

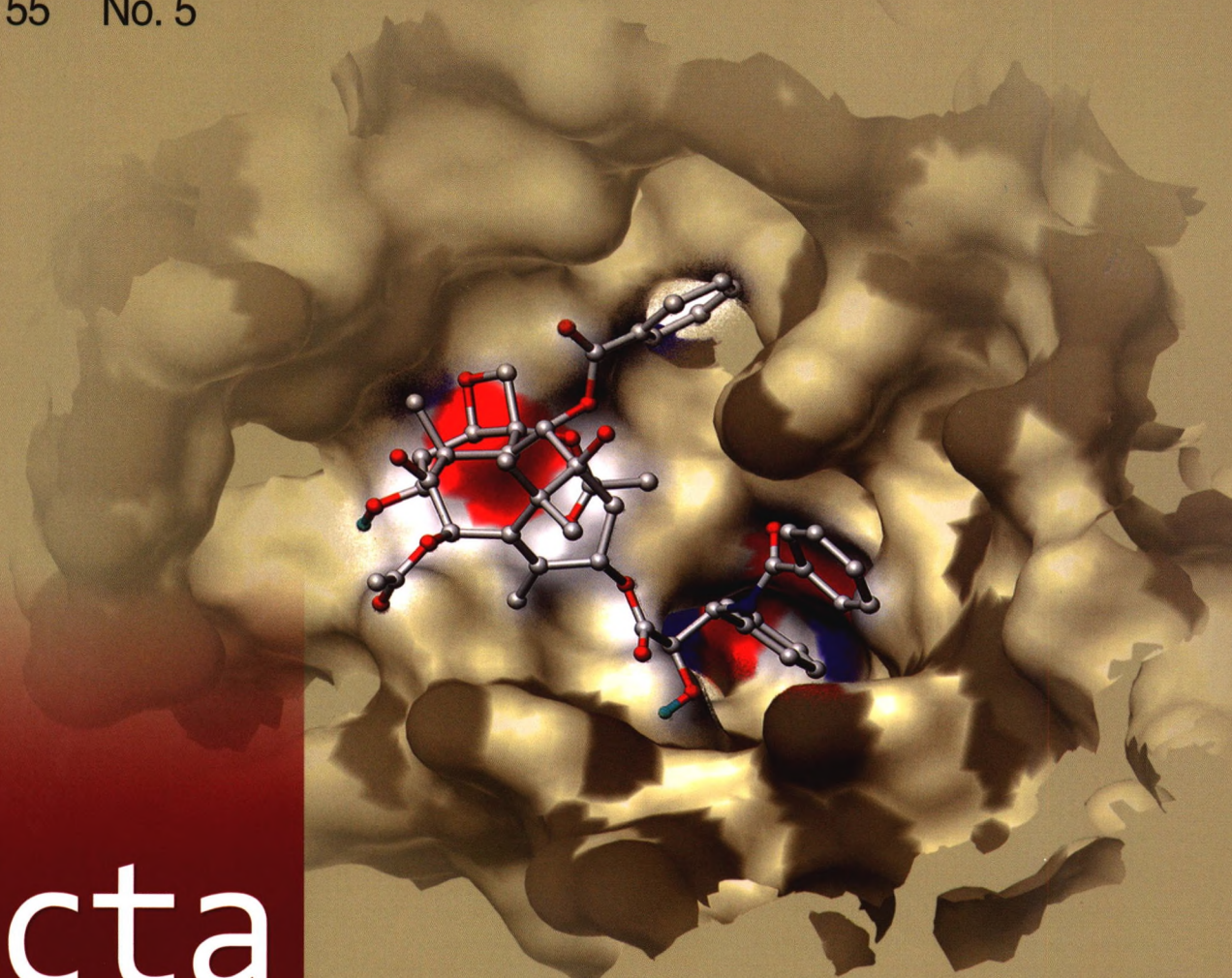


药 学 学 报

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专家论坛

潘振伟, 杨宝峰

长链非编码RNA调节心脏疾病的作用与分子机制
万方数据

研究论文

李云炫, 胡卓伟等

吡非尼酮和尼达尼布抑制慢性肺纤维化小鼠肺泡上皮细胞再生



中国药学会
中国医学科学院药物研究所

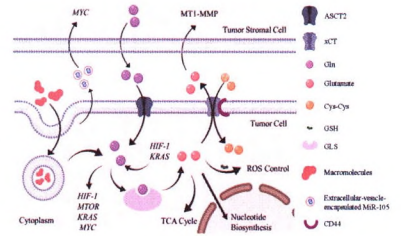
813

谷氨酰胺代谢相关靶点在肿瘤治疗中的研究进展

张婷, 刘晶, 丁娅*

(中国药科大学药物质量与安全预警教育部重点实验室, 江苏 南京 210009)

本文综述了谷氨酰胺在肿瘤发生、发展和转移过程中发挥的重要作用, 探讨其与关键生物分子的相互关系, 为肿瘤治疗寻找新靶点提供思路。



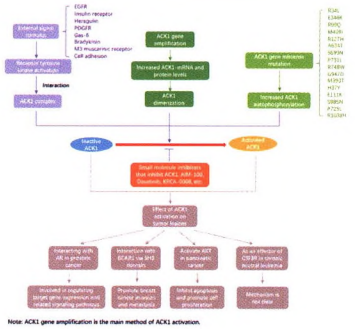
821

ACK1 小分子抑制剂的研究进展

周晓菲, 李睿, 姚红娟, 李亮*

(中国医学科学院、北京协和医学院医药生物技术研究所, 北京 100050)

本文综述了 ACK1 的激活方式以及在癌症中的作用, 着重介绍了靶向 ACK1 小分子抑制剂的最新研究进展, 并展望和讨论了临床前研究中有应用前景的新型 ACK1 抑制剂。



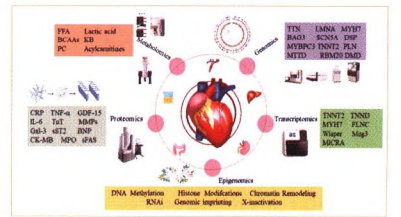
832

心力衰竭研究的组学视角

张金月, 刘启凤, 杨柳, 吕雪琪, 王映红*

(中国医学科学院、北京协和医学院药物研究所, 天然药物活性物质与功能国家重点实验室, 北京 100050)

本文对各组学及其相互间的联合在心力衰竭发病机制、临床诊断治疗、相关药物药效和作用机制等方面研究中的作用及应用潜力进行了综述。



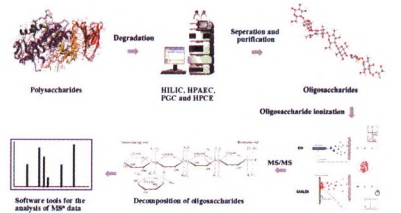
843

寡糖提取分离与质谱结构解析研究进展

崔连杰^{1,2}, 李科^{1,3*}, 李震宇^{1*}, 秦雪梅¹, 杜显光³

(1. 山西大学中医现代研究中心, 山西 太原 030006; 2. 山西大学化学化工学院, 山西 太原 030006; 3. 中国科学院过程工程研究所, 北京 100190)

寡糖提取分离与质谱结构解析研究进展。



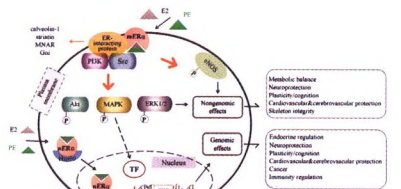
854

植物雌激素非基因组效应研究的现状与将来

杨鑫月^{1,2#}, 刘海鑫^{1,2,3#}, 贺爽^{1,2}, 邵瑞^{1,2}, 冯宇新^{1,2}, 朱彦^{1,2*}

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本文对雌激素受体 α (ERα) 介导的非基因组效应与植物雌激素的非基因组效应进行讨论与展望, 对植物雌激素类新药研发提供理论基础。



研究论文

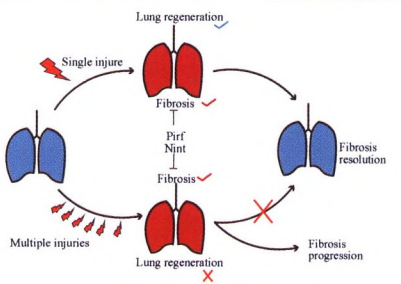
861

吡非尼酮和尼达尼布抑制慢性肺纤维化小鼠肺泡上皮细胞再生

李云炫, 吕晓希, 刘畅, 刘姗姗, 胡卓伟*

(中国医学科学院、北京协和医学院药物研究所, 北京 100050)

本研究探究了吡非尼酮 (pirfenidone, Pirf) 和尼达尼布 (nintedanib, Nint) 两种药物在单次及多次博莱霉素诱导的小鼠肺纤维化模型中, 抗纤维化作用差异与肺泡 II 型上皮细胞 (alveolar epithelial type 2 cell, AEC II) 介导的肺泡再生之间的关系。



