碧云天网站 微信公众号

碧云天生物技术/Beyotime Biotechnology
订货热线: 400-1683301 或 800-8283301
订货 e-mail: order@beyotime.com
技术咨询: info@beyotime.com
网址: http://www.beyotime.com

碱性磷酸酶检测试剂盒

产品编号	产品名称	包装
P0321S	碱性磷酸酶检测试剂盒	100次
P0321M	碱性磷酸酶检测试剂盒	500次

产品简介：

- 碧云天生产的碱性磷酸酶检测试剂盒(Alkaline Phosphatase Assay Kit)是一种用于快速、便捷地检测细胞或组织样品的裂解或匀浆产物的上清液、血清、血浆、尿液等样品中内源性的碱性磷酸酶活性的试剂盒。
- 碱性磷酸酶(Alkaline Phosphatase, AP/ALP/AKP/ALKP/ALPase/Alk Phos)也称碱性磷酸酯酶(EC 3.1.3.1)，可以在碱性条件下催化磷酸酯键的水解。哺乳动物中，肝脏、胆管、肾脏、骨头和胎盘中的碱性磷酸酶活性比较高。常见的碱性磷酸酶包括肠道碱性磷酸酶(alkaline phosphatase, intestinal, ALPI)、非组织特异性碱性磷酸酶(alkaline phosphatase, tissue-nonspecific isozyme, ALPL)和胎盘碱性磷酸酶(alkaline phosphatase, placental type，也称placental alkaline phosphatase, PLAP)。常见的小牛肠碱性磷酸酶(Calf Intestinal Alkaline Phosphatase, CIAP/CIP)被广泛用于二抗等的标记最终用于蛋白和核酸等的检测，也常用于DNA或RNA 5′和3′末端的去磷酸化(去单磷酸化)，特别是质粒的5′末端去磷酸化以避免质粒自连等。
- 干细胞，如iPS中，碱性磷酸酶的活性很高，常被用作iPS成功诱导的标志。另外，分化的结肠癌细胞中碱性磷酸酶的活性也会显著升高，被当作结肠癌细胞分化程度定性和定量的指标。此外，血清中碱性磷酸酯酶的升高，被称作高碱性磷酸酶血症(hyperalkalinephosphatasemia)，被认为和恶性胆管阻塞(malignant biliary obstruction)、原发性胆管硬化(primary biliary cirrhosis)、原发性硬化胆管炎(primary sclerosing cholangitis)、肝淋巴瘤(hepatic lymphoma)和肝肉瘤(hepatic sarcoidosis)等肝胆疾病密切相关。血清中碱性磷酸酶活性升高还和骨头生成密切相关，因为碱性磷酸酶是成骨细胞的副产物。血清中碱性磷酸酶活性过低也和一些疾病相关。儿童和孕妇血清中的碱性磷酸酶活性较普通人高一些。血清中碱性磷酸酶活性范围在20-140U/L。
- 除胎盘碱性磷酸酶(alkaline phosphatase placental isoform)以外，其它的内源性碱性磷酸酶加热后易失活。
- 本试剂盒可以检测细胞或组织样品的裂解或匀浆产物的上清液、血浆、血清、尿液或纯化的酶样品等中的碱性磷酸酶活性。
- Para-nitrophenyl phosphate (pNPP)是一种常用的磷酸酶显色底物，在碱性条件下，可在碱性磷酸酶作用下生成para-nitrophenol。para-nitrophenol (*p*-nitrophenol)在碱性条件下，呈黄色产物，可以在400-415nm检测吸光度。产物黄色越深，说明碱性磷酸酶检活性越高，反之则酶活性越低。据此通过比色分析就可以计算出碱性磷酸酶活性水平。
- 包括标准品和空白对照，本试剂盒P0321S包装共可进行100个样品的检测，P0321M包装共可进行500个样品的检测。

包装清单：

产品编号	产品名称	包装
P0321S-1	检测缓冲液	15ml
P0321S-2	显色底物	2管
P0321S-3	*p*-nitrophenol溶液(10mM)	0.1ml
P0321S-4	反应终止液	12ml
—	说明书	1份

产品编号	产品名称	包装
P0321M-1	检测缓冲液	65ml
P0321M-2	显色底物	5管
P0321M-3	*p*-nitrophenol溶液(10mM)	0.5ml
P0321M-4	反应终止液	60ml
—	说明书	1份

保存条件：

-20°C保存，一年有效。其中显色底物和*p*-nitrophenol溶液需避光保存。

注意事项：

- 如果希望进行酶活性的绝对定量，进行酶反应时必须注意精确计时。此时推荐采用孵育30分钟等较长的时间，以减小操作过程中

的时间误差。同时如果样品中酶活性较高，则可以预先适当稀释样品。

- 样品溶液中须避免出现EDTA、氟离子、柠檬酸盐等碱性磷酸酶的抑制剂。
- 检测缓冲液和*p*-nitrophenol溶液对人体有害，操作时请小心，并注意有效防护以避免直接接触人体或吸入体内。反应终止液有腐蚀性，操作时请小心，并注意有效防护以避免直接接触人体或腐蚀其他物品。
- 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. 试剂准备：将所有试剂取出，恢复至室温使用。
   a. 显色底物溶液：对于P0321S包装，请取一管显色底物，溶解于2.5ml的检测缓冲液中(可先用1ml检测缓冲液进行溶解，充分溶解和混匀后，转移至15ml离心管，再加入1.5ml检测缓冲液)，充分溶解和混匀，冰上放置。对于P0321M包装，请取一管显色底物，溶解于5ml的检测缓冲液中(可先用2ml检测缓冲液进行溶解，充分溶解和混匀后，转移至15ml离心管，再加入3ml检测缓冲液)，充分溶解和混匀，冰上放置。新鲜配制的显色底物溶液需在6小时内使用。
   b. 标准品工作液：取10μl *p*-nitrophenol溶液(10mM)，用检测缓冲液稀释至0.2ml，最终浓度为0.5mM。
2. 样品准备：
   a. 细胞或组织裂解液的准备：采用适当细胞或组织裂解液裂解细胞或组织，建议使用碧云天的P0013J Western及IP细胞裂解液(无抑制剂)裂解相关样品。如果有必要需进行适当匀浆，随后离心取上清，用于碱性磷酸酶的检测。注意：裂解液中不能含有磷酸酶抑制剂。样品可以-80°C冻存，但需避免反复冻融。
   b. 血浆、血清和尿液的准备：血浆和血清按照常规方法制备后可以直接用于本试剂盒的测定，但为了消除样品本身颜色的干扰，需设置加了血浆或血清但不加底物的对照。血浆制备时不能用含EDTA和柠檬酸盐的抗凝管。尿液通常也可以直接用于测定。上述样品可以-80°C冻存，但需避免反复冻融。
   c. 样品的稀释：如果样品中含有较高活性的碱性磷酸酶，可以使用原有的裂解液或PBS等进行稀释，也可以采用试剂盒中的检测缓冲液进行稀释。如果使用试剂盒中提供的检测缓冲液进行稀释，需注意保留足够的检测缓冲液用于试剂盒的检测过程。
3. 参考下表使用96孔板设置空白对照孔、标准品孔和样品孔。标准品的用量分别为4、8、16、24、32和40微升，样品通常可以直接加50微升。如果样品中的碱性磷酸酶活性过高，可以减少样品用量或适当稀释后再进行测定。

	空白对照(Blank)	标准品(Standard)	样品(Sample)
检测缓冲液	50μl	(100-x)μl	(50-y)μl
显色底物	50μl	—	50μl
样品	—	—	yμl
标准品工作液	—	xμl	—

