

活性氧检测试剂盒

产品编号	产品名称	包装
S0033S	活性氧检测试剂盒	>100次
S0033M	活性氧检测试剂盒	>500次

产品简介:

- 活性氧检测试剂盒(Reactive Oxygen Species Assay Kit, 也称ROS Assay Kit)是一种利用荧光探针DCFH-DA进行活性氧检测的试剂盒。DCFH-DA本身没有荧光,可以自由穿过细胞膜,进入细胞内后,可以被细胞内的酯酶水解生成DCFH。而DCFH不能通透细胞膜,从而使探针很容易被装载到细胞内。细胞内的活性氧可以氧化无荧光的DCFH生成有荧光的DCF。检测DCF的荧光就可以知道细胞内活性氧的水平[1, 2]。
- 本试剂盒提供了活性氧阳性对照试剂Rosup, 以便于活性氧的检测。Rosup是一种混合物(compound mixture),浓度为50mg/ml。使用本试剂盒检测细胞内活性氧的效果请参考图1。

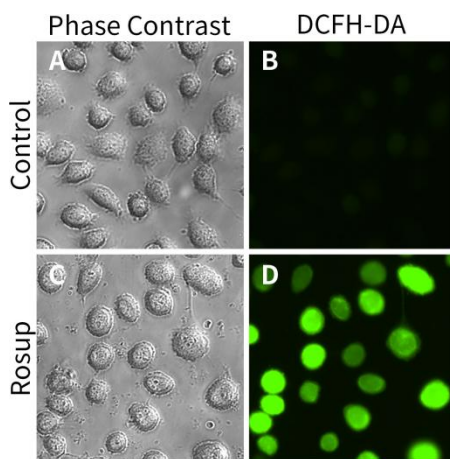


图1. 碧云天活性氧检测试剂盒(S0033)检测L929 (小鼠成纤维细胞)细胞内活性氧的效果图。L929细胞装载DCFH-DA探针后用50 μ g/ml Rosup处理30分钟,随后PBS洗涤一次后用荧光显微镜检测。正常的L929细胞中探针几乎未被氧化成荧光化合物,细胞中的绿色荧光非常弱(图A, B);使用活性氧阳性对照试剂Rosup处理使细胞内活性氧生成大幅增加, DCFH-DA与活性氧反应,细胞中的绿色荧光显著增强(图C, D)。实际结果会因实验条件、检测仪器等的不同而存在差异,图中效果仅供参考。

- 本试剂盒本底低,灵敏度高,线性范围宽,使用方便。
- 碧云天同时提供含优化的DCFH-DA探针稀释液和Rosup稀释液的活性氧检测试剂盒(含稀释液)(S0034),使用更便捷,通常可以确保获得更稳定可靠的检测效果。
- 本试剂盒小包装和中包装,6孔板每孔检测体系的体积为1ml时,分别可以检测100次和500次;96孔板每孔检测体系为100 μ l时,分别可以检测1000次和5000次。如果用于流式细胞仪,每个样品检测体系体积为0.5ml时,分别可以检测200次和1000次。

包装清单:

产品编号	产品名称	包装
S0033S-1	DCFH-DA (10mM)	0.1ml
S0033S-2	活性氧阳性对照(Rosup, 50mg/ml)	0.1ml
—	说明书	1份

产品编号	产品名称	包装
S0033M-1	DCFH-DA (10mM)	0.5ml
S0033M-2	活性氧阳性对照(Rosup, 50mg/ml)	0.5ml
—	说明书	1份

保存条件:

-20 $^{\circ}$ C保存,一年有效。其中DCFH-DA (10mM)须避光保存。

注意事项:

- 探针装载后,一定要洗净残余的未进入细胞内的探针,否则会导致背景较高。
- 探针装载完毕并洗净残余探针后,可以进行激发波长的扫描和发射波长的扫描,以确认探针的装载情况是否良好。DCF的激发光谱和发射光谱请参考下页图谱。
- 尽量缩短探针装载后到测定所用的时间(刺激时间除外),以减少各种可能的误差。
- 荧光酶标仪检测时须使用适合荧光检测的黑板或白板,推荐使用碧云天BeyoGold™全黑96孔细胞培养板(FCP966)或BeyoGold™黑色透明底96孔细胞培养板(平底带盖,独立包装)(FCP965)。
- 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. 装载探针

对于刺激时间较短(通常为2小时以内)的细胞,先装载探针,后用活性氧阳性对照或自己感兴趣的药物刺激细胞。对于细胞刺激时间较长(通常为6小时以上)的细胞,先用活性氧阳性对照或自己感兴趣的药物刺激细胞,后装载探针。

原位装载探针: 本方法仅适用于贴壁培养细胞。按照1:1000用细胞外液(C0216)或酌情使用PBS、HBSS等适当溶液稀释DCFH-DA,使终浓度为10微摩尔/升。去除细胞培养液,加入适当体积稀释好的DCFH-DA。加入的体积以能充分盖住细胞为宜,通常对于六孔板的一个孔加入稀释好的DCFH-DA不少于1毫升。37°C细胞培养箱内孵育20分钟。用细胞外液(C0216)或酌情使用PBS、HBSS、无血清细胞培养液等适当溶液洗涤细胞三次,以充分去除未进入细胞内的DCFH-DA。通常活性氧阳性对照在刺激细胞20-30分钟后可以显著提高活性氧水平。

收集细胞后装载探针: 按照1:1000用细胞外液(C0216)或酌情使用PBS、HBSS等适当溶液稀释DCFH-DA,使终浓度为10微摩尔/升。细胞收集后悬浮于稀释好的DCFH-DA中,细胞浓度为二百万至二千万/毫升,37°C细胞培养箱内孵育20分钟。每隔3-5分钟颠倒混匀一下,使探针和细胞充分接触。用细胞外液(C0216)或酌情使用PBS、HBSS、无血清细胞培养液等适当溶液洗涤细胞三次,以充分去除未进入细胞内的DCFH-DA。直接用活性氧阳性对照或自己感兴趣的药物刺激细胞,或把细胞等分成若干份后刺激细胞。通常活性氧阳性对照在刺激细胞20-30分钟后可以显著提高活性氧水平。

说明: 仅在阳性对照孔中加入Rosup作为阳性对照,其余孔不必加入Rosup。细胞外液推荐使用细胞外液(Extracellular Solution)(C0216),PBS推荐使用PBS(C0221A),HBSS推荐使用Hanks' Balanced Salt Solution(C0218)。碧云天同时提供含经优化的DCFH-DA探针稀释液和Rosup稀释液的活性氧检测试剂盒(含稀释液)(S0034),使用更便捷,通常可以确保获得更稳定可靠的检测效果。

2. 检测

对于原位装载探针的样品可以用激光共聚焦显微镜直接观察,或收集细胞后用荧光分光光度计、荧光酶标仪或流式细胞仪检测。对于收集细胞后装载探针的样品可以用荧光分光光度计、荧光酶标仪或流式细胞仪检测,用激光共聚焦显微镜直接观察也可以。

3. 参数设置

使用488nm激发波长,525nm发射波长,实时或逐时间点检测刺激前后荧光的强弱。DCF的荧光光谱和FITC非常相似,可以用FITC的参数设置检测DCF。DCF的激发光谱和发射光谱参考下图。

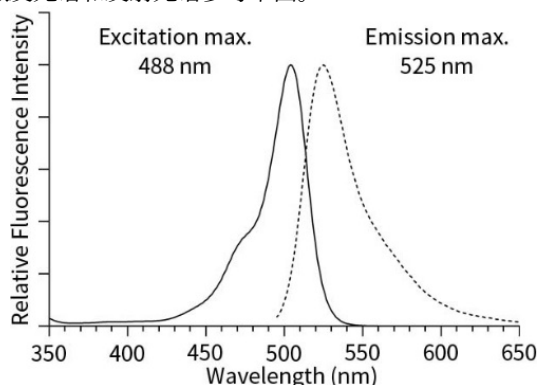


图2. DCF的激发光谱和发射光谱。

4. 其它说明

阳性对照Rosup可以按照1:1000的比例酌情使用PBS、HBSS、细胞外液或无血清培养液稀释后使用。例如装载好探针的细胞,直接吸除液体或离心后吸除液体,加入适当体积的按照1:1000稀释的Rosup阳性对照刺激。通常刺激后20-30分钟内可以观察到非常显著的活性氧水平升高。对于不同的细胞,活性氧阳性对照的效果可能有较大的差别。如果在刺激后30分钟内观察不到活性氧的升高,可以适当提高活性氧阳性对照的浓度。如果活性氧升高得过快,可以适当降低活性氧阳性对照的浓度。Rosup对不同细胞的效果会有所不同。碧云天同时提供含经优化的Rosup稀释液的活性氧检测试剂盒(含稀释液)(S0034),使用更便捷,通常可以确保获得更稳定可靠的检测效果。

另外,对于某些细胞,如果发现没有刺激的阴性对照细胞荧光也比较强,可以按照1:2000-1:5000稀释DCFH-DA,使装载探针时DCFH-DA的浓度为2-5微摩尔/升。

探针装载的时间也可以根据情况在15-60分钟内适当进行调整。

活性氧阳性对照(Rosup)仅仅用于作为阳性对照的样品，并不是在每个样品中都需加入活性氧阳性对照。

参考文献：

1. Rastogi RP, Singh SP, Häder DP, Sinha RP. Biochem Biophys Res Commun. 2010. 397(3):603-7.
2. Chen X, Zhong Z, Xu Z, Chen L, Wang Y. Free Radic Res. 2010. 44(6):587-604.

