

# Supplementary Tables & Figures

## Modelling sex-specific crossover patterning in Arabidopsis

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**Table S1. Chromosome metrics and beam-film parameters**

|     |                  |      |       | Beam-film parameters |                |                |                 |                 |                 |                   |                    |                |                             |                              |                              |                 |                 |                |                     |  |
|-----|------------------|------|-------|----------------------|----------------|----------------|-----------------|-----------------|-----------------|-------------------|--------------------|----------------|-----------------------------|------------------------------|------------------------------|-----------------|-----------------|----------------|---------------------|--|
| Chr | Sex              | Mb   | μm SC | N <sup>#</sup>       | B <sup>#</sup> | E <sup>#</sup> | Bs <sup>#</sup> | Be <sup>#</sup> | Bd <sup>#</sup> | Smax <sup>^</sup> | Bsmax <sup>#</sup> | A <sup>#</sup> | L <sub>p</sub> <sup>^</sup> | L <sub>Mb</sub> <sup>*</sup> | L <sub>Sc</sub> <sup>*</sup> | cL <sup>^</sup> | cR <sup>^</sup> | M <sup>#</sup> | T2prob <sup>^</sup> |  |
| 1   | M                | 30.4 | 49.2  | 64                   | 1              | 0.6            | 0.475           | 0.5             | 0.01            | 8.5               | 1                  | 1              | 0.65                        | 19.8                         | 32.0                         | 0.8             | 1               | 1              | 0.005               |  |
| 2   | M                | 19.7 | 31.9  | 41                   | 1              | 0.6            | 0.175           | 0.225           | 0.01            | 7.5               | 1                  | 1              | 0.85                        | 16.7                         | 27.1                         | 0.3             | 0.9             | 1              | 0.0065              |  |
| 3   | M                | 23.5 | 37.9  | 49                   | 1              | 0.6            | 0.5             | 0.65            | 0.01            | 5.5               | 1                  | 1              | 0.7                         | 16.4                         | 26.6                         | 0.4             | 0.9             | 1              | 0.008               |  |
| 4   | M                | 18.6 | 30.1  | 39                   | 1              | 0.6            | 0.125           | 0.225           | 0.01            | 4                 | 1                  | 1              | 0.6                         | 11.2                         | 18.0                         | 0.6             | 0.9             | 1              | 0.0055              |  |
| 5   | M                | 27.0 | 43.6  | 56                   | 1              | 0.6            | 0.4             | 0.5             | 0.01            | 9.5               | 1                  | 1              | 0.8                         | 21.6                         | 34.9                         | 1.1             | 0.9             | 1              | 0.0065              |  |
| 1   | F                | 30.4 | 25.0  | 64                   | 1              | 0.6            | 0.475           | 0.5             | 0.01            | 8                 | 1                  | 1              | 1                           | 30.4                         | 25.0                         | 0.7             | 0.5             | 1              | 0.003               |  |
| 2   | F                | 19.7 | 16.2  | 41                   | 1              | 0.6            | 0.175           | 0.25            | 0.01            | 7                 | 1                  | 1              | 1.6                         | 31.5                         | 25.9                         | 1.2             | 0.8             | 1              | 0.004               |  |
| 3   | F                | 23.5 | 19.3  | 49                   | 1              | 0.6            | 0.5             | 0.65            | 0.01            | 6                 | 1                  | 1              | 1                           | 23.5                         | 19.3                         | 0.5             | 0.6             | 1              | 0.005               |  |
| 4   | F                | 18.6 | 15.3  | 39                   | 1              | 0.6            | 0.125           | 0.225           | 0.01            | 7                 | 1                  | 1              | 1.7                         | 31.6                         | 26.0                         | 0.8             | 0.5             | 1              | 0.003               |  |
| 5   | F                | 27.0 | 22.2  | 56                   | 1              | 0.6            | 0.4             | 0.5             | 0.01            | 6.5               | 1                  | 1              | 1                           | 27.0                         | 22.2                         | 0.7             | 0.6             | 1              | 0.003               |  |
| 1   | F <sub>DSB</sub> | 30.4 | 25.0  | 38                   | 1              | 0.6            | 0.475           | 0.525           | 0.01            | 7                 | 1                  | 1              | 0.9                         | 27.4                         | 22.5                         | 0.5             | 0.7             | 1              | 0.006               |  |
| 2   | F <sub>DSB</sub> | 19.7 | 16.2  | 38                   | 1              | 0.6            | 0.475           | 0.525           | 0.01            | 6.5               | 1                  | 1              | 1.5                         | 29.6                         | 24.3                         | 1               | 0.8             | 1              | 0.004               |  |
| 3   | F <sub>DSB</sub> | 23.5 | 19.3  | 29                   | 1              | 0.6            | 0.5             | 0.65            | 0.01            | 6                 | 1                  | 1              | 1                           | 23.5                         | 19.3                         | 0.5             | 0.6             | 1              | 0.008               |  |
| 4   | F <sub>DSB</sub> | 18.6 | 15.3  | 23                   | 1              | 0.6            | 0.125           | 0.225           | 0.01            | 6                 | 1                  | 1              | 1.7                         | 31.6                         | 26.0                         | 0.8             | 0.4             | 1              | 0.005               |  |
| 5   | F <sub>DSB</sub> | 27.0 | 22.2  | 34                   | 1              | 0.6            | 0.4             | 0.5             | 0.01            | 8.5               | 1                  | 1              | 1.1                         | 29.7                         | 24.4                         | 0.6             | 0.5             | 1              | 0.005               |  |

