

全国中文核心期刊
中国农业核心期刊

中国科技核心期刊
RCCSE中国核心学术期刊 (A)



ISSN 1671-7236
CN11-4843/S

中国畜牧兽医

CHINA ANIMAL HUSBANDRY &
VETERINARY MEDICINE

第47卷 第11期
Vol. 47 No.11

2020



万方数据



主管：中华人民共和国农业农村部
主办：中国农业科学院北京畜牧兽医研究所

中国畜牧兽医

ZHONGGUO XUMU SHOUYI

第 47 卷 第 11 期 2020 年 11 月

目 次

· 生 物 技 术 ·

- 鸡腺病毒 12 个血清型代表毒株 Penton 蛋白基因分析 宋佳诚,侯力丹,吴应凯,杨亚茜,李俊平(3417)
- 碱基编辑器介导的猪 *IGF2* 基因高效定点突变 王 煜,宋瑞高,赵建国,王彦芳(3427)
- 萨能奶山羊胎儿成纤维细胞 miRNA 文库的构建及生物信息学分析 常卫华,王娟红,崔子龙(3436)
- 一株粗糙型牛种布鲁氏菌诱导株的构建及鉴定 孙浩杰,任小侠,
秦玉明,朱良全,蒋 卉,孙石静,丁家波,辛凌翔,王 楠,李晓宁,李巧玲,毛开荣,蔡亚南,徐 磊(3445)
- 猪脑心肌炎病毒 2A 蛋白的原核表达与纯化 韩若婵,梁瑞英,左玉柱,萧 飒,崔尚金(3454)

· 生 理 生 化 ·

- 饥饿诱发成脂分化 C2C12 细胞中脂滴形态重塑 刘 哲,闫 峻,刘仲昊,穆淑琴(3460)
- SLT-II e 对 PIMVECs 分泌炎症反应相关细胞因子的影响 王伟然,施晓杰,张 蒙,穆 祥(3467)
- 谷氨酸棒状杆菌全细胞催化合成 Levan 果聚糖条件优化分析 吴昕雨,严 琳,伍 红(3474)

· 动物营养与饲料科学 ·

- 凹土纳米氧化锌对断奶仔猪脾脏抗氧化及免疫功能的影响
..... 李洪民,董 丽,胡真真,毛俊舟,张永胜,刘 军,喻礼怀(3484)
- 发酵花生秧对番鸭生产性能、屠宰性能、血清生化指标及鸭粪常规成分的影响
..... 刘珍妮,雷小文,孔智伟,钟云平,谢华亮,谭东海,吴异健(3493)
- 日粮中添加苜蓿草粉对肉鹅生长性能及肉质性状的影响
..... 阎春池,董 飏,赵敏孟,刘 龙,耿拓宇,龚道清,王 健(3502)
- 冀中平原奶牛舍温热环境评价及温热参数与生理指标的相关性分析
..... 赵寿培,李雪梅,高玉红,孙新胜,郭建军,郝赞良,毛 森(3510)
- 大蒜素生理功能及在反刍动物上的应用 宋 阳,沈维军,万发春,殷 磊,赵 渊(3518)
- 白藜芦醇对畜禽常见肝损伤保护机制及应用的研究进展 杨 浩,金三俊,庞 倩,冯兴军(3528)

· 遗 传 繁 育 ·

- ADSL 基因启动子区遗传变异与鸡肉冻藏新鲜度的相关性分析
..... 喻世刚,孙学良,王 钢,廖 娟,胡 强(3536)