4. 用枪头轻轻吹打混匀，也可借助摇床进行混匀。
5. 37°C孵育5-10分钟。(说明：待测样品中碱性磷酸酶活性较低时，可适当延长孵育时间至30分钟)
6. 每孔加入100μl反应终止液终止反应。此时，标准品或有碱性磷酸酶活性的孔会呈现不同深浅的黄色。
7. 在405nm测定吸光度。如果不能测定405nm，也可以在400-415nm范围内检测吸光度。如果不能立即测定，可以在数小时内完成测定，所显现的黄色在数小时内稳定。
8. 碱性磷酸酶活性单位的定义：在pH9.8的diethanolamine(DEA)缓冲液中，37°C条件下，每分钟水解para-nitrophenyl phosphate显色底物产生1微摩尔*p*-nitrophenol所需的碱性磷酸酶的量定义为一个酶活力单位，也被称作一个DEA酶活力单位。在pH9.6的甘氨酸缓冲液中，25°C条件下，每分钟水解para-nitrophenyl phosphate显色底物产生1微摩尔*p*-nitrophenol所需的碱性磷酸酶的量定义为一个酶活力单位，也被称作一个Glycine酶活力单位。一个Glycine酶活力单位约相当于3个DEA酶活力单位。本试剂盒测定的是DEA酶活力单位。
9. 根据酶活性定义，计算出样品中的碱性磷酸酶活性。

相关产品：

产品编号	产品名称	包装
P0013J	Western及IP细胞裂解液(无抑制剂)	100ml
P0321S	碱性磷酸酶检测试剂盒	100次
P0321M	碱性磷酸酶检测试剂盒	500次
P0326	酸性磷酸酶检测试剂盒	120次
P0329	胎盘碱性磷酸酶检测试剂盒	100次
P0332	抗酒石酸酸性磷酸酶检测试剂盒	120次
P0335	抗氟离子酸性磷酸酶检测试剂盒	120次

使用本产品的文献：

1. Zhao D, Liu Q, Han K, Wang H, Yang J, Bi K, Liu Y, Liu N, Tian Y, Li Y Identification of Glucose-Regulated Protein 78 (GRP78) as a Receptor in BHK-21 Cells for Duck Tembusu Virus Infection. Front Microbiol 2018 Apr 9
2. Zhou X, Weng W, Chen B, Feng W, Wang W, Nie W, Chen L, Mo X, Su J, He C Mesoporous silica nanoparticles/gelatin porous composite scaffolds with localized and sustained release of vancomycin for treatment of infected bone defects. J Mater Chem B 2018 Feb 7

3. Du X, Yu B, Pei P, Ding H, Yu B, Zhu Y 3D printing of pearl/CaSO4 composite scaffolds for bone regeneration. J Mater Chem B 2018 Jan 21
4. Lin S, Cao L, Wang Q, Du J, Jiao D, Duan S, Wu J, Gan Q, Jiang X Tailored biomimetic hydrogel based on a photopolymerised DMP1/MCF/gelatin hybrid system for calvarial bone regeneration. J Mater Chem B 2018 Jan 21
5. Li X, Deng Y, Wang M, Chen X, Xiao Y, Zhang X Stabilization of Ca-deficient hydroxyapatite in biphasic calcium phosphate ceramics by adding alginate to enhance their biological performances. J Mater Chem B 2018 Jan 7
6. Shengyang Fu, Wei Liu, Shiwei Liu, Shichang Zhao, Yufang Zhu 3D Printed Porous β-Ca 2 SiO 4 Scaffolds Derived From Preceramic Resin and Their Physicochemical and Biological Properties Sci Technol Adv Mater 2018 Jul 16;19(1):495-506.
7. Yan F, Wang C, Li T, Cai W, Sun J. Role of miR-21 in the growth and metastasis of human salivary adenoid cystic carcinoma. Mol Med Rep 2018 Mar
8. Zhang F, Li Q, Lin Z, Ma L, Xu S, Feng Q, Dong H, Zhang Y, Cao X Engineered Fe(OH)3 nanoparticle-coated and rhBMP-2-releasing PLGA microsphere scaffolds for promoting bone regeneration by facilitating cell homing and osteogenic differentiation. J Mater Chem B 2018 May 14
9. Deng Y, Liu M, Chen X, Wang M, Li X, Xiao Y, Zhang X Enhanced osteoinductivity of porous biphasic calcium phosphate ceramic beads with high content of strontium-incorporated calcium-deficient hydroxyapatite. J Mater Chem B 2018 Nov 7
10. Peng M, Liu J, Liang Z Probiotic Bacillus subtilis CW14 reduces disruption of the epithelial barrier and toxicity of ochratoxin A to Caco-2 cells.Food Chem Toxicol 2019 Apr
11. 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
12. Gu H, Shi X, Liu C, Wang C, Sui N, Zhao Y, Gong J, Wang F, Zhang H, Li W, Zhao T USP8 maintains embryonic stem cell stemness via deubiquitination of EPG5. Nat Commun 2019 Apr 1
13. Zhang K, Wang M, Li Y, Li C, Tang S, Qu X, Feng N, Wu Y The PERK-EIF2α-ATF4 signaling branch regulates osteoblast differentiation and proliferation by PTH. AM J PHYSIOL-ENDOC M 2019 Apr 1
14. Liu Q, Lin Z, Liu Y, Du J, Lin H, Wang J Delivery of miRNA-29b Using R9-LK15, a Novel Cell-Penetrating Peptide, Promotes Osteogenic Differentiation of Bone Mesenchymal Stem Cells. Biomed Res Int 2019 Apr 11
15. Liu L, Wang D, Qin Y, Xu M, Zhou L, Xu W, Liu X, Ye L, Yue S, Zheng Q, Li D Astragalin Promotes Osteoblastic Differentiation in MC3T3-E1 Cells and Bone Formation in vivo. FRONT ENDOCRINOL 2019 Apr 16
16. Bing T, Shen L, Wang J, Wang L, Liu X, Zhang N, Xiao X, Shangguan D Aptameric Probe Specifically Binding Protein Heterodimer Rather Than Monomers. Adv Sci (Weinh) 2019 Apr 9
17. Jiao W, Zhang D, Wang D, Xu R, Tang L, Zhao M, Xu RMicroRNA-638 inhibits human aortic valve interstitial cell calcification by targeting Sp7. J Cell Mol Med 2019 Aug
18. Liang X, Hou Z, Xie Y, Yan F, Li S, Zhu X, Cai LIcariin promotes osteogenic differentiation of bone marrow stromal cells and prevents bone loss in OVX mice via activating autophagy. J Cell Biochem 2019 Aug