<sup>#</sup> Optimised parameter

<sup>^</sup> Fixed parameter

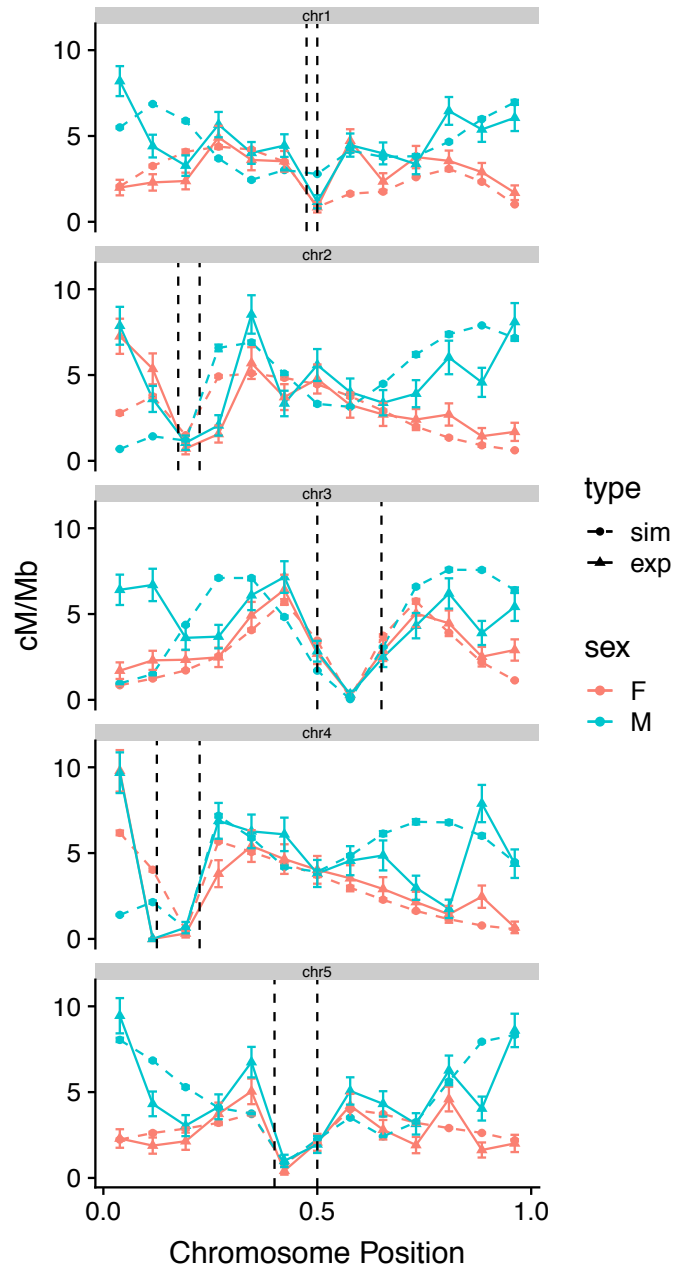
<sup>\*</sup> Calculated based on L<sub>p</sub>

