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Research Information

# Verification of the identity of the Chinese Spring ditelosomic stocks Dt7DS and Dt7DL.[1]

**B.R. Friebe*, E.N. Jellen, and B.S. Gill** Wheat Genetics Resource Center and Department of Plant Pathology, Throckmorton Hall, Manhattan, Kansas 66506-5502, U.S.A.

The 'Chinese Spring'(CS) aneuploid series produced by Dr. E.R. Sears (1954) is an invaluable tool for allocating genes and markers to specific chromosomes and chromosome arms. The identity of most of these lines has been verified by chromosome banding analysis. This process exposed a discrepancy in the ditelosomic stocks Dt7DS and Dt7DL. All lines designated as either Dt7DS or Dt7DL obtained from different institutions (University of Columbia, Missouri, USA; University of Riverside, California, USA; Kyoto University, Japan; Plant Breeding Institute, Cambridge, UK, and Technical University of Munich, Germany) were identified as Dt7DS. The 7DS arm is homoeologous to 7AS and 7BS arms, although it is the physically longer arm (Werner et al. 1991). Chromosome arm 7DS has two diagnostic C-bands at a telomeric and a subtelomeric location (Fig. 1, upper arm in complete chromosome 7D and telosome shown second from left) (Gill et al. 199 1). In addition, this arm also has an in situ hybridization (ISH) site with the NOR rDNA probe pTa71, which contains the 18S, 5.8S, and 26S rRNA genes (Fig. 2, telosome on the right) (Mukai et al. 1991). The C-banding pattern of the 7DL arm homoeologous to 7AL and 7BL, which is the physically shorter arm, is different in having one proximal, one interstitial, and one telomeric C-band (lower arm in complete chromosome 7D and telosome shown third from left) and also lacks the pTa71 ISH site. Sears and Sears (1978) sampled 2.000 gametes, but failed to recover the Dt7DL. The stock labeled Dt7DL was originally isolated by Kerber in 'Canthach' wheat (see Sears and Sears, 1978) and the 7DS telosome was transfered to Chinese Spring (Sears, unpublished data). However, all the CS ditelosomic stocks analyzed by C banding and ISH analyses had the genetically short arm of chromosome 7D in the form of a pair of telosomes. Evidently, the 7DS telosomes are present in the CS double ditelosomic stock dDt7D, but information on the production of this line is not available. We are now attempting to isolate the Dt7DL line from the dDt7D stock.

*Corresponding author, E-mail: friebe@ksu.edu

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**References**

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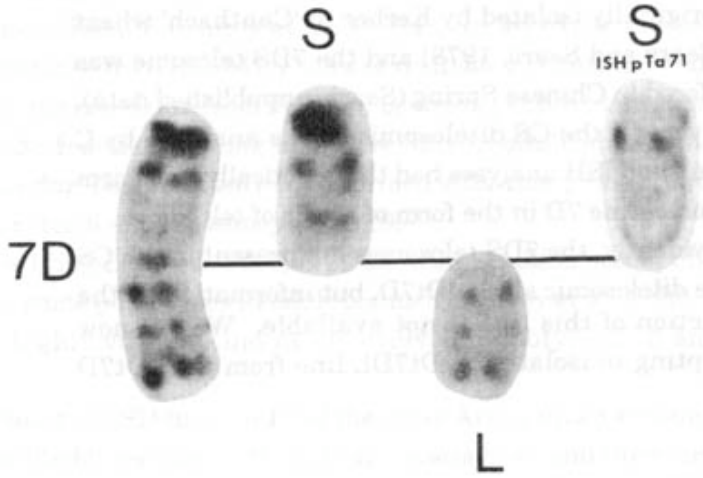


**Fig. 1.** C-banding and *in situ* hybridization patterns using the NOR rDNA probe pTa71 of chromosome 7D and its derived telosomes, from left to right: C-banding pattern of 7D (with the physically longer arm at top), telosome 7DS, telosome 7DL (from the dDt7D stock) and pTa71 ISH pattern of the telosome 7DS. All ditelosomic 7D stocks presently available had telosomes with C-banding and pTa71 ISH patterns identical to 7DL.

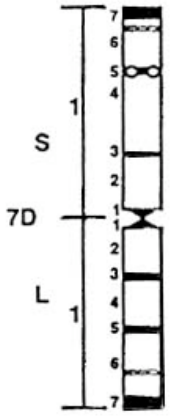


**Fig. 2.** Idiogram of chromosome 7D Landmark C-bands are shown in black, inconsistently observed minor bands are hatched and the pTa71 ISH site is shown as open circles and coincides with C-band 7DS1.5.