19. Zhang Y, Chen M, Tian J, Gu P, Cao H, Fan X, Zhang W In situ bone regeneration enabled by a biodegradable hybrid double-network hydrogel. BIOMATER SCI-UK 2019 Aug 1
20. Wang J, Lei B, Yan J, Li J, Zhou X, Ren F, Guo H Donkey milk oligosaccharides influence the growth-related characteristics of intestinal cells and induce G2/M growth arrest via the p38 pathway in HT-29 cells. Food Funct 2019 Aug 1
21. Yuanhao Zhang, Mingjiao Chen, Jia Tian, Ping Gu, Hongliang Cao, Xianqun Fan, Weian Zhang In Situ Bone Regeneration Enabled by a Biodegradable Hybrid Double-Network Hydrogel BIOMATER SCI-UK 2019 Aug 1;7(8):3266-3276.
22. Zhang M, Xie Y, Zhou Y, Chen X, Xin Z, An J, Hou J, Chen Z Exendin-4 enhances proliferation of senescent osteoblasts through activation of the IGF-1/IGF-1R signaling pathway. BIOCHEM BIOPH RES CO 2019 Aug 13
23. Xu X, Ding J, Wu X, Huang Z, Kong G, Liu Q, Yang Z, Huang Z, Zhu Q Bone microstructure and metabolism changes under the combined intervention of ketogenic diet with intermittent fasting: an in vivo study of rats. EXP ANIM TOKYO 2019 Aug 14
24. Huang XQ, Cen X, Sun WT, Xia K, Yu LY, Liu J, Zhao ZH CircPOMT1 and circMCM3AP inhibit osteogenic differentiation of human adipose-derived stem cells by targeting miR-6881-3p. Am J Transl Res 2019 Aug 15
25. Du J, Fan Y, Guo Z, Wang Y, Zheng X, Huang C, Liang B, Gao L, Cao Y, Chen Y, Zhang X, Li L, Xu L, Wu C, Weitz DA, Feng X Compression Generated by a 3D Supracellular Actomyosin Cortex Promotes Embryonic Stem Cell Colony Growth and Expression of Nanog and Oct4. Cell Syst 2019 Aug 28
26. Li E, Shan H, Chen L, Long A, Zhang Y, Liu Y, Jia L, Wei F, Han J, Li T, Liu X, Deng H, Wang Y OLFR734 Mediates Glucose Metabolism as a Receptor of Asprosin.Cell Metab 2019 Aug 6
27. Wang Y, Zhan J, Chen Y, Ai S, Li L, Wang L, Shi Y, Zheng J, Yang Z Selective pericellular hydrogelation by the overexpression of an enzyme and a membrane receptor. Nanoscale 2019 Aug 7
28. Wang W, Liu Y, Yang C, Qi X, Li S, Liu C, Li X Mesoporous bioactive glass combined with graphene oxide scaffolds for bone repair. Int J Biol Sci 2019 Aug 8
29. Hao M, He J, Wang C, Wang C, Ma B, Zhang S, Duan J, Liu F, Zhang Y, Han L, Liu H, Sang Y Effect of Hydroxyapatite Nanorods on the Fate of Human Adipose-Derived Stem Cells Assessed In Situ at the Single Cell Level with a High-Throughput, Real-Time Microfluidic Chip. Small 2019 Dec
30. Chen S, Chu B, Chen Y, Cheng X, Guo D, Chen L, Wang J, Li Z, Hong Z, Hong D Neferine suppresses osteoclast differentiation through suppressing NF-κB signal pathway but not MAPKs and promote osteogenesis. J Cell Physiol 2019 Dec
31. Xiong Z, Xie Y, Yang Y, Xue Y, Wang D, Lin S, Chen D, Lu D, He L, Song B, Yang Y, Sun X Efficient gene correction of an aberrant splice site in β-thalassaemia iPSCs by CRISPR/Cas9 and single-strand oligodeoxynucleotides. J Cell Mol Med 2019 Dec
32. Huang X, Cen X, Zhang B, Liao Y, Zhao Z, Zhu G, Zhao Z, Liu J The roles of circRFWD2 and circINO80 during NELL-1-induced osteogenesis. J Cell Mol Med 2019 Dec
33. Shao N, Guan Y, Liu S, Li X, Zhou D, Huang Y A Multi-Functional Silicon Nanoparticle Designed for Enhanced Osteoblast Calcification and Related Combination Therapy. Macromol Biosci 2019 Dec
34. Aimaiti A, Wahafu T, Keremu A, Yicheng L, Li C Strontium Ameliorates Glucocorticoid Inhibition of Osteogenesis Via the ERK Signaling Pathway. Biol Trace Elem Res 2019 Dec 12
35. Yu HF, Duan CC, Yang ZQ, Wang YS, Yue ZP, Guo B HB-EGF Ameliorates Oxidative Stress-Mediated Uterine Decidualization Damage. Oxid Med Cell Longev 2019 Dec 2
36. Pan JM, Wu LG, Cai JW, Wu LT, Liang M Dexamethasone suppresses osteogenesis of osteoblast via the PI3K/Akt signaling pathway in vitro and in vivo. J RECEPT SIG TRANSD 2019 Feb
37. Wang R, Hu H, Guo J, Wang Q, Cao J, Wang H, Li G, Mao J, Zou X, Chen D, Tian W Nano-Hydroxyapatite Modulates Osteoblast Differentiation Through Autophagy Induction via mTOR Signaling Pathway. J BIOMED NANOTECHNOL 2019 Feb 1
38. Zhang T, Chen H, Zhang Y, Zan Y, Ni T, Liu M, Pei R Photo-crosslinkable, bone marrow-derived mesenchymal stem cells-encapsulating hydrogel based on

