Perkins, D. D. and E. G. Barry.

mation on chromosome rearrangements.

This note consists of addenda to our paper in Advances in Genetics 19 (1977), where information is summarized on each of 167 rearrangements in Neurospora crassa. New information is given below on 24 of these rearrangements, and eight additional rearrangements are described: T54M117, P73B159, ALS122, ALS132, Y155M64, ALS172, EB2501, and P3340.

T(IV:V)ARIIr

The VR break point is between at-3 and cot-2.

Infor-

T(V-- IV)AR33

Cytological observations indicate a break point near the tip of chromosome 2S (linkage group VL), translocating the nuclealus organizer to the tip of another chromosome. Duplications should thus contain two organizers.

T(I; VI)T51M158, T(I; VI)T51M166

Fewer than 50% of ascospores are black in the intercross, indicating that the two are structurally different although they grose in the same experiment.

Tp(IR > IR)T54M94

ad-9 is not covered in duplications.

T(V:VI)T54M117 un

Reciprocal translocation. VR (linked al-3) interchanged with VI (near ylo-1). Slow growing, variable heat-sensitive, often not progressing beyond the germ tube after ascospore germination. T x N ascospores 50% black; unordered asci 22% 8:0, 2 % 6:2, 53 % 4:4, 6 % 2:6, 16 % 0:8 (Black: White ascospores, 141 asci). Origin: 74A, UV, Aberration detected and analyzed by Perkins.

T(II; III)T54M140b

The 11 break is probably between bal and arg-5, based on coverage of bal but not arg-5 in presumed disomics.

T(II-VII)P73B159 wc

Duplication-generating translocation. Involves II (near arg-5) and VII (probably at wc). Phenotype wc. T x T slightly fertile. T x N ascospores 50% black; unordered asci 34% 8:0, 11% 6:2, 18% 4:4, 5% 2:6, 32% 0:8 (Black: White ascospores, 199 asci). Origin: sn cr; al-3 inl, EMS. Detected and analyzed by Perkins. Duplications are slow growing, barren in crosses by non-duplication. FGSC 3039, 3040.

T(I;V)ALS111

The VR break point is between or near pab-2 and pyr-6.

T(I - III)Y112M4i ad-3B

cys-13 is not covered in duplications,

T(IV:VII)ALS122

Reciprocal translocation, IV (near pdx) interchanged with VII (near wc). Wild phenotype. Homozygous-fertile. TxN ascospores 50% black; unordered asci 34% 8:0, 7% 6:2, 11% 4:4, 8% 2:6, 40% 0:8 (Black: White ascospores, 153 asci). Origin: rg cr a UV. Detected and analyzed by Perkins. Original strain probably contained a dominant meiotic mutant (D.A. Smith unpublished), from which the translocation has been separated. FGSC 2986, 2987.

T(II:11)ALS132

Reciprocal translocation. II (linked arg-5) interchanged with III (finked acr-2). Wild phenotype. Homozygous fertile. T x N ascospores 50% black; unordered asci 30% 8:0, 5% 6:2, 27% 4:4, 6% 2:6, 32% 0:8 (Black: White ascospores, $\overline{328}$ asci). Origin: rg cr a, UV. Detected and analyzed by Perkins.

T(IV - I)NM152

pho-3 is covered in duplications (Nelson et al. 1976 Genetics 84, p. 187). arg-2 is not covered.

T(I: II: III)Y155M64 ad-3A

Complex rearrangement. Involves IR (at ad-3a), 11R (near fl) and 111 (finked acr-2). ad-3A phenotype. T x N ascospores 10 to 20% black; unordered asci 0% 8:0, 2% 6:2, 17% 4:4, 33% 2:6, 48% 0:8 (Black:White ascospores, 64 asci). Origin: 74A, X-rays. Called A9 by de Serres. Chromosome rearrangement inferred from anomalous crossing over in IR (de Serres 1971 Genetics 68:384). Break points identified and further analysis by Perkins. Barren duplications of two types are produced in crosses by Normal. FGSC 3037, 3038.

T(IV - VI)ALS159

pho-3 is covered in duplications (Nelson et al. 1976 Genetics 84, p. 187), mtr is covered, psi is not

T(I; II) ALS 172

Reciprocal translocation. IR (near un-18) translocated to IIL (left of ro-3). Wild phenotype. Homozygous-fertile. Tx N ascospores 50% black; unordered asci 20% 8:0, 0% 6:2, 63% $\overline{4.4}$, 5% 2:6, 13% 0:8 (Black:White ascospores, $\overline{158}$ asci). Origin: rg cr a UV. Detected and analyzed by Perkins. FGSC 3035, 3036.

