# 药 学 学 报

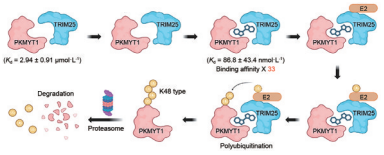
第 60 卷　第 10 期　2025 年 10 月


## 图 文 摘 要

## 专家论坛

2913
**从当归芦荟丸到发现分子胶的启示**

郭宗儒*
(中国医学科学院、北京协和医学院药物研究所, 北京 100050)

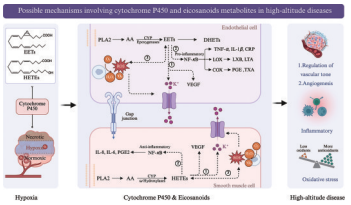




本文试图对"当归芦荟丸→青黛→靛玉红→甲异靛→分子胶"研发链作一简要述评, 拉近表型研究与靶标主导的研究模式。

## 综述

2918
**细胞色素 P450 及类二十烷酸代谢物: 高原疾病治疗的新靶点**

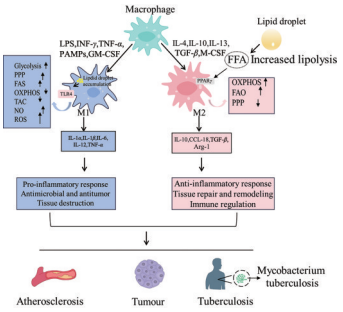
王倩[1,2], 朱俊博[2], 段雅彬[3], 李向阳[2*]
(1. 青海大学临床医学院, 青海 西宁 810001; 2. 青海大学药学院, 青海 西宁 810016; 3. 青海大学附属医院临床药学科, 青海 西宁 810001)


高原低氧环境通过改变CYP450表达和类二十烷酸合成, 进一步调节血管稳态、炎症反应及ROS生成, 从而调控高原疾病的发生发展和机体缺氧适应。

2933
**巨噬细胞脂滴负载与炎症表型关系研究进展**

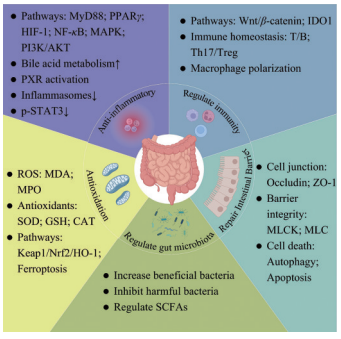
干露, 邓然*, 张晓月, 魏芮晗
(安徽中医药大学中西医结合学院, 安徽 合肥 230012)


本文综述了巨噬细胞脂滴负载与炎症表型之间的关系与调控机制, 以及两者在动脉粥样硬化、肿瘤和结核病等疾病中的作用, 并提出靶向脂滴代谢的治疗潜力。

2944
**治疗炎症性肠病的中药药效物质及作用机制研究进展**

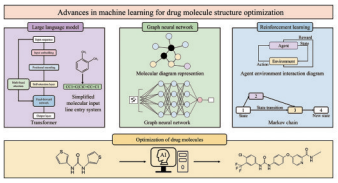
许铃, 姬茗心, 张嘉瑞, 王毅, 赵璐*
(浙江大学药学院, 浙江 杭州 310058)


本文主要综述了近年来乌梅丸等中药复方及厚朴酚等天然产物单体成分在炎症性肠病治疗中的应用进展与作用机制。未来, 中药复方和单体成分的多靶点协同特性有望为该病个体化治疗提供新策略。

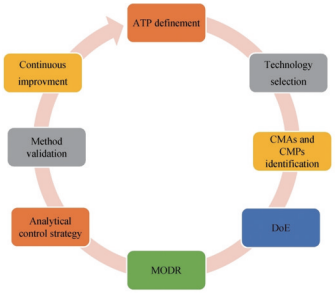
2963
**机器学习在药物分子结构优化中的研究进展**
李星雨[1], 武潼[1], 徐启兰[1], 王奕文[1], 余河水[1,2,3], 岑世欣[1,2,3*], 李正[1,2,3,4,5*]
(1. 天津中医药大学中药制药工程学院, 天津 301617; 2. 组分中药国家重点实验室, 天津 301617; 3. 天津市中药智能制药与绿色制药重点实验室, 天津 301617; 4. 现代中医药海河实验室, 天津 301617; 5. 现代中药创制全国重点实验室, 天津 301617)

本文系统综述了机器学习在药物分子结构优化中的应用进展, 重点阐述了大语言模型、图神经网络及强化学习3大技术在药物设计中的理论框架、技术演进与实际应用, 分析了人工智能驱动药物优化的前沿趋势与未来发展方向。



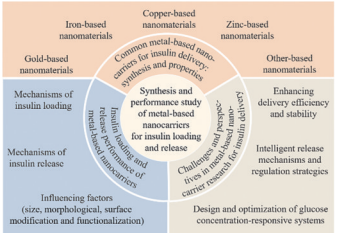

2983
**生物药物分析方法开发中的质量设计: 从当前观点到实际应用**
段徐华, 史卓维, 王鸣人, 董闪闪, 邵泓[*]
(上海市食品药品检验研究院, 国家药品监督管理局治疗类单抗质量控制重点实验室, 上海 201203)

分析质量源于设计为所开发的产品"分析方法"的质量赋予信心和提供保障。



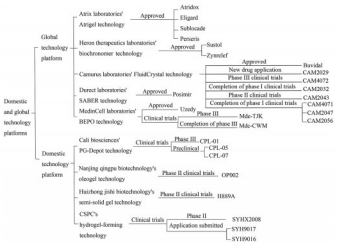

2995
**基于胰岛素载释的金属基纳米载体合成及性能研究进展**
赵蕊蕊[1], 李煊[2], 周蓓[3], 李祥子[1,2*]
(1. 皖南医学院药学院, 安徽 芜湖 241002; 2. 安徽师范大学化学与材料科学学院, 功能分子固体教育部重点实验室, 安徽 芜湖 241000; 3. 皖南医学院第二附属医院, 安徽 芜湖 241000)

金基、铁基、铜基、锌基等新型金属基纳米载体在胰岛素载释方面表现出独特的优势, 通过调节载体尺寸、形貌及表面修饰可精准控制载体表面分子与胰岛素分子之间的相关作用, 实现胰岛素的智能化释放, 有望为临床糖尿病的实际治疗需求提供新方案。



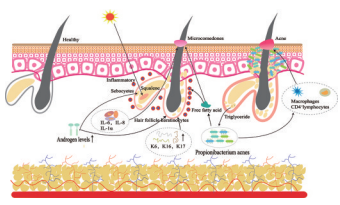

3008
**长效原位成型制剂的产业化突破: 关键技术平台与转化战略**
张鑫[1,2], 郝贵周[2,3], 王兴华[4*], 尚萍萍[1,2,3*]
(1. 桂林医科大学药学院, 广西 桂林 541199; 2. 山东新时代药业有限公司, 山东 临沂 273400; 3. 山东省复杂注射剂工程技术研究中心, 山东 临沂 273400; 4. 鲁南厚普制药有限公司, 山东 临沂 276000)

本文系统梳理了长效原位成型制剂的技术平台、产业化进展及面临的挑战, 并分析了未来发展趋势, 旨在为我国长效制剂的产业化发展提供战略参考。



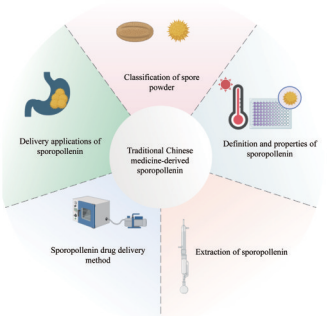

3019
**基于药物递送技术的痤疮治疗**
艾兵[1,2], 廖慧玲[3], 廖佳丽[1,2], 刘亚萍[3], 伍振峰[1,2*], 何伟[1,2*]
(1. 江西中医药大学现代中药制剂教育部重点实验室, 江西 南昌 330004; 2. 江西省中药绿色制造技术创新中心, 江西 南昌 330115; 3. 中国药科大学药学院, 江苏 南京 211198)

本文综述了寻常痤疮的病理机制与现有治疗方法优势及所存在局限性, 并系统探讨了基于脂质载体、聚合物载体及其他新型药物递送系统(如微针、深共熔溶剂等) 在提升药物靶向性、稳定性和疗效方面的潜在应用与临床转化前景。