collagen for osteogenic differentiation. COLLOID SURFACE B 2019 Feb 1

39. Chen L, Liu G, Li W, Wu X Chondrogenic differentiation of bone marrow-derived mesenchymal stem cells following transfection with Indian hedgehog and sonic hedgehog using a rotary cell culture system. Cell Mol Biol Lett 2019 Feb 26
40. Guo L, Wang X, Yuan J, Zhu M, Fu X, Xu RH, Wu C, Wu Y TSA restores hair follicle-inductive capacity of skin-derived precursors.SCI REP-UK 2019 Feb 27
41. Xu Z, Chen H, Wang Z, Fan F, Shi P, Tu M, Du M Isolation and Characterization of Peptides from Mytilus edulis with Osteogenic Activity in Mouse MC3T3-E1 Preosteoblast Cells. J AGR FOOD CHEM 2019 Feb 6
42. Yan Y, Chen H, Zhang H, Guo C, Yang K, Chen K, Cheng R, Qian N, Sandler N, Zhang YS, Shen H, Qi J, Cui W, Deng L Vascularized 3D printed scaffolds for promoting bone regeneration. Biomaterials 2019 Jan
43. Li X, Song T, Chen X, Wang M, Yang X, Xiao Y, Zhang X Osteoinductivity of Porous Biphasic Calcium Phosphate Ceramic Spheres with Nanocrystalline and Their Efficacy in Guiding Bone Regeneration. ACS APPL MATER INTER 2019 Jan 30
44. Ma WQ, Sun XJ, Wang Y, Zhu Y, Han XQ, Liu NF Restoring mitochondrial biogenesis with metformin attenuates β-GP-induced phenotypic transformation of VSMCs into an osteogenic phenotype via inhibition of PDK4/oxidative stress-mediated apoptosis. Mol Cell Endocrinol 2019 Jan 5
45. Chen XW, Li YH, Zhang MJ, Chen Z, Ke DS, Xue Y, Hou JM Lactoferrin ameliorates aging-suppressed osteogenesis via IGF1 signaling. J Mol Endocrinol 2019 Jul
46. Sheng JW, Liu DM, Jing L, Xia GX, Zhang WF, Jiang JR, Tang JB Striatisporolide A, a butenolide metabolite from Athyrium multidentatum (Doll.) Ching, as a potential antibacterial agent. Mol Med Rep 2019 Jul
47. Yang S, Guo S, Tong S, Sun X Promoting Osteogenic Differentiation of Human Adipose-Derived Stem Cells by Altering the Expression of Exosomal miRNA. Stem Cells Int 2019 Jul 1
48. Ma Q, Liang M, Wu Y, Ding N, Duan L, Yu T, Bai Y, Kang F, Dong S, Xu J, Dou C Mature osteoclast-derived apoptotic bodies promote osteogenic differentiation via RANKL-mediated reverse signaling. J Biol Chem 2019 Jul 19
49. Ni C, Zhou J, Kong N, Bian T, Zhang Y, Huang X, Xiao Y, Yang W, Yan F Gold nanoparticles modulate the crosstalk between macrophages and periodontal ligament cells for periodontitis treatment. Biomaterials 2019 Jun
50. Jin C, He J, Zou J, Xuan W, Fu T, Wang R, Tan W Phosphorylated lipid-conjugated oligonucleotide selectively anchors on cell membranes with high alkaline phosphatase expression. Nat Commun 2019 Jun 20
51. Guo-Hui Zhao, Jian-Nan Liu, Xiao-Hua Hu, Khadija Batool, Liang Jin, Chen-Xu Wu, Juan Wu, Hong Chen, Xiao-Yan Jiang, Zhao-Hui Yang, Xian-Hui Huang, En-Jiong Huang, Xiao-Qiang Yu, Xiong Guan, Ling-Ling Zhang Cloning, Expression and Activity of ATP-binding Protein in Bacillus Thuringiensis Toxicity Modulation Against Aedes Aegypti PARASITE VECTOR 2019 Jun 25;12(1):319.
52. Yao S, Tan L, Chen H, Huang X, Zhao W, Wang Y Potential Research Tool of Stem Cells from Human Exfoliated Deciduous Teeth: Lentiviral Bmi-1 Immortalization with EGFP Marker. Stem Cells Int 2019 Mar 10
53. Liu W, Qin H, Pan Y, Luo F, Zhang Z Low concentrations of perfluorooctane sulfonate repress osteogenic and enhance adipogenic differentiation of human mesenchymal stem cells. TOXICOL APPL PHARM 2019 Mar 15
54. Tian T, Xie W, Gao W, Wang G, Zeng L, Miao G, Lei B, Lin Z, Chen X Micro-Nano Bioactive Glass Particles Incorporated Porous Scaffold for Promoting Osteogenesis and Angiogenesis in vitro. Front Chem 2019 Mar 29
55. Zhao X, Zhou C, Lvov Y, Liu M Clay Nanotubes Aligned with Shear Forces for Mesenchymal Stem Cell Patterning. Small 2019 May
56. Yuan FL, Xu RS, Ye JX, Zhao MD, Ren LJ, Li X Apoptotic bodies from endplate chondrocytes enhance the oxidative stress-induced mineralization by regulating PPi metabolism. J Cell Mol Med 2019 May
57. Zhou X, Li T, Chen Y, Zhang N, Wang P, Liang Y, Long M, Liu H, Mao J, Liu Q, Sun X, Chen H Mesenchymal stem cell-derived extracellular vesicles promote the in vitro proliferation and migration of breast cancer cells through the activation of the ERK pathway. Int J Oncol 2019 May
58. Huang X, Wang F, Zhao C, Yang S, Cheng Q, Tang Y, Zhang F, Zhang Y, Luo W, Wang C, Zhou P, Kim S, Zuo G, Hu N, Li R, He TC, Zhang H Dentinogenesis and Tooth-Alveolar Bone Complex Defects in BMP9/GDF2 Knockout Mice. Stem Cells Dev 2019 May 15
59. Huang Q, He C, Zhang J, Li W, Fu Y Unlocking the hidden talent of DNA: Unexpected catalytic activity for colorimetric assay of alkaline phosphatase. Anal Chim Acta 2019 May 9
60. Zhu LF, Li L, Wang XQ, Pan L, Mei YM, Fu YW, Xu Y M1 macrophages regulate TLR4/AP1 via paracrine to promote alveolar bone destruction in periodontitis. Oral Dis 2019 Nov
61. Zhang X, Lou Q, Wang L, Min S, Zhao M, Quan C Immobilization of BMP-2-derived peptides on 3D-printed porous scaffolds for enhanced osteogenesis. Biomed Mater 2019 Nov 15
62. Chang B, Qiu H, Zhao H, Yang X, Wang Y, Ji T, Zhang Y, Quan Q, Li Y, Zeng J, Meng H, Gu Y The Effects of Photobiomodulation on MC3T3-E1 Cells via 630 nm and 810 nm Light-Emitting Diode. MED SCI MONITOR 2019 Nov 19
63. Luo ZW, Li FX, Liu YW, Rao SS, Yin H, Huang J, Chen CY, Hu Y, Zhang Y, Tan YJ, Yuan LQ, Chen TH, Liu HM, Cao J, Liu ZZ, Wang ZX, Xie H Aptamer-functionalized exosomes from bone marrow stromal cells target bone to promote bone regeneration. Nanoscale 2019 Nov 21
64. Chen H, Huang X, Fu C, Wu X, Peng Y, Lin X, Wang Y Recombinant Klotho Protects Human Periodontal Ligament Stem Cells by Regulating Mitochondrial Function and the Antioxidant System during H2O2-Induced Oxidative Stress. Oxid Med Cell Longev 2019 Nov 28
65. Shi X, Zhang Z MicroRNA-135a-5p is involved in osteoporosis progression through regulation of osteogenic differentiation by targeting RUNX2. Exp Ther Med 2019 Oct
66. Zheng F, Wang F, Xu Z MicroRNA-98-5p prevents bone regeneration by targeting high mobility group AT-Hook 2.Exp Ther Med 2019 Oct
67. Wang H, Guan Y, Wu R, Lv X, Shen X, Ye G UPLC-Q-TOF/MS characterization of efficacy substances on osteoblasts differentiation and function in rat serum after administration of Wang-Bi tablet.Biomed Chromatogr 2019 Oct
68. Qian Y, Zhou X, Zhang F, Diekwisch TGH, Luan X, Yang J Triple PLGA/PCL Scaffold Modification Including Silver Impregnation, Collagen Coating, and Electrospinning Significantly Improve Biocompatibility, Antimicrobial, and Osteogenic Properties for Orofacia ACS APPL MATER INTER 2019 Oct 16
69. Zhai Y, Wang Y, Rao N, Li J, Li X, Fang T, Zhao Y, Ge L Activation and Biological Properties of Human β Defensin 4 in Stem Cells Derived From Human Exfoliated Deciduous Teeth. Front Physiol 2019 Oct 22
70. Zhang LT, Liu RM, Luo Y, Zhao YJ, Chen DX, Yu CY, Xiao JH Hyaluronic acid promotes osteogenic differentiation of human amniotic mesenchymal stem cells via the TGF-β/Smad signalling pathway. Life Sci 2019 Sep 1
71. Ma J, Shi C, Liu Z, Han B, Guo L, Zhu L, Ye T Hydrogen sulfide is a novel regulator implicated in glucocorticoids-inhibited bone formation. AGING-US 2019 Sep 16
72. Chen Q, Liu S Identification and Characterization of the Phosphate-Solubilizing Bacterium Pantoea sp. S32 in Reclamation Soil in Shanxi, China. Front Microbiol 2019 Sep 19
73. Lu N, Lu Y, Liu S, Jin C, Fang S, Zhou X, Li Z Tailor-Engineered POSS-Based Hybrid Gels for Bone Regeneration. Biomacromolecules 2019 Sep 9
74. Xiangyu Zhang, Guannan Zhang, Maozhou Chai, Xiaohong Yao, Weiyi Chen, Paul K Chu Synergistic antibacterial activity of physical-chemical multi-mechanism by TiO2 nanorod arrays for safe biofilm eradication on implant Bioact Mater 2020 Aug 7;6(1):12-25.