T(IV-VII)ALS175

Involves VIIR (near arg-10) and IVR (near pan-1). This duplication-producing rearrangement is not a simple insertional, and may involve another chromosome.

T(II → V)ALS176

un-5 and het-d are covered in duplications. The simple duplications cover all known IIR markers. In addition, IIL markers are sometimes found to be heterozygous, supposedly in disomics from 3:1 segregations. These occur with frequencies of several percent. If het-c in IIL is heterozygous, a class of brown-flot inhibited duplications is seen, which are distinguishable from het-D het-d duplications (in IIR) by their coarser morphology and surface growth, with browning trunk hyphae on a GCP agar surface. In contrast, D/d duplications have finer subsurface hyphae. Translocation stocks FGSC 2414, 3014 are het-D; FGSC 3013, 2415 are het-d. (All four are het-C and can readily be used to test the het-d constitution of normal laboratory strains, which are mostly het-C.)

T(II → [IV; V]) AR179

Cytologically, one break point is observed to be in chromosome 2S (linkage group VL) proximal to the nucleolus organizer. AR179 should then be a good genetic marker for VL.

T(I → V)ALS182

Quasiterminal translocation. A IR segment involving met-6 and IR markers distal to it is translocated to the VL tip (satellite). Cytologically, the translocated segment of $\overline{1}$ is seen abutting the nucleolus at pachynema. met-6 is covered in $Dp(IR \rightarrow VL)AL5182$ duplications from the cross x Normal. Viable duplications are also produced by intercrosses of AL5182 with $\overline{1(IR \rightarrow VL)AR190}$, which shares the same break point at the VL tip; these intercross duplications include his-2 through thi-1 but do not include un-2 proximally or met-6 distally. FGSC 2973, 2974.

T(I → V)AR190

Generates viable duplications from intercrosses with $\frac{T(I \rightarrow V)ALS182}{T(I \rightarrow V)ALS182}$, including the loci his-2 through thi-1, but not un-2 or met-6.

$T(I \rightarrow ;II; VII)AR217$

FGSC 3033, 3034.

$T(III \rightarrow ;III;VI)D305$

ro-2 is not covered in duplications.

<u>T(IV</u> → I)B362i

Fertility is reduced in I x I crosses. FGSC 2935, 2988. met-1 (in IVR) is covered in duplications. Markers shown not covered: cut, psi, pyr-1,pdx, pt, col-4, cot-1.

T(III:VI)B362r

FGSC 3011, 3012.

T(II → IV)R2394

A IIL segment near <u>pyr-4</u> is translocated to IV. Markers shown not covered in duplications: <u>pi</u>, <u>het-6</u>, <u>pyr-4</u>, <u>ro-3</u>, <u>het-c</u>, <u>thr-2</u>, <u>bal</u>, <u>fl</u>.

T(I; II) EB2501

Reciprocal translocation. I (near mt) interchanged with II (near bal). Wild phenotype. Homozygous fertile. I x N ascospores more than 50% black; unordered asci 43% 8:0, 14% 6:2, 30% 4:4, 3% 2:6, 11% 0:8 (Black:White ascospores, 101 asci). Excess black spores and 6:2 asci are unexplained. (Germination of black spores has been close to 100% in some crosses, so inclusion of inviable duplication-deficiency products in a pigmented spore does not occur.) Cytology: Chromosome 1 is aberrant; the second aberrant chromosome was not identified. Origin: Separated from a stock of met-1 (38706). Detected and analyzed by Barry.

T(II; VI) P3340

Reciprocal translocation. [I (linked $\underline{arg-5}$) interchanged with VI (linked $\underline{ylo-1}$). Wild phenotype. $\underline{T} \times \underline{N}$ ascospores 50% black; unordered asci 26% 8:0, 2% 6:2, 47% 4:4, 1% 2:6, 24% 0:8 (Black:White ascospores, 300 asci). Origin: Found in an exceptional perithecium that shot 50% white ascospores, in an otherwise normal cross of Adiopodoume \underline{A} (FGSC 430) \underline{x} $\underline{fl}^{\underline{D}}$ \underline{a} . Detected and analyzed by Perkins.

In(IL → [R)H4250

The following Inversion stocks contain the tol suppressor of A/a vegetative incompatibility: FGSC 1947, 3032.

T(I → III)4540 nic-2

rg is not covered in duplications.

T(I;V)P5166

The VR break point is near pyr-6.

T(VI → [1;111])Y16329

un-4 is covered in duplications.

T(I → II)39311

csp is covered in duplications. The following translocation stocks contain the tol suppressor of A/a vegetative incompatibility: FGSC 2985, 2976.