相关产品：

产品编号	产品名称	包装
C2055	BODIPY 500/510 C1, C12(脂肪酸绿色荧光探针)	1mg/5mg/25mg
S0019	DAF-FM DA (NO荧光探针)	>100次/>500次
S0033	活性氧检测试剂盒	>100次/>500次
S0034	活性氧检测试剂盒(含稀释液)	>100次/>500次
S0035	活性氧检测试剂盒(CM-H ₂ DCFDA)	20-200次/100-1000次
S0036	活性氧检测试剂盒(CM-H ₂ DCFDA, 含稀释液)	20-200次/100-1000次
S0038	过氧化氢检测试剂盒	150次
S0043	脂质过氧化检测试剂盒(BODIPY 581/591 C11)	100-1000次/500-5000次
S0051	过氧化氢酶检测试剂盒	100次
S0060	超氧化物检测试剂盒	100次
S0061	线粒体超氧化物检测试剂盒(MitoSOX Red)	20-200次/100-1000次
S0063	Dihydroethidium (超氧化物阴离子荧光探针)	5mg
S0064S	超氧阴离子活性氧检测试剂盒(DHE)	100-1000次
S0067-100μg	SOSG (单线态氧绿色荧光探针)	100μg
S0068S	单线态氧检测试剂盒(SOSG)	30-300次
S0131	脂质氧化(MDA)检测试剂盒	100/500次

使用本产品的文献：

1. Li JJ, Tang Q, Li Y, Hu BR, Ming ZY, Fu Q, Qian JQ, Xiang JZ.. Role of oxidative stress in the apoptosis of hepatocellular carcinoma induced by combination of arsenic trioxide and ascorbic acid. Acta Pharmacol Sin 2006 Aug;27(8):1078-84.
2. Gao MQ, Guo SB, Chen XH, Du W, Wang CB. Molecular mechanisms of polypeptide from Chlamys farreri protecting HaCaT cells from apoptosis induced by UVA plus UVB. Acta Pharmacol Sin 2007 Jul;28(7):1007-14.
3. Zha RP, Xu W, Wang WY, Dong L, Wang YP. Prevention of lipopolysaccharide-induced injury by 3,5-dicaffeoylquinic acid in endothelial cells. Acta Pharmacol Sin 2007 Aug;28(8):1143-48.
4. Liu RT, Zou LB, Lü QJ. Liquiritigenin inhibits Abeta(25-35)-induced neurotoxicity and secretion of Abeta(1-40) in rat hippocampal neurons. Acta Pharmacol Sin 2009 Jul;30(7):899-906.
5. Qu LP, Xue H, Yuan P, Zhou L, Yao T, Huang Y, Lu LM. Adenosine 5'-triphosphate stimulates the increase of TGF-beta1 in rat mesangial cells under high-glucose conditions via reactive oxygen species and ERK1/2. Acta Pharmacol Sin 2009;30(12):1601-6.
6. Zhang SH, Wang WQ, Wang JL. Protective effect of tetrahydroxystilbene glucoside on cardiotoxicity induced by doxorubicin in vitro and in vivo. Acta Pharmacol Sin 2009;30(11):1479-87.
7. Esteban MA, Wang T, Qin B, Yang J, Qin D, Cai J, Li W, Weng Z, Chen J, Ni S, Chen K, Li Y, Liu X, Xu J, Zhang S, Li F, He W, Labuda K, Song Y, Peterbauer A, Wolbank S, Redl H, Zhong M, Cai D, Zeng L, Pei D. Vitamin C enhances the generation of mouse and human induced pluripotent stem cells. Cell Stem Cell 2010 Jan 8;6(1):71-9.
8. Jin S, Zhang QY, Kang XM, Wang JX, Zhao WH. Daidzein induces MCF-7 breast cancer cell apoptosis via the mitochondrial pathway. Ann Oncol 2010;21(2):263-8.
9. Gao D, Liu J, Wei HB, Li HF, Guo GS, Lin JM. A microfluidic approach for anticancer drug analysis based on hydrogel encapsulated tumor cells. Anal Chim Acta 2010;665(1):7-14.
10. Cui Y, Zhao Y, Tian Y, Zhang W, Lü X, Jiang X. The molecular mechanism of action of bactericidal gold nanoparticles on Escherichia coli. Biomaterials 2012 Mar;33(7):2327-33.
11. Li XY, Jing CQ, Lei WL, Li J, Wang JJ. Apoptosis caused by imidazolium-based ionic liquids in PC12 cells. ECOTOX ENVIRON SAFE 2012 Sep;83:102-7.
12. Zhu Y, Li W, Zhang Y, Li J, Liang L, Zhang X, Chen N, Sun Y, Chen W, Tai R, Fan C, Huang Q. Excessive sodium ions delivered into cells by nanodiamonds: implications for tumor therapy. Small 2012 Jun 11;8(11):1771-9.
13. Wang K, Gao F, Ji Y, Liu Y, Dan Z, Yang P, Zhu Y, Li S. ORF79 impairs mitochondrial function via interaction with a subunit of electrontransport chain complex III inHonglian cytoplasmic male sterile rice. New Phytol 2013 Apr;198(2):408-18.
14. Chen G, Zhang P, Huang T, Yu W, Lin J, Li P, Chen K. Polysaccharides from Rhizopus nigricans mycelia induced apoptosis and G2/M arrest inBGC-823 cells. Carbohydrate Polymers 2013 Sep 12; 97(2):800-8.
15. Cheng P, Ni Z, Dai X, Wang B, Ding W, Rae Smith A, Xu L, Wu D, He F, Lian J. The novel BH-3 mimetic apogossypolone induces Beclin-1- and ROS-mediated autophagy in humanhepatocellular carcinoma [corrected] cells. Cell Death Dis 2013 Feb 7;4:e489.
16. Chen XX, Cheng B, Yang YX, Cao A, Liu JH, Du LJ, Liu Y, Zhao Y, Wang H. Characterization and preliminary toxicity assay of nano-titanium dioxide additive insugar-coated chewing gum. Small 2013 May 27;9(9-10):1765-74.
17. He X, Song W, Liu C, Chen S, Hua J. Rapamycin inhibits acrolein-induced apoptosis by alleviating ROS-driven mitochondrial dysfunction in male germ cells. CELL PROLIFERAT 2014 Apr;47(2):161-71.
18. Ma Y, Li R, Zhang Y, Zhou L, Dai Y. Knockdown of peroxiredoxin 5 inhibits the growth of osteoarthritic chondrocytes viaupregulating Wnt/β-catenin signaling. FREE RADICAL BIO MED 2014 Sep 16;76C:251-260.
19. Zhao JY, Cui R, Zhang ZL, Zhang M, Xie ZX, Pang DW. Cytotoxicity of nucleus-targeting fluorescent gold nanoclusters. Nanoscale 2014 Oct 9;6(21):13126-34.
20. Jian Z, Li K, Song P, Zhu G, Zhu L, Cui T, Liu B, Tang L, Wang X, Wang G, Gao T, Li C. Impaired activation of the Nrf2-ARE signaling pathway undermines H2O2-induced oxidativestress response: a possible mechanism for melanocyte degeneration in vitiligo. J Invest Dermatol 2014 Aug;134(8):2221-30.