75. Xiaohan Dai, Boon Chin Heng, Yunyang Bai, Fuping You, Xiaowen Sun, Yiping Li, Zhangui Tang, Mingming Xu, Xuehui Zhang, Xuliang Deng Restoration of electrical microenvironment enhances bone regeneration under diabetic conditions by modulating macrophage polarization Bioact Mater 2020 Dec 31;6(7):2029-2038.
76. Sun M, Hu L, Wang S, Huang T, Zhang M, Yang M, Zhen W, Yang D, Lu W, Guan M, Peng S Circulating MicroRNA-19b Identified From Osteoporotic Vertebral Compression Fracture Patients Increases Bone Formation. J Bone Miner Res 2020 Feb
77. Xiaoyu Han, Mingjie Sun, Bo Chen, Qimanguli Saiding, Junyue Zhang, Hongliang Song, Lianfu Deng, Peng Wang, Weiming Gong, Wenguo Cui Lotus seedpod-inspired internal vascularized 3D printed scaffold for bone tissue repair Bioact Mater 2020 Nov 27;6(6):1639-1652.
78. Lulu Zhao, Shengnan Wang, Hong Liu, Xiaoli Du, Ren Bu, Bing Li, Ruilan Han, Jie Gao, Yang Liu, Jian Hao, Jianrong Zhao, Yan Meng, Gang Li The Pharmacological Effect and Mechanism of Lanthanum Hydroxide on Vascular Calcification Caused by Chronic Renal Failure Hyperphosphatemia Front Cell Dev Biol 2021 Apr 13;9:639127.
79. Guanning Wei, Hongmei Sun, Haijun Wei, Tao Qin, Yifeng Yang, Xiaohong Xu, Shoujing Zhao Detecting the Mechanism behind the Transition from Fixed Two-Dimensional Patterned Sika Deer (Cervus nippon) Dermal Papilla Cells to Three-Dimensional Pattern Int J Mol Sci 2021 Apr 29;22(9):4715.
80. Linshan Xu, Yuyang Wang, Jianping Wang, Jianglong Zhai, Li Ren, Guoying Zhu Radiation-Induced Osteocyte Senescence Alters Bone Marrow Mesenchymal Stem Cell Differentiation Potential via Paracrine Signaling Int J Mol Sci 2021 Aug 28;22(17):9323.
81. Shan He, Hanxiang Zhang, Yang Lu, Zhaosi Zhang, Xiang Zhang, Nian Zhou, Zhenming Hu Nampt promotes osteogenic differentiation and lipopolysaccharide-induced interleukin-6 secretion in osteoblastic MC3T3-E1 cells Aging (Albany NY) 2021 Feb 1;13(4):5150-5163.
82. Haifeng Hu, Dong Wang, Lihong Li, Haiyang Yin, Guoyu He, Yonghong Zhang Role of microRNA-335 carried by bone marrow mesenchymal stem cells-derived extracellular vesicles in bone fracture recovery Cell Death Dis 2021 Feb 4;12(2):156.
83. Guannan Zhang, Yongqiang Yang, Jing Shi, Xiaohong Yao, Weiyi Chen, Xiaochun Wei, Xiangyu Zhang, Paul K Chu Near-infrared light II - assisted rapid biofilm elimination platform for bone implants at mild temperature Biomaterials 2021 Feb;269:120634.
84. Wangxing Hu, Rongrong Wu, Chenyang Gao, Feng Liu, Zhiru Zeng, Qifeng Zhu, Jinyong Chen, Si Cheng, Kaixiang Yu, Yi Qian, Jing Zhao, Shuhan Zhong, Qingju Li, Lihan Wang, Xianbao Liu, Jian'an Wang Knockdown of estrogen-related receptor α inhibits valve interstitial cell calcification in vitro by regulating heme oxygenase 1 FASEB J 2021 Feb;35(2):e21183.
85. Lan Ma, Yijun Yu, Hanxiao Liu, Weibin Sun, Zitong Lin, Chao Liu, Leiying Miao Berberine-releasing electrospun scaffold induces osteogenic differentiation of DPSCs and accelerates bone repair Sci Rep 2021 Jan 13;11(1):1027.
86. Weiping Shi, Danhua Ling, Feiyun Zhang, Xiaohui Fu, Danping Lai, Yanzhen Zhang Curcumin promotes osteogenic differentiation of human periodontal ligament stem cells by inducting EGR1 expression Arch Oral Biol 2021 Jan;121:104958.
87. Jia-Yan Chen, You-Xiang Wang, Ke-Feng Ren, Yun-Bing Wang, Guo-Sheng Fu, Jian Ji The influence of substrate stiffness on osteogenesis of vascular smooth muscle cells Colloids Surf B Biointerfaces 2021 Jan;197:111388.
88. Weiyuan Ye, Ya Wang, Sasa Hou, Bing Mei, Xinhong Liu, Han Huang, Qian Zhou, Yajing Niu, Yuanyuan Chen, Manling Zhang, Qingyang Huang USF3 modulates osteoporosis risk by targeting WNT16, RANKL, RUNX2, and two GWAS lead SNPs rs2908007 and rs4531631 Hum Mutat 2021 Jan;42(1):37-49.
89. Weiting Chen, Yun Guan, Fangfang Xu, Beizhan Jiang4-Methylumbelliferone promotes the migration and odontogenetic differentiation of human dental pulp stem cells exposed to lipopolysaccharide in vitro Cell Biol Int 2021 Jul;45(7):1415-1422.
90. Jun Zhang, Tao Zhang, Bensen Tang, Jing Li, Zhengang Zha The miR-187 induced bone reconstruction and healing in a mouse model of osteoporosis, and accelerated osteoblastic differentiation of human multipotent stromal cells by targeting BARX2 Pathol Res Pract 2021 Mar;219:153340.
91. Jianxu Wei, Xiaomeng Zhang, Yuan Li, Xinxin Ding, Yi Zhang, Xue Jiang, Hongchang Lai, Junyu Shi Novel application of bergapten and quercetin with anti-bacterial, osteogenesis-potentiating, and anti-inflammation tri-effects Acta Biochim Biophys Sin (Shanghai) 2021 May 21;53(6):683-696.
92. Qun Huang, Hao Chai, Shendong Wang, Yongming Sun, Wei Xu 0.5-Gy X-ray irradiation induces reorganization of cytoskeleton and differentiation of osteoblasts Mol Med Rep 2021 May;23(5):379.
93. Zhanrong Kang, Dejian Li, Chaoqin Shu, Jianhang Du, Bin Yu, Zhi Qian, Zeyuan Zhong, Xu Zhang, Baoqing Yu, Qikai Huang, Jianming Huang, Yufang Zhu, Chengqing Yi, Huifeng Ding Polydopamine Coating-Mediated Immobilization of BMP-2 on Polyethylene Terephthalate-Based Artificial Ligaments for Enhanced Bioactivity Front Bioeng Biotechnol 2021 Nov 16;9:749221.
94. Majed G Alrowaili, Abdelaziz M Hussein, Elsayed A Eid, Mohamed S Serria, Hussein Abdellatif, Hussein F Sakr Effect of Intermittent Fasting on Glucose Homeostasis and Bone Remodeling in Glucocorticoid-Induced Osteoporosis Rat Model J Bone Metab 2021 Nov;28(4):307-316.
95. Fengyu Huang, Zhiping Zeng, Weidong Zhang, Zhiqiang Yan, Jiayun Chen, Liangfa Yu, Qian Yang, Yihuan Li, Hongyu Yu, Junjie Chen, Caisheng Wu, Xiao-Kun Zhang, Ying Su, Hu Zhou Design, synthesis, and biological evaluation of novel sulindac derivatives as partial agonists of PPARγ with potential anti-diabetic efficacy Eur J Med Chem 2021 Oct 15;222:113542.
96. Jiaqi Xing, Xu Peng, Anqi Li, Meilin Chen, Yuan Ding, Xinyuan Xu, Peng Yu, Jing Xie, Jianshu Li Gellan gum/alginate-based Ca-enriched acellular bilayer hydrogel with robust interface bonding for effective osteochondral repair Carbohydr Polym 2021 Oct 15;270:118382.
97. Xiaoya Gao, Yun Xue, Kechun Yang LINC00899 promotes osteogenic differentiation by targeting miR-374a and RUNX2 expression Exp Ther Med 2021 Oct;22(4):1071.
98. Zihao Zhang, Xinyu Zhang, Chengwei Wang, Peng Zhou, Jie Xiao, Hui Zheng, Lei Wang, Senbo Yan, Yue Zhang, Xiaoping Ji Deacetylated Sp1 improves β-glycerophosphate-induced calcification in vascular smooth muscle cells Exp Ther Med 2021 Oct;22(4):1152.
99. Lili Fan, Yanmei Zhang, Jiejie Hu, Yuan Fang, Ren Hu, Wei Shi, Bin Ren, Changjian Lin, Zhong-Qun Tian Surface Properties of Octacalcium Phosphate Nanocrystals Are Crucial for Their Bioactivities ACS Omega 2021 Sep 20;6(39):25372-25380.
100. Xudong Yao, Yuanzhu Ma, Wenyan Zhou, Youguo Liao, Zongsheng Jiang, Junxin Lin, Qiulin He, Hongwei Wu, Wei Wei, Xiaozhao Wang, Mikael Björklund, Hongwei Ouyang In-cytoplasm mitochondrial transplantation for mesenchymal stem cells engineering and tissue regeneration Bioeng Transl Med 2021 Sep 28;7(1):e10250.
101. Min Yi, Guanglei Wang, Jianhua Niu, Minghui Peng, Yi Liu Pterostilbene attenuates the proliferation and differentiation of TNF-α-treated human periodontal ligament stem cells Exp Ther Med 2022 Apr;23(4):304.
102. Weiwei Zhang, Jingling Shen, Shuang Zhang, Xu Liu, Shuang Pan, Yanping Li, Lin Zhang, Lina He, Yumei Niu Silencing integrin α6 enhances the pluripotency-differentiation transition in human dental pulp stem cells Oral Dis 2022 Apr;28(3):711-722.
103. Xiaoxue Ma, Yiru Wang, Qi Liu, Baihe Han, Gang Wang, Ruoxi Zhang, Xingtao Huang, Xuedong Wang, Mengyue Yang, Chun Xing, Jingbo Hou, Bo Yu Vaspin alleviates the lncRNA LEF1-AS1-induced osteogenic differentiation of vascular smooth muscle cells via the Hippo/YAP signaling pathway Exp Cell Res 2022 Dec 15;421(2):113407.

