03-336   **03-009**

Cross 1 $\dfrac{X^m\,SO4^{11}}{X^m\,SO4^{11}}$ or $\dfrac{X\,M\,SO4^{11}}{X\,M\,SO4^{11}}$ ♀ × $\dfrac{X\,SO4^{11}}{Y\,SO4^{15}}$ or $\dfrac{X\,m\,SO4^{11}}{Y\,m\,SO4^{15}}$ ♂

03-009

Cross 2 $\dfrac{X\,SO4^{11}}{X\,SO4^{11}}$ or $\dfrac{X\,m\,SO4^{11}}{X\,m\,SO4^{11}}$ ♀ × $\dfrac{X^m\,SO4^{11}}{Y\,SO4^{15}}$ or $\dfrac{X\,M\,SO4^{11}}{Y\,m\,SO4^{15}}$ ♂

↓

Test-cross population A

03-009   **03-336**

Cross 3 $\dfrac{X\,SO4^{15}}{X\,SO4^{15}}$ or $\dfrac{X\,m\,SO4^{15}}{X\,m\,SO4^{15}}$ ♀ × $\dfrac{X^m\,SO4^{11}}{X^m\,SO4^{11}}$ or $\dfrac{X\,M\,SO4^{11}}{X\,M\,SO4^{11}}$ ⚥

03-009

Cross 4 $\dfrac{X^m\,SO4^{11}}{X\,SO4^{15}}$ or $\dfrac{X\,M\,SO4^{11}}{X\,m\,SO4^{15}}$ ♀ × $\dfrac{X\,SO4^{11}}{Y\,SO4^{15}}$ or $\dfrac{X\,m\,SO4^{11}}{Y\,m\,SO4^{15}}$ ♂

03-009

Cross 5 $\dfrac{X\,SO4^{15}}{X\,SO4^{15}}$ or $\dfrac{X\,m\,SO4^{15}}{X\,m\,SO4^{15}}$ ♀ × $\dfrac{X^m\,SO4^{11}}{Y\,SO4^{15}}$ or $\dfrac{X\,M\,SO4^{11}}{Y\,m\,SO4^{15}}$ ♂

↓

Test-cross population B

Supplementary Figure 1 Crossing scheme for allelism tests between *X/Y* and the monoecious gene. The symbol "*X^m*" or "*M*" was used to refer to the monoecious gene, depending on the assumption of the presence or absence of its allelism to *X/Y*. Genotypes at a sex-linked SSR locus (SO4) are also indicated.