21. Li Y, Zhu H, Wang S, Qian X, Fan J, Wang Z, Song P, Zhang X, Lu W, Ju D. Interplay of Oxidative Stress and Autophagy in PAMAM Dendrimers-Induced Neuronal Cell Death. *Theranostics* 2015 Oct 8;5(12):1363-77.
22. Xue H, Gan F, Zhang Z, Hu J, Chen X, Huang K. Astragalus polysaccharides inhibits PCV2 replication by inhibiting oxidative stress and blocking NF- κ B pathway. *Int J Biol Macromol* 2015 Nov;81:22-30.
23. Yu W, Chen G, Zhang P, Chen K. Purification, partial characterization and antitumor effect of an exopolysaccharide from *Rhizopus nigricans*. *Int J Biol Macromol* 2016 Jan;82:299-307.
24. Duan X, Huang X, Wang X, Yan S, Guo S, Abdalla AE, Huang C, Xie J. l-Serine potentiates fluoroquinolone activity against *Escherichia coli* by enhancing endogenous reactiveoxygen species production. *J ANTIMICROB CHEMOTH* 2016 Aug;71(8):2192-9.
25. Yin T, Zhang Z, Cao B, Duan Q, Shi P, Zhao H, Camara SN, Shen Q, Wang C. Bmi1 inhibition enhances the sensitivity of pancreatic cancer cells to gemcitabine. *ONCOTARGET* 2016 Jun 14;7(24):37192-37204.
26. Xie D, Wu X, Lan L, Shangguan F, Lin X, Chen F, Xu S, Zhang Y, Chen Z, Huang K, Wang R, Wang L, Song X, Liu Y, Lu B. Downregulation of TFAM inhibits the tumorigenesis of non-small cell lung cancer by activating ROS-mediated JNK/p38MAPK signaling and reducing cellular bioenergetics. *ONCOTARGET* 2016 Mar 8;7(10):11609-24.
27. Qin WD, Liu GL, Wang J, Wang H, Zhang JN, Zhang F, Ma Y, Ji XY, Li C, Zhang MX. Poly(ADP-ribose) polymerase 1 inhibition protects cardiomyocytes from inflammation and apoptosis in diabetic cardiomyopathy. *ONCOTARGET* 2016 Jun 14;7(24):35618-35631.
28. Lu Y, Xu S, Chen H, He M, Deng Y, Cao Z, Pi H, Chen C, Li M, Ma Q, Gao P, Ji Y, Zhang L, Yu Z, Zhou Z. CdSe/ZnS quantum dots induce hepatocyte pyroptosis and liver inflammation via NLRP3 inflammasome activation. *Biomaterials* 2016 Jun;90:27-39.
29. Xu C, Liu Q, Liu H, Zhang C, Shao W, Gu A. Toxicological assessment of multi-walled carbon nanotubes in vitro: potential mitochondria effects on malereproductive cells. *ONCOTARGET* 2016 Jun 28;7(26):39270-39278.
30. Chen W, Wang J, Luo Y, Wang T, Li X, Li A, Li J, Liu K, Liu B. Ginsenoside Rb1 and compound K improve insulin signaling and inhibit ER stress-associated NLRP3inflammasome activation in adipose tissue. *J Ginseng Res* 2016 Oct;40(4):351-358.
31. Zhang M, Du Y, Lu R, Shu Y, Zhao W, Li Z, Zhang Y, Liu R, Yang T, Luo S, Gao M, Zhang Y, Zhang G, Liu J, Lu Y. Cholesterol Retards Senescence in BoneMarrow MesenchymalStem Cells by Modulating Oxid Med Cell Longev 2016;2016:7524308.
32. Yang JB, Khan M, He YY, Yao M, Li YM, Gao HW, Ma TH. Tubeimoside-1 induces oxidative stress-mediated apoptosis and G0/G1 phase arrest in human prostatecarcinoma cells in vitro. *Acta Pharmacol Sin* 2016 Jul;37(7):950-62.
33. Liu Z, Zhan X, Yang M, Yang Q, Xu X, Lan F, Wu Y, Gu Z. A magnetic-dependent protein corona of tailor-made superparamagnetic iron oxides alters their biologicalbehaviors. *Nanoscale* 2016 Apr 14;8(14):7544-55.
34. Zhang T, Shao Y, Chu TY, Huang HS, Liou YL, Li Q, Zhou H. MiR-135a and MRP1 play pivotal roles in the selective lethality of phenethyl isothiocyanate to malignantglioma cells. *Am J Cancer Res* 2016 May 1;6(5):957-72.
35. Jiang P, Yuan L, Huang G, Wang X, Li X, Jiao L, Zhang L. Structural properties and immunoenhancement of an exopolysaccharide produced *Int J Biol Macromol* 2016 Dec;93(Pt A):566-571.
36. Yu YX, Li YP, Gao F, Hu QS, Zhang Y, Chen D, Wang GH. Vitamin K2 suppresses rotenone-induced microglial activation in vitro. *Acta Pharmacol Sin* 2016 Sep;37(9):1178-89.
37. Yang F, Yan G, Li Y, Han Z, Zhang L, Chen S, Feng C, Huang Q, Ding F, Yu Y, Bi C, Cai B, Yang L. Astragalus Polysaccharide Attenuated Iron Overload-Induced Dysfunction of Mesenchymal Stem Cells via Suppressing Mitochondrial ROS. *CELL PHYSIOL BIOCHEM* 2016;39(4):1369-79.
38. Yue L, Wang W, Wang Y, Du T, Shen W, Tang H, Wang Y, Yin H. Bletilla striata polysaccharide inhibits angiotensin II-induced ROS and inflammation via NOX4 and TLR2pathways. *Int J Biol Macromol* 2016 Aug;89:376-88.
39. Gao M, Chen G, Wang H, Xie B, Hu L, Kong Y, Yang G, Tao Y, Han Y, Wu X, Zhang Y, Dai B, Shi J. Therapeutic potential and functional interaction of carfilzomib and vorinostat in T-cell leukemia/lymphoma. *ONCOTARGET* 2016 May 17;7(20):29102-15.
40. Qiao ZY, Zhao WJ, Cong Y, Zhang D, Hu Z, Duan ZY, Wang H. Self-Assembled ROS-Sensitive Polymer-Peptide Therapeutics Incorporating Built-in Reporters forEvaluation of Treatment Efficacy. *Biomacromolecules* 2016 May 9;17(5):1643-52.
41. Wei C, Wang Y, Li M, Li H, Lu X, Shao H, Xu C. Spermine inhibits Endoplasmic Reticulum Stress-induced Apoptosis: a New Strategy *CELL PHYSIOL BIOCHEM* 2016;38(2):531-44.
42. Zhang Z, Duan Q, Zhao H, Liu T, Wu H, Shen Q, Wang C, Yin T. Gemcitabine treatment promotes pancreatic cancer stemness through the Nox/ROS/NF- κ B/STAT3 signalingcascade. *Cancer Lett* 2016 Nov 1;382(1):53-63.
43. Shuai Y, Liao L, Su X, Yu Y, Shao B, Jing H, Zhang X, Deng Z, Jin Y. Melatonin Treatment Improves Mesenchymal Stem Cells Therapy by Preserving Stemness during Long-termIn Vitro Expansion. *Theranostics* 2016 Aug 8;6(11):1899-917.
44. Ma C, Shi L, Huang Y, Shen L, Peng H, Zhu X, Zhou G. Correction: Nanoparticle delivery of Wnt-1 siRNA enhances photodynamic therapy by inhibiting epithelial-mesenchymal transition for oral cancer. *BIOMATER SCI-UK* 2017 Jan 30. doi: 10.1039/c7bm90004j.
45. Zou J, Zhang Y, Sun J, Wang X, Tu H, Geng S, Liu R, Chen Y, Bi Z. Deoxyelephantopin Induces Reactive Oxygen Species-Mediated Apoptosis and Autophagy in Human Osteosarcoma Cells. *CELL PHYSIOL BIOCHEM* 2017;42(5):1812-1821.
46. Li S, Liu X, Lei J, Yang J, Tian P, Gao Y. Crocin Protects Podocytes Against Oxidative Stress and Inflammation Induced by High Glucose Through Inhibition of NF- κ B. *CELL PHYSIOL BIOCHEM* 2017;42(4):1481-1492.
47. Zhang Z, Li S, Jiang H, Liu B, Lv Z, Guo C, Zhang H. Effects of selenium on apoptosis and abnormal amino acid metabolism induced by excess fattyacid in isolated rat hepatocytes. *Mol Nutr Food Res* 2017 Sep;61(9).
48. He X, Wu C, Cui Y, Zhu H, Gao Z, Li B, Hua J, Zhao B. The aldehyde group of gossypol induces mitochondrial apoptosis via ROS-SIRT1-p53-PUMAp pathway in male germline stem cell. *ONCOTARGET* 2017 Oct 24;8(59):100128-100140.
49. Wang G, Zhang T, Sun W, Wang H, Yin F, Wang Z, Zuo D, Sun M, Zhou Z, Lin B, Xu J, Hua Y, Li H, Cai Z. Arsenic sulfide induces apoptosis and autophagy throughthe activation of ROS/JNK and suppression of Akt/mTOR signaling pathways in osteosarcoma. *FREE RADICAL BIO MED* 2017 May;106:24-37.
50. Wei JL, Fang M, Fu ZX, Zhang SR, Guo JB, Wang R, Lv ZB, Xiong YF. Sestrin 2 suppresses cells proliferation through AMPK/mTORC1 pathway activation in colorectalcancer. *ONCOTARGET* 2017 Jul 25;8(30):49318-49328.
51. Li X, Wang B, Tang L, Zhang Y, Chen L, Gu L, Zhang F, Ouyang J, Zhang X. GSTA1 expression is correlated with aldosterone level in KCNJ5-mutated adrenal aldosterone-producing adenoma. *J CLIN ENDOCR METAB* 2017 Nov 20.
52. Fan W, Han D, Sun Z, Ma S, Gao L, Chen J, Li X, Li X, Fan M, Li C, Hu D, Wang Y, Cao F. Endothelial deletion of mTORC1 protects against hindlimb ischemia in diabetic mice viaactivation of autophagy, attenuation of oxidative stress and alleviation of inflammation. *FREE RADICAL BIO MED* 2017 Jul;108:725-740.
53. Zhang N, Wei WY, Yang Z, Che Y, Jin YG, Liao HH, Wang SS, Deng W, Tang QZ. Nobiletin, a Polymethoxy Flavonoid, Protects Against Cardiac Hypertrophy Induced by Pressure-Overload via Inhibition of NADPH Oxidases and Endoplasmic Reticulum Stress. *CELL PHYSIOL BIOCHEM* 2017;42(4):1313-1325.
54. Su J, Zhou X, Yin X, Wang L, Zhao Z, Hou Y, Zheng N, Xia J, Wang Z.. The effects of curcumin on proliferation, apoptosis, invasion, and NEDD4 expression in pancreatic cancer. *Biochem Pharmacol* 2017 Sep 15;140:28-40.
55. Zhang S, Zhang L, Zhang H, Fan G, Qiu J, Fang Z, Wu H, Wang Y, Zhao X. Hongjingtian Injection Attenuates Myocardial Oxidative Damage via Promoting Autophagy and Inhibiting Apoptosis. *Oxid Med Cell Longev* 2017;2017:6965739.
56. Li T, Song X, Zhang J, Zhao L, Shi Y, Li Z, Liu J, Liu N, Yan Y, Xiao Y, Tian X, Sun W,