104. Gan Huang, Shu-Ting Pan, Jia-Xuan Qiu The osteogenic effects of porous Tantalum and Titanium alloy scaffolds with different unit cell structure Colloids Surf B Biointerfaces 2022 Feb:210:112229.
105. Guang-Ping Cai, Ya-Lin Liu, Li-Ping Luo, Ye Xiao, Tie-Jian Jiang, Jian Yuan, Min Wang Alkbh1-mediated DNA N6-methyladenine modification regulates bone marrow mesenchymal stem cell fate during skeletal aging Cell Prolif 2022 Feb;55(2):e13178.
106. Chuangxin Lin, Zhong Chen, Dong Guo, Laixi Zhou, Sipeng Lin, Changchuan Li, Shixun Li, Xinjia Wang, Bendan Lin, Yue Ding Increased expression of osteopontin in subchondral bone promotes bone turnover and remodeling, and accelerates the progression of OA in a mouse model Aging (Albany NY) 2022 Jan 4;14(1):253-271.
107. Joon-Ho Lee, Yuan-Ji Wei, Zhong-Yan Zhou, Yu-Ming Hou, Cheng-Long Wang, Li-Bo Wang, Hong-Jin Wu, Yu Zhang, Wei-Wei Dai Efficacy of the herbal pair, Radix Achyranthis Bidentatae and Eucommiae Cortex, in preventing glucocorticoid-induced osteoporosis in the zebrafish model J Integr Med 2022 Jan;20(1):83-90.
108. Shaoming Li, Ling Gao, Weidong Zhang, Yanbin Yu, Jingjing Zheng, Xiao Liang, Shanshan Xin, Wenhao Ren, Keqian Zhi MiR-152-5p suppresses osteogenic differentiation of mandible mesenchymal stem cells by regulating ATG14-mediated autophagy Stem Cell Res Ther 2022 Jul 26;13(1):359.
109. Tao Liu, Zhan Li, Li Zhao, Zehua Chen, Zefeng Lin, Binglin Li, Zhibin Feng, Panshi Jin, Jinwei Zhang, Zugui Wu, Huai Wu, Xuemeng Xu, Xiangling Ye, Ying Zhang Customized Design 3D Printed PLGA/Calcium Sulfate Scaffold Enhances Mechanical and Biological Properties for Bone Regeneration Front Bioeng Biotechnol 2022 Jun 23:10:874931.
110. Xueman Zhou, Jin Liu, Yingcheng Zheng, Zhenzhen Zhang, Yange Wu, Wenke Yang, Jiaqi Liu, Yanmei Huang, Yating Yi, Zhihe Zhao, Hengyi Xiao, Xianming Mo, Jun Wang SM22α-lineage niche cells regulate intramembranous bone regeneration via PDGFRβ-triggered hydrogen sulfide production Cell Rep 2022 May 3;39(5):110750.
111. Yan Yang, Quan Li, Rufei Huang, Huan Xia, Yan Tang, Wanwen Mai, Jinlian Liang, Siying Ma, Derong Chen, Yuqing Feng, Yaling Lei, Qihao Zhang, Yadong Huang Small-Molecule-Driven Direct Reprogramming of Fibroblasts into Functional Sertoli-Like Cells as a Model for Male Reproductive Toxicology Adv Biol (Weinh) 2022 May;6(5):e2101184.
112. Tao Liu, Binglin Li, Gang Chen, Xiangling Ye, Ying Zhang Nano tantalum-coated 3D printed porous polylactic acid/beta-tricalcium phosphate scaffolds with enhanced biological properties for guided bone regeneration Int J Biol Macromol 2022 Nov 30:221:371-380.
113. Jia Tan, Jiaxin Li, Bojun Cao, Junxiang Wu, Dinghao Luo, Zhaoyang Ran, Liang Deng, Xiaoping Li, Wenbo Jiang, Kai Xie, Lei Wang, Yongqiang Hao Niobium promotes fracture healing in rats by regulating the PI3K-Akt signalling pathway: An in vivo and in vitro study J Orthop Translat 2022 Oct 13:37:113-125.
114. Gao A, Hang R, Huang X, Zhao L, Zhang X, Wang L, Tang B, Ma S, Chu PK. The effects of titania nanotubes with embedded silver oxide nanoparticles on bacteria and osteoblasts. Biomaterials 2014 Apr;35(13):4223-35.
115. Xie Q, Wang Z, Huang Y, Bi X, Zhou H, Lin M, Yu Z, Wang Y, Ni N, Sun J, Wu S, You Z, Guo C, Sun H, Wang Y, Gu P, Fan X. Characterization of human ethmoid sinus mucosa derived mesenchymal stem cells (hESMSCs) and the application of hESMSCs cell sheets in bone regeneration. Biomaterials 2015 Oct;66:67-82.
116. Zhang Q, , Dong H, , Li Y, , Zhu Y, Zeng L, , Gao H, , Yuan B, , Chen X, , Mao C. Microgrooved Polymer Substrates Promote Collective Cell Migration To Accelerate Fracture Healing in an in Vitro Model. ACS APPL MATER INTER 2015 Oct 21;7(41):23336-45.
117. Wu RX, Bi CS, Yu Y, Zhang LL, Chen FM. Age-related decline in the matrix contents and functional properties of human periodontal ligament stem cell sheets. Acta Biomater 2015 Aug;22:70-82.
118. Deng Z, Wang Z, Jin J, Wang Y, Bao N, Gao Q, Zhao J . SIRT1 protects osteoblasts against particle-induced inflammatory responses and apoptosis in asepticprosthesis loosening. Acta Biomater 2017 Feb;49:541-554.
119. Deng Z, Wang Z, Jin J, Wang Y, Bao N, Gao Q, Zhao J. SIRT1 protects osteoblasts against particle-induced inflammatory responses and apoptosis in aseptic prosthesis loosening. Acta Biomater 2017 Feb;49:541-554.
120. Sun Y, Li Y, Wu B, Wang J, Lu X, Qu S, Weng J, Feng B.Biological responses to M13 bacteriophage modified titanium surfaces in vitro. Acta Biomater 2017 Aug;58:527-538.
121. Zhao X, Chen S, Lin Z, Du C . Reactive electrospinning of composite nanofibers of carboxymethyl chitosan cross-linked by alginatedialdehyde with the aid of polyethylene oxide. CARBOHYD POLYM 2016 Sep 5;148:98-106.
122. Ye X, Li L, Lin Z, Yang W, Duan M, Chen L, Xia Y, Chen Z, Lu Y, Zhang Y Integrating 3D-printed PHBV/Calcium sulfate hemihydrate scaffold and chitosan hydrogel for enhanced osteogenic property. CARBOHYD POLYM 2018 Dec 15;202:106-114.
123. Wang J, Gu Q, Hao J, Bai D, Liu L, Zhao X, Liu Z, Wang L, Zhou Q. Generation of induced pluripotent stem cells with high efficiency from human umbilical cord blood mononuclear cells. GENOM PROTEOM BIOINF 2013 Oct;11(5):304-11.
124. Lyu Z, Wang H, Wang Y, Ding K, Liu H, Yuan L, Shi X, Wang M, Wang Y, Chen H. Maintaining the pluripotency of mouse embryonic stem cells on gold nanoparticle layers with nanoscale but not microscale surface roughness. Nanoscale 2014 Jun 21;6(12):6959-69.
125. Wu Y, Yang M, Fan J, Peng Y, Deng L, Ding Y, Yang R, Zhou J, Miao D, Fu Q. Deficiency of osteoblastic Arl6ip5 impaired osteoblast differentiation and enhanced osteoclastogenesis via disturbance of ER calcium homeostasis and induction of ER stress-mediated apoptosis. Cell Death Dis 2014 Oct 16;5:e1464.
126. Zhang Y, Dong C, Yang S, Wu J, Xiao K, Huang Y, Li X.Alkalescent nanotube films on a titanium-based implant: A novel approach to enhance biocompatibility. MAT SCI ENG C-MATER 2017 Mar 1;72:464-471.
127. Guo S, Lu Y, Wu S, Liu L, He M, Zhao C, Gan Y, Lin J, Luo J, Xu X, Lin J Preliminary study on the corrosion resistance, antibacterial activity and cytotoxicity of selective-laser-melted Ti6Al4V-xCu alloys. MAT SCI ENG C-MATER 2017 Mar 1;72:631-640.
128. Chen Y, Gao A, Bai L, Wang Y, Wang X, Zhang X, Huang X, Hang R, Tang B, Chu PK. Antibacterial, osteogenic, and angiogenic activities of SrTiO3 nanotubes embedded with Ag2Onanoparticles. MAT SCI ENG C-MATER 2017 Jun 1;75:1049-1058.
129. Ou Q, Wang X, Wang Y, Wang Y, Lin X. Oestrogen retains human periodontal ligament stem cells stemness in long-term culture. CELL PROLIFERAT 2017 Oct 12.
130. Ou Q, Wang X, Wang Y, Wang Y, Lin X Oestrogen retains human periodontal ligament stem cells stemness in long-term culture. CELL PROLIFERAT 2018 Apr;51(2):e12396.
131. Wang Y, Liu W, Liu Y, Cui J, Zhao Z, Cao H, Fu Z, Liu B Long noncoding RNA H19 mediates LCoR to impact the osteogenic and adipogenic differentiation of mBMSCs in mice through sponging miR-188. J Cell Physiol 2018 Sep;233(9):7435-7446.
132. Zhang X, Chen J, Liu A, Xu X, Xue M, Xu J, Yang Y, Qiu H, Guo F Stable overexpression of p130/E2F4 affects the multipotential abilities of bone-marrow-derived mesenchymal stem cells. J Cell Physiol 2018 Dec;233(12):9739-9749.
133. Lin FX, Zheng GZ, Chang B, Chen RC, Zhang QH, Xie P, Xie D, Yu GY, Hu QX, Liu DZ, Du SX, Li XDConnexin 43 Modulates Osteogenic Differentiation of Bone Marrow Stromal Cells Through GSK-3beta/Beta-Catenin Signaling Pathways. CELL PHYSIOL BIOCHEM 2018;47(1):161-175.
134. Dong M, Yu X, Chen W, Guo Z, Sui L, Xu Y, Shang Y, Niu W, Kong Y Osteopontin Promotes Bone Destruction in Periapical Periodontitis by Activating the NF-κB