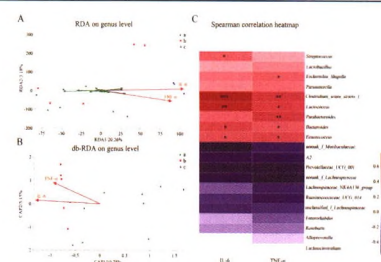
868

黄芩素调节肠道菌群并改善小鼠化疗诱导性肠黏膜炎的作用及其机制

王睿^{1,2}, 王霖², 魏广义^{1,2}, 刘楠楠^{1,2}, 张莉², 王淑美¹, 杜冠华^{1,2*}

(1. 广东药科大学, 广东 广州 510006; 2. 中国医学科学院、北京协和医学院药物研究所, 药物靶点研究与新药筛选北京市重点实验室, 北京 100050)

本文探讨了黄芩素对肠道菌群的调控与其抗化疗性肠黏膜炎 (CIM) 作用的相关性。



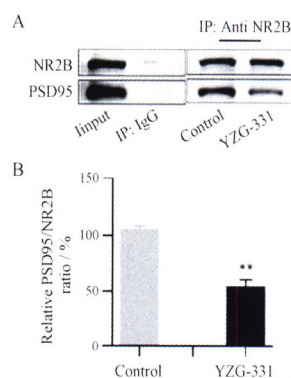
877

新型镇静催眠化合物 YZG-331 对谷氨酸及其受体的调节及机制研究

方金玉, 刘伟, 于凤婷, 石建功, 张建军*

(中国医学科学院、北京协和医学院药物研究所, 新药作用机制研究和药效评价北京市重点实验室, 北京 100050)

新型腺苷类衍生物 YZG-331 通过干扰 *N*-甲基-*D*-天冬氨酸受体 (NMDAR) 的亚基 NR2B 与突触后致密蛋白 95 (PSD95) 复合物的形成, 促进 NMDAR 内吞, 降低兴奋性传导, 发挥镇静催眠作用。



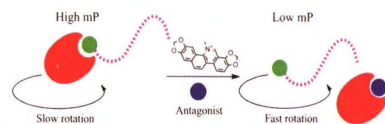
884

靶向 β -catenin/TCF4 相互作用小分子抑制剂荧光偏振高通量筛选模型的建立与应用

陈云雨¹, 胡克¹, 付正豪¹, 牛夏忆¹, 张晶^{2*}, 刘晓平^{1*}

(1. 皖南医学院药物筛选与评价研究所, 安徽 芜湖 241002; 2. 中国医学科学院北京协和医学院医药生物技术研究所, 北京 100050)

以 β -catenin/TCF4 相互作用为靶标, 建立荧光偏振高通量筛选模型, 成功筛选到血根碱、白屈菜红碱和化合物 S720 具有良好的抑制活性。



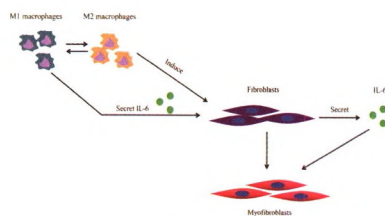
892

M2 型巨噬细胞分泌的 IL-6 因子对成纤维细胞活化的作用机制研究

赵芳哲, 桑晓青, 朱彦, 杨剑*

(天津中医药大学组分基础中药国家重点实验室, 天津 301617)

M2 型巨噬细胞可诱导成纤维细胞分泌白细胞介素-6 (IL-6), 并可促进成纤维细胞的迁移及活化。



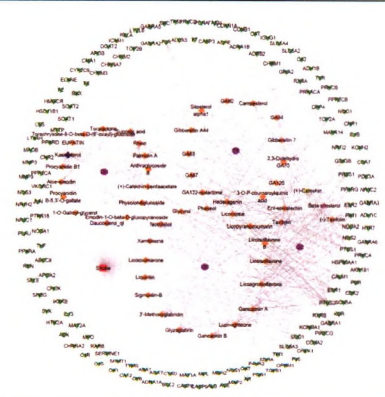
898

基于血管内皮生长因子信号通路/肿瘤坏死因子信号通路的桃核承气汤防治脑卒中双向调节分子网络机制

裴丽珊, 沈霞*, 颜永刚*, 张岗, 彭亮, 王艳霞, 平凡

(陕西中医药大学药学院, 陕西省秦岭中草药应用开发工程技术研究中心, 陕西 咸阳 712046)

基于网络药理学和 GEO (Gene Expression Omnibus) 分析方法, 阐明了桃核承气汤防治脑卒中的多基因和多途径的协同调控作用, 同时为脑卒中预防提供了一种新的策略。



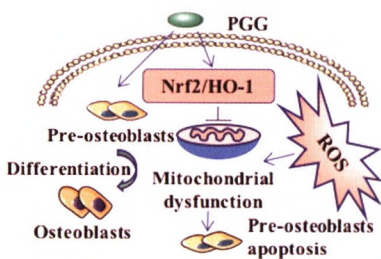
907

1,2,3,4,6-五没食子酰葡萄糖的骨保护作用与 Nrf2/HO-1 信号通路的相关性研究

陈婷婷^{1,2,3}, 黄天一^{1,2,3}, 李梦雨^{1,2,3}, 崔杰^{1,2,3}, 华永庆^{1,2,3*}, 许惠琴^{2,3*}

(1. 江苏省中药资源产业化过程协同创新中心, 江苏 南京 210023; 2. 江苏省中药药效与安全性评价重点实验室, 江苏 南京 210023; 3. 南京中医药大学药学院, 江苏 南京 210023)

多酚类化合物 1,2,3,4,6-五没食子酰葡萄糖 (PGG) 对前成骨细胞具有促分化、抗凋亡的作用, 其抗凋亡机制可能与 Nrf2/HO-1 有关。

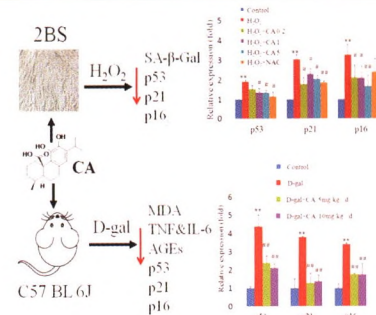


915

鼠尾草酸对 H_2O_2 诱导的早熟性细胞衰老和 *D*-半乳糖诱导的衰老模型小鼠的保护作用

苏慧丽¹, 暴一众¹, 张婧¹, 徐小刚¹, 张忠山², 万晓青^{1*}, 毛根祥^{1*}

(1. 浙江医院, 浙江 杭州 310013; 2. 湖州师范学院生命科学学院, 浙江 湖州 313000)

鼠尾草酸 (CA) 改善氧化应激诱导的早熟型细胞衰老和 *D*-半乳糖 (D-gal) 小鼠衰老, 这与其抗氧化、抗炎及抑制非酶糖基化相关。

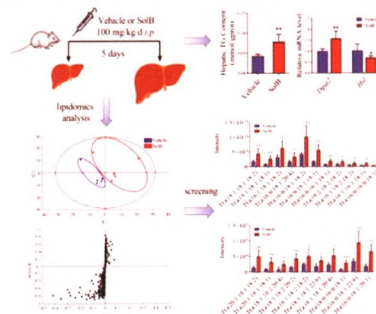
922

五味子醇乙促进小鼠肝增大的脂质组学研究

赵颖媛, 姚欣鹏, 焦廷颖, 田佳宁, 周艳莹, 高悦, 陈盼盼, 范仕成, 黄民*, 毕惠嫦*

(中山大学药学院药物代谢与药动学实验室, 广东 广州 510006)

本研究发现五味子醇乙 (SolB) 可促进小鼠良性肝增大, 并通过脂质组学阐明了 SolB 所致肝增大过程的脂质变化。



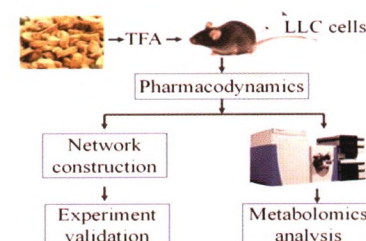
930

黄芪总黄酮联合顺铂对 Lewis 荷瘤小鼠抗癌作用的研究

齐彦爽¹, 李肖¹, 秦雪梅¹, 柴智^{2*}, 李震宇^{1*}

(1. 山西大学中医药现代研究中心, 山西 太原 030006; 2. 山西中医药大学基础医学院, 山西 晋中 030619)

