



2019年第4期总171期

## 动物营养专题

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## ▶ 前沿资讯

### 1. 勃林格殷格翰泰州工厂国产化猪疫苗上市

**简介:** 2019年1月20日, 全球领先的动保企业勃林格殷格翰宣布, 在江苏泰州中国医药城投资建立的动物疫苗生产基地(以下简称:泰州工厂)生产的猪用疫苗Ingelvac PRRSMLV蓝福莱(猪繁殖与呼吸综合征活疫苗)正式供应中国市场。从进口到国产化的转变将大幅缩短疫苗从生产到终端牧场的时间。勃林格殷格翰是全球猪疫苗领域的领导者。此前供应中国市场的猪用疫苗产品均为进口产品, 由勃林格殷格翰美国工厂生产。为了进一步稳定中国产品供应和贴近本地客户需求, 勃林格殷格翰践行“植根中国、服务中国”承诺, 于2013年在江苏泰州动工兴建世界一流的动物疫苗生产基地。该基地一期工程总投资8500万欧元, 于2016年建设完成, 采用符合甚至高于美国工厂标准的生产设备、生产工艺、质量管理体系和人员配备。该工厂的建造标准同时符合欧盟GMP标准, 并已于2017年12月通过中国农业部GMP认证。目前, 泰州工厂的疫苗年产能可达1亿2500万头份, 率先实现本地化生产的是蓝福莱猪用疫苗。

**来源:** 中国农业新闻网

**发布日期:**2019-01-21

**全文链接:**

[http://www.farmer.com.cn/jjpd/xm/xmdt/201901/t20190121\\_1428845.htm](http://www.farmer.com.cn/jjpd/xm/xmdt/201901/t20190121_1428845.htm)

### 2 . New research confirms that environmental stress during gestation can influence piglet health and mortality after birth (新的研究证实, 怀孕期间的环境压力会影响小猪的健康和出生后的死亡率)

**简介:** Furthermore, it shows that enriching the sow environment and diet in conventional systems can meaningfully improve sow welfare, piglet survival and performance. The research, conducted by the French National Institute for Agricultural Research (INRA) with funding from PROHEALTH, builds on previous work looking at the effects of gestational housing systems on maternal stress, piglet maturity and early survival. Compared to conventional systems with slatted floors, the earlier work found that enriched systems with straw bedding and more space per sow were associated with lower stress levels and piglet mortality, and improved maturity at birth.

**来源:** THE PIGSITE

**发布日期:**2019-01-14

**全文链接:**

<http://www.thepigsite.com/articles/5489/enriching-sow-environment-and-diet-improves-sow-welfare-early-piglet-survival/>

## ▶ 学术文献

### 1. 双重保留机理下液相色谱-质谱法直接分析18种氨基酸

**简介:** 摘要: 采用反相和阳离子交换双重保留机理, 不使用离子对和衍生化试剂, 建立了

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18种游离氨基酸的液相色谱-质谱联用直接分析方法。采用高效液相色谱-三重四极杆串联质谱 (HPLC-MS/MS) 系统, 使用OSAKA SODA CAPCELL PAK CR 1:4(150 mm×2.1 mm, 5 μm; SCX:C18=1:4) 色谱柱, 以0.1%甲酸 (A) -乙腈 (含0.1%甲酸) (B) -50mmol/L 甲酸铵 (C) 为流动相进行三元梯度洗脱, 对18种氨基酸进行分离检测, 可得到良好的分析结果。色谱峰面积精密度 (RSD) 范围0.7%~5.9%; 标准曲线线性关系良好 (R<sup>2</sup>=0.993~0.999); 对SD大鼠血清和尿液样品加样回收率范围为92.2%~113.6%。本方法流动相条件简单, 灵敏度高, 可用于血清和尿液中游离氨基酸分析, 为生物样品中氨基酸检测或其它复杂基质中氨基酸的检测提供了新的方法和思路。