Pathway. CELL PHYSIOL BIOCHEM 2018;49(3):884-898.

135. Xiao F, Wang C, Wang C, Gao Y, Zhang X, Chen X BMPER Enhances Bone Formation by Promoting the Osteogenesis-Angiogenesis Coupling Process in Mesenchymal Stem Cells. CELL PHYSIOL BIOCHEM 2018;45(5):1927-1939.

136. Jiang K, Huang D, Zhang D, Wang X, Cao H, Zhang Q, Yan C Investigation of inulins from the roots of Morinda officinalis for potential therapeutic application as anti-osteoporosis agent. Int J Biol Macromol 2018 Dec;120(Pt A):170-179.

137. Zhang J, Feng Z, Wei J, Yu Y, Luo J, Zhou J, Li Y, Zheng X, Tang W, Liu L, Long J, Li X, Jing W Repair of Critical-Sized Mandible Defects in Aged Rat Using Hypoxia Preconditioned BMSCs with Up-regulation of Hif-1α. Int J Biol Sci 2018 Mar 11;14(4):449-460.

138. Liu X, Han F, Zhao P, Lin C, Wen X, Ye X . Layer-by-layer self-assembled multilayers on PEEK implants improve osseointegration in an osteoporosisrabbit model. Nanomedicine 2017 Jan 25. pii: S1549-9634(17)30013-8.

139. Qian DY, Yan GB, Bai B, Chen Y, Zhang SJ, Yao YC, Xia H. Differential circRNA expression profiles during the BMP2-induced osteogenic differentiation of MC3T3-E1 cells. Biomed Pharmacother 2017 Jun;90:492-499.

140. Hu H, Li Z, Lu M, Yun X, Li W, Liu C, Guo A Osteoactivin inhibits dexamethasone-induced osteoporosis through up-regulating integrin β1 and activate ERK pathway. Biomed Pharmacother 2018 Sep;105:66-72.

141. Liu Z, Tang Y, Kang T, Rao M, Li K, Wang Q, Quan C, Zhang C, Jiang Q, Shen H. Synergistic effect of HA and BMP-2 mimicking peptide on the bioactivity of HA/PMMA bone cement. COLLOID SURFACE B 2015 Jul 1;131:39-46.

142. Cheng D, Liang Q, Li Y, Fan J, Wang G, Pan H, Ruan CStrontium incorporation improves the bone-forming ability of scaffolds derived from porcine bone. COLLOID SURFACE B 2018 Feb 1;162:279-287.

143. Luo J, Zhang H, Zhu J, Cui X, Gao J, Wang X, Xiong J. 3-D mineralized silk fibroin/polycaprolactone composite scaffold modified with polyglutamateconjugated with BMP-2 peptide for bone tissue engineering. COLLOID SURFACE B 2018 Mar 1;163:369-378.

144. Luo J, Zhang H, Zhu J, Cui X, Gao J, Wang X, Xiong J 3-D mineralized silk fibroin/polycaprolactone composite scaffold modified with polyglutamate conjugated with BMP-2 peptide for bone tissue engineering. COLLOID SURFACE B 2018 Mar 1;163:369-378.

145. Xue Y, Yan Y, Gong H, Fang B, Zhou Y, Ding Z, Yin P, Zhang G, Ye Y, Yang C, Ge J, Zou Y. Insulin-like growth factor binding protein 4 enhances cardiomyocytes induction in murine-induced pluripotent stem cells. J Cell Biochem 2014 Sep;115(9):1495-504.

146. Qin X, Jiang T, Liu S, Tan J, Wu H, Zheng L, Zhao J Effect of metformin on ossification and inflammation of fibroblasts in ankylosing spondylitis: An in vitro study. J Cell Biochem 2018 Jan;119(1):1074-1082.

147. Gu X, Fu X, Lu J, Saijilafu, Li B, Luo ZP, Chen JPharmacological inhibition of S6K1 impairs self-renewal and osteogenic differentiation of bone marrow stromal cells. J Cell Biochem 2018 Jan;119(1):1041-1049.

148. Li M, Yan J, Chen X, Tam W, Zhou L, Liu T, Pan G, Lin J, Yang H, Pei M, He F Spontaneous up-regulation of SIRT1 during osteogenesis contributes to stem cells' resistance to oxidative stress. J Cell Biochem 2018 Jun;119(6):4928-4944.

149. Wang Z, Xie Q, Yu Z, Zhou H, Huang Y, Bi X, Wang Y, Shi W, Sun H, Gu P, Fan X. A regulatory loop containing miR-26a, GSK3β and C/EBPα regulates the osteogenesis of human adipose-derived mesenchymal stem cells. SCI REP-UK 2015 Oct 15;5:15280.

150. Chen Z, Luo Q, Lin C, Kuang D, Song G . Simulated microgravity inhibits osteogenic differentiation of mesenchymal stem cells via depolymerizing F-actin to impede TAZ nuclear translocation. SCI REP-UK 2016 Jul 22;6:30322.

151. Shen XQ, Geng YM, Liu P, Huang XY, Li SY, Liu CD, Zhou Z, Xu PP. Magnitude-dependent response of osteoblasts regulated by compressive stress. SCI REP-UK 2017 Mar 20;7:44925.

152. Wang Q, Yang Q, Chen G, Du Z, Ren M, Wang A, Zhao H, Li Z, Zhang G, Song Y LncRNA expression profiling of BMSCs in osteonecrosis of the femoral head associated with increased adipogenic and decreased osteogenic differentiation. SCI REP-UK 2018 Jun 14;8(1):9127.