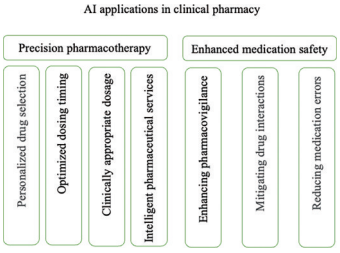
3036
**中药衍生孢粉素微胶囊: 载药机制、递药应用及其挑战**
刘艳玲[1], 罗晓健[1,2], 饶小勇[1,2], 付小明[1], 彭佩雨[1], 张尧[2], 刘微[1,2*]
(1. 江西中医药大学药学院, 江西 南昌 330006; 2. 中药固体制剂制造技术国家工程研究中心, 江西 南昌 330006)

本文综述了用于载药系统的中药孢粉, 从结构分类、孢粉素性质、提取技术到载药方法及应用实例进行了总结。




3045
**人工智能在临床药学中的应用进展**
张微微[1,2], 唐婧[1], 冀召帅[1], 胡永芳[1], 聂广孟[1*], 张翀[2*]
(1. 清华大学北京清华长庚医院药学部, 清华大学临床医学院, 北京 102218; 2. 清华大学化学工程系, 北京 100084)

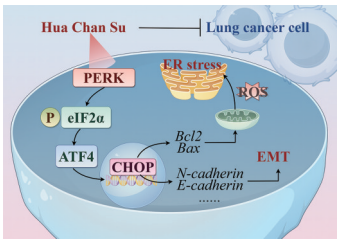
本文详细阐述了人工智能 (artificial intelligence, AI) 在临床药学领域的相关应用进展, 同时针对未来AI在该领域应用存在的挑战及可能的对策进行了分析, 以期为临床药学从业者及后续研究提供参考。




# 研究论文

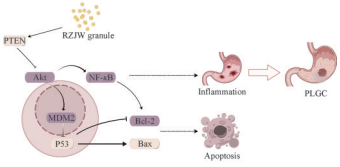
3060
**华蟾素激活 PERK-eIF2*α*-ATF4 信号诱导非小细胞肺癌凋亡并抑制上皮间质转化**
刘熠晨[1], 闫秋莹[1], 董丹[1], 祝华英[2], 陶李蕙苹[1], 范旻旻[1], 沈卫星[1], 程海波[1,3], 孙东东[1*]
(1. 南京中医药大学, 江苏省中医药防治肿瘤协同创新中心, 江苏 南京 210023; 2. 华润三九医药股份有限公司, 广东 深圳 518000; 3. 南京中医药大学, 第一临床医学院, 江苏 南京 210023)

华蟾素激活PERK-eIF2*α*-ATF4信号诱导非小细胞肺癌凋亡并抑制上皮间质转化。



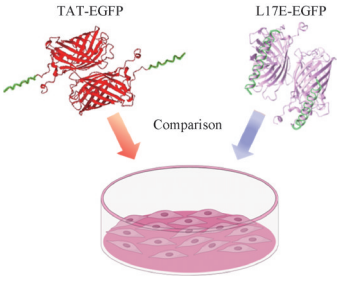

3074
**仁术健胃颗粒逆转慢性萎缩性胃炎伴胃癌前病变的药效及机制研究**
杜莹[1], 王雨涵[1], 李思璐[1], 吴洁洁[1], 黄子倩[1], 黄芳[1,2*], 王海丽[2], 赵开军[2], 成俊[2]
(1. 中国药科大学中药学院, 江苏 南京 211198; 2. 南京中山制药有限公司, 江苏 南京 210046)

仁术健胃颗粒通过干预PTEN/Akt/p53通路诱导细胞凋亡, 治疗慢性萎缩性胃炎, 预防胃癌前病变。



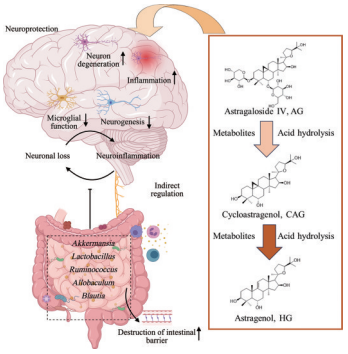

3085
**细胞穿膜肽 TAT 和 L17E 以融合方式递送蛋白质的能力比较**
黄芸[1], 张晶[1*], 华子春[1,2,3*]
(1. 南京大学生命科学学院, 医药生物技术国家重点实验室, 江苏 南京 210023; 2. 江苏省产业技术研究院医药生物技术研究所, 常州南京大学高新技术研究院, 江苏 常州 213164; 3. 南京吉芮康生物科技研究院, 江苏 南京 210044)

本研究通过融合蛋白共价结合方式及结构模拟发现, 穿膜肽TAT凭借其向外伸展的疏水侧链构象显著提升EGFP蛋白的细胞递送效率 (浓度依赖性增强), 而L17E因侧链内缩导致穿膜效果减弱, 揭示了阳离子穿膜肽的疏水性、电荷分布与空间构象对其药物递送效能的关键调控作用, 为蛋白质药物载体设计提供了结构优化新思路。



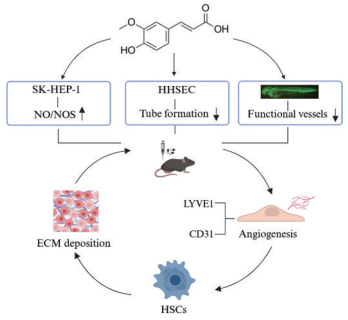
3091
**基于"间接调控"探究黄芪甲苷及其类似物改善帕金森病的作用**
肖圣男[1], 刘连梅[1], 秦雪梅[1,2*], 李震宇[1,2*]
(1. 山西中医药大学太行本草研究院, 山西 晋中 030619; 2. 山西大学中医药现代研究中心, 山西 太原 030006)

黄芪甲苷及其类似物调节肠道菌群结构, 改善肠道屏障, 抑制神经炎症, 进而缓解1-甲基-4-苯基-1,2,3,6-四氢吡啶诱导的帕金森病行为学及病理学指征。



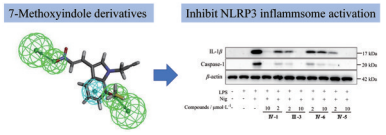

3102
**阿魏酸调控肝窦内皮细胞功能抑制血管新生减轻肝纤维化**
时瑞敏[1,2], 黄恺[1,2], 沈丽[1,2], 薛静波[1,2], 陶艳艳[1,2], 刘成海[1,2*], 赵志敏[1,2*]
(1. 上海中医药大学附属曙光医院, 肝病研究所, 上海 201203; 2. 肝肾疾病病证教育部重点实验室, 上海 201203)

本研究发现阿魏酸可通过调控肝窦内皮细胞功能、抑制血管新生, 改善肝窦毛细血管化, 从而减轻肝纤维化, 为肝纤维化治疗提供了新的实验依据。



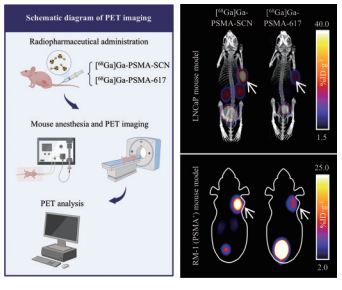

3111
**7-甲氧基吲哚类化合物的设计、合成及抗炎活性评价**
徐梓菡[1#], 李慧琼[1#], 沈天择[1,2], 丁玲[1], 肖伟烈[1,2], 张兴杰[1*], 张芮菡[1*]
(1. 云南大学药学院, 化学科学与工程学院, 教育部自然资源药物化学重点实验室, 云南 昆明 650500; 2. 西南联合研究生院, 云南 昆明 650092)

7-甲氧基吲哚类化合物抑制NLRP3炎症小体通路的激活和巨噬细胞J774A.1的焦亡。



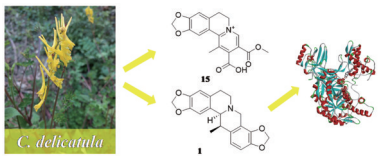

3120
**新型前列腺特异性膜抗原靶向诊疗一体化分子 [$^{68}$Ga]Ga-/[$^{177}$Lu]Lu-PSMA-SCN 的制备与评价**
李灵珥[1#], 高新[1#], 袁秀双[1#], 邱学力[2], 吴江[3], 张露露[3], 黄宏怡[1], 张思琪[1], 王峰[3], 张应子[2*], 胡宽[1*]
(1. 中国医学科学院北京协和医学院药物研究所, 天然药物及核药基础与新药创制全国重点实验室, 北京 100050; 2. 苏州大学附属第二医院骨外科, 江苏 苏州 215031; 3. 南京医科大学附属南京医院、南京市第一医院核医学科, 江苏 南京 211166)