猪 3 号染色体上与产仔性状和窝内仔猪初生重整齐度显著关联的标记鉴定	
.....	王围围,肖玉净,马云龙,刘向东,李新云,余 梅(3546)
C-型利钠肽调控鸡肌内脂肪细胞脂肪沉积的作用机制研究	
.....	黄华云,梁 忠,刘龙洲,赵振华,王钱保,李春苗,黄正洋,张 欣,黎寿丰(3555)
晋汾白猪 <i>ApoA5</i> 基因单倍型与体重和肉质性状的相关性分析	
.....	蔡春波,徐 凯,李 萌,杨 阳,赵 燕,高鹏飞,郭晓红,曹果清,李步高(3563)
基于微卫星标记鉴定湖羊家系	赵志达,王欣悦,石田培,胡文萍,尚明玉,张 莉(3573)
非编码 RNA 与骨骼肌发育研究进展	
.....	白凤庭,李 林,陈军豪,赵 蓓,彭心雨,王艳红,房兴堂,张春雷,宋成创(3584)
<i>ADCY2</i> 基因表达对延边黄牛脂肪前体细胞成脂分化的影响	罗晓彤,金 鑫,严昌国,朴政玉(3595)
不同地区、不同部位羊驼毛品质性状的研究	张 敏,
郑文新,王 乐,高维明,陈华峰,宫 平,胡 昕,高 扬,库木斯·哈布多拉,阿依古丽·玉苏甫(3602)	
白藜芦醇对绵羊冷冻精液质量的影响	吕春荣,权国波(3611)
疾病对奶牛繁殖性能的影响及其研究进展Ⅲ:营养代谢性疾病	
.....	赵善江,郝海生,刘云祥,王现军,徐 礼,李来宝,胡智辉,朱化彬(3618)
· 预 防 兽 医 ·	
新型黏虫抗菌肽 AAP-1 对大肠杆菌的抗菌作用	
.....	连凯琪,周玲玲,张元臣,时志琪,林正丹,宋玉伟,王双山,张明亮(3626)
栀子四黄散抗猪繁殖与呼吸综合征的研究 ...	解慧梅,蔡丙严,郝福星,郭广富,蒋文清,刘佳宁,程 汉(3633)
布鲁菌 <i>BAB</i> 基因的原核表达及间接 ELISA 检测方法的建立	
.....	杭天宇,赵洪哲,宋前进,张 静,姬 智,温永俊,关平原(3641)
一株变异型猪流行性腹泻病毒的分离鉴定及其灭活疫苗的免疫效力试验	
.....	常小云,赵润泽,同 珂,陈少贤,刘国平(3651)
猪繁殖与呼吸综合征病毒贵州株 GZ-R <i>NSP2</i> 基因的克隆与遗传变异分析	
.....	张喜懿,温贵兰,管国丹,陈 广,田 浪,杨佰启(3659)
禽流感 DNA 疫苗研究进展	冯亚亚,郭 晶,李玉保,刘 成,李旭勇(3667)
鸡用抗大肠杆菌感染的混合益生菌制剂的制备与评价	易海鸣,张 强,赵雪锦,杨 丽,金梅林(3676)
复方中药发酵液对肉鸡大肠杆菌病的防治效果及免疫调节作用	
.....	顾艳丽,单春乔,曹艳子,刘 艳,林 洋,王效禹,江国托(3687)
减毒猪霍乱沙门氏菌 C500 抗冻保护剂的优化研究	杨 帅,周 迪,张欣欣,胡祥维,杨利国(3696)

新生水貂肠炎病毒母源抗体消长规律及其亚单位疫苗免疫效果研究	
..... 吴洪超,王凌霄,霍宁宁,丁航天,陈亚磊,习向锋,刘友财,刘玉秀,田克恭(3705)	
鸭干扰素刺激基因的克隆、表达及其多克隆抗体的制备	
..... 黄惠兰,李文俊,谢梓民,杨惠湖,崔惠仪,黄淑坚,张雪莲(3713)	

• 基 础 兽 医 •

恩诺沙星联合用药对 MRC-5 细胞生长抑制的研究	
..... 栾业辉,程林丽,赵军杰,丁宇丽,王文浩,黄家模(3722)	
丁酸梭菌-龙眼多糖发酵液对小鼠溃疡性结肠炎的防治作用	
..... 向 蓉,梁伟杰,袁明贵,彭新宇,田 雅,魏琦麟,周廷斤,徐志宏(3731)	
肯塔基沙门菌对氟喹诺酮和碳青霉烯类药物耐药性研究进展	张靖菊,刘 静,徐 飞(3739)
药物饲料添加剂杆菌肽耐药性风险评估	何梦如,周 旒,吕晓华(3749)
唾液乳酸杆菌 TCSL1 对幼犬生长性能、血液学与血清生化指标及肠道健康的影响	
..... 田其真,唐晨晨,沈丹晴,卢 炜,蔡丙严(3757)	
牛种布鲁氏菌 <i>ClpS</i> 基因突变株的构建及其对毒力的影响	
..... 刘郁夫,董 浩,孙石静,彭小微,陈瑞爱,丁家波,蒋 卉(3767)	

• 临 床 兽 医 •

钩端螺旋体引起犬肾功能衰竭的诊断与治疗	刘贵芳,田发益(3774)
鸡胚及禽类细胞系在生物医药领域的应用及研究进展	王 婧,杨海峰,王姐姐,陈晓兰(3783)

