



All Databases PubMed Nucleotide Protein Genome Structure OMIM P
 Search PubMed for

Limits Preview/Index History Clipboard Details

Display Abstract Show 20 Sort by Send to

All: 1 Review: 0

About Entrez
 NCBI Toolbar

Text Version

Entrez PubMed

Overview
 Help | FAQ
 Tutorials
 New/Noteworthy
 E-Utilities

PubMed Services

Journals Database
 MeSH Database
 Single Citation Matcher
 Batch Citation Matcher
 Clinical Queries
 Special Queries
 LinkOut
 My NCBI

Related Resources

Order Documents
 NLM Mobile
 NLM Catalog
 NLM Gateway
 TOXNET
 Consumer Health
 Clinical Alerts
 ClinicalTrials.gov
 PubMed Central

1: [Nat Biotechnol.](#) 2005 Jan;23(1):75-81. Epub 2004 Dec 5.

[Related Articles](#), [Link](#)



A reverse genetic, nontransgenic approach to wheat crop improvement by TILLING.

[Slade AJ](#), [Fuerstenberg SI](#), [Loeffler D](#), [Steine MN](#), [Facciotti D](#).

Anawah Inc., 1102 Columbia Street, Suite 600, Seattle, Washington 98104, USA. ann@anawah.com

We report the use of TILLING (targeting induced local lesions in genomes), a reverse genetic, nontransgenic method, to improve a quality trait in a polyploid crop plant. Waxy starches, composed mostly of amylopectin, have unique physicochemical properties. Wheat with only one or two functional waxy genes (granule-bound starch synthase I, or GBSSI) produces starch with intermediate levels of amylopectin. We have identified 246 alleles of the waxy genes by TILLING each homoeolog in 1,920 allohexaploid and allotetraploid wheat individuals. These alleles encode waxy enzymes ranging in activity from near wild type to null, and they represent more genetic diversity than had been described in the preceding 25 years. A line of bread wheat containing homozygous mutations in two waxy homoeologs created through TILLING and a preexisting deletion of the third waxy homoeolog displays a near-null waxy phenotype. This approach to creating and identifying genetic variation shows potential as a tool for crop improvement.

PMID: 15580263 [PubMed - indexed for MEDLINE]

Display Abstract Show 20 Sort by Send to

[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NID](#)

[Department of Health & Human Services](#)

[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

Mar 28 2006 04:45:23