本文基于新型螯合体p-SCN-Bn-DOTA合成了靶向前列腺特异性膜抗原 (PSMA) 的放射性配体PSMA-SCN, 证实了其在前列腺癌诊断与治疗中的潜在价值。



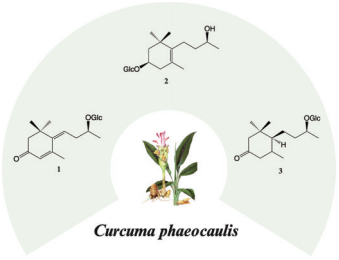

3131
**娇嫩黄堇生物碱成分及脲酶抑制活性研究**
崔佳, 熊邵文, 姜雨辰, 黄昕玥, 李丽梅*
(西南民族大学药学与食品学院, 四川 成都 610041)

从娇嫩黄堇 (*Corydalis delicatula* D. G. Long) 中分离得到15个生物碱化合物, 其中corlicatine A (**15**) 为新化合物。(−)-Tetrahydrocorysamine (**1**) 对洋刀豆脲酶 (Jack bean urease, JBU) 的抑制活性最强, $IC_{50}$值为1.28 μmol·L$^{-1}$, 优于阳性对照。



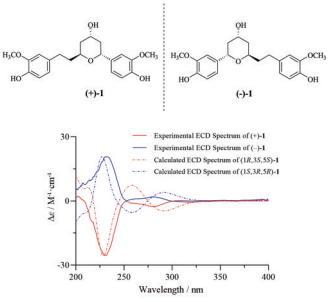
3139
**蓬莪术正丁醇部位中一个新的紫罗兰酮成分**
黄宇希[1], 严禹瑶[1], 李小翠[1], 刘菲[1*], 熊亮[1,2*], 戴鸥[1,3*]
(1. 成都中医药大学药学院, 西南特色中药资源国家重点实验室, 四川 成都 611137; 2. 成都中医药大学医学技术学院, 四川 成都 611137; 3. 成都中医药大学附属医院, 四川 成都 611137)

从蓬莪术正丁醇萃取部位分离得到3个紫罗兰酮苷类化合物, 其中化合物**1**为新化合物。



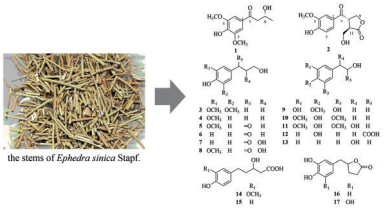

3146
**零余子中一对新的二苯基庚烷对映体**
曹彦刚[1,2], 郭孟焕[1,2], 赵怡欣[1,2], 刘晏灵[1,2], 陈旭[1,2], 郑晓珂[1,2*], 冯卫生[1,2*]
(1. 河南中医药大学药学院, 河南 郑州 450046; 2. 河南省中药开发工程技术研究中心, 河南 郑州 450046)

从零余子中分离得到9个化合物, 其中化合物**1**为一对新的二苯基庚烷对映体, 化合物**2**～**9**为首次从薯蓣中分离得到, 未发现有化合物表现出明显的抗$\alpha$-葡萄糖苷酶活性。



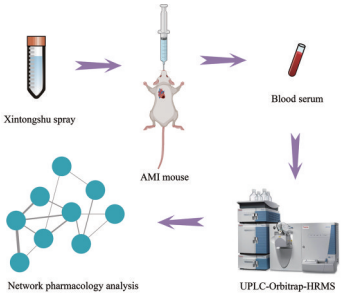

3152
**草麻黄中两个新的酚类化合物**
刘晏灵[1,2], 何晨[1], 曹彦刚[1,2], 吴媛媛[1,2], 郑晓珂[1,2], 冯卫生[1,2*]
(1. 河南中医药大学药学院, 河南 郑州 450046; 2. 河南省中药开发工程技术研究中心, 河南 郑州 450046)

从草麻黄水提取物中分离得到17个酚类化合物, 其中化合物**1**和**2**为新化合物, 化合物**3**～**17**均首次从草麻黄中分离得到。



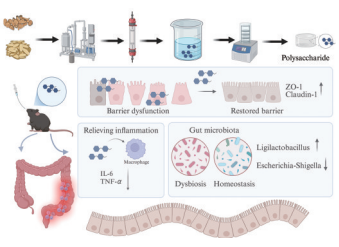

3157
**基于UPLC-Orbitrap-HRMS结合网络药理学分析心痛舒喷雾剂入血成分及治疗急性心肌梗死的作用机制**
陆小龙[6], 李龙飞[7], 李平平[7], 梁万徽[6], 苏梦[6], 左池靖[1,4,6], 张静[1,3,6], 王茜[6], 张云静[1,3,6,7], 彭灿[1,2,3,4,5,6*]
(1. 安徽中医药大学, 新安医学与中医药现代化研究所, 安徽 合肥 230012; 2. 安徽中医药大学, 安徽省现代中药产业共性技术研究中心, 安徽 合肥 230012; 3. 安徽中医药大学, 安徽省乡村振兴协同技术服务中心, 安徽 合肥 230012; 4. 安徽中医药大学, 省部共建安徽道地中药材品质提升协同创新中心, 安徽 合肥 230012; 5. 安徽中医药大学, 药物制剂技术与应用安徽省重点实验室, 安徽 合肥 230012; 6. 安徽中医药大学药学院, 安徽 合肥 230012; 7. 华佗国药股份有限公司, 安徽 亳州 236000)

采用超高效液相色谱–四极杆–静电场轨道阱高分辨质谱法 (UPLC-Orbitrap-HRMS), 分析鉴定心痛舒喷雾剂 (Xintongshu spray, XTS) 在急性心肌梗死 (acute myocardial infarction, AMI) 大鼠体内的入血原型成分与代谢产物。并结合网络药理学分析, 预测心痛舒喷雾剂入血成分治疗急性心肌梗死的作用靶点和信号通路。



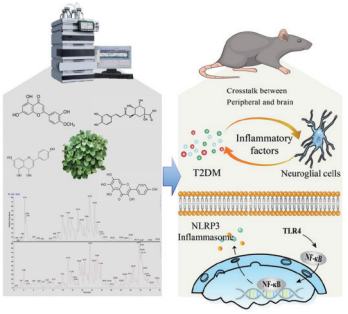

3169
**大黄–黄芪多糖组分组成及缓解溃疡性结肠炎作用研究**
柯俏颖[1], 张王昊[1], 冯嘉惟[1], 梁腾[1], 李华健[1], 叶小凤[1], 魏颖慧[1,2*]
(1. 浙江中医药大学药学院, 浙江 杭州 310053; 2. 浙江中医药大学金华研究院, 浙江 金华 321015)

本研究从大黄–黄芪药对中分离纯化得到两个弱酸性多糖组分 (GJ-2、GJ-3), 采用相关技术进行了结构解析, 并在此基础上构建了葡聚糖硫酸钠 (DSS) 诱导的溃疡性结肠炎 (UC) 动物模型, 系统评价了多糖组分缓解溃疡性结肠炎作用。



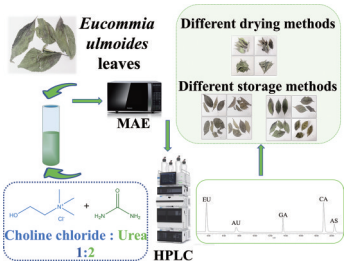
3181
**基于化学成分分析及网络药理学结合实验探讨岩青兰改善神经炎症缓解老年糖尿病小鼠脑神经病变的作用及机制研究**
徐梦洁[1*], 肖姣[2], 李俊[1], 高心茹[1], 闫柯[1], 和伟[1], 颜廷旭[3*]
(1. 忻州师范学院生物系, 山西 忻州 034000; 2. 沈阳药科大学无涯创新学院, 辽宁 沈阳 110016; 3. 沈阳药科大学功能食品与葡萄酒学院, 辽宁 沈阳 110016)

通过网络药理学与实验验证的结合, 探索岩青兰基于改善炎症缓解老年2型糖尿病脑病的作用。



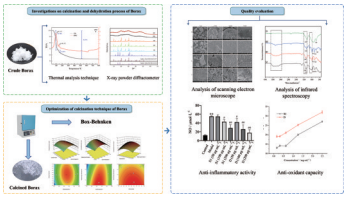

3194
**低共熔溶剂结合微波辅助萃取测定杜仲叶中5个成分的含量**
张慧敏[1,2,3#], 罗盛波[1,2,3#], 胡幸华[1,2,3], 蔡心银[1,2,3], 王峥涛[1,2,3], 仲侃[1,2,3*], 张紫佳[1,2,3*]
(1. 上海中医药大学, 中药功效成分发掘与利用全国重点实验室, 上海 201203; 2. 上海中医药大学, 中药标准化教育部重点实验室, 上海 201203; 3. 上海中医药大学中药研究所, 上海 201203)

