



2022年第24期总347期

## 动物营养专题

### 本期导读

#### ▶ 前沿资讯

1. 年出栏近7亿头，产肉5591万吨！玉米、大豆终于不再被进口卡脖子

#### ▶ 学术文献

1. 非洲猪瘟病毒内囊膜蛋白p17与宿主互作蛋白的初步鉴定
2. Ileum组织单细胞m RNA测序阐明了仔猪断奶相关病理生理变化的细胞结构
3. 生长猪饲料氨基酸释放动力学与氮沉降的关系
4. 非常规饲料原料营养价值及其在生猪高效养殖中的应用策略

中国农业科学院农业信息研究所  
联系人：熊本海；郑姗姗；顾亮亮  
联系电话：010-62816017  
邮箱：[agri@ckcest.cn](mailto:agri@ckcest.cn)  
2022年6月13日

更多资讯 尽在农业专业知识服务系统：<http://agri.ckcest.cn/>

## ▶ 前沿资讯

### 1. 年出栏近7亿头，产肉5591万吨！玉米、大豆终于不再被进口卡脖子

简介：近期，养殖端出栏状况持稳，从密集收储结果看，市场信心一致向好。《中国农业展望报告(2022-2031)》显示，未来10年，玉米、大豆、猪肉产量将稳定，对外进口将下降，2031年，中国生猪出栏量将达6.99亿头！

来源：中国饲料行业信息网

发布日期:2022-06-06

全文链接:

<http://agri.ckcest.cn/file1/M00/10/05/Csgk0GKdauCAGTN5ABDNWtzol10254.pdf>

## ▶ 学术文献

### 1. 非洲猪瘟病毒内囊膜蛋白p17与宿主互作蛋白的初步鉴定

简介：非洲猪瘟病毒(African swine fever virus, ASFV)的感染导致猪的死亡率高达100%，给养猪业造成毁灭性灾难。因此，开展针对ASFV感染复制的研究有着重大的意义。目前发现ASFV有超过150个开放阅读框，其中D117L基因编码的内囊膜蛋白p17参与病毒二十面体结构的形成，但是对p17调控宿主细胞功能的机制知之甚少。研究通过免疫沉淀技术联合蛋白质谱分析，初步筛选出与ASFV p17潜在的宿主互作蛋白。通过进一步免疫共沉淀技术和激光共聚焦实验确认了p17与线粒体膜蛋白TOMM70、热休克蛋白HSPA8互作。该研究为进一步探索p17在ASFV感染过程中的功能提供了重要信息。

来源：中国知网

发布日期:2022-05-30

全文链接:

<http://agri.ckcest.cn/file1/M00/10/05/Csgk0GKdlpaAA4R1ABIZjH0hGr4141.pdf>

### 2 . Ileum tissue single-cell mRNA sequencing elucidates the cellular architecture of pathophysiological changes associated with weaning in piglets (Ileum组织单细胞mRNA测序阐明了仔猪断奶相关病理生理变化的细胞结构)

简介：Background: In mammals, transitioning from sole milk uptake to the intake of solid feed results in dramatic developmental changes in intestinal function and immunological status. In fact, weaning stress is often accompanied by intestinal inflammatory processes. To develop effective intervention strategies, it is necessary to characterize the developmental pattern and immune response that occurs on weaning, as we have done in this study for piglets. Results: To comprehensively delineate cell heterogeneity in ileum tissues and the underlying mechanisms in weaning-induced intestinal inflammation of piglets, we have analyzed the transcriptomes of 42,149 cells from ileum mucosa of normally suckling and post-weaned piglets. There were 31 cell subtypes including epithelial, stromal, and immune cells.

