Yu Jiang, Jingchuan Fan, Jun Zhang, Ge Xu, Yinzheng Fan, Liyu Zhang, Xia Qin, Xuejun Jiang, Lejiao Mao, Gang Liu, Chengzhi Chen, Zhen Zou. Inhibition of cGAS ameliorates acute lung injury triggered by zinc oxide nanoparticles. *Toxicol Lett*. 2023 Jan 15:373:62-75.
113. Chang-Jun Liu, Zhong-Zhi Ma, Wei-Zhi Gong, Xian-Hai Mao, Hao-Quan Wen, Xiao-Hui Wang. The Role of Purine Metabolism-Related Genes PPAT and IMPDH1 in the Carcinogenesis of Intrahepatic Cholangiocarcinoma Based on Metabonomic and Bioinformatic Analyses. *J Oncol*. 2023 Jan 20;2023:5141836.
114. Kev Shen, Duanrong Wu, Baihan Sun, Yin Zhu, Hao Wang, Wenjun Zou, Yuhang Ma, Zhengfeng Lu. Ginsenoside Rg1 promotes astrocyte-to-neuron transdifferentiation in rat and its possible mechanism. *CNS Neurosci Ther*. 2023 Jan;29(1):256-269.
115. Yang Zhou, Xiang-Chong Wang, Jia-Hui Wei, Hong-Mei Xue, Wen-Tao Sun, Guo-Wei He, Qin Yang. Soluble epoxide hydrolase and TRPC3 channels jointly contribute to homocysteine-induced cardiac hypertrophy: Interrelation and regulation by C/EBP β . *Biochim Biophys Acta Mol Basis Dis*. 2023 Apr;1869(4):166643.
116. Shuofu Li, Xiaorong Liu, Ying Nie, Lei Yang, Chao Zhang, Yantao Guo, Shaofeng Yang, Zhaoyong Li. Psoralidin Induced Differentiation from Adipose-derived Stem Cells to Nucleus Pulposus-like Cells by TGF- β /Smad Signaling. *Curr Mol Med*. 2023 May 30;23(7):688-697.

Version 2024.04.29