本研究以中药药效学为基础, 结合网络药理学、分子生物学及代谢组学技术来研究黄芪总黄酮联合顺铂对 Lewis 荷瘤小鼠的作用及机制, 为肿瘤药物的开发奠定了基础。



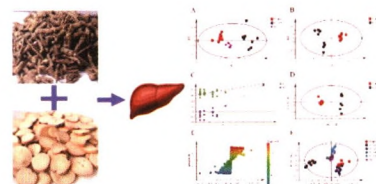
941

基于肝脏代谢组学的柴胡-白芍药对抗抑郁作用机制研究

陈聪聪^{1,2}, 阴奇材^{1,2}, 田俊生¹, 高晓霞¹, 秦雪梅¹, 杜冠华^{1,3}, 周玉枝^{1*}

(1. 山西大学中医药现代研究中心, 山西 太原 030006; 2. 山西大学化学化工学院, 山西 太原 030006; 3. 中国医学科学院药物研究所, 北京 100050)

基于 LC-MS 代谢组学技术研究柴胡-白芍药对“疏肝解郁”的代谢调控途径。

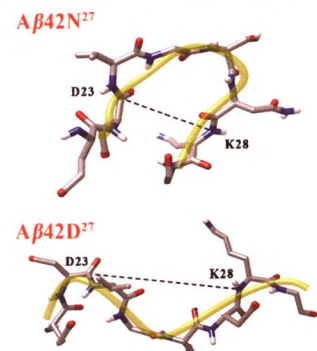


950

基于 Asn27 脱酰胺化修饰探究抑制 $A\beta_{42}$ 聚合的潜在作用位点

卓越, 周敏, 张涛*

(天津医科大学生物医学工程与技术学院, 天津 300070)

Asn27 脱酰胺化修饰可以破坏 D23~K28 的盐桥作用, 改变该区域的转角结构, 影响 CTR 和 NTR 区域形成 β 折叠, 减弱 $A\beta_{42}$ 聚合趋势。

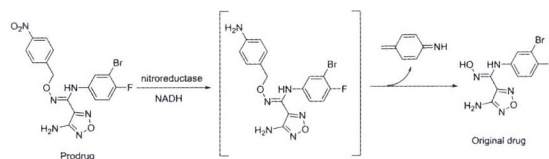
958

特异性靶向肿瘤组织的 IDO1 抑制剂前药的研究

冯浩¹, 杜倩倩², 冯志强^{2*}, 李燕^{2*}, 刘中成^{1*}, 徐晓玲³

(1. 河北大学药学院, 河北 保定 071002; 2. 中国医学科学院、北京协和医学院药物研究所, 北京 100050; 3. 菏泽市立医院, 山东 菏泽 274000)

本文基于羟基咪唑类 IDO1 抑制剂化合物 B 与 epacadostat 分子的主要代谢位点羟基上键合一个能够在肿瘤缺氧的微环境中降解的硝基芳环载体分子, 设计合成特异性靶向肿瘤组织的 IDO1 抑制剂前药并检测其对肿瘤生长的影响。



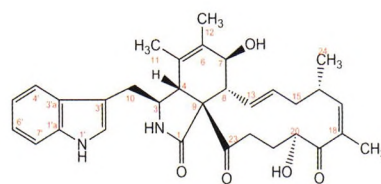
967

白茅内生菌 *Chaetomium globosum* WQ 产生的一个新细胞松弛素化合物

夏文静^{1,2}, 曹兴琴^{1,2}, 刘琴³, 王莎莎^{1,2}, 申丽^{1,2*}

(1. 扬州大学医学院 (转化医学研究院), 江苏 扬州 225001; 2. 江苏省中西医结合老年病防治重点实验室, 江苏 扬州 225001; 3. 江苏里下河地区农业科学研究所, 江苏 扬州 225007)

从白茅内生菌 *Chaetomium globosum* WQ 固体发酵产物中分离获得一个新的 10-吡啶基-细胞松弛素类化合物 20-iso-chaetoglobosin E (1)。



20-iso-chaetoglobosin E (1)

971

UPLC-Q-TOF-MS^E 结合外源性代谢组学方法分析鉴定肝豆汤在大鼠尿液中的代谢产物

张雪燕¹, 刘艺³, 吴欢¹, 曹仕健², 吴鹏¹, 周安^{1*}

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UPLC-Q-TOF-MS^E 结合外源性代谢组学方法分析鉴定肝豆汤在大鼠尿液中的代谢产物。



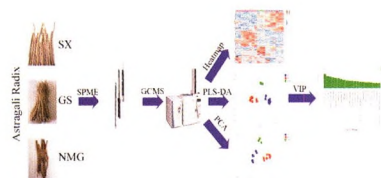
979

基于 SPME-GC-MS 结合多元统计的不同产地黄芪挥发性成分差异分析

陈贤双¹, 李科^{1,2*}, 李震宇^{1*}, 秦雪梅^{1*}

(1. 山西大学 中药药现代研究中心, 山西 太原 030006; 2. 中国科学院过程工程研究所, 北京 100190)

基于 SPME-GC-MS 结合多元统计的不同产地黄芪挥发性成分差异分析。



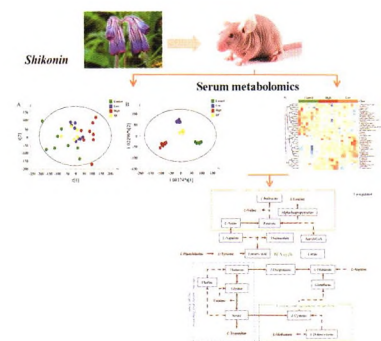
987

基于 UPLC-MS 技术的紫草素干预结肠癌移植瘤小鼠血清代谢组学研究

陈阳¹, 倪娟², 高贇², 陈忠坚^{2*}, 吴永江^{1*}

(1. 浙江大学药学院, 浙江 杭州 310058; 2. 浙江省肿瘤医院, 浙江省肿瘤研究所, 浙江 杭州 310022)

基于代谢组学揭示紫草素通过调节紊乱的氨基酸代谢发挥抗结肠癌作用。



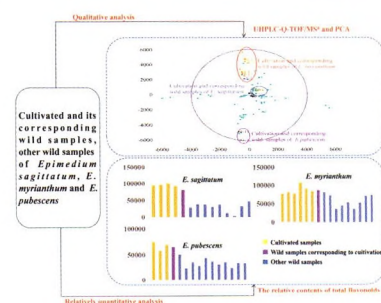
995

基于 UHPLC-PDA-Q-TOF/MS^E 技术的栽培淫羊藿质量研究

周茗^{1,2,3}, 郑伟², 郭宝林^{3*}, 陈安家^{1*}, 马百平^{2*}

(1. 山西医科大学, 山西 太原 030001; 2. 军事科学院军事医学研究院辐射医学研究所, 北京 100850; 3. 中国医学科学院、北京协和医学院药用植物研究所, 北京 100193)

采用 UHPLC-PDA-Q-TOF/MS^E 结合 UNIFI 数据分析平台及主成分分析 (PCA) 对栽培箭叶、天平山、柔毛淫羊藿进行质量研究。



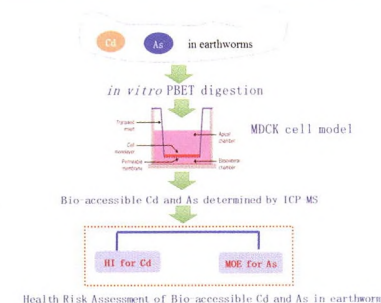
1004

基于体外消化/MDCK 细胞模型测定地龙中镉和砷的生物可给性及风险评估

左甜甜[#], 罗飞亚[#], 金红宇, 邢书霞, 余坤子, 孙磊^{*}, 马双成^{*}

(中国食品药品检定研究院, 北京 100050)

建立 *in vitro* PBET 体外模拟消化/MDCK 细胞模型考察地龙中 Cd 和 As 的生物可给性, 并分别采用危害指数法 (HI) 和暴露限值法 (MOE) 对其残留总量以及生物可给量的风险进行评估。

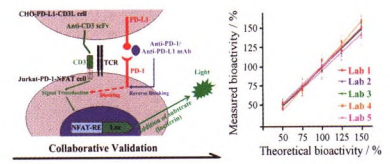


1010

抗 PD-1 单抗生物学活性测定方法的联合验证

于传飞, 黄璟, 杨雅岚, 倪永波, 王开芹, 王兰*
(中国食品药品检定研究院, 北京 102629)

对测定抗 PD-1 单抗生物学活性的报告基因法进行联合验证, 结果证明该方法精密性、线性和准确性均良好, 可应用于不同实验室抗 PD-1 单抗的放行检测及稳定性分析。