- Guan Y, Liu B. Protection of Human Umbilical Vein Endothelial Cells against Oxidative Stress by MicroRNA-210. *Oxid Med Cell Longev* 2017;2017:3565613.
57. Jiang W, Huang W, Chen Y, Zou M, Peng D, Chen D. HIV-1 Transactivator Protein Induces ZO-1 and Nephrilysin Dysfunction in Brain Endothelial Cells via the Ras Signaling Pathway. *Oxid Med Cell Longev* 2017;2017:3160360.
58. Tian X, He W, Yang R, Liu Y. DL-3-n-butylphthalide protects the heart against ischemic injury and H9c2 cardiomyoblasts against oxidative stress: involvement of mitochondrial function and biogenesis. *J Biomed Sci* 2017 Jun 15;24(1):38.
59. Song P, Wang Z, Zhang X, Fan J, Li Y, Chen Q, Wang S, Liu P, Luan J, Ye L, Ju D. The role of autophagy in asparaginase-induced immune suppression of macrophages. *Cell Death Dis* 2017 Mar 30;8(3):e2721.
60. Bai H, Wu M, Zhang H, Tang G. Chronic polycyclic aromatic hydrocarbon exposure causes DNA damage and genomic instability in lung epithelial cells. *ONCOTARGET* 2017 Sep 15;8(45):79034-79045.
61. Yang W, Huang J, Xiao B, Liu Y, Zhu Y, Wang F, Sun S. Taurine Protects Mouse Spermatozoa from Ionizing Radiation-Induced Damage Through Activation of Nrf2/HO-1 Signaling. *CELL PHYSIOL BIOCHEM* 2017;44(4):1629-1639.
62. Gao HE, Sun Y, Ding YH, Long J, Liu XL, Yang M, Ji Q, Li YH, Chen Y, Zhang Q, Gao YD. Antineoplastic effects of CPPTL via the ROS/JNK pathway in acute myeloid leukemia. *ONCOTARGET* 2017 Jun 13;8(24):38990-39000.
63. Lv C, Maharjan S, Wang Q, Sun Y, Han X, Wang S, Mao Z, Xin Y, Zhang B. α -Lipoic Acid Promotes Neurological Recovery After Ischemic Stroke by Activating the Nrf2/HO-1 Pathway to Attenuate Oxidative Damage. *CELL PHYSIOL BIOCHEM* 2017;43(3):1273-1287.
64. Li Y, Chang J, Cui Y, Zhao R, Ding Y, Hou Y, Zhou Z, Ji HL, Nie H. Novel mechanisms for crotonaldehyde-induced lung edema. *ONCOTARGET* 2017 May 12;8(48):83509-83522.
65. Yin J, Ma L, Wang H, Yan H, Hu J, Jiang W, Li Y. Chinese herbal medicine compound Yi-Zhi-Hao pellet inhibits replication of influenza virus infection through activation of heme oxygenase-1. *Acta Pharm Sin B* 2017 Nov;7(6):630-637.
66. Que Z, Wang P, Hu Y, Xue Y, Liu X, Qu C, Ma J, Liu Y. Dihydroartemisinin inhibits glioma invasiveness via a ROS to P53 to β -catenin signaling. *Pharmacol Res* 2017 May;119:72-88.
67. Hao H, Cao L, Jiang C, Che Y, Zhang S, Takahashi S, Wang G, Gonzalez FJ. Farnesoid X Receptor Regulation of the NLRP3 Inflammasome Underlies Cholestasis-Associated Sepsis. *Cell Metab* 2017 Apr 4;25(4):856-867.e5.
68. Peng Z, Yang X, Qin J, Ye K, Wang X, Shi H, Jiang M, Liu X, Lu X. Glyoxalase-1 Overexpression Reverses Defective Proangiogenic Function of Diabetic Adipose-Derived Stem Cells in Streptozotocin-Induced Diabetic Mice Model of Critical Limb Ischemia. *STEM CELL TRANSL MED* 2017 Jan;6(1):261-271.
69. Zhang M, Pan H, Xu Y, Wang X, Qiu Z, Jiang L. Allicin Decreases Lipopolysaccharide-Induced Oxidative Stress and Inflammation in Human Umbilical Vein Endothelial Cells through Suppression of Mitochondrial Dysfunction and Activation of Nrf2. *CELL PHYSIOL BIOCHEM* 2017;41(6):2255-2267.
70. Wu QF, Qian C, Zhao N, Dong Q, Li J, Wang BB, Chen L, Yu L, Han B, Du YM, Liao YH. Activation of transient receptor potential vanilloid 4 involves in hypoxia/reoxygenation injury in cardiomyocytes. *Cell Death Dis* 2017 May 25;8(5):e2828.
71. Xie J, Yong Y, Dong X, Du J, Guo Z, Gong L, Zhu S, Tian G, Yu S, Gu Z, Zhao Y. Therapeutic Nanoparticles Based on Curcumin and Bamboo Charcoal Nanoparticles for Chemo-Photothermal Synergistic Treatment of Cancer and Radioprotection of Normal Cells. *ACS APPL MATER INTER* 2017 Apr 26;9(16):14281-14291.
72. Huo X, Wang C, Yu Z, Peng Y, Wang S, Feng S, Zhang S, Tian X, Sun C, Liu K, Deng S, Ma X. Human transporters, PEPT1/2, facilitate melatonin transportation into mitochondria of cancer cells: An implication of the therapeutic potential. *J Pineal Res* 2017 May;62(4).
73. Zhang Y, Lv T, Zhang H, Xie X, Li Z, Chen H, Gao Y. Folate and Heptamethine Cyanine Modified Chitosan-Based Nanotheranostics for Tumor Targeted Near-Infrared Fluorescence Imaging and Photodynamic Therapy. *Biomacromolecules* 2017 Jul 10;18(7):2146-2160.
74. Meng J, Lv Z, Qiao X, Li X, Li Y, Zhang Y, Chen C. The decay of Redox-stress Response Capacity is a substantive characteristic of aging: Revising the redox theory of aging. *Redox Biol* 2017 Apr;11:365-374.
75. Du X, Shi Z, Peng Z, Zhao C, Zhang Y, Wang Z, Li X, Liu G, Li X. Acetoacetate induces hepatocytes apoptosis by the ROS-mediated MAPKs pathway in ketotic cows. *J Cell Physiol* 2017 Dec;232(12):3296-3308.
76. Li D, Zhao Y, Ding W, Zhao P, Xu JW, Li T, Ma H, Yu X. A strategy for promoting lipid production in green microalgae *Monoraphidium* sp. QLY-1 by combined melatonin and photoinduction. *BIORESOURCE TECHNOL* 2017 Jul;235:104-112.
77. Fu J, Yang Q, Li Y, Li P, Wang L, Li X. A mechanism by which Astragalus polysaccharide protects against ROS toxicity through inhibiting the protein dephosphorylation of boar sperm preserved at 4 °C. *J Cell Physiol* 2017 Dec 12.
78. Chen W, Shen X, Hu Y, Xu K, Ran Q, Yu Y, Dai L, Yuan Z, Huang L, Shen T, Cai K. Surface functionalization of titanium implants with chitosan-catechol conjugate for suppression of ROS-induced cells damage and improvement of osteogenesis. *Biomaterials* 2017 Jan;114:82-96.
79. Wang G, Jin W, Qasim AM, Gao A, Peng X, Li W, Feng H, Chu PK. Antibacterial effects of titanium embedded with silver nanoparticles based on electron-transfer-induced reactive oxygen species. *Biomaterials* 2017 Apr;124:25-34.
80. Wu H, Jiang K, Yin N, Ma X, Zhao G, Qiu C, Deng G. Thymol mitigates lipopolysaccharide-induced endometritis by regulating the TLR4- and ROS-mediated NF- κ B signaling pathways. *ONCOTARGET* 2017 Mar 21;8(12):20042-20055.
81. Wang W, Wang R, Zhang Q, Mor G, Zhang H. Benzo(a)pyren-7,8-dihydrodiol-9,10-epoxide induces human trophoblast Swan 71 cell dysfunction due to cell apoptosis through disorder of mitochondrial fission/fusion. *Environ Pollut* 2018 Feb;233:820-832.
82. Sun Z, Zhang H, Wang X, Wang QC, Zhang C, Wang JQ, Wang YH, An CQ, Yang KY, Wang Y, Gao F, Guo C, Tang TS. TMCO1 is essential for ovarian follicle development by regulating ER Ca²⁺ store of granulosa cells. *Cell Death Differ* 2018 Feb 21.
83. Lu MC, Jiao Q, Liu T, Tan SJ, Zhou HS, You QD, Jiang ZY. Discovery of a head-to-tail cyclic peptide as the Keap1-Nrf2 protein-protein interaction inhibitor with high cell potency. *Eur J Med Chem* 2018 Jan 1;143:1578-1589.
84. Wu X, Zhang H, Qi W, Zhang Y, Li J, Li Z, Lin Y, Bai X, Liu X, Chen X, Yang H, Xu C, Zhang Y, Yang B. Nicotine promotes atherosclerosis via ROS-NLRP3-mediated endothelial cell pyroptosis. *Cell Death Dis* 2018 Feb 7;9(2):171.
85. Wang Z, Zhou F, Dou Y, Tian X, Liu C, Li H, Shen H, Chen G. Melatonin Alleviates Intracerebral Hemorrhage-Induced Secondary Brain Injury in Rats via Suppressing Apoptosis, Inflammation, Oxidative Stress, DNA Damage, and Mitochondria Injury. *Transl Stroke Res* 2018 Feb;9(1):74-91.
86. Wang X, Qin J, Zhang X, Peng Z, Ye K, Wu X, Yang X, Shi H, Zhao Z, Guo X, Liu X, Yin M, Lu X. Functional blocking of Ninjurin1 as a strategy for protecting endothelial cells in diabetes mellitus. *CLIN SCI* 2018 Jan 19;132(2):213-229.
87. Guo W, Liu X, Li J, Shen Y, Zhou Z, Wang M, Xie Y, Feng X, Wang L, Wu X. Prdx1 alleviates cardiomyocyte apoptosis through ROS-activated MAPK pathway during myocardial ischemia/reperfusion injury. *Int J Biol Macromol* 2018 Feb 2;112:608-615.
88. Liu MX, Jin L, Sun SJ, Liu P, Feng X, Cheng ZL, Liu WR, Guan KL, Shi YH, Yuan HX, Xiong Y. Metabolic reprogramming by PCK1 promotes TCA cataplerosis, oxidative stress and apoptosis in liver cancer cells and suppresses hepatocellular carcinoma. *Oncogene* 2018 Jan 16.
89. Liu W, Meng Q, Sun Y, Wang C, Huo X, Liu Z, Sun P, Sun H, Ma X, Liu K. Targeting P-Glycoprotein: Nelfinavir Reverses Adriamycin Resistance in K562/ADR Cells. *CELL PHYSIOL BIOCHEM* 2018;51(4):1616-1631.
90. Lin Y, Tang G, Jiao Y, Yuan Y, Zheng Y, Chen Y, Xiao J, Li C, Chen Z, Cao P. Propionibacterium acnes Induces Intervertebral Disc Degeneration by Promoting