CHINA ANIMAL HUSBANDRY & VETERINARY MEDICINE

Vol. 47 No. 11 (Nov. 2020)

SELECTED CONTENTS

• Biotechnology •

- Gene analysis of Penton protein of 12 serotypes of fowl adenovirus
..... SONG Jiacheng, HOU Lidan, WU Yingkai, YANG Yaxi, LI Junping(3417)
- Efficient site-directed mutation of porcine *IGF2* gene *via* base editors
..... WANG Yu, SONG Ruigao, ZHAO Jianguo, WANG Yanfang(3427)
- Construction of miRNA library and bioinformatics analysis about fetal fibroblasts of Saanen dairy goat
..... CHANG Weihua, WANG Juanhong, CUI Zilong(3436)
- Construction and identification of an induced strain of rough *Brucella abortus*
..... SUN Haojie, REN Xiaoxia, QIN Yuming, ZHU Liangquan, JIANG Hui,
SUN Shijing, DING Jiabo, XIN Lingxiang, WANG Nan, LI Xiaoning, LI Qiaoling, MAO Kairong, CAI Yanan, XU Lei(3445)
- Prokaryotic expression and purification of 2A protein of porcine encephalomyocarditis virus
..... HAN Ruochan, LIANG Ruiying, ZUO Yuzhu, XIAO Sa, CUI Shangjin(3454)

• Physiology and Biochemistry •

- Starvation caused lipid droplet remodeling in adipogenic differentiation C2C12 cells
..... LIU Zhe, YAN Jun, LIU Zhonghao, MU Shuqin(3460)
- Effects of SLT- II e on cytokines of inflammatory response secreted by PIMVECs
..... WANG Weiran, SHI Xiaojie, ZHANG Meng, MU Xiang(3467)
- Optimizing conditions analysis of Levan by whole-cell biocatalysis with *Corynebacterium glutamicum*
..... WU Xinyu, YAN Lin, WU Hong(3474)

• Animal Nutrition and Feed Science •

- Effects of attapulgit nano zinc oxide on antioxidant function and immune function in spleen of weaned pigs
..... LI Hongmin, DONG Li, HU Zhenzhen, MAO Junzhou, ZHANG Yongsheng, LIU Jun, YU Lihuai(3484)
- Effects of fermented peanut vine on production performance, slaughter performance, serum biochemical indexes and
feces' routine ingredients in Muscovy ducks
..... LIU Zhenni, LEI Xiaowen, KONG Zhiwei, ZHONG Yunping, XIE Hualiang, TAN Donghai, WU Yijian(3493)
- Effect of supplementing alfalfa powder to diet on growth performance and meat quality of goose
..... YAN Chunchi, DONG Biao, ZHAO Minmeng, LIU Long, GENG Tuoyu, GONG Daoqing, WANG Jian(3502)
- Evaluation of thermal environment of cowshed and correlation analysis between thermal parameter and physiological
parameter of dairy cows in central plain of Hebei
..... ZHAO Shoupei, LI Xuemei, GAO Yuhong, SUN Xinsheng, GUO Jianjun, HAO Zangen, MAO Sen(3510)

Physiological function of allicin and its application in ruminants	SONG Yang, SHEN Weijun, WAN Fachun, YIN Lei, ZHAO Yuan(3518)
Research progress on the protective mechanism and application of resveratrol to common liver injury in livestock and poultry	YANG Hao, JIN Sanjun, PANG Qian, FENG Xingjun(3528)