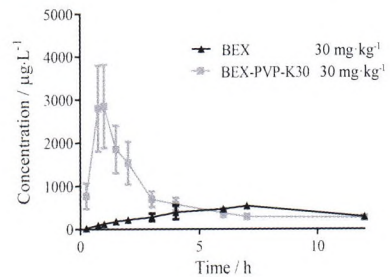
1015

蓓萨罗丁-聚乙烯吡咯烷酮共无定型物制备及在 SD 大鼠体内评价

任淑月¹, 焦凌泰², 于浩滢¹, 王景蓉¹, 宋俊科¹, 吕婷婷¹, 吕扬², 杨世颖², 孙岚^{1*}, 杜冠华^{1*}

(1. 中国医学科学院、北京协和医学院药物研究所药物筛选研究中心, 药物靶点研究和
新药筛选北京市重点实验室, 北京 100050; 2. 中国医学科学院、北京协和医学院药物
研究所药物晶型研究中心, 晶型药物研究北京市重点实验室, 北京 100050)

蓓萨罗丁-聚乙烯吡咯烷酮共无定型物可改善蓓萨罗丁药物代谢动力学特征。



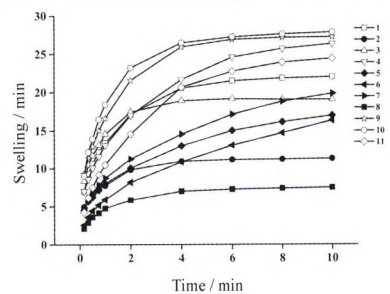
1022

羧甲淀粉钠来源差异对其性质及其功能的影响

郝敬强¹, 杨白雪¹, 孙微¹, 孙瑞濛¹, 孙会敏², 李三鸣^{1*}

(1. 沈阳药科大学, 辽宁 沈阳 110016; 2. 中国食品药品检定研究院, 北京 100050)

不同来源的羧甲淀粉钠 (1~11 号) 粒子形态、流动性、吸水溶胀性等差异较大, 导致片剂崩解差异性较大。



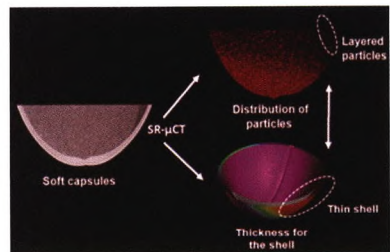
1030

基于同步辐射光源显微成像技术原位表征软胶囊结构变化及内部微粒分布

熊婷^{1,2}, 伍丽², 彭辉³, 钱蔚³, 吴文婷¹, 朱卫丰¹, 殷宪振^{2*}, 张继稳^{1,2*}

(1. 江西中医药大学药学院, 江西 南昌 330004; 2. 中国科学院上海药物研究所,
上海 201203; 3. 汤臣倍健股份有限公司, 广东 珠海 519040)

采用同步辐射光源 X 射线显微成像技术原位无损测定加速试验后软胶囊的结构及其内部微粒分布, 发展了软胶囊原研制剂剖析与物理稳定性评价的新技术。



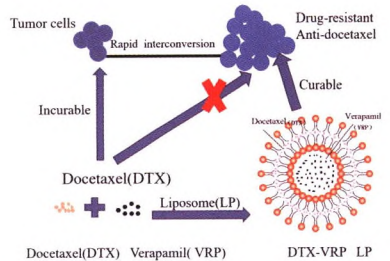
1035

共载多西他赛和维拉帕米脂质体逆转肿瘤耐药性的研究

叶玲¹, 叶娟², 鲁继光³, 杜琼^{1,4,5}, 余波^{1,4,5*}

(1. 复旦大学附属肿瘤医院闵行分院药剂科, 上海 200240; 2. 太湖县中医院检验科,
安徽 安庆 246400; 3. 上海交通大学医学院附属苏州九龙医院药剂科, 江苏 苏州
215021; 4. 复旦大学附属肿瘤医院药剂科, 上海 200032; 5. 复旦大学上海医学院
肿瘤学系, 上海 200032)

本文主要是研究多西他赛联合 P-糖蛋白抑制剂维拉帕米共包裹于脂质体中, 阐明该脂质体中维拉帕米可延缓多西他赛耐药性的产生。利用维拉帕米能够抑制细胞内药物外排, 再结合脂质体的特点, 包裹两种不同性质的药物 (脂溶性药物多西他赛; 水溶性药物维拉帕米) 研究肿瘤细胞的耐药性。



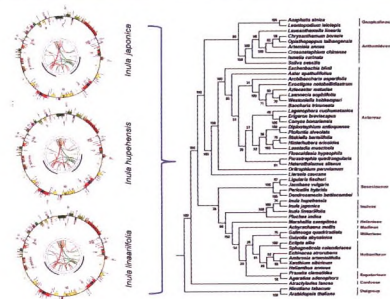
1042

旋覆花、湖北旋覆花和线叶旋覆花的叶绿体基因组比较分析和系统发育研究

吴茜, 姜梅, 陈海梅, 王立强, 黄林芳, 刘昶*

(中国医学科学院、北京协和医学院药用植物研究所, 教育部中药材生物活性物质与
资源利用重点实验室, 教育部中药材资源工程研究中心, 北京 100193)

本文首次对菊科旋覆花属药用植物旋覆花、湖北旋覆花和线叶旋覆花完整的叶绿体基因组进行了比较分析, 系统发育分析结果表明旋覆花族可能起源于千里光族, 而非茼蒿族。



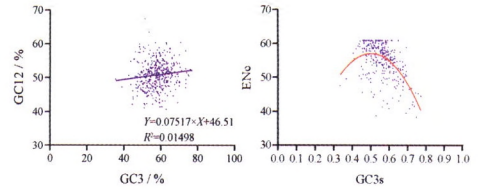
1050

基于转录组数据分析药用真菌猪苓密码子使用偏好性

刘蒙蒙^{1,2,3}, 邢咏梅^{1*}, 郭顺星^{1*}

(1. 中国医学科学院、北京协和医学院药用植物研究所, 北京 100193; 2. 河北大学中医学院, 河北 保定 071002; 3. 江苏理工学院电气信息工程学院, 生物信息与医药工程研究所, 江苏 常州 213001)

本研究以猪苓转录组数据为基础, 分析其基因密码子使用偏向性。分析结果表明猪苓基因基因的密码子使用偏向性的形成过程中突变和选择压力等诸多因素都发挥着重要作用。



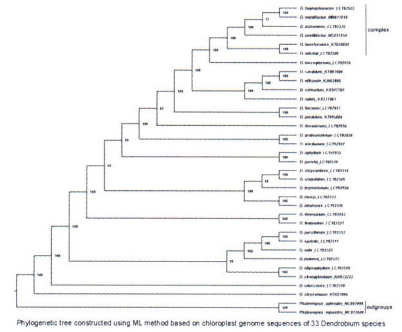
1056

细茎石斛叶绿体全基因组序列特征及系统发育分析

武立伟^{1,3}, 崔英贤^{1,3}, 聂丽萍^{1,3}, 徐志超^{1,3}, 王瑀¹, 宋经元^{1,3}, 焦连魁^{2*}, 姚辉^{1,3*}

(1. 中国医学科学院、北京协和医学院药用植物研究所, 中草药物质基础与资源利用教育部重点实验室, 北京 100193; 2. 中国中药有限公司, 北京 102600; 3. 中药资源教育部工程研究中心, 北京 100193)

本研究利用 Illumina 高通量测序技术对细茎石斛叶绿体全基因组进行测序, 完成了其物理图谱绘制和基因组结构特征解析, 并与近缘物种进行了比较分析。



新药发现与研究实例简析

1067

以动物表型指导研发的吡格列酮

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)

Professionals Forum

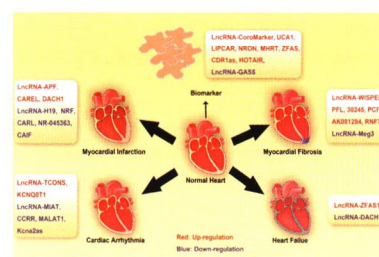
773

The role and molecular mechanisms of long noncoding RNAs in cardiac diseases

PAN Zhen-wei, YANG Bao-feng*

(The State-Province Key Laboratories of Biomedicine Pharmaceutics of China, Key Laboratory of Cardiovascular Research, Ministry of Education, Department of Pharmacology, College of Pharmacy, Harbin Medical University, Research Unit of Noninfectious Chronic Diseases in Frigid Zone, Chinese Academy of Medical Sciences, Harbin 150081, China)

Long noncoding RNAs are involved in various cardiac diseases such as cardiac infarction, fibrosis, arrhythmia and heart failure, which hold the potential to become novel therapeutic targets and biomarkers.



Reviews

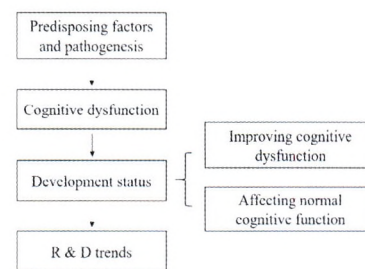
781

Progress in research and development of cognition related drugs

YU Zi-ru, DU Guan-hua*

(Beijing Key Laboratory of Drug Targets Identification and Drug Screening, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

In this article, we summed up the research strategies based on the clinical and development of cognition related drugs, especially for the Alzheimer's disease, and the task & challenge of cognitive pharmacology development. We aimed at providing new ideas for researchers to promote the development of cognitive drugs.