**Table S2. Beam-film parameters used for simulations shown in each figure.**

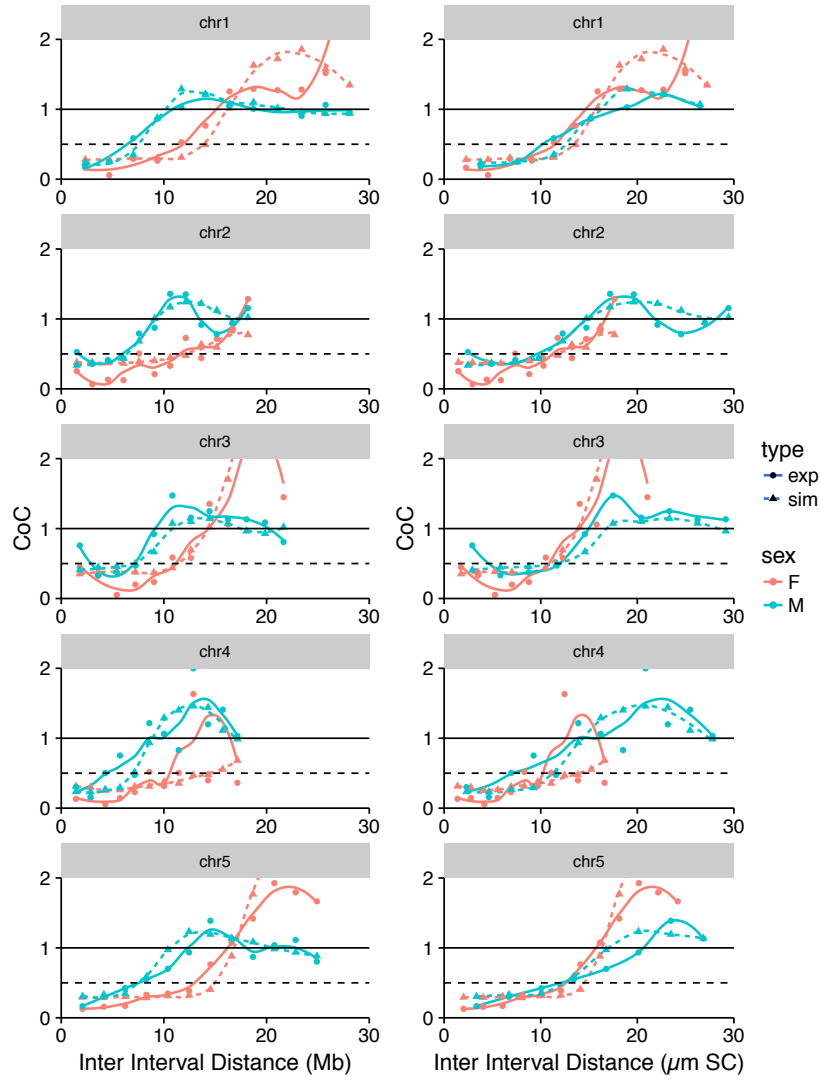
| Figure | Part | Details                     | Beam-film parameters |   |     |      |      |      |      |       |   |      |     |     |   |        |
|--------|------|-----------------------------|----------------------|---|-----|------|------|------|------|-------|---|------|-----|-----|---|--------|
|        |      |                             | N                    | B | E   | Bs   | Be   | Bd   | Smax | Bsmax | A | L    | cL  | cR  | M | T2prob |
| 1      | A-D  | male                        | 56                   | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5  | 1     | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.0065 |
| 1      | A-D  | female                      | 56                   | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5  | 1     | 1 | 1    | 0.7 | 0.6 | 1 | 0.003  |
| 3      | A-C  | L - 0.4                     | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.4  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | A-C  | L - 0.7                     | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | A-C  | L - 1                       | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 1    | 0.8 | 0.8 | 1 | 0.004  |
| 3      | A-C  | L - 1.3                     | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 1.3  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | D-F  | Smax - 3                    | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 3    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | D-F  | Smax - 5                    | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 5    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | D-F  | Smax - 7                    | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | D-F  | Smax - 9                    | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | G-I  | T2prob - 0                  | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0      |
| 3      | G-I  | T2prob - 0.002              | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.002  |
| 3      | G-I  | T2prob - 0.004              | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 3      | G-I  | T2prob - 0.006              | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.006  |
| 4      | A-B  | L - 0.8                     | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.8  | 0.8 | 0.8 | 1 | 0.004  |
| 4      | A-B  | L - 0.9                     | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.9  | 0.8 | 0.8 | 1 | 0.004  |
| 4      | A-B  | L - 1                       | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 1    | 0.8 | 0.8 | 1 | 0.004  |
| 4      | A-B  | L - 1.1                     | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 1.1  | 0.8 | 0.8 | 1 | 0.004  |
| 4      | C-D  | CI                          | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0      |
| 4      | C-D  | CII                         | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 0    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 4      | C-D  | CI & CII                    | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 5      | A-C  | wt                          | 30                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 5      | A-C  | wt                          | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 5      | A-C  | wt                          | 90                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 5      | A-C  | wt                          | 120                  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.004  |
| 5      | D-F  | mut                         | 30                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.2    |
| 5      | D-F  | mut                         | 60                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.2    |
| 5      | D-F  | mut                         | 90                   | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.2    |
| 5      | D-F  | mut                         | 120                  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 9    | 1     | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.2    |
| 5      | G    | wt male - chr 1 - 125 DSBs  | 32                   | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5  | 1     | 1 | 0.65 | 0.8 | 1   | 1 | 0.005  |