• Genetics and Breeding •

Association analysis between genetic variation in promoter region of <i>ADSL</i> gene and freshness of frozen chicken	YU Shigang, SUN Xueliang, WANG Gang, LIAO Juan, HU Qiang(3536)
Identification of markers significantly associated with litter size traits and uniformity of the piglet's birth weight on porcine chromosome 3	WANG Weiwei, XIAO Yujing, MA Yunlong, LIU Xiangdong, LI Xinyun, YU Mei(3546)
Mechanism of C-type natriuretic peptide regulating lipid deposition of intramuscular adipocytes in chickens	HUANG Huayun, LIANG Zhong, LIU Longzhou, ZHAO Zhenhua, WANG Qianbao, LI Chunmiao, HUANG Zhenyang, ZHANG Xin, LI Shoufeng(3555)
Correlation analysis between haplotypes of <i>ApoA5</i> gene on body weight and meat quality in Jinfen White pigs	CAI Chunbo, XU Kai, LI Meng, YANG Yang, ZHAO Yan, GAO Pengfei, GUO Xiaohong, CAO Guoqing, LI Bugao(3563)
Identification of Hu sheep family based on microsatellite markers	ZHAO Zhida, WANG Xinyue, SHI Tianpei, HU Wenping, SHANG Mingyu, ZHANG Li(3573)
Research progress on non-coding RNA and skeletal muscle development	BAI Fengting, LI Lin, CHEN Junhao, ZHAO Bei, PENG Xinyu, WANG Yanhong, FANG Xingtang, ZHANG Chunlei, SONG Chengchuang(3584)
Effect of <i>ADCY2</i> gene expression on preadipocyte differentiation in Yanbian Yellow cattle	LUO Xiaotong, JIN Xing, YAN Changguo, PIAO Zhengyu(3595)
Study on the quality traits of alpaca wool in different regions and body parts	ZHANG Min, ZHENG Wenxin, WANG Le, GAO Weiming, CHEN Huafeng, GONG Ping, HU Xin, GAO Yang, KUMUS•Habuduola, AYGL•Yusufu(3602)
The effects of resveratrol on the quality of frozen sheep semen	LYU Chunrong, QUAN Guobo(3611)
Effects of diseases on reproductive performance in dairy cattle Ⅲ :Nutritional metabolic diseases	ZHAO Shanjiang, HAO Haisheng, LIU Yunxiang, WANG Xianjun, XU Li, LI Laibao, HU Zhihui, ZHU Huabin(3618)

• Preventive Veterinary Medicine •

Antibacterial effect of novel armyworm antimicrobial peptide (AAP-1) against <i>Escherichia coli</i>	LIAN Kaiqi, ZHOU Lingling, ZHANG Yuanchen, SHI Zhiqi, LIN Zhengdan, SONG Yuwei, WANG Shuangshan, ZHANG Mingliang(3626)
Study on resistance of fructus <i>Gardeniae</i> Sihuang powder to porcine reproductive and respiratory syndrome	XIE Huimei, CAI Bingyan, HAO Fuxing, GUO Guangfu, JIANG Wenqing, LIU Jianing, CHENG Han(3633)
Prokaryotic expression of <i>Brucella</i> <i>BAB</i> gene and establishment of iELISA	HANG Tianyu, ZHAO Hongzhe, SONG Qianjin, ZHANG Jing, JI Zhi, WEN Yongjun, GUAN Pingyuan(3641)
Isolation and identification of a variant porcine epidemic diarrhea virus and the immune efficacy of its inactivated vaccine	CHANG Xianyun, ZHAO Runze, TONG Ke, CHEN Shaoxian, LIU Guoping(3651)

Cloning and genetic variation analysis of <i>NSP2</i> gene of porcine reproductive and respiratory syndrome virus Guizhou strain GZ-R	ZHANG Xiyi, WEN Guilan, GUAN Guodan, CHEN Guang, TIAN Lang, YANG Baiqi(3659)
Review of DNA vaccine for avian influenza	FENG Yaya, GUO Jing, LI Yubao, LIU Cheng, LI Xuyong(3667)
Preparation and evaluation of mixed probiotics for chicken against <i>Escherichia coli</i> infection	YI Haiming, ZHANG Qiang, ZHAO Xuejin, YANG Li, JIN Meilin(3676)
Effect of fermented traditional Chinese medicine on preventing and treating colibacillosis and immune regulation in broilers	GU Yanli, SHAN Chunqiao, CAO Yanzi, LIU Yan, LIN Yang, WANG Xiaoyu, JIANG Guotuo(3687)
Optimization of cryoprotectant for attenuated <i>Salmonella Cholerae</i> C500	YANG Shuai, ZHOU Di, ZHANG Xinxin, HU Xiangwei, YANG Liguang(3696)
The dynamic of maternal antibody against enteritis virus in newborn minks and immune efficacy of the subunit vaccine	WU Hongchao, WANG Lingxiao, HUO Ningning, DING Hangtian, CHEN Yalei, XI Xiangfeng, LIU Youcai, LIU Yuxiu, TIAN Kegong(3705)
Molecular cloning and expression of duck gene and preparation of its polyclonal antibodies	HUANG Huilan, LI Wenjun, XIE Zimin, YANG Huihu, CUI Huiyi, HUANG Shujian, ZHANG Xuelian(3713)
• Basic Veterinary Medicine •	
Evaluation of joint toxicity of enrofloxacin and three antimicrobials on MRC-5 cells	LUAN Yehui, CHENG Linli, ZHAO Junjie, DING Yuli, WANG Wenhao, HUANG Jiamo(3722)
Preventive and therapeutic effects of <i>Clostridium butyricum</i> -longan polysaccharide fermentation broth on mouse model with ulcerative colitis	XIANG Rong, LIANG Weijie, YUAN Minggui, PENG Xinyu, TIAN Ya, WEI Qilin, ZHOU Tingjin, XU Zhihong(3731)
Research progress on resistance of <i>Salmonella</i> Kentucky to fluoroquinolones and carbapenems	ZHANG Jingju, LIU Jing, XU Fei(3739)
Risk assessment of bacitracin resistance as a medicated feed additive	HE Mengru, ZHOU Ni, LYU Xiaohua(3749)
The effects of <i>Lactobacillus salivarius</i> TCSL1 on growth performance, hematology, serum biochemical indexes and intestinal health in puppies	TIAN Qizhen, TANG Chenchen, SHEN Danqing, LU Wei, CAI Bingyan(3757)
Construction of <i>Brucella ClpS</i> gene mutant strain and its effect on virulence	LIU Yufu, DONG Hao, SUN Shijing, PENG Xiaowei, CHEN Ruiai, DING Jiabo, JIANG Hui(3767)
• Clinical Veterinary Medicine •	
Diagnosis and therapy on renal failure caused by canine <i>Leptospira</i>	LIU Guifang, TIAN Fayi(3774)
The application and research progress of chicken embryo and avian cell lines in biomedicine	WANG Jing, YANG Haifeng, WANG Dada, CHEN Xiaolan(3783)

