



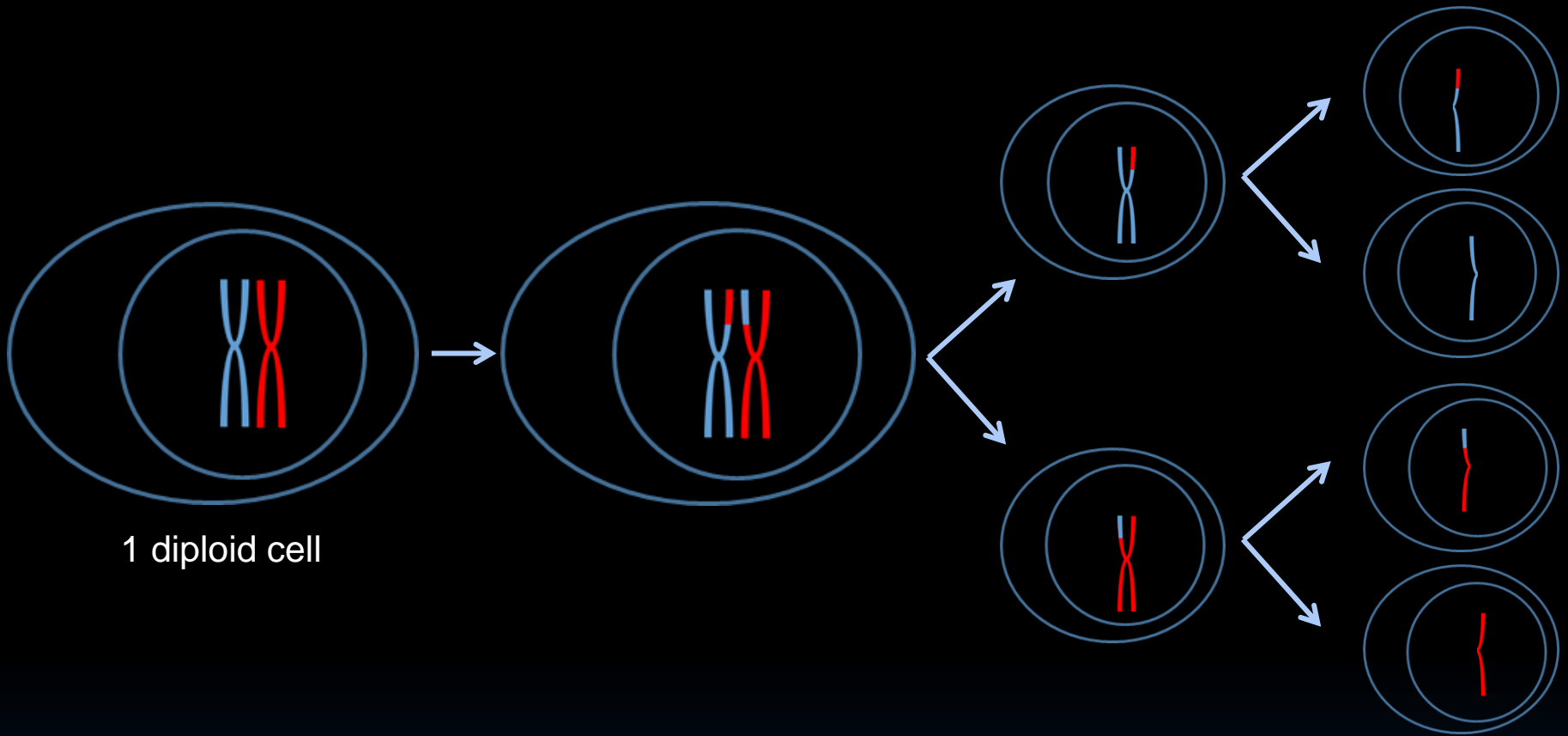
UNIVERSITY OF
BIRMINGHAM

**Investigating meiotic recombination
in *Brassica rapa*
using TILLING mutants**

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MEIOSIS: An overview



1 diploid cell

4 haploid gametes

- Synapsis + DNA recombination = Crossovers = Genetic variability + proper segregation

MEIOSIS: From model to crop



▪ *Arabidopsis thaliana*



▪ *Brassica rapa*

TILLING: Targeting Induced Local Lesions IN Genomes

1) Mutagenesis of seeds (EMS)