- iNOS/NO and COX-2/PGE2 Activation via the ROS-Dependent NF- κ B Pathway. *Oxid Med Cell Longev* 2018 Aug 19;2018:3692752.
91. Deng Y, Jia F, Chen S, Shen Z, Jin Q, Fu G, Ji J. Nitric oxide as an all-rounder for enhanced photodynamic therapy: Hypoxia relief, glutathione depletion and reactive nitrogen species generation. *Biomaterials* 2018 Dec;187:55-65.
 92. Zheng T, Yang X, Li W, Wang Q, Chen L, Wu D, Bian F, Xing S, Jin S. Salidroside Attenuates High-Fat Diet-Induced Nonalcoholic Fatty Liver Disease via AMPK-Dependent TXNIP/NLRP3 Pathway. *Oxid Med Cell Longev* 2018 Jul 22;2018:8597897.
 93. Zhang D, Li Y, Zhang T, Liu J, Jahejo AR, Yang L, Chen P, Ning G, Huo N, Ma H, Yan F, Tian W. Protective effects of zinc and N-acetyl-L-cysteine supplementation against cadmium induced erythrocyte cytotoxicity in Arbor Acres broiler chickens (*Gallus gallus domesticus*). *ECOTOX ENVIRON SAFE* 2018 Nov 15;163:331-339.
 94. Jin Y, Yang Q, Liang L, Ding L, Liang Y, Zhang D, Wu B, Yang T, Liu H, Huang T, Shen H, Tu H, Pan Y, Wei Y, Yang Y, Zhou F. Compound kushen injection suppresses human acute myeloid leukaemia by regulating the Prdxs/ROS/Trx1 signalling pathway. *J EXP CLIN CANC RES* 2018 Nov 19;37(1):277.
 95. Song Y, Li S, Geng W, Luo R, Liu W, Tu J, Wang K, Kang L, Yin H, Wu X, Gao Y, Zhang Y, Yang C. Sirtuin 3-dependent mitochondrial redox homeostasis protects against AGEs-induced intervertebral disc degeneration. *Redox Biol* 2018 Oct;19:339-353.
 96. Shen M, Cao Y, Jiang Y, Wei Y, Liu H. Melatonin protects mouse granulosa cells against oxidative damage by inhibiting FOXO1-mediated autophagy: Implication of an antioxidation-independent mechanism. *Redox Biol* 2018 Sep;18:138-157.
 97. Li WD, Yu S, Luo SM, Shen W, Yin S, Sun QY. Melatonin defends mouse oocyte quality from benzo[ghi]perylene-induced deterioration. *J Cell Physiol* 2019 May;234(5):6220-6229.
 98. Dong S, Shi H, Zhang X, Chen X, Cao D, Mao C, Gao X, Wang L. Difunctional bacteriophage conjugated with photosensitizers for *Candida albicans*-targeting photodynamic inactivation. *INT J NANOMED* 13:2199-2216. 2018 Apr 11
 99. Zhang Z, Xu S, Wang Y, Yu Y, Li F, Zhu H, Shen Y, Huang S, Guo S. Near-infrared triggered co-delivery of doxorubicin and quercetin by using gold nanocages with tetradecanol to maximize anti-tumor effects on MCF-7/ADR cells. *J COLLOID INTERF SCI* 509:47-57. 2018 Jan 1
 100. Lin HY, Han HW, Sun WX, Yang YS, Tang CY, Lu GH, Qi JL, Wang XM, Yang YH. Design and characterization of α -lipoic acyl shikonin ester twin drugs as tubulin and PDK1 dual inhibitors. *Eur J Med Chem* 144:137-150. 2018 Jan 20
 101. Wang X, Chen B, Sun J, Jiang Y, Zhang H, Zhang P, Fei B, Xu Y. Iron-induced oxidative stress stimulates osteoclast differentiation via NF- κ B signaling pathway in mouse model. *Metabolism* 83:167-176. 2018 Jun
 102. Luo CQ, Zhou YX, Zhou TJ, Xing L, Cui PF, Sun M, Jin L, Lu N, Jiang HL. Reactive oxygen species-responsive nanoprodrug with quinone methides-mediated GSH depletion for improved chlorambucil breast cancers therapy. *J Control Release* 274:56-68. 2018 Mar 28
 103. Tang P, Gu JM, Xie ZA, Gu Y, Jie ZW, Huang KM, Wang JY, Fan SW, Jiang XS, Hu ZJ. Honokiol alleviates the degeneration of intervertebral disc via suppressing the activation of TXNIP-NLRP3 inflammasome signal pathway. *FREE RADICAL BIO MED* 120:368-379. 2018 May 20
 104. Liu J, Wang W, Liu X, Wang X, Wang J, Wang Y, Li N, Wang X. Supplementation of cryopreservation medium with TAT-Peroxiredoxin 2 fusion protein improves human sperm quality and function. *Fertil Steril* 110(6):1058-1066. 2018 Nov
 105. Guo L, Yang W, Huang Q, Qiang J, Hart JR, Wang W, Hu J, Zhu J, Liu N, Zhang Y. Selenocysteine-Specific Mass Spectrometry Reveals Tissue-Distinct Selenoproteomes and Candidate Selenoproteins. *Cell Chem Biol* 25(11):1380-1388.e4. 2018 Nov 15
 106. Qin SB, Peng DY, Lu JM, Ke ZP. MiR-182-5p inhibited oxidative stress and apoptosis triggered by oxidized low-density lipoprotein via targeting toll-like receptor 4. *J Cell Physiol* 233(10):6630-6637. 2018 Oct
 107. Wang Y, Deng X, Yu C, Zhao G, Zhou J, Zhang G, Li M, Jiang D, Quan Z, Zhang Y. Synergistic inhibitory effects of capsaicin combined with cisplatin on human osteosarcoma in culture and in xenografts. *J EXP CLIN CANC RES* 37(1):251. 2018 Oct 16
 108. Wu B, Wu X, Liu S, Wang Z, Chen L. Size-dependent effects of polystyrene microplastics on cytotoxicity and efflux pump inhibition in human Caco-2 cells. *Chemosphere* 221:333-341. 2019 Apr
 109. Jiao Y, Niu T, Liu H, Tay FR, Chen JH. Protection against HEMA-Induced Mitochondrial Injury In Vitro by Nrf2 Activation. *Oxid Med Cell Longev* 2019:3501059. 2019 Apr 7
 110. Hu X, Ma R, Fu W, Zhang C, Du X. LncRNA UCA1 sponges miR-206 to exacerbate oxidative stress and apoptosis induced by ox-LDL in human macrophages. *J Cell Physiol* 234(8):14154-14160. 2019 Aug
 111. An Q, Peng W, Cheng Y, Lu Z, Zhou C, Zhang Y, Su J. Melatonin supplementation during in vitro maturation of oocyte enhances subsequent development of bovine cloned embryos. *J Cell Physiol* 234(10):17370-17381. 2019 Aug
 112. Zhang M, Xu Y, Jiang L. Irisin attenuates oxidized low-density lipoprotein impaired angiogenesis through AKT/mTOR/S6K1/Nrf2 pathway. *J Cell Physiol* 234(10):18951-18962. 2019 Aug
 113. Zhang P, Wang T, Zhang D, Zhang Z, Yuan S, Zhang J, Cao J, Li H, Li X, Shen H, Chen G. Exploration of MST1-Mediated Secondary Brain Injury Induced by Intracerebral Hemorrhage in Rats via Hippo Signaling Pathway. *Transl Stroke Res* 10(6):729-743. 2019 Dec
 114. Wang D, Zhang Z, Lin L, Liu F, Wang Y, Guo Z, Li Y, Tian H, Chen X. Porphyrin-based covalent organic framework nanoparticles for photoacoustic imaging-guided photodynamic and photothermal combination cancer therapy. *Biomaterials* 223:119459. 2019 Dec
 115. Li S, Xie A, Li H, Zou X, Zhang Q. A self-assembled, ROS-responsive Janus-prodrug for targeted therapy of inflammatory bowel disease. *J Control Release* 316:66-78. 2019 Dec 28
 116. Pang Q, Li Y, Meng L, Li G, Luo Z, Fan R. Neurotoxicity of BPA, BPS, and BPB for the hippocampal cell line (HT-22): An implication for the replacement of BPA in plastics. *Chemosphere* 226:545-552. 2019 Jul
 117. Yang Y, Wang Y, Kong Y, Zhang X, Zhang H, Gang Y, Bai L. Mechanical stress protects against osteoarthritis via regulation of the AMPK/NF- κ B signaling pathway. *J Cell Physiol* 234(6):9156-9167. 2019 Jun
 118. Zheng Y, Liu W, Chen Y, Li C, Jiang H, Wang X. Conjugating gold nanoclusters and antimicrobial peptides: From aggregation-induced emission to antibacterial synergy. *J COLLOID INTERF SCI* 546:1-10. 2019 Jun 15
 119. Kong C, Hao M, Chen X, Zhao X, Wang Y, Li J, Gao Y, Zhang H, Yang B, Jiang J. NF- κ B inhibition promotes apoptosis in androgen-independent prostate cancer cells by the photothermal effect via the I κ B α /AR signaling pathway. *BIOMATER SCI-UK* 7(6):2559-2570. 2019 May 28
 120. Du X, Wu Z, Xu Y, Liu Y, Liu W, Wang T, Li C, Zhang C, Yi F, Gao L, Liang X, Ma C. Increased Tim-3 expression alleviates liver injury by regulating macrophage activation in MCD-induced NASH mice. *Cell Mol Immunol* 16(11):878-886. 2019 Nov
 121. Pang D, Li C, Yang C, Zou Y, Feng B, Li L, Liu W, Geng Y, Luo Q, Chen Z, Huang C. Polyphyllin VII Promotes Apoptosis and Autophagic Cell Death via ROS-Inhibited AKT Activity, and Sensitizes Glioma Cells to Temozolomide. *Oxid Med Cell Longev* 2019:1805635. 2019 Nov 14
 122. Zhang B, Wang X, Deng J, Zheng H, Liu W, Chen S, Tian J, Wang F. p53-dependent upregulation of miR-16-2 by sanguinarine induces cell cycle arrest and apoptosis in hepatocellular carcinoma. *Cancer Lett* 459:50-58. 2019 Sep 10
 123. Yang L, He Z, Yao J, Tan R, Zhu Y, Li Z, Guo Q, Wei L. Regulation of AMPK-related glycolipid metabolism imbalances redox homeostasis and inhibits anchorage independent growth in human breast cancer cells. *Redox Biol* 17:180-191. 2018 Jul
 124. Xin Hu, Xiaofang Wu, Bo Zhao, Yongyi Wang. Scutellarin Protects Human Retinal Pigment Epithelial Cells Against Hydrogen Peroxide (H₂O₂)-induced Oxidative Damage *Cell Biosci* doi: 10.1186/s13578-019-0276-0. 2019 Jan 21;9:12.
 125. Hua Liu, Xiao-Jian Weng, Jun-Yan Yao, Jun Zheng, Xiang Lv, Xu-Hui Zhou, Hong