本文采用低共熔溶剂结合微波萃取法提取杜仲叶中杜仲醇 (EU)、桃叶珊瑚苷 (AU)、京尼平苷酸 (GA)、绿原酸 (CA) 及车叶草苷 (AS) 等5种指标性成分, 并建立其HPLC测定方法, 测定市售杜仲叶中这5种成分的含量并考察不同干燥方式和储存条件对5种成分含量的影响。



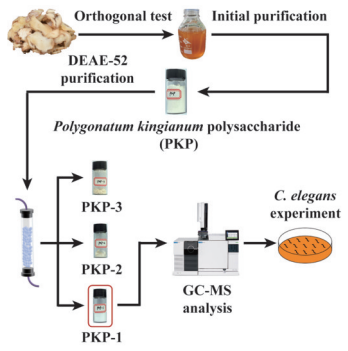

3202
**硼砂的煅制脱水过程及煅制工艺优化和质量评价研究**
邓雅依[1], 王颖[1], 葛雪琪[1], 李鸿昌[2], 解旺洋[2], 张雪[2], 闫晓宁[2], 蔡皓[1*], 谢磊磊[3*], 裴科[2*]
(1. 南京中医药大学药学院/国家教育部中药炮制规范化及标准化工程研究中心, 江苏 南京 210023; 2. 山西中医药大学中药与食品工程学院, 山西 晋中 030619; 3. 山西中医药大学实验管理中心, 山西 晋中 030619)

基于热分析方法和Box-Behnken试验设计响应面法优化硼砂煅制工艺, 并通过光谱学方法和体外活性实验对煅硼砂进行质量评价。



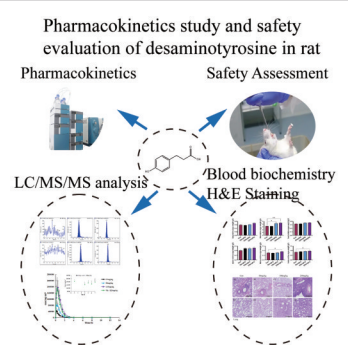

3214
**滇黄精多糖的提取工艺优化、纯化及其抗衰老活性研究**
郭海涛[1#], 姜媛媛[2#], 刘浩[1], 黄智兴[1], 陈恒[1], 李姝琪[1], 余少君[1], 尹翠然[1], 刘永刚[1*], 马涛[1*]
(1. 北京中医药大学中药学院, 北京 100029; 2. 百济神州 (北京) 生物科技有限公司, 北京 100022)

本研究通过正交试验考察滇黄精多糖 (*Polygonatum kingianum* polysaccharide, PKP) 提取工艺后依次通过醇沉、活性炭脱色、Sevage除蛋白以及冻干得到PKP, 再通过DEAE-52纯化得到纯多糖PKP-1, 随后通过GC-MS等方法表征其化学组成, 最后根据其单糖组成推断活性并使用线虫验证其活性。



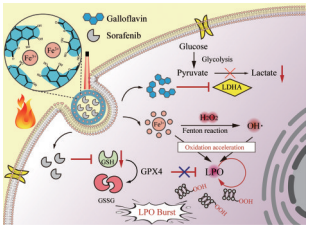

3222
**去氨基酪氨酸在大鼠中的药代动力学和安全性评价研究**
冯怡[1#], 张妙娜[2#], 张盛安[3], 朱欣然[1], 于旭华[1], 高晓雯[3], 曾星[1], 吴蕾[1*]
(1. 广州中医药大学第二附属医院, 中医证候全国重点实验室, 广东 广州 510006; 2. 广州中医药大学科技创新中心, 广东 广州 510405; 3. 广东药科大学中药学院, 广东 广州 510006)

通过建立UPLC-MS/MS法首次研究去氨基酪氨酸 (desaminotyrosine, DAT) 在大鼠中的药代动力学特征, 发现其吸收快、消除迅速, 主要分布于肾、肝等组织; DAT安全性评价表明其在50 mg·kg$^{-1}$·d$^{-1}$剂量下安全性良好, 本研究为进一步开展药物研发提供了依据。



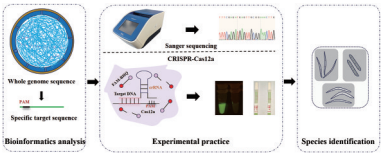
3229
**铁–没食子黄素自组装平台三重协同机制在三阴性乳腺癌治疗中的应用**
余海晴, 周天娇, 王琰, 车昊滨, 茹佳雯, 姜虎林*
(中国药科大学药学院, 江苏 南京 210009)

本研究借助铁–没食子黄素自组装金属多酚网络装载索拉非尼构建了铁–没食子黄素自组装脂质过氧化加速器 (SGF) 纳米平台, 该体系通过光热效应、脂质过氧化诱导及乳酸代谢调控三重机制, 实现对三阴性乳腺癌及其高乳酸微环境的协同精准打击, 旨在为改善此类高度侵袭性乳腺癌的临床预后提供新的治疗策略。




3238
**基于时珍法的镰刀菌属近缘物种鉴定研究**
黄远浩[1], 甘雨桐[1], 辛天怡[1], 齐桂红[1], 王梦岚[1], 史志杰[1], 许文杰[1*], 宋经元[1,2*]
(1. 中国医学科学院、北京协和医学院药用植物研究所, 国家中医药管理局中药资源保护重点研究室, 天然药物活性物质与功能国家重点实验室, 北京 100193; 2. 中药资源教育部工程研究中心, 北京 100193)

基于全基因组分析筛选物种特异靶标序列, 准确鉴定镰刀菌属近缘物种。




## 新药发现与研究实例简析

3251
**基于异柠檬酸脱氢酶结构研制的奥卢特尼布**
郭宗儒
(中国医学科学院、北京协和医学院药物研究所, 北京 100050)

3258
**双靶标作用的抗肿瘤大环药物帕瑞替尼的研制**
郭宗儒
(中国医学科学院、北京协和医学院药物研究所, 北京 100050)

# ACTA PHARMACEUTICA SINICA

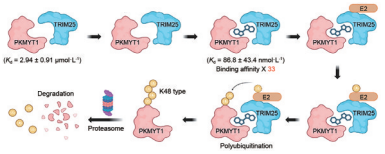
Volume 60 Number 10 2025 October

## Graphical Abstracts

## Professionals Forum

2913
**Enlightenment from Danggui Aloe Pills to the discovery of molecular glue**
GUO Zong-ru*
*(Institute of Materia Medica, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing 100050, China)*

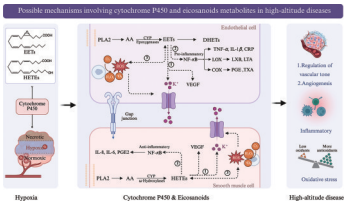
This article attempts to provide a concise commentary on the R&D chain: "Danggui Lu Hui Wan → Indigo Naturalis → Indirubin →Meisoindigo → Molecular Glue," aiming to bridge the gap between PDD and TBDD.




## Reviews

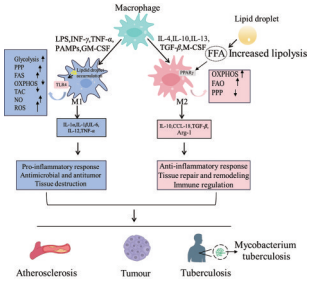
2918
**Cytochrome P450 and eicosanoid metabolites: novel therapeutic targets for high-altitude disease**
WANG Qian[1,2], ZHU Jun-bo[2], DUAN Ya-bin[3], LI Xiang-yang[2*]
*(1. College of Clinical Medicine, Qinghai University, Xining 810001, China; 2. School of Pharmacy, Qinghai University, Xining 810016, China; 3. Department of Clinical Pharmacy, Affiliated Hospital of Qinghai University, Xining 810001, China)*

High-altitude hypoxia alters CYP450 expression and eicosanoid synthesis, which may regulate the development of high-altitude diseases and organismal adaptation by modulating vascular homeostasis, inflammatory responses, and ROS production.



