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农业生物技术专题

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1．创造一种功能性的单染色体酵母

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2018年8月27日

前沿资讯

1．历经13年 小麦基因组图谱绘制完成

简介：经过１３年努力，来自２００多名科学家终于绘制完成完整的小麦基因组图谱。这项“里程碑”工作为培育产量更高、营养更丰富、气候适应性更强的小麦品种奠定基础。国际小麦基因组测序协会１６日在美国《科学》杂志上发表论文说，他们以一种叫做“中国春”的小麦遗传研究模式品种为材料，研究整合了２１条小麦染色体参考序列，获得１０７８９１个基因的精确位置、超过４００万个分子标记以及影响基因表达的序列信息。国际小麦基因组测序协会２００５年成立，在６０多个国家拥有会员。该机构执行主任凯利·埃弗索尔在一份声明中说，绘制小麦基因组图谱是许多人共同努力的结果，曾被视为“不可能完成的任务”。这种绘制参考序列的方法为今后大型、复杂的植物基因组测序工作提供范例，再次证明通过国际合作推进粮食安全的重要性。同日，还有多篇利用这一基因组图谱开展科研的相关论文在不同科学期刊上发表，其中一些论文研究了与高温、干旱和小麦疾病相关基因的表达方式。小麦是全球约３０％人口的主要粮食，提供了２０％的人类热能和蛋白质消耗。小麦与水稻和玉米并称全球三大粮食作物，但后两者的基因组图谱绘制工作已完成多年。小麦的“基因密码”之所以破译困难，是因为小麦基因组庞大而复杂，包含约１６０亿个碱基对，是人类基因组的5倍多。另外，小麦有3套亚基因组，其重复序列含量达８５％，基因相似度高，给区分和排序带来挑战。科学家相信，小麦基因组图谱的绘制完成，可帮助培育出抗旱、抗病和高产优质的小麦品种。国际小麦基因组测序协会指出，全球人口到２０５０年预计将达到９６亿，小麦产量需每年增长１．６％才能满足未来需求，而这种增长必须主要通过改良作物性状而非增加种植面积来实现。

来源：科学网

发布日期:2018-08-17

全文链接:

http://news.sciencenet.cn/htmlnews/2018/8/416671.shtm

相关专利

1．Chemically Ligated RNAs For CRISPR/Cas9-LgRNA Complexes As Antiviral Therapeutic Agents(用于CRISPR／Cas9-IgRNA复合物的化学连接的RNA作为抗病毒治疗剂)

简介：Provided herein are chemically ligated guide RNA oligonucleotides (lgRNA) which comprise two functional RNA modules (crgRNA and tracrgRNA) joined by non-nucleotide chemical linkers (nNt-linker), their complexes with CRISPR-Cas9, preparation methods of Cas9-lgRNA complexes, and their uses for prevention and treatments of HIV infections in humans. Also disclosed are processes and methods for preparation of these compounds.

来源：国家知识产权局

发布日期:2018-08-16

全文链接:

http://agri.ckcest.cn/ass/989e8b66-1a03-40dc-946a-d92e0ccf5da4.pdf

2. Insecticidal proteins and methods of their use（杀虫蛋白及其使用方法）

简介：Compositions and methods for controlling pests are provided. The methods involve transforming organisms with a nucleic acid sequence encoding an insecticidal protein. In particular, the nucleic acid sequences are useful for preparing plants and microorganisms that possess insecticidal activity. Thus, transformed bacteria, plants, plant cells, plant tissues and seeds are provided. Compositions are insecticidal nucleic acids and proteins of bacterial species. The sequences find use in the construction of expression vectors for subsequent transformation into organisms of interest including plants, as probes for the isolation of other homologous (or partially homologous) genes. The pesticidal proteins find use in controlling, inhibiting growth or killing Lepidopteran, Coleopteran, Dipteran, fungal, Hemipteran and nematode pest populations and for producing compositions with insecticidal activity.
来源：国家知识产权局
发布日期:2018-06-28
全文链接:
http://agri.ckcest.cn/ass/994b4fd0-f0dc-4062-a19a-030f85134d1f.pdf

3. Biologicals and Their use in plants（生物学及其在植物中的应用）

简介：Entomopathogenic fungal strains compositions and methods of using the strains for reducing overall insect damage.
来源：国家知识产权局
发布日期:2018-08-09
全文链接:
http://agri.ckcest.cn/ass/12c586b1-189c-435f-845d-107edfe96562.pdf

学术文献

1. Creating a functional single-chromosome yeast（创造一种功能性的单染色体酵母）

简介：Eukaryotic genomes are generally organized in multiple chromosomes. Here we have created a functional singlechromosomeyeast from a Saccharomyces cerevisiae haploid cell containing sixteen linear chromosomes, by successiveend-to-end chromosome fusions and centromere deletions. The fusion of sixteen native linear chromosomes into a singlechromosome results in marked changes to the global three-dimensional structure of the chromosome due to the loss of all centromere-associated inter-chromosomal interactions, most telomere-associated inter-chromosomal interactionsand 67.4% of intra-chromosomal interactions. However, the single-chromosome and wild-type yeast cells have nearlyidentical transcriptome and similar phenome profiles. The giant single chromosome can support cell life, although thisstrain shows reduced growth across environments, competitiveness, gamete production and viability. This syntheticbiology study demonstrates an approach to

exploration of eukaryote evolution with respect to chromosome structureand function.
来源：Nature期刊
发布日期:2018-08-27
全文链接:
http://agri.ckcest.cn/ass/ff6341e0-3335-4e78-92e5-223a2a9750da.pdf