- Jiang, Shi-Tong Li. Neuregulin-1 β Protects the Rat Diaphragm during Sepsis against Oxidative Stress and Inflammation by Activating the PI3K/Akt Pathway *Oxid Med Cell Longev* doi: 10.1155/2020/1720961. 2020 Jul 19;2020:1720961.
126. Sheng Wang, Jiayi Mao, Hong Liu, Shihui Huang, Jiali Cai, Wentao Gui, Jun Wu, Junyao Xu, Jun Shen, Zhiyong Wang. pH-Sensitive nanotheranostics for dual-modality imaging guided nanoenzyme catalysis therapy and phototherapy *J Mater Chem B* doi: 10.1039/c9tb02731a. 2020 Jun 10;8(22):4859-4869.
127. Yue Yang, Yang Wang, Yawei Kong, Xiaoning Zhang, He Zhang, Xinyuan Feng, Ziyuan Wang, Peng Gao, Mingyue Yan, Lunhao Bai, Feng Li. Moderate Mechanical Stimulation Protects Rats against Osteoarthritis through the Regulation of TRAIL via the NF- κ B/NLRP3 Pathway *Oxid Med Cell Longev* doi: 10.1155/2020/6196398. 2020 May 23;2020:6196398.
128. Ke Zheng, Hongyan Liu, Xinxin Liu, Libin Jiang, Linlin Li, Xianggen Wu, Nannan Guo, Caifeng Ding, Mingdong Huang. Photo-triggered release of doxorubicin from liposomes formulated by amphiphilic phthalocyanines for combination therapy to enhance antitumor efficacy *J Mater Chem B* doi: 10.1039/d0tb01093f. 2020 Sep 21;8(35):8022-8036.
129. Jing Zhen, Kailin Jiao, Keke Yang, Maoxuan Wu, Qian Zhou, Bingmo Yang, Wei Xiao, Chunyan Hu, Ming Zhou, Zhong Li. The 14-3-3 η /GSK-3 β / β -catenin complex regulates EndMT induced by 27-hydroxycholesterol in HUVECs and promotes the migration of breast cancer cells *Cell Biol Toxicol* doi: 10.1007/s10565-020-09564-y. 2021 Aug;37(4):515-529.
130. Shuge Sun, Wei Shi, Yu Tang, Yu Han, Xueying Du, Weishang Zhou, Weixia Zhang, Changsen Sun, Guangxu Liu. The toxic impacts of microplastics (MPs) and polycyclic aromatic hydrocarbons (PAHs) on haematic parameters in a marine bivalve species and their potential mechanisms of action *Sci Total Environ* doi: 10.1016/j.scitotenv.2021.147003. 2021 Aug 20;783:147003.
131. Manman Cao, Xitong Huang, Fei Wang, Yiyue Zhang, Beihai Zhou, Huilun Chen, Rongfang Yuan, Shuai Ma, Huanhuan Geng, Dan Xu, Changchun Yan, Baoshan Xing. Transcriptomics and Metabolomics Revealed the Biological Response of *Chlorella pyrenoidosa* to Single and Repeated Exposures of AgNPs at Different Concentrations *Environ Sci Technol* doi: 10.1021/acs.est.1c04059. 2021 Dec 7;55(23):15776-15787.
132. Lian Liu, Quan Cao, Wenwei Gao, Bing-Yu Li, Cheng Zeng, Zhongyuan Xia, Bo Zhao. Melatonin ameliorates cerebral ischemia-reperfusion injury in diabetic mice by enhancing autophagy via the SIRT1-BMAL1 pathway *FASEB J* doi: 10.1096/fj.202002718RR. 2021 Dec;35(12):e22040.
133. Zhuochao Liu, Hongyi Wang, Chuanzhen Hu, Chuanlong Wu, Jun Wang, Fangqiong Hu, Yucheng Fu, Junxiang Wen, Weibin Zhang. Targeting autophagy enhances atezolizumab-induced mitochondria-related apoptosis in osteosarcoma *Cell Death Dis* doi: 10.1038/s41419-021-03449-6. 2021 Feb 8;12(2):164.
134. Lina Wu, Qingzhu Wang, Feng Guo, Xiaojun Ma, Jiao Wang, Yanyan Zhao, Yushan Yan, Guijun Qin. Involvement of miR-27a-3p in diabetic nephropathy via affecting renal fibrosis, mitochondrial dysfunction, and endoplasmic reticulum stress *J Cell Physiol* doi: 10.1002/jcp.29951. 2021 Feb;236(2):1454-1468.
135. Rui Li, Beini Wang, Chengbiao Wu, Duohui Li, Yanqing Wu, Libing Ye, Luxia Ye, Xiongjian Chen, Peifeng Li, Yuan Yuan, Hongyu Zhang, Ling Xie, Xiaokun Li, Jian Xiao, Jian Wang. Acidic fibroblast growth factor attenuates type 2 diabetes-induced demyelination via suppressing oxidative stress damage *Cell Death Dis* doi: 10.1038/s41419-021-03407-2. 2021 Jan 21;12(1):107.
136. Hui Li, Linlin Liu, Zhiwen Cao, Wen Li, Rui Liu, Youwen Chen, Chenxi Li, Yurong Song, Guangzhi Liu, Jinghong Hu, Zhenli Liu, Cheng Lu, Yuanyan Liu. Naringenin ameliorates homocysteine induced endothelial damage via the AMPK α /Sirt1 pathway *J Adv Res* doi: 10.1016/j.jare.2021.01.009. 2021 Jan 23;34:137-147.
137. Huanliang Liu, Wenqing Lai, Xiaohua Liu, Honglian Yang, Yanjun Fang, Lei Tian, Kang Li, Huipeng Nie, Wei Zhang, Yue Shi, Liping Bian, Susu Ding, Jun Yan, Bencheng Lin, Zhuge Xi. Exposure to copper oxide nanoparticles triggers oxidative stress and endoplasmic reticulum (ER)-stress induced toxicology and apoptosis in male rat liver and BRL-3A cell *J Hazard Mater* doi: 10.1016/j.jhazmat.2020.123349. 2021 Jan 5;401:123349.