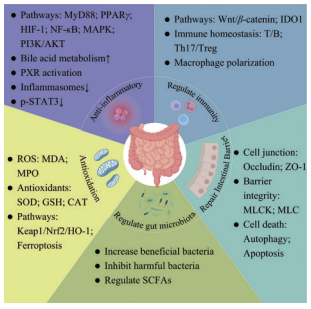

2933
**Research progress on the relationship between macrophage lipid droplet load and inflammatory phenotype**
GAN Lu, DENG Ran*, ZHANG Xiao-yue, WEI Rui-han
*(School of Integrated Traditional and Western Medicine, Anhui University of Chinese Medicine, Hefei 230012, China)*

This article reviews the relationship and regulatory mechanisms between macrophage lipid droplet loading and inflammatory phenotypes, as well as their roles in atherosclerosis, tumors, and tuberculosis diseases, and proposes the therapeutic potential of targeting lipid droplet metabolism.

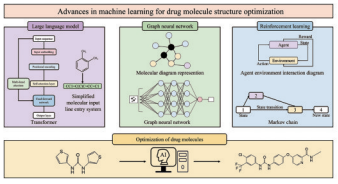



2944
**Research progress of the active substances and functional mechanism of traditional Chinese medicine in the treatment of inflammatory bowel disease**
XU Ling, JI Ming-xin, ZHANG Jia-rui, WANG Yi, ZHAO Lu*
*(College of Pharmaceutical Sciences, Zhejiang University, Hangzhou 310058, China)*

This article reviews recent advances in the application and mechanisms of traditional Chinese medicine (TCM) compounds (e. g. Wumei pills) and natural active monomers (e.g. magnolol) in the treatment of inflammatory bowel disease (IBD). In the future, the multi-target synergistic properties of TCM compounds and natural monomers may provide novel strategies for personalized IBD therapy.

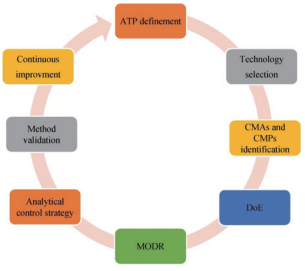


2963
**Advances in machine learning for drug molecule structure optimization**
LI Xing-yu[1], WU Tong[1], XU Qi-lan[1], WANG Yi-wen[1], YU He-shui[1,2,3], CEN Shi-xin[1,2,3*], LI Zheng[1,2,3,4,5*]
*(1. College of Pharmaceutical Engineering of Traditional Chinese Medicine, Tianjin University of Traditional Chinese Medicine, Tianjin 301617, China; 2. State Key Laboratory of Component-based Chinese Medicine, Tianjin 301617, China; 3. Tianjin Key Laboratory of Intelligent and Green Pharmaceuticals for Traditional Chinese Medicine, Tianjin 301617, China; 4. Haihe Laboratory of Modern Chinese Medicine, Tianjin 301617, China; 5. State Key Laboratory of Chinese Medicine Modernization, Tianjin 301617, China)*



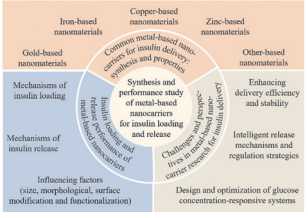

This paper systematically reviews the application advances of machine learning in drug molecular structure optimization, focusing on the theoretical frameworks, technical evolution, and practical applications of large language models, graph neural networks, and reinforcement learning in drug design, analyzing frontier trends and future development directions of AI-driven drug optimization.

2983
**Analytical quality by design in biopharmaceutical method development: from current perspectives to practical applications**
DUAN Xu-hua, SHI Zhuo-wei, WANG Ming-ren, DONG Shan-shan, SHAO Hong*
*(NMPA Key Laboratory for Quality Control of Therapeutic Monoclonal Antibodies, Shanghai Institute for Food and Drug Control, Shanghai 201203, China)*



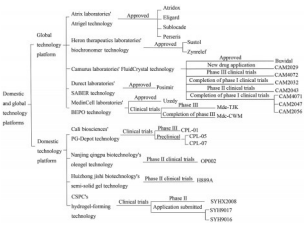

The analytical quality by design endows a high degree of confidence to the method quality developed for biologics.

2995
**Fabrication and properties of metal-based nanocarriers for the load-release of insulin**
ZHAO Rui-rui[1], LI Xuan[2], ZHOU Bei[3], LI Xiang-zi[1,2*]
*(1. School of Pharmacy, Wannan Medical College, Wuhu 241002, China; 2. The Key Laboratory of Functional Molecular Solids, Ministry of Education, School of Chemistry and Materials Science, Anhui Normal University, Wuhu 241000, China; 3. The Second Affiliated Hospital of Wannan Medical College, Wuhu 241000, China)*




Novel metal-based nanocarriers such as gold-based, iron-based, copper-based, and zinc-based ones exhibit unique advantages in insulin loading and release. By adjusting the carrier size, morphology, and surface modification, the interactions between molecules on the carrier surface and insulin molecules can be precisely controlled, enabling intelligent release of insulin. This is expected to provide new solutions for the actual treatment needs of clinical diabetes.

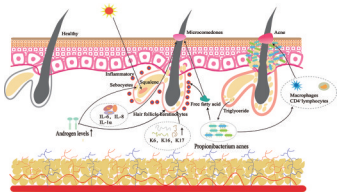
3008
**Industrialization breakthroughs in long-acting *in situ* forming drug delivery systems: key technology platforms, and transformation strategies**
ZHANG Xin[1,2], HAO Gui-zhou[2,3], WANG Xing-hua[4*], SHANG Ping-ping[1,2,3*]
*(1. College of Pharmacy, Guilin Medical University, Guilin 541199, China; 2. Shandong New Time Pharmaceutical Co., Ltd., Linyi 273400, China; 3. Shandong Complex Injection Engineering Technology Research Center, Linyi 273400, China; 4. Lunan HOPE Pharmaceutical Co., Ltd., Linyi 276000, China)*




This article provides a comprehensive review of the key technology platforms, industrialization milestones, and technical challenges associated with long-acting *in situ* forming depots in drug delivery, while also examining the emerging trends in this field. The insights presented are intended to offer strategic guidance for the advancement and commercialization of long-acting formulations within the Chinese pharmaceutical industry.

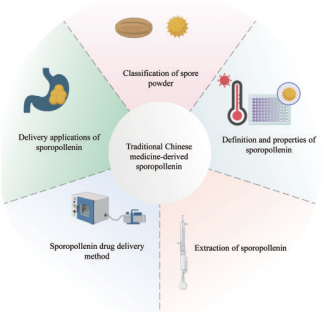
3019
**Acne treatment based on drug delivery technology**
AI Bing[1,2], LIAO Hui-ling[3], LIAO Jia-li[1,2], LIU Ya-ping[3], WU Zhen-feng[1,2*], HE Wei[1,2*]
*(1. Key Lab of Modern Preparation of TCM, Ministry of Education, Jiangxi University of Chinese Medicine, Nanchang 330004, China; 2. Jiangxi Green Manufacturing Technology Innovation Center for Traditional Chinese Medicine, Nanchang 330115, China; 3. School of Pharmacy, China Pharmaceutical University, Nanjing 211198, China)*

This article reviews the pathogenesis of acne vulgaris, the advantages and limitations of existing therapeutic approaches, and systematically explores the potential applications and clinical translation of lipid-based carriers, polymer-based carriers, and other novel drug delivery systems (e.g., microneedles, deep eutectic solvents, etc.) to enhance the targeting, stability, and efficacy of drugs.



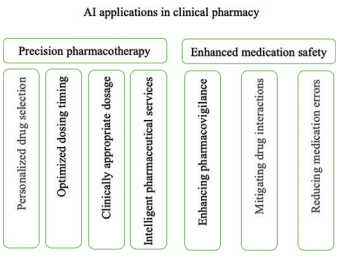
3036
**Traditional Chinese medicine-derived sporopollenin microcapsules: drug-carrying mechanism, drug delivery applications and their challenges**
LIU Yan-ling[1], LUO Xiao-jian[1,2], RAO Xiao-yong[1,2], FU Xiao-ming[1], PENG Pei-yu[1], ZHANG Yao[2], LIU Wei[1,2*]
*(1. School of Pharmacy, Jiangxi University of Chinese Medicine, Nanchang 330006, China; 2. National Pharmaceutical Engineering Center for Solid Preparation in Chinese Herbal Medicine, Nanchang 330006, China)*

This paper reviews Chinese herbal sporopollenin used in drug delivery systems, summarising its structural classification, sporopollenin properties, extraction techniques, drug delivery methods, and application examples.