153. Zhang Y, Xiong Y, Chen X, Chen C, Zhu Z, Li L Therapeutic effect of bone marrow mesenchymal stem cells pretreated with acetylsalicylic acid on experimental periodontitis in rats. Int Immunopharmacol 2018 Jan;54:320-328.

154. Tang Y, Xu Q, Peng H, Liu Z, Yang T, Yu Z, Cheng G, Li X, Zhang G, Shi R. The role of vascular peroxidase 1 in ox-LDL-induced vascular smooth muscle cell calcification. Atherosclerosis 2015 Dec;243(2):357-63.

155. Tang XL, Wang CN, Zhu XY, Ni X. Rosiglitazone inhibition of calvaria-derived osteoblast differentiation is through both of PPARγ and GPR40 and GSK3β-dependent pathway. Mol Cell Endocrinol 2015 Sep 15;413:78-89.

156. Tang XL, Wang CN, Zhu XY, Ni X . Protein tyrosine phosphatase SHP-1 modulates osteoblast differentiation through direct association with and dephosphorylation of GSK3β. Mol Cell Endocrinol 2017 Jan 5;439:203-212.

157. Tang XL, Wang CN, Zhu XY, Ni X. Protein tyrosine phosphatase SHP-1 modulates osteoblast differentiation through directassociation with and dephosphorylation of GSK3β. Mol Cell Endocrinol 2017 Jan 5;439:203-212.

158. Wu Y, Wang M, Feng H, Peng Y, Sun J, Qu X, Li C. Lactate induces osteoblast differentiation by stabilization of HIF1α. Mol Cell Endocrinol 2017 Sep 5;452:84-92.

159. Kang H, Chen H, Huang P, Qi J, Qian N, Deng L, , Guo L. Glucocorticoids impair bone formation of bone marrow stromal stem cells by reciprocally regulating microRNA-34a-5p. OSTEOPOROSIS INT 2016 Apr;27(4):1493-505.

160. Xiong Y, Zhang Y, Xin N, Yuan Y, Zhang Q, Gong P, Wu Y. 1α,25-Dihydroxyvitamin D3 promotes osteogenesis by promoting Wnt signaling pathway. J STEROID BIOCHEM 2017 Nov;174:153-160.

161. Wang Y, Ma WQ, Zhu Y, Han XQ, Liu N Exosomes Derived From Mesenchymal Stromal Cells Pretreated With Advanced Glycation End Product-Bovine Serum Albumin Inhibit Calcification of Vascular Smooth Muscle Cells. FRONT ENDOCRINOL 2018 Sep 21;9:524.

162. Deng D, Diao Z, Han X, Liu W . Secreted Frizzled-Related Protein 5 Attenuates High Phosphate-Induced Calcification in Vascular SmoothMuscle Cells by Inhibiting the Wnt/ß-Catenin Pathway.CALCIFIED TISSUE INT 2016 Jul;99(1):66-75.

163. Wang F, Hu Y, He D, Zhou G, Ellis E 3rd Scaffold-free cartilage cell sheet combined with bone-phase BMSCs-scaffold regenerate osteochondral construct in mini-pig model. Am J Transl Res 2018 Oct 15;10(10):2997-3010. eCollection 2018.

164. Peng W, Shi Y, Li GF, He LG, Liang YS, Zhang Y, Zhou LB, Lin HR, Lu DQ . Tetraodon nigroviridis: A model of Vibrio parahaemolyticus infection. FISH SHELLFISH IMMUN 2016 Sep;56:388-96.

165. Zhou J, Zhu J, Jiang L, Zhang B, Zhu D, Wu Y . Interleukin 18 promotes myofibroblast activation of valvular interstitial cells. Int J Cardiol 2016 Oct 15;221:998-1003.

166. Zhao Y, Song G, Ren J, Li Q, Zhong S, Cui Z Sleeping beauty transposon-mediated poly(A)-trapping and insertion mutagenesis in mouse embryonic stem cells. Environ Mol Mutagen2018 Oct;59(8):687-697.

167. Jiang L, Peng WW, Li LF, Du R, Wu TT, Zhou ZJ, Zhao JJ, Yang Y, Qu DL, Zhu YQ. Effects of deferoxamine on the repair ability of dental pulp cells in vitro. J ENDODONT 2014 Aug;40(8):1100-4.

168. Chen H, Ji X, She F, Gao Y, Tang P . miR-628-3p regulates osteoblast differentiation by targeting RUNX2: Possible role in atrophic non-union. Int J Mol Med 2017 Feb;39(2):279-286.

169. Chen H, Ji X, She F, Gao Y, Tang P. miR-628-3p regulates osteoblast

differentiation by targeting RUNX2: Possible role in atrophicnon-union. Int J Mol Med 2017 Feb;39(2):279-286.

170. Huang C, Geng J, Wei X, Zhang R, Jiang S . MiR-144-3p regulates osteogenic differentiation and proliferation of murine mesenchymal stem cells byspecifically targeting Smad4.FEBS Lett 2016 Mar;590(6):795-807.
171. Han Y, Zhang K, Hong Y, Wang J, Liu Q, Zhang Z, Xia H, Tang Y, Li T, Li L, Xue Y, Hong W miR-342-3p promotes osteogenic differentiation via targeting ATF3. FEBS Lett 2018 Dec;592(24):4051-4065.
172. Xie Q, Wang Z, Bi X, Zhou H, Wang Y, Gu P, Fan X. Effects of miR-31 on the osteogenesis of human mesenchymal stem cells. BIOCHEM BIOPH RES CO 2014 Mar 28;446(1):98-104.
173. Chen Z, Luo Q, Lin C, Song G. Simulated microgravity inhibits osteogenic differentiation of mesenchymal stem cells through down regulating the transcriptional co-activator TAZ. BIOCHEM BIOPH RES CO 2015 Dec 4;468(1-2):21-6.
174. Zhang Y, Xiong Y, Zhou J, Xin N, Zhu Z, Wu Y FoxO1 expression in osteoblasts modulates bone formation through resistance to oxidative stress in mice. BIOCHEM BIOPH RES CO 2018 Sep 10;503(3):1401-1408.
175. Wang W, Chen J, Hui Y, Huang M, Yuan P Down-regulation of miR-193a-3p promotes osteoblast differentiation through up-regulation of LGR4/ATF4 signaling. BIOCHEM BIOPH RES CO 2018 Sep 10;503(3):2186-2193.
176. Wu Y, Wang M, Zhang K, Li Y, Xu M, Tang S, Qu X, Li C Lactate enhanced the effect of parathyroid hormone on osteoblast differentiation via GPR81-PKC-Akt signaling. BIOCHEM BIOPH RES CO 2018 Sep 5;503(2):737-743.
177. Quan C, Tang Y, Liu Z, Rao M, Zhang W, Liang P, Wu N, Zhang C, Shen H, Jiang Q. Effect of modification degree of nanohydroxyapatite on biocompatibility and mechanical property of injectable poly(methyl methacrylate)-based bone cement. J BIOMED MATER RES B 2016 Apr;104(3):576-84.
178. Wu Z, Dai W, Wang P, Zhang X, Tang Y, Liu L, Wang Q, Li M, Tang C Periostin promotes migration, proliferation, and differentiation of human periodontal ligament mesenchymal stem cells. Connect Tissue Res 2018 Mar;59(2):108-119.
179. Gao SY, Zheng GS, Wang L, Liang YJ, Zhang SE, Lao XM, Li K, Liao GQ. Zoledronate suppressed angiogenesis and osteogenesis by inhibiting osteoclasts formation and secretion of PDGF-BB. PLoS One 2017 Jun 8;12(6):e0179248.
180. Niu B, Li B, Gu Y, Shen X, Liu Y, Chen L . In vitro evaluation of electrospun silk fibroin/nano-hydroxyapatite/BMP-2 scaffolds for bone regeneration. J BIOMAT SCI-POLYM E 2017 Feb;28(3):257-270.

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