| 5      | G    | wt male - chr 2 - 125 DSBs  | 21                   | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5  | 1     | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 3 - 125 DSBs  | 25                   | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5  | 1     | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.008  |
| 5      | G    | wt male - chr 4 - 125 DSBs  | 19                   | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4    | 1     | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.0055 |
| 5      | G    | wt male - chr 5 - 125 DSBs  | 28                   | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5  | 1     | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 1 - 250 DSBs  | 64                   | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5  | 1     | 1 | 0.65 | 0.8 | 1   | 1 | 0.005  |
| 5      | G    | wt male - chr 2 - 250 DSBs  | 42                   | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5  | 1     | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 3 - 250 DSBs  | 49                   | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5  | 1     | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.008  |
| 5      | G    | wt male - chr 4 - 250 DSBs  | 39                   | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4    | 1     | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.0055 |
| 5      | G    | wt male - chr 5 - 250 DSBs  | 56                   | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5  | 1     | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 1 - 375 DSBs  | 96                   | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5  | 1     | 1 | 0.65 | 0.8 | 1   | 1 | 0.005  |
| 5      | G    | wt male - chr 2 - 375 DSBs  | 63                   | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5  | 1     | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 3 - 375 DSBs  | 75                   | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5  | 1     | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.008  |
| 5      | G    | wt male - chr 4 - 375 DSBs  | 57                   | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4    | 1     | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.0055 |
| 5      | G    | wt male - chr 5 - 375 DSBs  | 84                   | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5  | 1     | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 1 - 500 DSBs  | 128                  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5  | 1     | 1 | 0.65 | 0.8 | 1   | 1 | 0.005  |
| 5      | G    | wt male - chr 2 - 500 DSBs  | 84                   | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5  | 1     | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.0065 |
| 5      | G    | wt male - chr 3 - 500 DSBs  | 98                   | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5  | 1     | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.008  |
| 5      | G    | wt male - chr 4 - 500 DSBs  | 78                   | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4    | 1     | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.0055 |
| 5      | G    | wt male - chr 5 - 500 DSBs  | 112                  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5  | 1     | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.0065 |
| 5      | G    | mut male - chr 1 - 125 DSBs | 32                   | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5  | 1     | 1 | 0.65 | 0.8 | 1   | 1 | 0.2    |
| 5      | G    | mut male - chr 2 - 125 DSBs | 21                   | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5  | 1     | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.2    |
| 5      | G    | mut male - chr 3 - 125 DSBs | 25                   | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5  | 1     | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.2    |
| 5      | G    | mut male - chr 4 - 125 DSBs | 19                   | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4    | 1     | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.2    |
| 5      | G    | mut male - chr 5 - 125 DSBs | 28                   | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5  | 1     | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.2    |