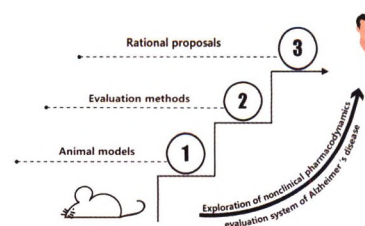
789

Exploration of nonclinical pharmacodynamics evaluation system of Alzheimer's disease

HUANG Long-jian¹, ZHAO Chun-yang², FENG Xin-hong³, LAN Jia-qi¹, TANG Jing-shu¹, WANG Qing-li^{2*}, PENG Ying^{1*}

(1. Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China; 2. Center for Drug Evaluation, National Medical Product Administration, Beijing 100022, China; 3. Department of Neurology, Beijing Tsinghua Changgung Hospital, Beijing 102218, China)

In this review, we summarize the current models and pharmacodynamics evaluation methods of anti-Alzheimer's disease (AD) drug based on the recent studies at home and abroad, and provide reference for drug development in AD at nonclinical stage.



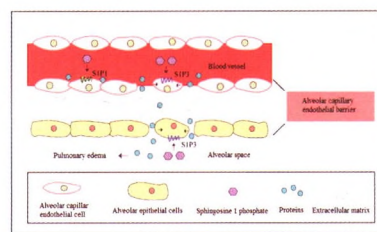
806

Research advancement of sphingosine 1-phosphate in alveolar capillary endothelial barrier regulation

FU Rong, CHEN Xiao-guang*, JIN Jing*

(State Key Laboratory of Bioactive Substance and Function of Natural Medicines/Beijing Key Laboratory of Non-clinical Drug Metabolism and PK/PD Study, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

Sphingosine 1-phosphate (S1P) exerts different regulatory effects on alveolar capillary endothelial barrier by activating S1P1 and S1P3.



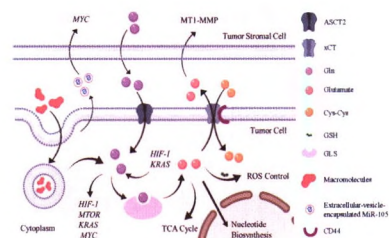
813

Research advances of glutamine metabolism-related targets in tumor treatment

ZHANG Ting, LIU Jing, DING Ya*

(Key Laboratory of Drug Quality Control and Pharmacovigilance, Ministry of Education, China Pharmaceutical University, Nanjing 210009, China)

This article reviews the role of glutamine in tumorigenesis, development and metastasis, discusses the relationship between glutamine and key biomacromolecules, and provides ideas for finding new targets in cancer therapy.



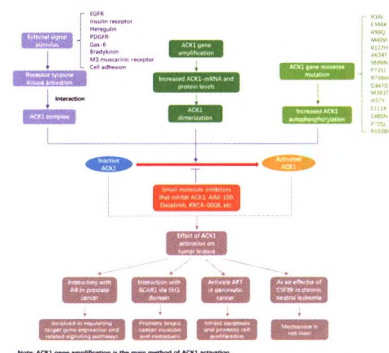
821

Advances in small molecule inhibitors of ACK1

ZHOU Xiao-fei, LI Rui, YAO Hong-juan, LI Liang*

(Institute of Medicinal Biotechnology, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

In this review, we briefly described recent advances in the activation and biological function of ACK1, and the updated information of its novel inhibitors, followed with discussion of potential therapeutic activities in preclinical studies.



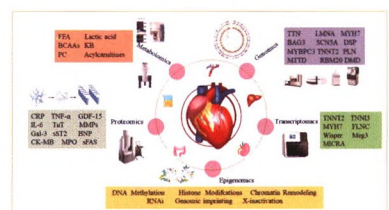
832

The omics perspective on heart failure research

ZHANG Jin-yue, LIU Qi-feng, YANG Liu, LÜ Xue-qi, WANG Ying-hong*

(State Key Laboratory of Bioactive Substances and Functions of Natural Medicines, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

This article reviews the roles and potential applications of various omics and their opportunities in the study of the pathophysiology of heart failure, clinical diagnosis and treatment, and related drug pharmacodynamics and mechanism of action.



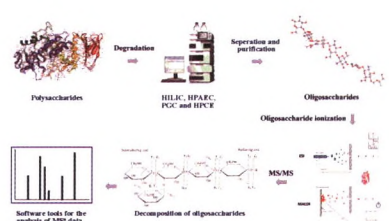
843

Progress in oligosaccharide extraction, separation and structural analysis by mass spectrometry

CUI Lian-jie^{1,2}, LI Ke^{1,3*}, LI Zhen-yu^{1*}, QIN Xue-mei¹, DU Yu-guang³

(1. Modern Research Center for Traditional Chinese Medicine, Shanxi University, Taiyuan 030006, China; 2. College of Chemistry and Chemical Engineering, Shanxi University, Taiyuan 030006, China; 3. Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China)

Progress in oligosaccharides extraction, separation and structural analysis by mass spectrometry.

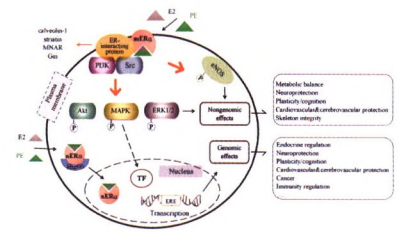


854

Current status and future of non-genomic effects of phytoestrogens

YANG Xin-yue^{1,2#}, LIU Hai-xin^{1,2,3#}, HE Shuang^{1,2}, SHAO Rui^{1,2}, FENG Yu-xin^{1,2}, ZHU Yan^{1,2*}

(1. Tianjin Modern Chinese Medicine Key Laboratory, Tianjin University of Traditional Chinese Medicine, Tianjin 300193, China; 2. Tianjin International Biomedical Research Institute, Chinese Medicine New Drug Research and Development Center, Tianjin 300457, China; 3. Shanxi University of Traditional Chinese Medicine, Taiyuan 030619, China)



This article discusses and prospects the estrogen receptor alpha (ERα)-mediated non-genomic effects and the non-genomic effects of phytoestrogens (PE), providing a theoretical basis for the development of new phytoestrogens.

Original Articles

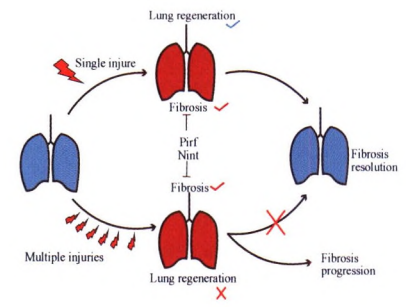
861

Pirfenidone and nintedanib inhibit the lung alveolar regeneration in chronic pulmonary fibrosis mouse

LI Yun-xuan, LÜ Xiao-xi, LIU Chang, LIU Shan-shan, HU Zhuo-wei*

(Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

The aim of this study was to determine whether the anti-fibrotic effects of pirfenidone (Pirf) and nintedanib (Nint) associated with the regulation of the alveolar epithelial type 2 cell (AEC II)-mediated lung alveolar regeneration in single- and multiple-dosage animal models of bleomycin-induced pulmonary fibrosis.



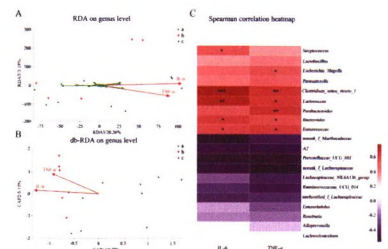
868

The effect and mechanism of baicalein on regulating gut microbiota and improving chemotherapy-induced intestinal mucositis in mice

WANG Rui^{1,2}, WANG Lin², WEI Guang-yi^{1,2}, LIU Nan-nan^{1,2}, ZHANG Li², WANG Shu-mei¹, DU Guan-hua^{1,2*}

(1. Guangdong Pharmaceutical University, Guangzhou 510006, China; 2. Beijing Key Laboratory of Drug Target and Screening Research, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

This article introduces the correlation between baicalein's regulation of gut microbiota and its anti-chemotherapy-induced intestinal mucositis (CIM) effect.