3045
**Advances in the application of artificial intelligence in clinical pharmacy**
ZHANG Wei-wei[1,2], TANG Jing[1], JI Zhao-shuai[1], HU Yong-fang[1], NIE Guang-meng[1*], ZHANG Chong[2*]
*(1. Department of Pharmacy, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua Medicine, Tsinghua University, Beijing 102218, China;*
*2. Department of Chemical Engineering, Tsinghua University, Beijing 100084, China)*

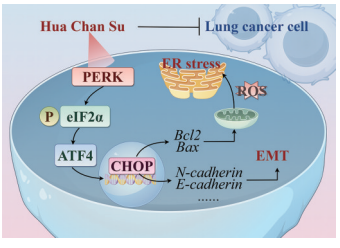
This paper elaborates on the advancements in artificial intelligence (AI) applications within the field of clinical pharmacy, while also analyzing the challenges and potential solutions for future AI implementation in this domain. The aim is to provide references for clinical pharmacy practitioners and subsequent related research.



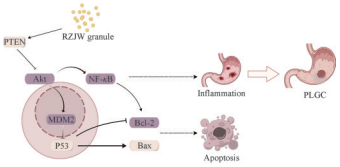

# Original Articles

3060
**Hua Chan Su activates PERK-eIF2*α*-ATF4 signaling to induce apoptosis and inhibit epithelial mesenchymal transition in non-small cell lung cancer**
LIU Yi-chen[1], YAN Qiu-ying[1], DONG Dan[1], ZHU Hua-ying[2], TAO Li-hui-ping[1], FAN Min-min[1], SHEN Wei-xing[1], CHENG Hai-bo[1,3], SUN Dong-dong[1*]
*(1. Jiangsu Collaborative Innovation Center of Traditional Chinese Medicine in Prevention and Treatment of Tumor, Nanjing University of Chinese Medicine, Nanjing 210023, China; 2. China Resources Sanjiu Medical & Pharmaceutical Co., Ltd., Shenzhen 518000, China; 3. The First Clinical Medical College, Nanjing University of Chinese Medicine, Nanjing 210023, China)*

Hua Chan Su activates PERK-eIF2*α*-ATF4 signaling to induce apoptosis and inhibit epithelial mesenchymal transition in non-small cell lung cancer.

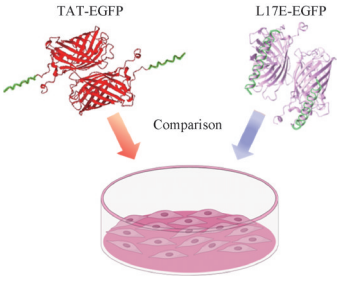


3074
**The efficacy and mechanism of Renzhu Jianwei Granules in reversing chronic atrophic gastritis with premalignant lesions**
DU Ying[1], WANG Yu-han[1], LI Si-lu[1], WU Jie-jie[1], HUANG Zi-qian[1], HUANG Fang[1,2*], WANG Hai-li[2], ZHAO Kai-jun[2], CHENG Jun[2]
*(1. School of Traditional Chinese Medicine, China Pharmaceutical University, Nanjing 211198, China; 2. Nanjing Zhongshan Pharmaceutical Co., Ltd., Nanjing 210046, China)*



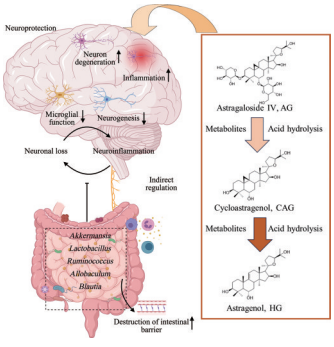

Renzhu Jianwei Granules treat chronic atrophic gastritis and prevent precancerous lesions of gastric cancer by intervening in the PTEN/Akt/p53 pathway to induce cell apoptosis.

3085
**The comparison of the ability of cell-penetrating peptides TAT and L17E to deliver proteins through a fusion mechanism**
HUANG Yun[1], ZHANG Jing[1*], HUA Zi-chun[1,2,3*]
*(1. State Key Laboratory of Pharmaceutical Biotechnology, School of Life Science, Nanjing University, Nanjing 210023, China; 2. Institute of Pharmaceutical Biotechnology of Jiangsu Industrial Technology Research Institute and Changzhou High-Tech Research Institute of Nanjing University, Changzhou 213164, China; 3. Nanjing Genrecom Laboratories, Nanjing 210044, China)*



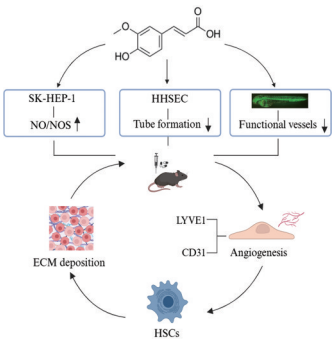

This study, through covalent fusion protein strategies and structural simulations, revealed that the cell-penetrating peptide TAT significantly enhances the cellular delivery efficiency of EGFP protein *via* its outwardly extended hydrophobic side chain conformation (with concentration-dependent enhancement), while L17E exhibits reduced membrane-penetrating efficacy due to inward-retracted side chains. These findings highlight the critical regulatory roles of hydrophobicity, charge distribution, and spatial conformation in cationic cell-penetrating peptides for drug delivery performance, thereby providing novel insights for structural optimization in protein-based drug carrier design.

3091
**Exploration of the effects of astragaloside IV and its analogues on improving Parkinson's disease based on "indirect regulation"**
XIAO Sheng-nan[1], LIU Lian-mei[1], QIN Xue-mei[1,2*], LI Zhen-yu[1,2*]
*(1. Institute of Taihang Materia Medica, Shanxi University of Chinese Medicine, Jinzhong 030619, China; 2. Modern Research Center for Traditional Chinese Medicine of Shanxi University, Taiyuan 030006, China)*



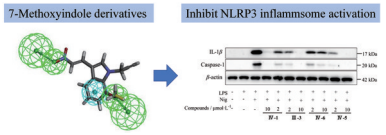

Astragaloside IV and its analogues regulate gut microbiota structure, improve intestinal barrier, inhibit neuroinflammation, and alleviate 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine induced Parkinson's disease behavioral and pathological indications.

3102
**Ferulic acid regulates the function of liver sinusoidal endothelial cell to inhibit angiogenesis and alleviate hepatic fibrosis**
SHI Rui-min[1,2], HUANG Kai[1,2], SHEN Li[1,2], XUE Jing-bo[1,2], TAO Yan-yan[1,2], LIU Cheng-hai[1,2*], ZHAO Zhi-min[1,2*]
*(1. Institute of Liver Diseases, Shuguang Hospital Affiliated to Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China; 2. Key Laboratory of Liver and Kidney Diseases (Ministry of Education), Shanghai 201203, China)*



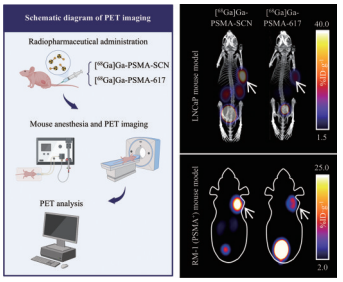

In the present study, we found that ferulic acid could reduce hepatic fibrosis by regulating the function of hepatic sinusoidal endothelial cells, inhibiting capillarization of hepatic sinusoids, thus providing a new experimental basis for hepatic fibrosis treatment.

3111
**Design, synthesis and anti-inflammatory activity evaluation of 7-methoxyindoles**
XU Zi-han[1#], LI Hui-qiong[1#], SHEN Tian-ze[1,2], DING Ling[1], XIAO Wei-lie[1,2], ZHANG Xing-jie[1*], ZHANG Rui-han[1*]
*(1. Key Laboratory of Medicinal Chemistry for Natural Resource, Ministry of Education, School of Pharmacy and School of Chemical Science and Technology, Yunnan University, Kunming 650500, China; 2. Southwest United Graduate School, Kunming 650092, China)*



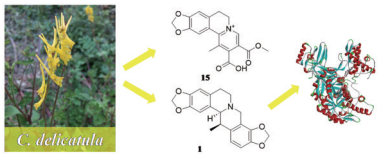

7-Methoxyindoles inhibit the activation of the NLRP3 inflammasome pathway and pyroptosis in J774A.1 cells.