|   |   |                               |     |   |     |      |      |      |     |   |   |      |     |     |   |       |
|---|---|-------------------------------|-----|---|-----|------|------|------|-----|---|---|------|-----|-----|---|-------|
| 5 | G | mut male - chr 1 - 250 DSBs   | 64  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5 | 1 | 1 | 0.65 | 0.8 | 1   | 1 | 0.2   |
| 5 | G | mut male - chr 2 - 250 DSBs   | 42  | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5 | 1 | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 3 - 250 DSBs   | 49  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5 | 1 | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 4 - 250 DSBs   | 39  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4   | 1 | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 5 - 250 DSBs   | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5 | 1 | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 1 - 375 DSBs   | 96  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5 | 1 | 1 | 0.65 | 0.8 | 1   | 1 | 0.2   |
| 5 | G | mut male - chr 2 - 375 DSBs   | 63  | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5 | 1 | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 3 - 375 DSBs   | 75  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5 | 1 | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 4 - 375 DSBs   | 57  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4   | 1 | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 5 - 375 DSBs   | 84  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5 | 1 | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 1 - 500 DSBs   | 128 | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5 | 1 | 1 | 0.65 | 0.8 | 1   | 1 | 0.2   |
| 5 | G | mut male - chr 2 - 500 DSBs   | 84  | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5 | 1 | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 3 - 500 DSBs   | 98  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5 | 1 | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 4 - 500 DSBs   | 78  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4   | 1 | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.2   |
| 5 | G | mut male - chr 5 - 500 DSBs   | 112 | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5 | 1 | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.2   |
| 5 | G | wt female - chr 1 - 125 DSBs  | 32  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 2 - 125 DSBs  | 21  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.004 |
| 5 | G | wt female - chr 3 - 125 DSBs  | 25  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.005 |
| 5 | G | wt female - chr 4 - 125 DSBs  | 19  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 5 - 125 DSBs  | 28  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.003 |
| 5 | G | wt female - chr 1 - 250 DSBs  | 64  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 2 - 250 DSBs  | 42  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.004 |
| 5 | G | wt female - chr 3 - 250 DSBs  | 49  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.005 |
| 5 | G | wt female - chr 4 - 250 DSBs  | 39  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 5 - 250 DSBs  | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.003 |
| 5 | G | wt female - chr 1 - 375 DSBs  | 96  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 2 - 375 DSBs  | 63  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.004 |
| 5 | G | wt female - chr 3 - 375 DSBs  | 75  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.005 |
| 5 | G | wt female - chr 4 - 375 DSBs  | 57  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 5 - 375 DSBs  | 84  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.003 |
| 5 | G | wt female - chr 1 - 500 DSBs  | 128 | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 2 - 500 DSBs  | 84  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.004 |
| 5 | G | wt female - chr 3 - 500 DSBs  | 98  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.005 |
| 5 | G | wt female - chr 4 - 500 DSBs  | 78  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.003 |
| 5 | G | wt female - chr 5 - 500 DSBs  | 112 | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.003 |
| 5 | G | mut female - chr 1 - 125 DSBs | 32  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.2   |
| 5 | G | mut female - chr 2 - 125 DSBs | 21  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.2   |
| 5 | G | mut female - chr 3 - 125 DSBs | 25  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.2   |
| 5 | G | mut female - chr 4 - 125 DSBs | 19  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.2   |
| 5 | G | mut female - chr 5 - 125 DSBs | 28  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.2   |
| 5 | G | mut female - chr 1 - 250 DSBs | 64  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.2   |
| 5 | G | mut female - chr 2 - 250 DSBs | 42  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.2   |
| 5 | G | mut female - chr 3 - 250 DSBs | 49  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.2   |