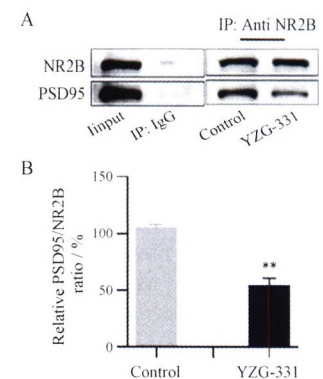
877

Regulatory effect and mechanism of novel sedative hypnotic compound YZG-331 on glutamate and its receptor

FANG Jin-yu, LIU Wei, YU Feng-ting, SHI Jian-gong, ZHANG Jian-jun*

(Beijing Key Laboratory of New Drug Mechanisms and Pharmacological Evaluation Study, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

Novel adenosine derivative YZG-331 promotes N-methyl-D-aspartate receptor (NMDAR)'s endocytosis, which leading to the decrease of excitatory transmission by weakening the interaction between the NMDAR subunit NR2B and postsynaptic density-95 (PSD95). It may be one of the mechanisms of YZG-331 to exert sedative and hypnotic effects.

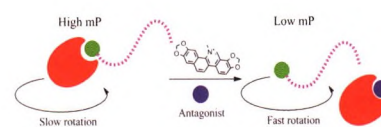


884

Development of a fluorescence polarization-based high-throughput screening assay to identify antagonists targeting β -catenin/TCF4 interaction

CHEN Yun-yu¹, HU Ke¹, FU Zheng-hao¹, NIU Xia-yi¹, ZHANG Jing^{2*},
LIU Xiao-ping^{1*}

(1. Institute for Drug Screening and Evaluation, Wannan Medical College, Wuhu 241002, China; 2. Institute of Medicinal Biotechnology, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

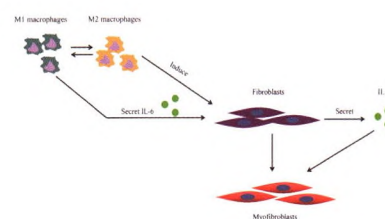


Identification of sanguinarine, chelerythrine, and compound S720 as novel β -catenin/TCF4 interaction antagonists through fluorescence polarization-based high-throughput screening assay.

892

Effect and mechanism of IL-6 induced by M2 macrophages on the lung fibroblasts activation

ZHAO Fang-zhe, SANG Xiao-qing, ZHU Yan, YANG Jian*
(State Key Laboratory of Component-based Chinese Medicine, Tianjin University of Traditional Chinese Medicine, Tianjin 301617, China)

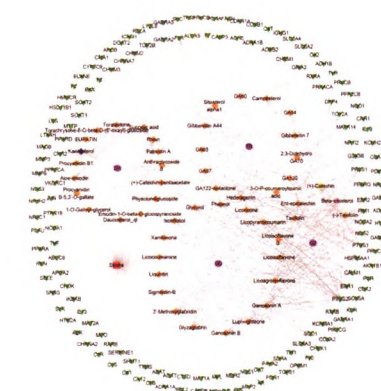


M2 macrophages can induce fibroblasts to secrete interleukin 6 (IL-6), which can induce the migration and activation of fibroblasts.

898

The two-way regulation molecular network mechanism of Taohechengqi decoction in prevention and treatment of stroke based on vascular endothelial growth factor signaling pathway/tumor necrosis factor signaling pathway

PEI Li-shan, SHEN Xia², YAN Yong-gang², ZHANG Gang, PENG Liang, WANG Yan-xia, PING Fan
(Shaanxi Qinling Application Development and Engineering Center of Chinese Herbal Medicine, College of Pharmacy, Shaanxi University of Chinese Medicine, Xianyang 712046, China)



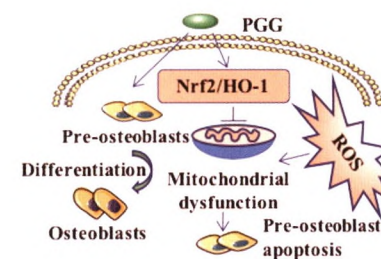
Based on the network pharmacology and GEO (Gene Expression Omnibus) analysis methods, the multi-gene and multi-pathway synergistic regulation effect of Taohechengqi decoction in the prevention and treatment of stroke was clarified, and a new strategy for stroke prevention was provided.

907

Correlation between bone protection of 1,2,3,4,6-pentyl-*O*-galloyl-beta-*D*-glucose and Nrf2/HO-1 signaling pathway

CHEN Ting-ting^{1,2,3}, HUANG Tian-yi^{1,2,3}, LI Meng-yu^{1,2,3}, CUI Jie^{1,2,3},
HUA Yong-qing^{1,2,3*}, XU Hui-qin^{2,3*}

(1. Jiangsu Collaborative Innovation Center of Chinese Medicinal Resources Industrialization, Nanjing 210023, China; 2. Jiangsu Key Laboratory for Pharmacology and Safety Evaluation of Chinese Materia Medica, Nanjing 210023, China; 3. School of Pharmacy, Nanjing University of Traditional Chinese Medicine, Nanjing 210023, China)



1,2,3,4,6-Pentyl-*O*-galloyl-beta-*D*-glucose (PGG) has differentiation-promoting and anti-apoptotic effects on pre-osteoblasts, and its mechanism of anti-apoptotic effects may be related to Nrf2/HO-1.

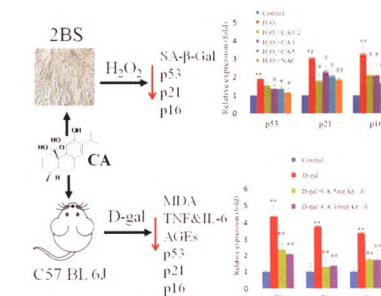
915

Protective effects of carnosic acid against aging in a premature cellular senescence model and in a *D*-galactose induced mouse model

SU Hui-li¹, BAO Yi-zhong¹, ZHANG Jing¹, XU Xiao-gang¹, ZHANG Zhong-shan²,
WAN Xiao-qing^{1*}, MAO Gen-xiang^{1*}

(1. Zhejiang Hospital, Hangzhou 310013, China; 2. School of Life Sciences, Huzhou University, Huzhou 313000, China)

Carnosic acid (CA) protects premature senescence induced by oxidative stress and *D*-galactose (*D*-gal) *in vitro* and *in vivo*, which is related to its antioxidative, antiinflammatory roles and inhibition on non-enzymatic glycosylation.



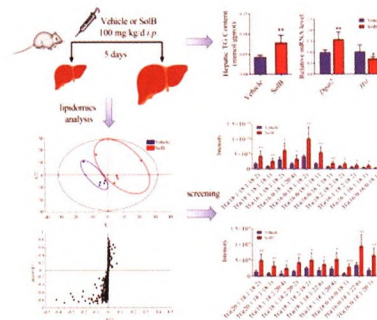
922

Lipidomics analysis on schisandrol B-induced liver enlargement in mice

ZHAO Ying-yuan, YAO Xin-peng, JIAO Ting-ying, TIAN Jia-ning, ZHOU Yan-ying, GAO Yue, CHEN Pan-pan, FAN Shi-cheng, HUANG Min*, BI Hui-chang*

(Lab of Drug Metabolism and Pharmacokinetics, School of Pharmaceutical Sciences, Sun Yat-sen University, Guangzhou 510006, China)

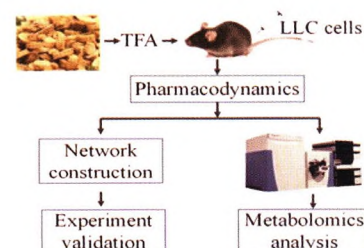
This study reveals that schisandrol B (SolB) significantly promoted liver enlargement in mice without liver injury and inflammation and illustrates the effect of SolB on lipid metabolism based on the lipidomics analysis.



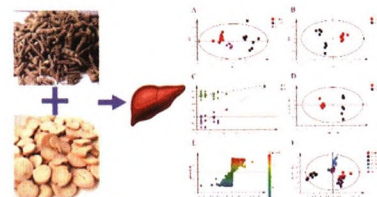
930

Anti-cancer effect of the flavonoids of *Astragalus* combined with cisplatin on Lewis lung carcinoma-bearing miceQI Yan-shuang¹, LI Xiao¹, QIN Xue-mei¹, CHAI Zhi^{2*}, LI Zhen-yu^{1*}*(1. Modern Research Center for Traditional Chinese Medicine, Shanxi University, Taiyuan 030006, China; 2. College of Basic Medicine, Shanxi University of Chinese Medicine, Jinzhong 030619, China)*

Based on the pharmacodynamics of traditional Chinese medicine, combined with network pharmacology, molecular biology and metabonomics technology, this study studied the effect and mechanism of *Astragalus* flavonoids combined with cisplatin on Lewis-bearing mice, which laid a foundation for the development of cancer drugs.