3120
**Synthesis and evaluation of [$^{68}$Ga]Ga-/[$^{177}$Lu]Lu-PSMA-SCN as a novel prostate-specific membrane antigen-targeting agent for theranostics**
LI Ling-er[1#], GAO Xin[1#], YUAN Xiu-shuang[1#], QIU Xue-li[2], WU Jiang[3], ZHANG Lu-lu[3], HUANG Hong-yi[1], ZHANG Si-qi[1], WANG Feng[3], ZHANG Ying-zi[2*], HU Kuan[1*]
*(1. State Key Laboratory of Bioactive Substance and Function of Natural Medicines, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China; 2. Department of Orthopedics, the Second Affiliated Hospital of Soochow University, Suzhou 215031, China; 3. Department of Nuclear Medicine, Nanjing First Hospital, Nanjing Medical University, Nanjing 211166, China)*



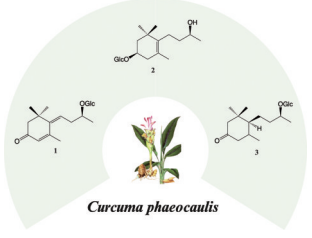

This study synthesized a prostate-specific membrane antigen (PSMA)-targeting radiopharmaceutical, PSMA-SCN, based on the novel chelator p-SCN-Bn-DOTA, demonstrating its potential value for prostate cancer diagnosis and therapy.

3131
**Study on the alkaloids of *Corydalis delicatula* D. G. Long and their urease inhibitory activity**
CUI Jia, XIONG Shao-wen, JIANG Yu-chen, HUANG Xin-yue, LI Li-mei*
*(College of Pharmacy and Food, Southwest Minzu University, Chengdu 610041, China)*



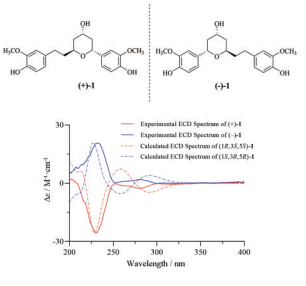

Fifteen alkaloid compounds were isolated from *Corydalis delicatula* D. G. Long, among which corlicatine A (**15**) was identified as a new compound. (−)-Tetrahydrocorysamine (**1**) exhibited the strongest inhibitory activity against Jack bean urease (JBU) with an $IC_{50}$ value of 1.28 μmol·L$^{-1}$, superior to the positive control.

3139
**A new ionone from *n*-butanol fraction of *Curcuma phaeocaulis***
HUANG Yu-xi[1], YAN Yu-yao[1], LI Xiao-cui[1], LIU Fei[1*], XIONG Liang[1,2*], DAI Ou[1,3*]
*(1. State Key Laboratory of Southwestern Chinese Medicine Resources, College of Pharmacy, Chengdu University of Traditional Chinese Medicine, Chengdu 611137, China; 2. College of Medical Technology, Chengdu University of Traditional Chinese Medicine, Chengdu 611137, China; 3. Hospital of Chengdu University of Traditional Chinese Medicine, Chengdu 611137, China)*



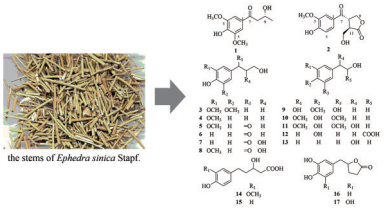

Three ionone glycosides were isolated from the *n*-butanol fraction of *Curcuma phaeocaulis*, among which compound **1** was identified as a new compound.

3146
**A pair of new diarylheptanoid enantiomers from bulbils of *Dioscorea opposite* Thunb.**
CAO Yan-gang[1,2], GUO Meng-huan[1,2], ZHAO Yi-xin[1,2], LIU Yan-ling[1,2], CHEN Xu[1,2], ZHENG Xiao-ke[1,2*], FENG Wei-sheng[1,2*]
*(1. School of Pharmacy, Henan University of Chinese Medicine, Zhengzhou 450046, China; 2. The Engineering and Technology Center for Chinese Medicine Development of Henan Province, Zhengzhou 450046, China)*



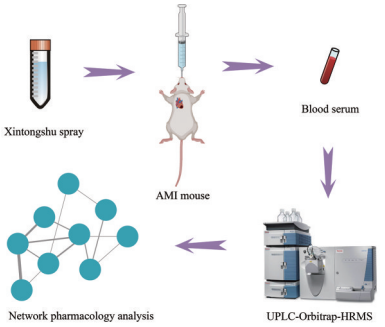

Nine compounds were isolated from bulbils of *Dioscorea opposite* Thunb. Among them, compound **1** was a new pair of diarylheptanoid enantiomers, and compounds **2**–**9** were isolated from *Dioscorea opposita* Thunb. for the first time. Furthermore, preliminary assays indicated that none of the isolated compounds exhibited significantly inhibitory activity against *α*-glucosidase.

3152
**Two new phenolic compounds from the stems of *Ephedra sinica* Stapf.**
LIU Yan-ling[1,2], HE Chen[1], CAO Yan-gang[1,2], WU Yuan-yuan[1,2], ZHENG Xiao-ke[1,2], FENG Wei-sheng[1,2*]
*(1. School of Pharmacy, Henan University of Chinese Medicine, Zhengzhou 450046, China; 2. The Engineering and Technology Center for Chinese Medicine Development of Henan Province China, Zhengzhou 450046, China)*



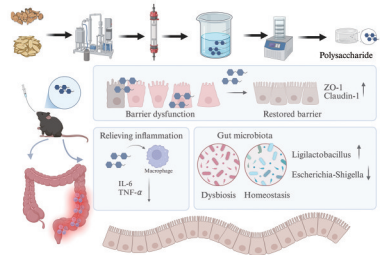

Seventeen phenolic compounds were isolated from the aqueous extract of the stems of *Ephedra sinica*, among which compounds **1** and **2** were new compounds. Compounds **3**–**17** were isolated from this plant for the first time.

3157
**Exploring the blood-entry elements of Xintongshu spray and its mechanism of action in treating acute myocardial infarction using UPLC-Orbitrap-HRMS and network pharmacology**
LU Xiao-long[6], LI Long-fei[7], LI Ping-ping[7], LIANG Wan-hui[6], SU Meng[6], ZUO Chi-jing[1,4,6], ZHANG Jing[1,3,6], WANG Qian[6], ZHANG Yun-jing[1,3,6,7], PENG Can[1,2,3,4,5,6*]
*(1. Center for Xin'an Medicine and Modernization of Traditional Chinese Medicine of IHM, Anhui University of Chinese Medicine, Hefei 230012, China; 2. Generic Technology Research Center for Anhui TCM Industry, Anhui University of Chinese Medicine, Hefei 230012, China; 3. Rural Revitalization Collaborative Technical Service Center of Anhui Province, Anhui University of Chinese Medicine, Hefei 230012, China; 4. MOE-Anhui Joint Collaborative Innovation Center for Quality Improvement of Anhui Genuine Chinese Medicinal Materials, Anhui University of Chinese Medicine, Hefei 230012, China; 5. Anhui Province Key Laboratory of Pharmaceutical Preparation Technology and Application, Anhui University of Chinese Medicine, Hefei 230012, China; 6. School of Pharmacy, Anhui University of Chinese Medicine, Hefei 230012, China; 7. Huatuo Chinese Medicine Co., Ltd., Bozhou 236000, China)*



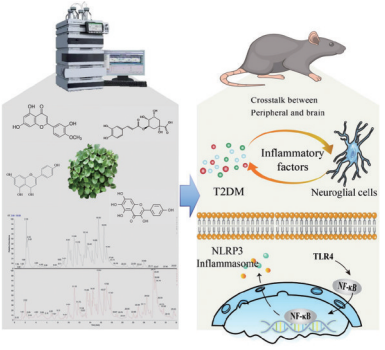

Using ultra performance liquid chromatography-quadrupole-electrostatic field orbital trap high-resolution mass spectrometry (UPLC-Orbitrap-HRMS) to analyze and identify the blood-entry prototype components and metabolites of Xintongshu spray (XTS) in rats with acute myocardial infarction (AMI). And combined with network pharmacological analysis, predict the target of action and signaling pathway of XTS into blood components for the treatment of AMI.