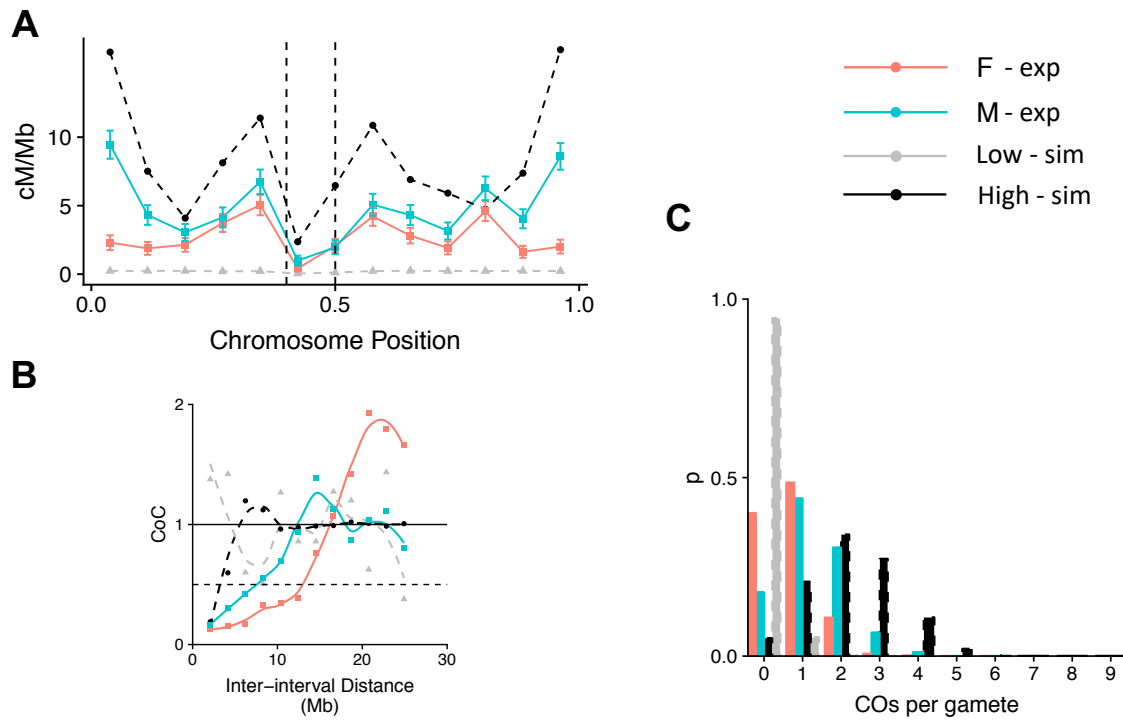
|         |      |                               |     |   |     |      |      |      |     |   |   |      |     |     |   |        |
|---------|------|-------------------------------|-----|---|-----|------|------|------|-----|---|---|------|-----|-----|---|--------|
| 5       | G    | mut female - chr 4 - 250 DSBs | 39  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.2    |
| 5       | G    | mut female - chr 5 - 250 DSBs | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.2    |
| 5       | G    | mut female - chr 1 - 375 DSBs | 96  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.2    |
| 5       | G    | mut female - chr 2 - 375 DSBs | 63  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.2    |
| 5       | G    | mut female - chr 3 - 375 DSBs | 75  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.2    |
| 5       | G    | mut female - chr 4 - 375 DSBs | 57  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.2    |
| 5       | G    | mut female - chr 5 - 375 DSBs | 84  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.2    |
| 5       | G    | mut female - chr 1 - 500 DSBs | 128 | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.2    |
| 5       | G    | mut female - chr 2 - 500 DSBs | 84  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.2    |
| 5       | G    | mut female - chr 3 - 500 DSBs | 98  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.2    |
| 5       | G    | mut female - chr 4 - 500 DSBs | 78  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.2    |
| 5       | G    | mut female - chr 5 - 500 DSBs | 112 | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.2    |
| S1 & S2 | chr1 | male                          | 64  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8.5 | 1 | 1 | 0.65 | 0.8 | 1   | 1 | 0.005  |
| S1 & S2 | chr1 | female                        | 64  | 1 | 0.6 | 0.48 | 0.5  | 0.01 | 8   | 1 | 1 | 1    | 0.7 | 0.5 | 1 | 0.003  |
| S1 & S2 | chr2 | male                          | 41  | 1 | 0.6 | 0.18 | 0.23 | 0.01 | 7.5 | 1 | 1 | 0.85 | 0.3 | 0.9 | 1 | 0.0065 |
| S1 & S2 | chr2 | female                        | 41  | 1 | 0.6 | 0.18 | 0.25 | 0.01 | 7   | 1 | 1 | 1.6  | 1.2 | 0.8 | 1 | 0.004  |
| S1 & S2 | chr3 | male                          | 49  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 5.5 | 1 | 1 | 0.7  | 0.4 | 0.9 | 1 | 0.008  |
| S1 & S2 | chr3 | female                        | 49  | 1 | 0.6 | 0.5  | 0.65 | 0.01 | 6   | 1 | 1 | 1    | 0.5 | 0.6 | 1 | 0.005  |