941

The mechanism of the anti-depression effect of the Radix Bupleuri-Radix Paeoniae Alba herb pair determined by liver metabolomicsCHEN Cong-cong^{1,2}, YIN Qi-cai^{1,2}, TIAN Jun-sheng¹, GAO Xiao-xia¹, QIN Xue-mei¹, DU Guan-hua^{1,3}, ZHOU Yu-zhi^{1*}*(1. Modern Research Center for Traditional Chinese Medicine, Shanxi University, Taiyuan 030006, China; 2. College of Chemistry and Chemical Engineering, Shanxi University, Taiyuan 030006, China; 3. Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China)*

LC-MS-based metabolomics explored the metabolic regulation mechanism of Radix Bupleuri-Radix Paeoniae Alba herb pair "soothing the liver and resolving melancholia".

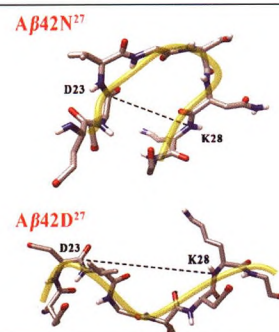
950

Exploring potential affected site for the inhibition of A β 42 polymerization based on Asn27 deamidation modification

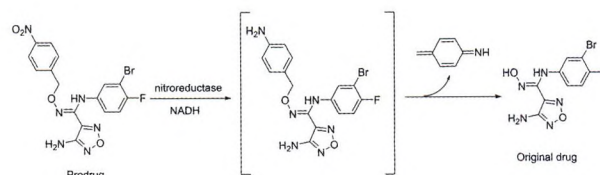
ZHUO Yue, ZHOU Min, ZHANG Tao*

(School of Biomedical Engineering and Technology, Tianjin Medical University, Tianjin 300070, China)

Asn27 deamidation can decrease aggregation of A β 42 caused by the disruption of salt-bridge interaction between D23-K28 and β -sheet structure formation at CTR and NTR region.



958

Identification of an IDO1 inhibitor prodrug that specifically targets tumor tissueFENG Hao¹, DU Qian-qian², FENG Zhi-qiang^{2*}, LI Yan^{2*}, LIU Zhong-cheng^{1*}, XU Xiao-ling³*(1. College of Pharmacy, Hebei University, Baoding 071002, China; 2. Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China; 3. Heze Municipal Hospital, Heze 274000, China)*

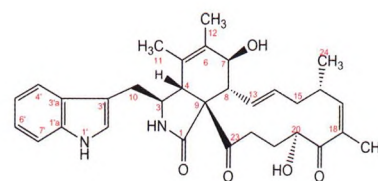
The hypoxia-activated prodrugs specifically targeting tumor tissues were designed by binding the nitro-aromatic ring carrier molecules capable of degrading in the microenvironment of tumor hypoxia to the hydroxyamidine group as the main metabolic site of IDO1 inhibitor compound B and epacadostat.

967

A new cytochalasan compound from endophyte *Chaetomium globosum* WQ in *Imperata cylindrical*

XIA Wen-jing^{1,2}, CAO Xing-qin^{1,2}, LIU Qin³, WANG Sha-sha^{1,2}, SHEN Li^{1,2*}

(1. Institute of Translational Medicine, Medical College, Yangzhou University, Yangzhou 225001, China; 2. Jiangsu Key Laboratory of Integrated Traditional Chinese and Western Medicine for Prevention and Treatment of Senile Diseases, Yangzhou 225001, China; 3. Jiangsu Lixiahe Institute of Agricultural Science, Yangzhou 225007, China)



20-iso-chaetoglobosin E (1)

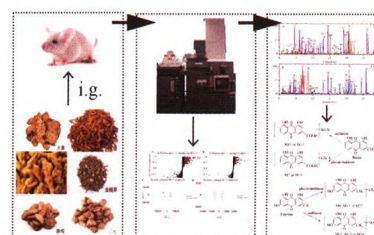
A new 10-indolyl cytochalasan compound was isolated from the solid culture of endophyte *Chaetomium globosum* WQ in *Imperata cylindrical*.

971

Identification of major bioactive components and metabolites of Gandou decoction in rat urine by an integrative approach based on UPLC-Q-TOF-MS^E coupled with xenometabolomics analytical platform

ZHANG Xue-yan¹, LIU Yi³, WU Huan¹, CAO Shi-jian², WU Peng¹, ZHOU An^{1*}

(1. The Experimental Research Center, Anhui Province Key Laboratory of Chinese Medicinal Formula, Anhui University of Chinese Medicine, Hefei 230038, China; 2. The First Affiliated Hospital of Anhui University of Chinese Medicine, Hefei 230031, China; 3. Waters Corporation (China), Shanghai 201206, China)



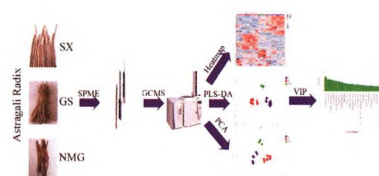
Identification of major bioactive components and metabolites of Gandou decoction in rat urine by an integrative approach based on UPLC-Q-TOF-MS^E coupled with xenometabolomics analytical platform.

979

Analysis of the volatile components of Astragali Radix from different habitats by SPME-GC-MS combined with multivariate statistical analysis

CHEN Xian-shuang¹, LI Ke^{1,2*}, LI Zhen-yu^{1*}, QIN Xue-mei^{1*}

(1. Modern Research Center for Traditional Chinese Medicine, Shanxi University, Taiyuan 030006, China; 2. Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China)



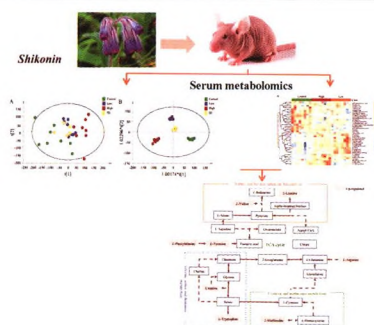
Analysis of volatile components of Astragali Radix from different habitats based on SPME-GC-MS combined with multivariate statistical analysis.

987

Effects of shikonin on colon cancer xenografts in nude mice based on serum metabolomics

CHEN Yang¹, NI Juan², GAO Yun², CHEN Zhong-jian^{2*}, WU Yong-jiang^{1*}

(1. College of Pharmaceutical Sciences, Zhejiang University, Hangzhou 310058, China; 2. Department of Cancer Research Institute, Zhejiang Cancer Hospital, Hangzhou 310022, China)



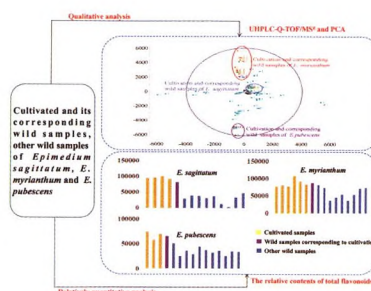
Metabolomics reveal the regulation of amino acid metabolism involved in the antitumor effect of shikonin in colon cancer.

995

Evaluation of cultivated and wild Herba Epimedii using UHPLC-PDA-Q-TOF/MS^E

ZHOU Ming^{1,2,3}, ZHENG Wei², GUO Bao-lin^{3*}, CHEN An-jia^{1*}, MA Bai-ping^{2*}

(1. Shanxi Medical University, Taiyuan 030001, China; 2. Institute of Radiation Medicine, Academy of Military Medical Sciences, Academy of Military Sciences, Beijing 100850, China; 3. Institute of Medicinal Plant Development, Chinese Academy of Medical Science, Peking Union Medical College, Beijing 100193, China)



Study on the quality of cultivated *Epimedium sagittatum*, *E. myrianthum* and *E. pubescens* by UHPLC-PDA-Q-TOF/MS^E combined with UNIFI data analysis platform and principal component analysis (PCA).

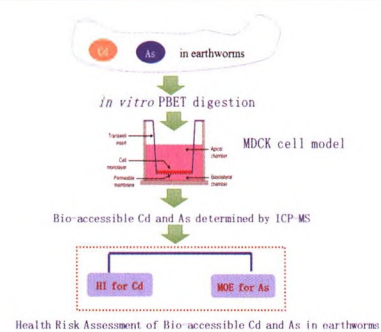
1004

Determination of the bioaccessibility of cadmium and arsenic in earthworms by PBET digestion *in vitro* / MDCK cell model with risk assessment

ZUO Tian-tian[#], LUO Fei-ya[#], JIN Hong-yu, XING Shu-xia, YU Kun-zi, SUN Lei*, MA Shuang-cheng*

(National Institutes for Food and Drug Control, Beijing 100050, China)

The PBET digestion *in vitro*/MDCK cell model was established to investigate the bioaccessibility of Cd and As in earthworms. The hazard index method (HI) and the margin of exposure (MOE) methods were used to assess the risks of total contents and the bioaccessible contents of Cd and As in earthworms, respectively.