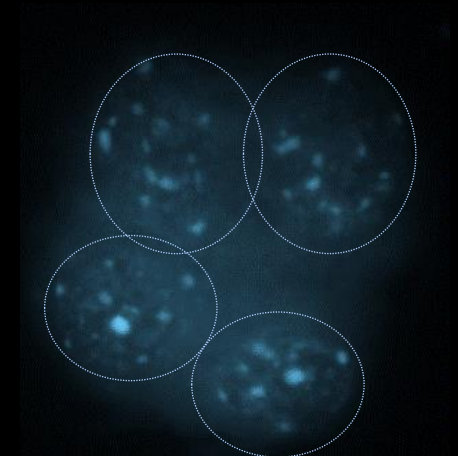
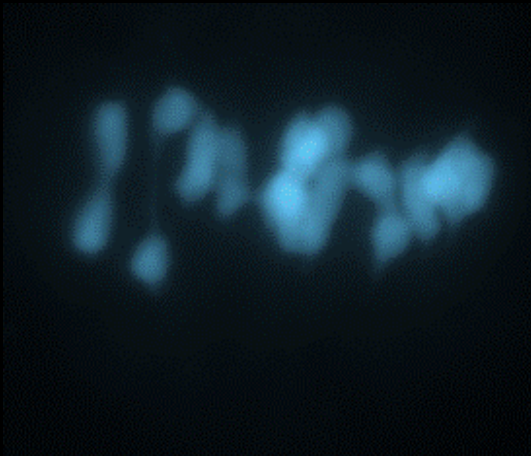
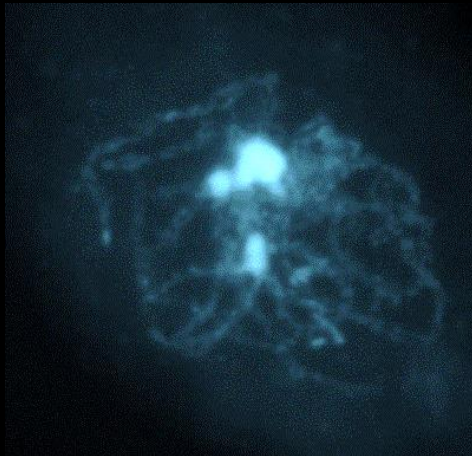
2) Rapid sensitive screening to detect mutations

- Proteins involved in synapsis and recombination: ASY1, PCH2, FANCM

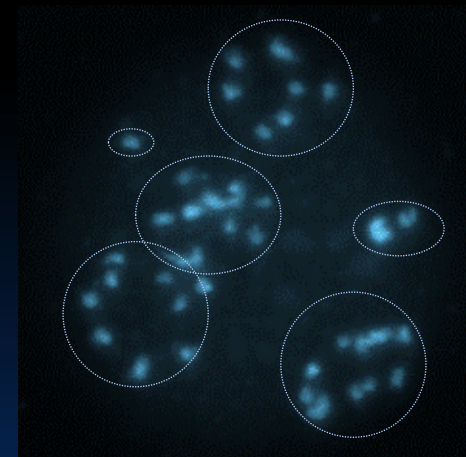
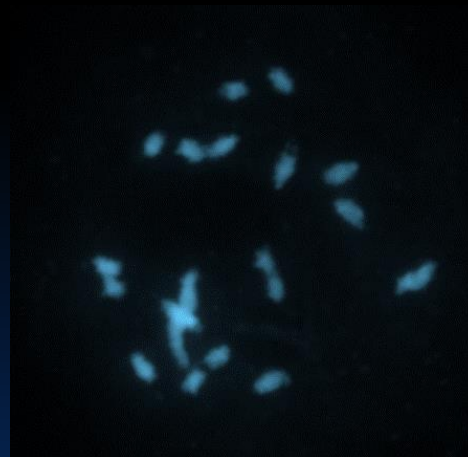
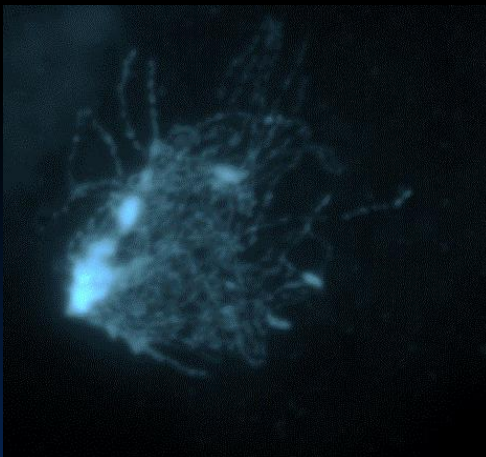
Results: ASY1

- ASY1: structural protein, chromosomal axes.
- No ASY1: no proper synapsis, segregation errors.

asy1 +/+



asy1 -/-



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Thank you