| S1 & S2 | chr4 | male                          | 39  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 4   | 1 | 1 | 0.6  | 0.6 | 0.9 | 1 | 0.0055 |
| S1 & S2 | chr4 | female                        | 39  | 1 | 0.6 | 0.13 | 0.23 | 0.01 | 7   | 1 | 1 | 1.7  | 0.8 | 0.5 | 1 | 0.003  |
| S1 & S2 | chr5 | male                          | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 9.5 | 1 | 1 | 0.8  | 1.1 | 0.9 | 1 | 0.0065 |
| S1 & S2 | chr5 | female                        | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 6.5 | 1 | 1 | 1    | 0.7 | 0.6 | 1 | 0.003  |
| S3      | chr5 | low                           | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 3   | 1 | 1 | 1.7  | 0.1 | 0.1 | 1 | 0.002  |
| S3      | chr5 | high                          | 56  | 1 | 0.6 | 0.4  | 0.5  | 0.01 | 10  | 1 | 1 | 0.4  | 1.3 | 1.3 | 1 | 0.006  |
| S4      |      | CI - all                      | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0      |
| S4      |      | CII - T2Prob 0.001            | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 0   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.001  |
| S4      |      | CI & CII - T2Prob 0.001       | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.001  |
| S4      |      | CII - T2Prob 0.005            | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 0   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.005  |
| S4      |      | CI & CII - T2Prob 0.005       | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.005  |
| S4      |      | CII - T2Prob 0.01             | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 0   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.01   |
| S4      |      | CI & CII - T2Prob 0.01        | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.01   |
| S4      |      | CII - T2Prob 0.025            | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 0   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.025  |
| S4      |      | CI & CII - T2Prob 0.025       | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.025  |
| S4      |      | CII - T2Prob 0.125            | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 0   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.125  |
| S4      |      | CI & CII - T2Prob 0.125       | 60  | 1 | 0.6 | 0.45 | 0.55 | 0.01 | 7   | 1 | 1 | 0.7  | 0.8 | 0.8 | 1 | 0.125  |