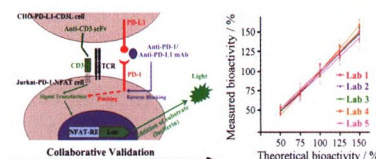
1010

Collaborative study to evaluate a reporter gene assay for anti-PD-1 antibody bioactivity

YU Chuan-fei, HUANG Jing, YANG Ya-lan, NI Yong-bo, WANG Kai-qin, WANG Lan*

(National Institutes for Food and Drug Control, Beijing 102629, China)

The collaborative validation for the reporter gene assay was performed to determine the bioactivity of anti-PD-1 monoclonal antibody, and the results demonstrated the good precision, linearity and accuracy of the method, which could be applied to the release control and stability analysis of anti-PD-1 monoclonal antibodies in different laboratories.



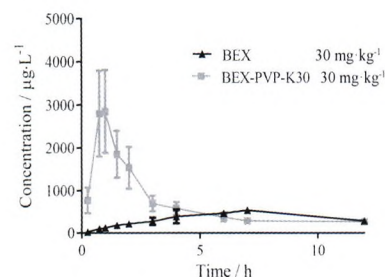
1015

Preparation of a co-amorphous form of bexarotene-PVP-K30 and evaluation in rats

REN Shu-yue¹, JIAO Ling-tai², YU Hao-ying¹, WANG Jing-rong¹, SONG Jun-ke¹, LÜ Ting-ting¹, LÜ Yang², YANG Shi-ying², SUN Lan^{1*}, DU Guan-hua^{1*}

(1. Beijing Key Laboratory of Drug Target Research and Drug Screening, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China; 2. Beijing Key Laboratory of Polymorphic Drugs, Center of Pharmaceutical Polymorphs, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China)

Bexarotene-Polyvinylpyrrolidone co-amorphous can improve the pharmacokinetic characteristics of bexarotene.



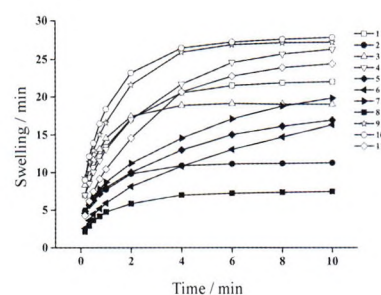
1022

Effects of source difference of sodium carboxymethyl starch on its properties and function

HAO Jing-qiang¹, YANG Bai-xue¹, SUN Wei¹, SUN Rui-meng¹, SUN Hui-min², LI San-ming^{1*}

(1. Shenyang Pharmaceutical University, Shenyang 110016, China; 2. National Institutes for Food and Drug Control, Beijing 100050, China)

The morphology, fluidity, water swelling and swellability of sodium carboxymethyl starch from different sources (No.1-11) are quite different, resulting in large differences in tablet disintegration.



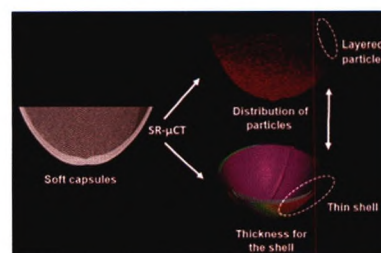
1030

In situ characterization of structural change and internal particle distributions of soft capsules based on synchrotron radiation X-ray micro computed tomography

XIONG Ting^{1,2}, WU Li², PENG Hui³, QIAN Wei³, WU Wen-ting¹, ZHU Wei-feng¹, YIN Xian-zhen^{2*}, ZHANG Ji-wen^{1,2*}

(1. School of Pharmacy, Jiangxi University of Traditional Chinese Medicine, Nanchang 330004, China; 2. Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai 201203, China; 3. By-Health Co., Ltd., Zhuhai 519040, China)

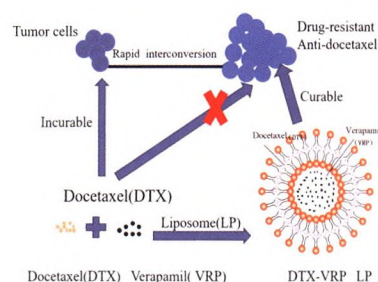
Synchrotron radiation X-ray micro computed tomography was used to noninvasively *in situ* measure the structural characteristics of the soft capsules and internal particle distributions after accelerated tests, which develops a new technique for reverse engineering and the physical stability evaluation of the soft capsules.



1035

The reversal of tumor drug resistance by liposomes containing docetaxel and verapamilYE Ling¹, YE Juan², LU Ji-guang³, DU Qiong^{1,4,5}, YU Bo^{1,4,5*}

(1. Department of Pharmacy, Minhang Branch, Fudan University Shanghai Cancer Center, Shanghai 200240, China; 2. Clinical Laboratory, Taihu County Hospital of Traditional Chinese Medicine, Anqing 246400, China; 3. Department of Pharmacy, Suzhou Kowloon Hospital, School of Medicine, Shanghai Jiao Tong University, Suzhou 215021, China; 4. Department of Pharmacy, Shanghai Cancer Center, Fudan University, Shanghai 200032, China; 5. Department of Oncology, Shanghai Medical College, Fudan University, Shanghai 200032, China)



In this paper, docetaxel combined with verapamil, a P-glycoprotein inhibitor, was co-encapsulated in liposomes to clarify that verapamil in the liposomes could delay the production of docetaxel resistance. Verapamil could inhibit drug efflux in cells, and liposome could encapsulate docetaxel and verapamil, two kinds of drugs with different properties to study the drug resistance of tumor cells.

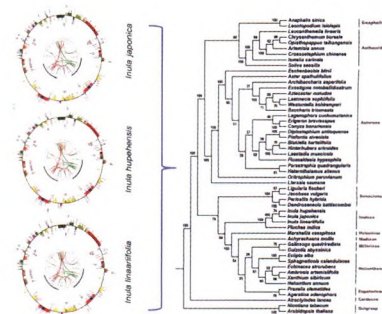
1042

Comparative analysis of three complete chloroplast genomes of *Inula* genus with phylogenetic analysis of 49 plants from *Carduoideae*

WU Xi, JIANG Mei, CHEN Hai-mei, WANG Li-qiang, HUANG Lin-fang, LIU Chang*

(Key Laboratory of Bioactive Substances and Resource Utilization of Chinese Herbal Medicine from Ministry of Education, Engineering Research Center of Chinese Medicine Resources from Ministry of Education, Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences, Peking Union Medical College, Beijing 100193, China)

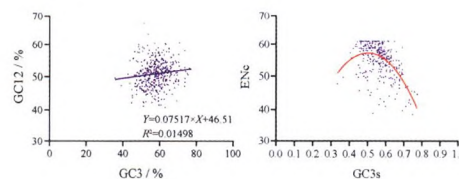
Inula japonica, *Inula hupehensis* and *Inula linaarifolia*, the three complete chloroplast genomes of *Inula* genus were compared and analyzed in this article for the first time, and phylogenomic analysis showed that Inuleae may originated from the Senecioneae, not the Cardueae.



1050

Analysis of codon usage patterns in *Polyporus umbellatus* based on transcriptome dataLIU Meng-meng^{1,2,3}, XING Yong-mei^{1*}, GUO Shun-xing^{1*}

(1. Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100193, China; 2. College of Traditional Chinese Medicine, Hebei University, Baoding 071002, China; 3. Institute of Bioinformatics and Medical Engineering, School of Electrical and Information Engineering, Jiangsu University of Technology, Changzhou 213001, China)



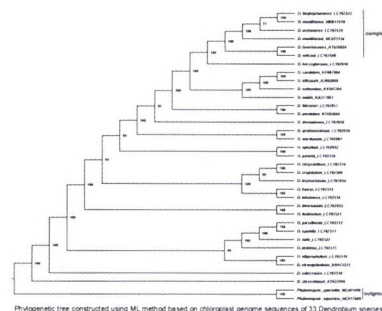
The codon usage patterns of *Polyporus umbellatus* were calculated and statically analyzed based on the transcriptome data. The neutrality plot and ENC-plot analysis discovered that many factors such as mutation and selective pressure play an important role in shaping codon usage *P. umbellatus* bias genes.

1056

The characteristics of complete chloroplast genome sequence and phylogenetic analysis of *Dendrobium moniliforme*WU Li-wei^{1,3}, CUI Ying-xian^{1,3}, NIE Li-ping^{1,3}, XU Zhi-chao^{1,3}, WANG Yu¹, SONG Jing-yuan^{1,3}, JIAO Lian-kui^{2*}, YAO Hui^{1,3*}

(1. Key Laboratory of Bioactive Substances and Resources Utilization of Chinese Herbal Medicine, Ministry of Education, Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100193, China; 2. China National Traditional Chinese Medicine Co., Ltd., Beijing 102600, China; 3. Engineering Research Center of Chinese Medicine Resources, Ministry of Education, Beijing 100193, China)

In this study, the complete chloroplast genome of *D. moniliforme* was sequenced by Illumina Hiseq technology, and its gene map and genomic structure were analyzed. Then chloroplast genome comparative analysis of *D. moniliforme* and its related species was completed.



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