《中国畜牧兽医》编委会

顾问: 张子仪 院士

主任委员: 秦玉昌

委员: (按英文字母/汉字笔画排序)

Julang Li, Canada

印遇龙 院士

任继周 院士

麦康森 院士

沈建忠 院士

张改平 院士

陈化兰 院士

夏咸柱 院士

马月辉

王凤来

王文杰

王立贤

王加启

王楚端

文 杰

田见晖

朱化彬

朱鸿飞

刘国世

刘建新

李 奎

李发弟

李俊雅

李胜利

杨汉春

吕于明

张之宣

张文广

张军民

张宏福

张家骅

陈继兰

范红结

罗海玲

单安山

赵茹茜

咎林森

秦贵信

贾玉山

郭 勇

郭 鑫

曹兵海

崔尚金

韩雪松

储明星

童光志

谯仕彦

熊本海

主 编: 李 珣

副 主 编: 卢庆萍 臧长江

编辑部主任: 戴 晔

本期值班编辑: 戴 晔

中 国 畜 牧 兽 医

(月刊, 1974年创刊)

2020年11月20日 第47卷 第11期

China Animal Husbandry & Veterinary Medicine

(Monthly, Started in 1974)

Vol.47 No.11 November 20, 2020

主 管 中华人民共和国农业农村部

主 办 中国农业科学院北京畜牧兽医研究所

编辑出版 《中国畜牧兽医》编辑部

地 址 北京市海淀区圆明园西路2号

邮 编 100193

电 话 010-62816020 62811226 62810371

传 真 010-62811085

网 址 <http://www.chvm.net>

电子邮件 zgxsmy@caas.cn

印刷装订 北京科信印刷有限公司

国内发行 北京报刊发行局

订 购 处 全国各地邮电局

国外发行 中国国际图书贸易总公司

(北京399信箱)

国内定价 25元/期 300元/年

Superintended by Ministry of Agriculture and Rural Affairs, P. R. China

Sponsored by Institute of Animal Sciences, Chinese Academy of Agricultural Sciences (CAAS)

Published by Editorial Department of China Animal Husbandry & Veterinary Medicine

Address No.2 West Road Yuanmingyuan, Haidian, Beijing, China

Postcode 100193

Telephone 010-62816020 62811226 62810371

Fax 010-62811085

Website <http://www.chvm.net>

E-mail zgxsmy@caas.cn

Issued by Beijing Kexin Printing Co., Ltd

Subscription Domestic Post Office

Issued Abroad by International Book Trading Corporation

P.O.Box 399, Beijing, P.R.China

ISSN 1671-7236 邮发代号: 2-215 国内外公开发行

CN11-4843/S 广告发布登记证号: 京海工商广登字20170085号

ISSN 1671-7236