**Figure S1. Experimental and simulated crossover distributions.** Each analysis includes experimental (solid lines) and simulated (dashed lines) data for male (blue) and female (orange). Dashed lines represent the limits of the centromeric region over which precursor (DSB) number is markedly reduced both biologically (38) and during simulations. Male and female simulations shown, assume 250 DSBs genome-wide. Chromosomes were divided into 13 equal-sized adjacent intervals for analysis.

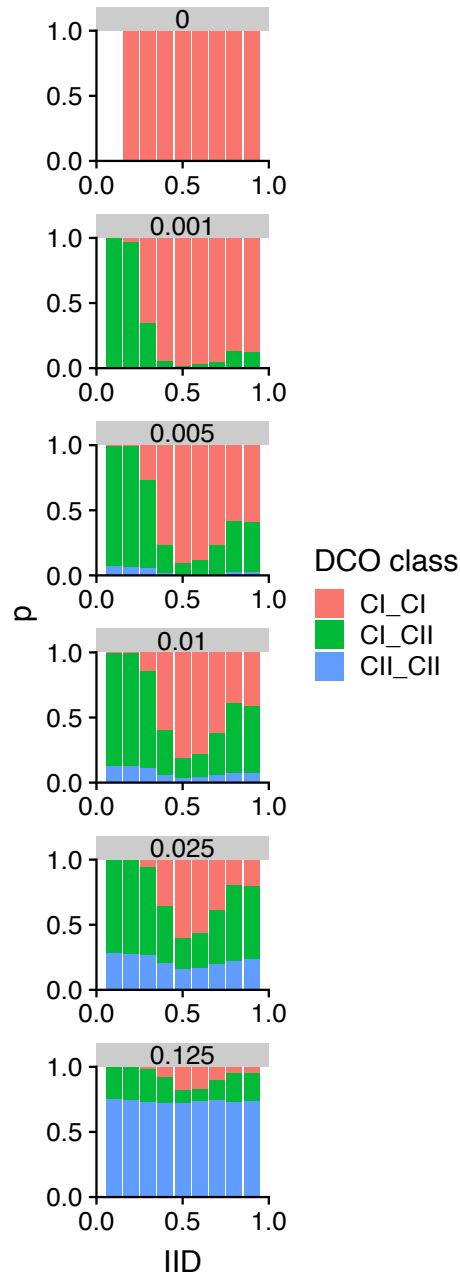


**Figure S2. CoC curves for simulated and experimental recombination data.** Each analysis includes experimental (solid lines) and simulated (dashed lines) data for male (blue) and female (orange). CoC curves with inter-interval distance measured in either Mb or  $\mu\text{m SC}$  are shown. Male curves are shifted to the right relative to female curves when inter-interval distance is measured in Mb, but are similar when inter-interval distance is measured in  $\mu\text{m SC}$ . Male and female simulations shown assume 250 DSBs genome-wide. Chromosomes were divided into 13 equal-sized adjacent intervals for analysis



**Figure S3. Examples of simulated data that did not fit experimental data.** Each analysis shows experimental (solid lines) for male (blue) and female (orange) and simulated (dashed lines) data for high (black) and low (grey) recombining parameter sets. **A** Crossover distributions for Arabidopsis chromosome 5. Dashed lines represent the limits of the centromeric region over which precursor (DSB) number is markedly reduced both biologically (38) and during simulations. Error bars indicate 95% confidence intervals. **B** CoC curves for chromosome 5 with inter-interval distance (IID, the distance between a pair of genetic intervals) measured in Mb. **C** Event distribution for chromosome 5. Simulations shown assume 250 DSBs genome-wide. Chromosomes were divided into 13 equal-sized adjacent intervals for analysis.





**Figure S4. Proportions of different double crossover (DCO) classes.** Charts show the proportions of DCOs formed between two class I crossovers (CI\_CI), two class II crossovers (CII\_CII), or a class I and a class II CO (CI\_CII) for different IIDs and different values of T2Prob (grey bars). Total proportion of class II crossovers are as follows: T2Prob = 0, 0% class II COs; T2Prob = 0.001, 3% class II COs; T2Prob = 0.005, 13% class II COs; T2Prob = 0.01, 23% class II COs; T2Prob = 0.025, 43% class II COs; T2Prob = 0.125, 81% class II COs.