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前沿资讯

1．找到了！这个基因让水稻“多快好省”

简介：既能早熟又能高产是水稻育种研究的主攻方向之一。中国科学院遗传与发育生物学研究所与四川农业大学等单位合作，找到了水稻的一个关键基因，它兼顾早熟和高产两方面优势，具有资源高效利用的显著特征。相关论文8月27日在线发表于美国《国家科学院院刊》。

来源：中国科学报

发布日期:2019-08-29

全文链接:

http://www.cas.cn/cm/201908/t20190829_4712048.shtml

2．水稻抗稻瘟病钙通道蛋白调控分子机制揭示

简介：据中国农科院最新消息，该院作物科学研究所万建民院士团队克隆了调控水稻先天免疫的新基因OsCNGC9，并对其影响水稻苗期稻瘟病抗性的分子机制进行了深入研究。相关研究成果在线发表于《细胞研究》。　　该研究建立了一条从病原菌识别到钙离子通道激活的免疫信号传导途径，填补了植物模式触发的免疫反应中缺失的重要一环，也为利用OsCNGC9基因进行水稻抗病遗传改良提供了理论基础。

来源：科技日报

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http://www.cas.cn/kj/201908/t20190827_4711606.shtml

3．遗传发育所在水稻穗发芽机制研究中取得进展

简介：水稻、小麦、玉米等禾谷类作物是重要的粮食作物，由于在驯化的过程中缺乏对收获期休眠的关注，导致这些作物种子在收获期遭遇高温高湿的条件时其籽粒会在穗上萌发，又称为穗发芽（Pre-harvest sprouting，PHS）。穗发芽不仅会造成粮食作物减产和食用品质下降，更为重要的是，穗发芽严重影响了作物制种质量，是影响粮食作物的重要灾害。据报道，穗发芽直接造成的面包小麦平均年损失超过10亿美元，统计表明，由于中国南方水稻收获季节常常遭遇高温多雨，常规水稻有约6%的播种面积，而杂交水稻则高达20%的面积具穗发芽发生。因此，揭示穗发芽的分子调控机制，并通过遗传改良来培育穗发芽抗性品种是解决这一问题的可行方法。

来源：遗传与发育生物学研究所

发布日期:2019-08-26

全文链接:

http://www.cas.cn/syky/201908/t20190823_4711161.shtml

学术文献

1．Identification of S23 causing both interspecific hybrid male

sterility and environment-conditioned male sterility in rice(引起水稻种间杂交雄性不育和环境条件雄性不育的s23鉴定)

简介：Background: Oryza glumaepatula represents an important resource of genetic diversity that can be used to improve rice production. However, hybrid sterility severely restricts gene flow between Oryza species, and hinders the utilization of distant heterosis in hybrid rice breeding. Results: In order to fully exploit the beneficial genes of O. glumaepatula and facilitate the conservation of these gene resources, a set of chromosome single-segment substitution lines (SSSLs) was developed using an indica variety HJX74 as the recurrent parent and an accession of O. glumaepatula as the donor parent. During the process of SSSLs development, S23, a locus conferring hybrid male sterility between O. sativa and O. glumaepatula, was identified and fine mapped to 11.54 kb and 7.08 kb genomic region in O. sativa and O. glumaepatula, respectively, encoding three and two candidate ORFs, respectively. qRT-PCR and sequence analysis excluded one common ORF as the candidate gene. In addition, hybrid male sterility caused by S23 was environment-sensitive, and could be observed only in natural short-day (NSD). Conclusion: Identification and candidate genes analysis of S23 in this study provides a valuable example to study the crosstalk between interspecific F-1 hybrid male sterility and environment-conditioned male sterility in rice, facilitates reserving and utilizing favorable genes or alleles of wild Oryza species, and allows for a more efficient exploitation of distant heterosis in hybrid rice breeding.

来源：RICE

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全文链接:

http://agri.ckcest.cn/file1/M00/0E/81/CsgkOF1w2mqASpmsADDtls0oUrw435.pdf

2. Association analysis uncovers the genetic basis of general combining ability of 11 yield-related traits in parents of hybrid rice(关联分析揭示了杂交水稻亲本11个产量相关性状综合配合力的遗传基础)

简介：hybrid rice through optimal crossing design. Moreover, favourable GCA alleles should be incorporated in the parental genomes through marker-assisted selection experiments, and the parental lines carrying more alleles could be utilized in breeding as superior parents for developing rice hybrids of desirable characteristics.

来源：AOB PLANTS

发布日期:2019-02-01

全文链接:

http://agri.ckcest.cn/file1/M00/0E/81/CsgkOF1xvhSAVUK9AAQ4rh5ZiLY232.pdf