138. Doudou Jing, Wei Wu, Xiangyu Deng, Yizhong Peng, Wenbo Yang, Donghua Huang, Zengwu Shao, Dong Zheng. FoxO1a mediated cadmium-induced annulus fibrosus cells apoptosis contributes to intervertebral disc degeneration in smoking *J Cell Physiol* doi: 10.1002/jcp.29895. 2021 Jan;236(1):677-687.
139. Yiming Zhu, Chihao Zhang, Mingzhe Huang, Jiayun Lin, Xiao Fan, Tao Ni. TRIM26 Induces Ferroptosis to Inhibit Hepatic Stellate Cell Activation and Mitigate Liver Fibrosis Through Mediating SLC7A11 Ubiquitination *Front Cell Dev Biol* doi: 10.3389/fcell.2021.644901. 2021 Mar 25;9:644901.
140. Jiaping Zheng, Yunzhen Xie, Lingjia Ren, Liqin Qi, Li Wu, Xiaodong Pan, Jianxing Zhou, Zhou Chen, Libin Liu. GLP-1 improves the supportive ability of astrocytes to neurons by promoting aerobic glycolysis in Alzheimer's disease *Mol Metab* doi: 10.1016/j.molmet.2021.101180. 2021 May;47:101180.
141. Yang Zhang, Weifang Liu, Yanqi Zhong, Qi Li, Mengying Wu, Liu Yang, Xiaoxia Liu, Li Zou. Metformin Corrects Glucose Metabolism Reprogramming and NLRP3 Inflammasome-Induced Pyroptosis via Inhibiting the TLR4/NF- κ B/PFKFB3 Signaling in Trophoblasts: Implication for a Potential Therapy of P *Oxid Med Cell Longev* doi: 10.1155/2021/1806344. 2021 Nov 11;2021:1806344.
142. Wenqi Liang, Chunli Zhao, Zhongrui Chen, Zijing Yang, Ke Liu, Shusheng Gong. Sirtuin-3 Protects Cochlear Hair Cells Against Noise-Induced Damage via the Superoxide Dismutase 2/Reactive Oxygen Species Signaling Pathway *Front Cell Dev Biol* doi: 10.3389/fcell.2021.766512. 2021 Nov 18;9:766512.
143. Jiaming Zhang, Xiaoxia Hao, Ruimin Chi, Jun Qi, Tao Xu. Moderate mechanical stress suppresses the IL-1 β -induced chondrocyte apoptosis by regulating mitochondrial dynamics *J Cell Physiol* doi: 10.1002/jcp.30386. 2021 Nov;236(11):7504-7515.
144. Naijin Zhang, Ying Zhang, Boquan Wu, Shaojun Wu, Shilong You, Saien Lu, Jingwei Liu, Xinyue Huang, Jiaqi Xu, Liu Cao, Yingxian Sun. Deacetylation-dependent regulation of PARP1 by SIRT2 dictates ubiquitination of PARP1 in oxidative stress-induced vascular injury *Redox Biol* doi: 10.1016/j.redox.2021.102141. 2021 Nov;47:102141.
145. Yanting Pang, Daming Wu, Ying Ma, Yuna Cao, Qing Liu, Meng Tang, Yuepu Pu, Ting Zhang. Reactive oxygen species trigger NF- κ B-mediated NLRP3 inflammasome activation involvement in low-dose CdTe QDs exposure-induced hepatotoxicity *Redox Biol* doi: 10.1016/j.redox.2021.102157. 2021 Nov;47:102157.
146. Yi Luo, Xu Gao, Luetao Zou, Miao Lei, Junming Feng, Zhenming Hu. Bavachin Induces Ferroptosis through the STAT3/P53/SLC7A11 Axis in Osteosarcoma Cells *Oxid Med Cell Longev* doi: 10.1155/2021/1783485. 2021 Oct 18;2021:1783485.
147. Yongfeng Liu, Cheng-E Tu, Xuxue Guo, Changjie Wu, Chuncai Gu, Qiuhua Lai, Yuxin Fang, Junqi Huang, Zhizhang Wang, Aimin Li, Side Liu. Tumor-suppressive function of EZH2 is through inhibiting glutaminase *Cell Death Dis* doi: 10.1038/s41419-021-04212-7. 2021 Oct 20;12(11):975.
148. Yanhong Shou, Lu Yang, Yongsheng Yang, Jinhua Xu. Inhibition of keratinocyte ferroptosis suppresses psoriatic inflammation *Cell Death Dis* doi: 10.1038/s41419-021-04284-5. 2021 Oct 27;12(11):1009.
149. Hairong Tang, Yuru Liang, Jiayi Cheng, Kuiling Ding, Yang Wang. Bifunctional chiral selenium-containing 1,4-diarylazetid-2-ones with potent antitumor activities by disrupting tubulin polymerization and inducing reactive oxygen species production *Eur J Med Chem* doi: 10.1016/j.ejmech.2021.113531. 2021 Oct 5;221:113531.
150. Chunju Fang, Fei Mo, Li Liu, Jing Du, Min Luo, Ke Men, Feifei Na, Wei Wang, Hanshuo Yang, Xiawei Wei. Oxidized mitochondrial DNA sensing by STING signaling promotes the antitumor effect of an irradiated immunogenic cancer cell vaccine *Cell Mol Immunol* doi: 10.1038/s41423-020-0456-1. 2021 Sep;18(9):2211-2223.
151. Chenyang Zhang, Xin Wang, Xinghua Dong, Linqiang Mei, Xiaochen Wu, Zhanjun Gu, Yuliang Zhao. X-ray-facilitated redox cycling of nanozyme possessing peroxidase-mimicking activity for reactive oxygen species-enhanced cancer therapy *Biomaterials* doi: 10.1016/j.biomaterials.2021.121023. 2021 Sep;276:121023.
152. Hao Zhang, Shengduo Xu, Jishen Zhang, Zifeng Wang, Dingxin Liu, Li Guo, Cheng