更多资讯 尽在农业专业知识服务系统:<http://agri.ckcest.cn/>

A bifurcating trajectory was inferred to separate secretory and absorptive lineages. Integrated cross-species datasets showed well-conserved cellular architectures and transcription signatures between human and pig. Comparative analyses of cellular components, cell-cell communications, and molecular states revealed that T cell subpopulations were significantly altered in weaned piglets. We found that T helper (Th) 17 functional plasticity across changes in the cytokine milieu and the enrichment of granzyme B (GZMB)-expressing cytotoxic T cells potentially exacerbate mucosal inflammation via mitochondrial dysfunction in epithelial cells. Conclusions: Our work has elucidated the single-cell molecular characteristics of the piglet ileum before and after weaning. We have provided an atlas that portrays the landscape of the intestinal pathophysiological inflammatory process associated with weaning, finding a level of conservation between human and pig that support the use of piglets as a model for human infants.

来源: 中国知网

发布日期: 2022-05-30

全文链接:

<http://agri.ckcest.cn/file1/M00/03/33/Csgk0Yb0SRyABOPZAR2fvuctQ6A274.pdf>

### **3 . Relationship between dietary amino acid release kinetics and nitrogen deposition in growing pigs (生长猪饲料氨基酸释放动力学与氮沉降的关系)**

简介: Although the protein content of swine diets is formulated based on the ileal digestibility of protein and amino acids (AA) under current nutrition requirements, the nitrogen utilization efficiency of swine varies based on protein source, which may be related to AA release kinetics. In this experiment, a 2 × 2 factorial arrangement with casein (CAS)-enriched or corn gluten meal (CGM)-enriched protein sources at different digestible crude protein levels (normal [N], 13%; and low [L], 11%) were applied to 24 crossbred (Duroc × Landrace × Yorkshire) growing pigs (average body weight = 43.3 ± 3.5 kg) in 4 treatments (N.CAS, L.CAS, N.CGM, L.CGM, respectively) to investigate the effects of AA release kinetics on nitrogen deposition in growing pigs. Standardized ileal digestible AA in all diets were balanced by adding individual AA to meet the nutrient requirements. The AA release kinetics were detected in vitro by measuring the hydrolysis of various protein diets under pepsin and trypsin conditions. The results demonstrated that the time of AA release peak in the CGM diet was 12 h later than that in the CAS diet. The synchronization indices of dietary AA release in N.CAS, N.CGM, L.CAS, and L.CGM were 23.73%, 29.37%, 23.40%, and 26.07%, respectively. The N.CGM had the poorest AA release synchronism while the N.CAS had the greatest among the 4 diets. However, within the pigs, L.CAS and N.CGM showed the highest (81.08%) and lowest (73.54%) nitrogen biological values, respectively, despite the standard ileal digestible AA levels being equal for all diets. These results indicate that the release kinetics of dietary AA had great effect on nitrogen deposition. To optimize nitrogen deposition, AA release kinetics and composition should be taken into consideration when formulating diets for growing pigs.

来源: 中国知网

发布日期: 2022-05-26

更多资讯 尽在农业专业知识服务系统: <http://agri.ckcest.cn/>

全文链接:

<http://agri.ckcest.cn/file1/M00/10/05/Csgk0GKdmSOAKZS5AA7U1XEfbh0028.pdf>

#### 4. 非常规饲料原料营养价值及其在生猪高效养殖中的应用策略

**简介:** 玉米、豆粕是我国猪禽饲料中主要组成原料,其在配方中占比约60%~70%。2021年我国大豆和玉米进口量分别为9 652万吨和2 835万吨,大豆和玉米进口依赖性已成为制约我国畜牧业可持续发展的重要因素。同时,我国非常规饲料原料资源丰富,充分利用非常规饲料原料配制多元化饲料配方是减少玉米和豆粕饲用比例的重要技术手段。然而,非常规饲料原料通常存在抗营养因子含量高、易污染真菌毒素和氨基酸不平衡等问题,限制了其在生猪养殖中的应用。本文从饲料原料营养价值精准评价、饲料加工与预处理技术、生物酶技术、营养素平衡技术等方面概述了提高非常规饲料原料在生猪高效养殖中利用效率的策略,为降低配方中玉米、豆粕比例、提高生猪养殖效率提供科学依据。

**来源:** 中国知网

**发布日期:**2022-04-25

全文链接:

<http://agri.ckcest.cn/file1/M00/03/33/Csgk0Yb0IZeATxLzAB9yRBomzw8671.pdf>