**来源:** 分析化学

**发布日期:** 2019-01-21

**全文链接:**

<http://agri.ckcest.cn/file1/M00/06/5C/Csgk0FxFeSSAFw7nAAqspZ8VB6Y555.pdf>

## 2. 母猪妊娠后期和泌乳期饲料中添加小麦水解蛋白对初乳中氨基酸含量、生长因子和仔猪肠道发育的影响

**简介:** 摘要: 本试验旨在研究母猪妊娠后期和泌乳期饲料中添加小麦水解蛋白 (HWG) 对初乳中氨基酸含量、生长因子和仔猪肠道发育的影响, 为其在母猪饲料配制中的应用提供试验依据。试验选用3~4胎次、预产期相近的妊娠母猪33头, 随机分为3组, 每组11头母猪。对照组母猪饲喂基础饲料, 试验组母猪于妊娠第90天至泌乳第21天在基础饲料中分别添加1%和2% HWG, 所有饲料均等能等氮。结果发现: 1) 与对照组相比, 饲料中添加1%和2% HWG显著提高了15~21日龄仔猪的平均日增重和仔猪21日龄时的断奶体重 (P<0.05), 添加1% HWG显著提高了仔猪平均初生重 (P<0.05)。2) 与对照组相比, 饲料中添加1%和2% HWG显著提高了初乳中组氨酸、异亮氨酸、亮氨酸、赖氨酸、苏氨酸和胰岛素生长因子-I含量 (P<0.05), 添加1% HWG显著提高了初乳中天冬氨酸、谷氨酸、色氨酸和酪氨酸含量 (P<0.05), 添加2% HWG显著提高了初乳中甘氨酸、丝氨酸、胰岛素和表皮生长因子含量 (P<0.05)。3) 与对照组相比, 饲料中添加1%和2% HWG显著降低了断奶仔猪血清中的氨含量以及空肠中炎性细胞因子[白细胞介素 (IL)-8、IL-6、IL-1β 和肿瘤坏死因子-α (TNF-α)] 和回肠中炎性细胞因子 (IL-8和TNF-α) 的mRNA相对表达量 (P<0.05), 并显著提高了断奶仔猪十二指肠、空肠、回肠的绒毛高度和隐窝深度的比值 (P<0.05); 添加2% HWG显著提高了断奶仔猪血清中白蛋白含量 (P<0.05), 显著降低了断奶仔猪回肠中炎性细胞因子IL-6的mRNA相对表达量和回肠的隐窝深度 (P<0.05)。4) 与对照组相比, 饲料中添加1% HWG显著提高了断奶仔猪空肠紧密连接蛋白-4 (claudin-4) 的表达 (P<0.05), 添加2% HWG显著提高了断奶仔猪空肠紧密连接蛋白-3 (claudin-3)、claudin-4和闭合蛋白 (occludin) 的表达 (P<0.05)。综上所述, 母猪妊娠后期和泌乳期饲料中添加HWG可提高初乳中氨基酸和生长因子水平以及蛋白质的利用效率, 改善仔猪的肠道健康和促进生长发育。

**来源:** 动物营养学报

**发布日期:** 2019-01-02

**全文链接:**

<http://agri.ckcest.cn/file1/M00/06/5C/Csgk0FxFeK2AR-j8AApAXOL6DKU213.pdf>

## 3. Metabolomics characterization of colostrum in three sow breeds

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## and its influences on piglets' survival and litter growth rates (三种母猪初乳的代谢组学特征及其对仔猪存活率和产仔率的影响)

**简介:** Background: Colostrum is the first secretion produced by mammary glands during the hours immediately preceding and succeeding parturition. This secretion differs from milk and represents an essential vehicle of passive immunity, prebiotic compounds and growth factors involved in intestinal development. Most of the literature concerning colostrum composition refers mainly to human and cow; and little is known about pig colostrum metabolome and how it varies between pig breeds and different farrowing parity. Thus, the aim of the present research is to provide new information about pig colostrum composition and the associations between metabolites, the sows' breed and the survival and growth rates of their litters. Results: Colostrum samples were gathered from 58 parturitions of sows belonging to three different breeds chosen for their importance in Italian heavy pig production: 31 Large White, 15 Landrace and 12 Duroc respectively. The defatted and ultrafiltered colostrum samples were analysed using <sup>1</sup>H NMR spectroscopy. Principal Components Analysis (PCA) was assessed on the obtained spectra. In addition, using a Stepwise Regression and a Linear Regression analyses the metabolites named after the signals assignment were tested for their associations with piglets' performances. Twenty-five metabolites were identified, comprehending monosaccharides, disaccharides (such as lactose), organic acids (lactate, citrate, acetate and formate), nitrogenous organic acids (such as creatine) and other compounds, including nucleotides. PCA results evidence a clustering due to breed and season effects. Lactose was the main compound determining the assignment of the samples into different clusters according to the sow breed. Furthermore, some metabolites showed to be associated with piglets' performance and survival traits: acetate and taurine were positively related to litter weight gain and piglets' survival rate, respectively, while dimethylamine and cis-aconitate were linked to new-borns' impaired ability to survive. Conclusions: The results obtained suggest that colostrum composition is affected by breed, which, together with environmental conditions, may cause changes in colostrum metabolites content with possible consequences on piglets' performances. Among the identified metabolites, acetate, taurine, dimethylamine and cis-aconitate showed consistent associations with piglets' survival rate and litter weight gain, implying that these compounds may affect new-borns' ability to survive.

**来源:** Journal of Animal Science and Biotechnology

**发布日期:** 2018-09-15

**全文链接:**

[http://agri.ckcest.cn/file1/M00/06/5C/Csgk0FxFdzWAMPW1ABftU7r\\_Woc574.pdf](http://agri.ckcest.cn/file1/M00/06/5C/Csgk0FxFdzWAMPW1ABftU7r_Woc574.pdf)