3169
**Characterization of the polysaccharide fraction in *Rhubarb-Astragalus* herb pair and their therapeutic potential in alleviating ulcerative colitis**
KE Qiao-ying[1], ZHANG Wang-hao[1], FENG Jia-wei[1], LIANG Teng[1], LI Hua-jian[1], YE Xiao-feng[1], WEI Ying-hui[1,2*]
*(1. School of Pharmaceutical Sciences, Zhejiang Chinese Medical University, Hangzhou 310053, China; 2. Jinhua Academy of Zhejiang Chinese Medical University, Jinhua 321015, China)*



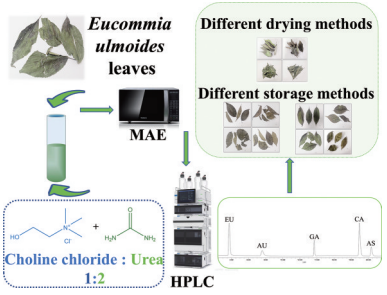

The present study initially isolated and purified two weakly acidic components (GJ-2, GJ-3) from the *Rhubarb-Astragalus* herb pair, conducted structural characterization using relevant analytical techniques, and established a dextran sulfate sodium (DSS)-induced ulcerative colitis (UC) animal model. The therapeutic effects of these polysaccharide components in alleviating ulcerative colitis were systematically evaluated.

3181
**Exploring anti-neuroinflammation mechanism of *Dracocephalum rupestre* Hance in treating aging type 2 diabetes related encephalopathy based on chemical composition analysis and integration of network pharmacology combined with experimental validation**
XU Meng-jie[1*], XIAO Jiao[2], LI Jun[1], GAO Xin-ru[1], YAN Ke[1], HE Wei[1], YAN Ting-xu[3*]
*(1. Department of Biological Sciences, Xinzhou Normal University, Xinzhou 034000, China; 2. Wuya College of Innovation, Shenyang Pharmaceutical University, Shenyang 110016, China; 3. School of Functional Food and Wine, Shenyang Pharmaceutical University, Shenyang 110016, China)*



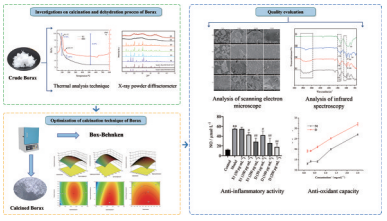

Exploring anti-neuroinflammation mechanism of *Dracocephalum rupestre* Hance in treating aging T2DM related encephalopathy based on integration of network pharmacology combined with experimental validation.

3194
**Simultaneous determination of five components in *Eucommia ulmoides* leaves by HPLC based on deep eutectic solvent and microwave-assisted extraction**
ZHANG Hui-min[1,2,3#], LUO Sheng-bo[1,2,3#], HU Xing-hua[1,2,3], CAI Xin-yin[1,2,3], WANG Zheng-tao[1,2,3], ZHONG Kan[1,2,3*], ZHANG Zi-jia[1,2,3*]
*(1. State Key Laboratory of Discovery and Utilization of Functional Components in Traditional Chinese Medicine, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China; 2. Ministry of Education Key Laboratory for Standardization of Chinese Medicines, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China; 3. Institute of Chinese Materia, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China)*



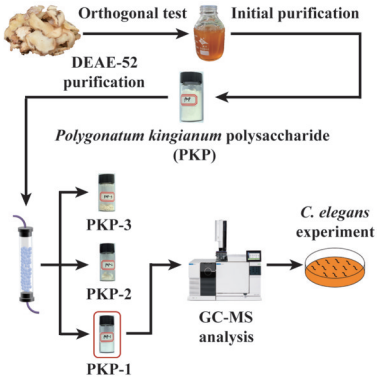

This study employed deep eutectic solvents combined with microwave-assisted extraction to extract five marker compounds from *Eucommia ulmoides* leaves, namely eucommiol (EU), aucubin (AU), geniposide (GA), chlorogenic acid (CA) and asperuloside (AS). A high-performance liquid chromatography (HPLC) method was established and the contents of these five compounds in commercial *Eucommia ulmoides* leaves were determined and the effects of different drying methods and storage methods on the contents of these compounds were investigated.

3202
**Investigations on calcination and dehydration process, optimization of calcination technique, and quality evaluation of borax**
DENG Ya-yi[1], WANG Ying[1], GE Xue-qi[1], LI Hong-chang[2], XIE Wang-yang[2], ZHANG Xue[2], YAN Xiao-ning[2], CAI Hao[1*], XIE Lei-lei[3*], PEI Ke[2*]
*(1. School of Pharmacy / Engineering Center of State Ministry of Education for Standardization of Chinese Medicine Processing, Nanjing University of Chinese Medicine, Nanjing 210023, China; 2. School of Chinese Medicine and Food Engineering, Shanxi University of Chinese Medicine, Jinzhong 030619, China; 3. Experimental Management Center, Shanxi University of Chinese Medicine, Jinzhong 030619, China)*



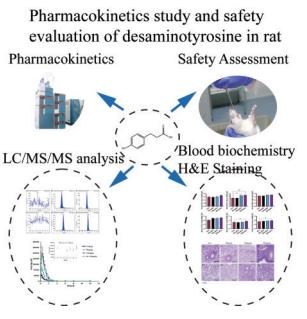
The calcination process of borax was optimized by the method of thermal analysis and Box-Behnken design-based response surface test, with quality evaluation of the calcined borax through spectroscopic techniques and *in vitro* activity assays.

3214
**Extraction process optimization, purification and anti-aging activity investigation of *Polygonatum kingianum* polysaccharides**
GUO Hai-tao[1#], JIANG Yuan-yuan[2#], LIU Hao[1], HUANG Zhi-xing[1], CHEN Heng[1], LI Shu-qi[1], YU Shao-jun[1], YIN Cui-ran[1], LIU Yong-gang[1*], MA Tao[1*]
*(1. School of Chinese Materia Medica, Beijing University of Chinese Medicine, Beijing 100029, China; 2. Bei Gene, Ltd., Beijing 100022, China)*



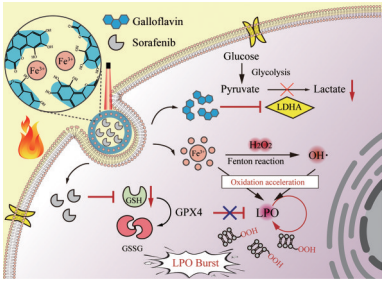

In this study, the extraction process of *Polygonatum kingianum* polysaccharide (PKP) was investigated by orthogonal test, and the PKP was obtained by alcohol precipitation, activated carbon decolorization, Sevage deproteinization and lyophilization. Then, the polysaccharide PKP-1 was purified by DEAE-52, and methods including GC-MS characterized its chemical composition. Finally, the potential bioactivity of PKP-1 was inferred according to its monosaccharide composition and verified by *C. elegans*.

3222
**Pharmacokinetics study and safety evaluation of desaminotyrosine in rat**
FENG Yi[1#], ZHANG Miao-na[2#], ZHANG Sheng-an[3], ZHU Xin-ran[1], YU Xu-hua[1], GAO Xiao-wen[3], ZENG Xing[1], WU Lei[1*]
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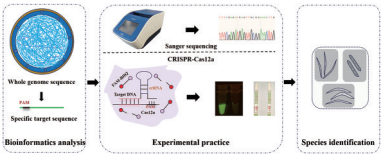

The pharmacokinetic characteristics of desaminotyrosine (DAT) in rats were investigated for the first time using the UPLC-MS/MS method. The results indicated that DAT is rapidly absorbed and quickly eliminated, with primary distribution in tissues such as the kidneys and liver. The safety evaluation of DAT suggests that it is safe at a dose of 50 $mg \cdot kg^{-1} \cdot d^{-1}$. This study lays the groundwork for further research and development of this drug.

3229
**Iron-galloflavin self-assembled platform with triple synergistic mechanisms for the treatment of triple-negative breast cancer**
YU Hai-qing, ZHOU Tian-jiao, WANG Yan, CHE Hao-bin, RU Jia-wen, JIANG Hu-lin*
*(School of Pharmacy, China Pharmaceutical University, Nanjing 210009, China)*




This study constructed a self-assembled galloflavin-Fe lipid peroxidation accelerator (SGF) nanoplatform by utilizing an iron-galloflavin self-assembled metal-polyphenol network to load sorafenib. Through the synergistic integration of photothermal effects, lipid peroxidation induction, and lactate metabolism regulation, the system enables precise and coordinated targeting of triple-negative breast cancer and its high-lactate tumor microenvironment, aiming to provide a novel therapeutic strategy for improving the clinical prognosis of this highly aggressive cancer type.

3238
**Analysis of whole-GEnome for closely related species identification of *Fusarium***
HUANG Yuan-hao[1], GAN Yu-tong[1], XIN Tian-yi[1], QI Gui-hong[1], WANG Meng-lan[1], SHI Zhi-jie[1], XU Wen-jie[1*], SONG Jing-yuan[1,2*]
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Screening species-specific target sequences based on analysis of whole-GEnome for the accurate identification of closely related species within the genus *Fusarium*.