- Cheng, Yilong Cheng, Dehui Xu, Michael G Kong, Mingzhe Rong, Paul K Chu. Plasma-activated thermosensitive biogel as an exogenous ROS carrier for post-surgical treatment of cancer *Biomaterials* doi: 10.1016/j.biomaterials.2021.121057. 2021 Sep;276:121057.
153. Bin Zhao, Lingting Zeng, Danyang Chen, Songqing Xie, Zhaokui Jin, Guanglin Li, Wei Tang, Qianjun He. NIR-photocatalytic regulation of arthritic synovial microenvironment *Sci Adv* doi: 10.1126/sciadv.abq0959. 2022 Oct 7;8(40):eabq0959.
154. Xuan Wang, Yingqi Liu, Chencheng Xue, Yan Hu, Yuanyuan Zhao, Kaiyong Cai, Menghuan Li, Zhong Luo. A protein-based cGAS-STING nanoagonist enhances T cell-mediated anti-tumor immune responses *Nat Commun* doi: 10.1038/s41467-022-33301-0. 2022 Sep 28;13(1):5685.
155. Lirong Xu, Jiabin Lin, Yutong Liu, Bingxuan Hua, Qianyun Cheng, Changpo Lin, Zuoqin Yan, Yaping Wang, Ning Sun, Ruizhe Qian, Chao Lu. CLOCK regulates Drp1 mRNA stability and mitochondrial homeostasis by interacting with PUF60 *Cell Rep* doi: 10.1016/j.celrep.2022.110635. 2022 Apr 12;39(2):110635.
156. Yuanyuan Guo, Qishuang Zhang, Qiwen Zhu, Jing Gao, Xinyuan Zhu, Haijun Yu, Yuehua Li, Chuan Zhang. Copackaging photosensitizer and PD-L1 siRNA in a nucleic acid nanogel for synergistic cancer photoimmunotherapy *Sci Adv* doi: 10.1126/sciadv.abn2941. 2022 Apr 22;8(16):eabn2941.
157. Yiting Lei, Yuping Wang, Jieliang Shen, Zhengwei Cai, Chen Zhao, Hong Chen, Xiaoji Luo, Ning Hu, Wenguo Cui, Wei Huang. Injectable hydrogel microspheres with self-renewable hydration layers alleviate osteoarthritis *Sci Adv* doi: 10.1126/sciadv.abl6449. 2022 Feb 4;8(5):eabl6449.
158. Xing Xing Liu, Hai Hua Zhang, Qing Yang Zhu, Jia Yuan Ye, Ya Xin Zhu, Xiang Ting Jing, Wen Xin Du, Miao Zhou, Xian Yong Lin, Shao Jian Zheng, Chong Wei Jin. Phloem iron remodels root development in response to ammonium as the major nitrogen source *Nat Commun* doi: 10.1038/s41467-022-28261-4. 2022 Jan 28;13(1):561.
159. Shan Lei, Jing Zhang, Nicholas Thomas Blum, Meng Li, Dong-Yang Zhang, Weimin Yin, Feng Zhao, Jing Lin, Peng Huang. In vivo three-dimensional multispectral photoacoustic imaging of dual enzyme-driven cyclic cascade reaction for tumor catalytic therapy *Nat Commun* doi: 10.1038/s41467-022-29082-1. 2022 Mar 11;13(1):1298.
160. Shuren Wang, Zhiyi Wang, Ziyuan Li, Xiaoguang Zhang, Hongtao Zhang, Teng Zhang, Xiangxi Meng, Fugeng Sheng, Yanglong Hou. Amelioration of systemic antitumor immune responses in cocktail therapy by immunomodulatory nanozymes *Sci Adv* doi: 10.1126/sciadv.abn3883. 2022 May 27;8(21):eabn3883.
161. Jia Xiong, Jia He, Jun Zhu, Jiongli Pan, Weijie Liao, Hongying Ye, Haofei Wang, Yijing Song, Yue Du, Bijun Cui, Maoguang Xue, Wanling Zheng, Xiangxing Kong, Kai Jiang, Kefeng Ding, Lihua Lai, Qingqing Wang. Lactylation-driven METTL3-mediated RNA m6A modification promotes immunosuppression of tumor-infiltrating myeloid cells *Mol Cell* doi: 10.1016/j.molcel.2022.02.033. 2022 May 5;82(9):1660-1677.e10.
162. Chen Zhang, Han Wang, Xinhui Yang, Zi Fu, Xiuru Ji, Yifan Shi, Jie Zhong, Weiguo Hu, Youqiong Ye, Zhengting Wang, Dalong Ni. Oral zero-valent-molybdenum nanodots for inflammatory bowel disease therapy *Sci Adv* doi: 10.1126/sciadv.abp9882. 2022 Sep 16;8(37):eabp9882.
163. Qasim M Zeeshan, Shuang Qiu, Jia Gu, Abdul-Wahab Abbew, Zhengshuai Wu, Zhipeng Chen, Sai Xu, Shijian Ge. Unravelling multiple removal pathways of oseltamivir in wastewater by microalgae through experimentation and computation *J Hazard Mater* doi: 10.1016/j.jhazmat.2021.128139. 2022 Apr 5;427:128139.
164. Naijin Zhang, Ying Zhang, Wei Miao, Chuning Shi, Zihan Chen, Boquan Wu, Yuanming Zou, Qishi Ma, Shilong You, Saien Lu, Xinyue Huang, Jingwei Liu, Jiaqi Xu, Liu Cao, Yingxian Sun. An unexpected role for BAG3 in regulating PARP1 ubiquitination in oxidative stress-related endothelial damage *Redox Biol* doi: 10.1016/j.redox.2022.102238. 2022 Apr;50:102238.
165. Yuqian An, Yi Li, Yujun Hou, Shichao Huang, Gang Pei. Alzheimer's Amyloid- β Accelerates Cell Senescence and Suppresses the SIRT1/NRF2 Pathway in Human Microglial Cells *Oxid Med Cell Longev* doi: 10.1155/2022/3086010. 2022 Aug 17:2022:3086010.
166. Yuqin Mao, Jiqing Du, Xianghang Chen, Abdullah Al Mamun, Lin Cao, Yanhong Yang, Joanna Mubwandarikwa, Muhammad Zaeem, Wanying Zhang, Yan Chen, Yusen Dai, Jian Xiao, Keyong Ye. Maltol Promotes Mitophagy and Inhibits Oxidative Stress via the Nrf2/PINK1/Parkin Pathway after Spinal Cord Injury *Oxid Med Cell Longev* doi: 10.1155/2022/1337630. 2022 Feb 1:2022:1337630.
167. Mi Gao, Chunxiao Liang, Wei Hong, Xiaoyuan Yu, Yumin Zhou, Ruiting Sun, Haiqing Li, Haichao Huang, Xuhong Gan, Ze Yuan, Jiahuan Zhang, Juan Chen, Qiudi Mo, Luyao Wang, Biting Lin, Bing Li, Pixian Ran. Biomass-related PM2.5 induces mitochondrial fragmentation and dysfunction in human airway epithelial cells *Environ Pollut* doi: 10.1016/j.envpol.2021.118464. 2022 Jan 1;292(Pt B):118464.
168. Fei Jia, Yu Liu, Xinyu Dou, Chuanchao Du, Tianli Mao, Xiaoguang Liu. Liensinine Inhibits Osteosarcoma Growth by ROS-Mediated Suppression of the JAK2/STAT3 Signaling Pathway *Oxid Med Cell Longev* doi: 10.1155/2022/8245614. 2022 Jan 25:2022:8245614.
169. Weibin Lin, Hao Yao, Jinqing Lai, Yile Zeng, Xieli Guo, Shu Lin, Weipeng Hu, Junyan Chen, Xiangrong Chen. Cycloastragenol Confers Cerebral Protection after Subarachnoid Hemorrhage by Suppressing Oxidative Insults and Neuroinflammation via the SIRT1 Signaling Pathway *Oxid Med Cell Longev* doi: 10.1155/2022/3099409. 2022 Jun 2:2022:3099409.
170. Qi Pang, Peiwen Wang, Yajing Pan, Xingtong Dong, Ting Zhou, Xinyu Song, Aihua Zhang. Irisin protects against vascular calcification by activating autophagy and inhibiting NLRP3-mediated vascular smooth muscle cell pyroptosis in chronic kidney disease *Cell Death Dis* doi: 10.1038/s41419-022-04735-7. 2022 Mar 30;13(3):283.
171. Wenjing Li, Libing Yu, Bo Fu, Jian Chu, Chun Chen, Xijian Li, Jiahua Ma, Wei Tang. Protective effects of Polygonatum kingianum polysaccharides and aqueous extract on uranium-induced toxicity in human kidney (HK-2) cells *Int J Biol Macromol* doi: 10.1016/j.ijbiomac.2022.01.043. 2022 Mar 31:202:68-79.
172. Jiazhen Chen, Zichen Cui, Yi Wang, Linmao Lyu, Changgong Feng, Dianjie Feng, Yifan Cheng, Ziqing Li, Shui Sun. Cyclic Polypeptide D7 Protects Bone Marrow Mesenchymal Cells and Promotes Chondrogenesis during Osteonecrosis of the Femoral Head via Growth Differentiation Factor 15-Mediated Redox Signaling *Oxid Med Cell Longev* doi: 10.1155/2022/3182368. 2022 Mar 3:2022:3182368.
173. Huihong Jiang, Erjiang Tang, Ying Chen, Hailong Liu, Yun Zhao, Moubin Lin, Luwei He. Squalene synthase predicts poor prognosis in stage I-III colon adenocarcinoma and synergizes squalene epoxidase to promote tumor progression *Cancer Sci* doi: 10.1111/cas.15248. 2022 Mar;113(3):971-985.
174. Liang Xia, Mingjie Gong, Yangfan Zou, Zeng Wang, Bin Wu, Shuyuan Zhang, Liwen Li, Kai Jin, Caixing Sun. Apatinib Induces Ferroptosis of Glioma Cells through Modulation of the VEGFR2/Nrf2 Pathway *Oxid Med Cell Longev* doi: 10.1155/2022/9925919. 2022 May 11:2022:9925919.
175. Lin Li, Yaowei Xuan, Biao Zhu, Xing Wang, Xiaoyu Tian, Lisheng Zhao, Yan Wang, Xiaoxia Jiang, Ning Wen. Protective Effects of Cannabidiol on Chemotherapy-Induced Oral Mucositis via the Nrf2/Keap1/ARE Signaling Pathways *Oxid Med Cell Longev* doi: 10.1155/2022/4619760. 2022 May 25:2022:4619760.
176. Shaofan Hu, Jing Feng, Meng Wang, Reziyamu Wufuer, Keli Liu, Zhengwen Zhang, Yiguo Zhang. Nrf1 is an indispensable redox-determining factor for mitochondrial homeostasis by integrating multi-hierarchical regulatory networks *Redox Biol* doi: 10.1016/j.redox.2022.102470. 2022 Nov;57:102470.
177. Lihua Li, Kunpeng Wang, Rongjun Jia, Jing Xie, Liman Ma, Zhiqing Hao, Weiwei Zhang, Jinggang Mo, Fu Ren. Ferroportin-dependent ferroptosis induced by ellagic acid retards liver fibrosis by impairing the SNARE complexes formation *Redox Biol* doi: 10.1016/j.redox.2022.102435. 2022 Oct;56:102435.

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