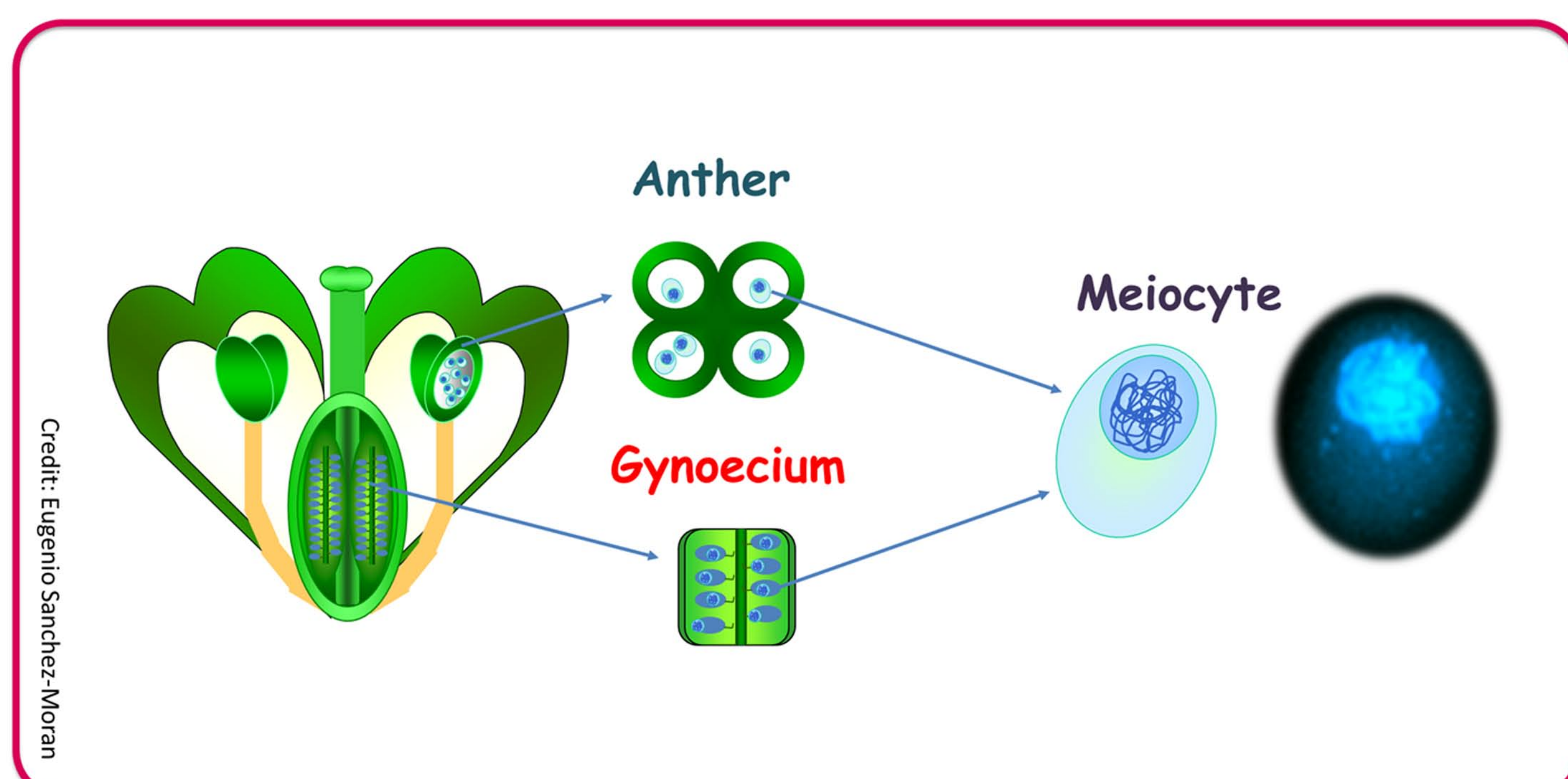


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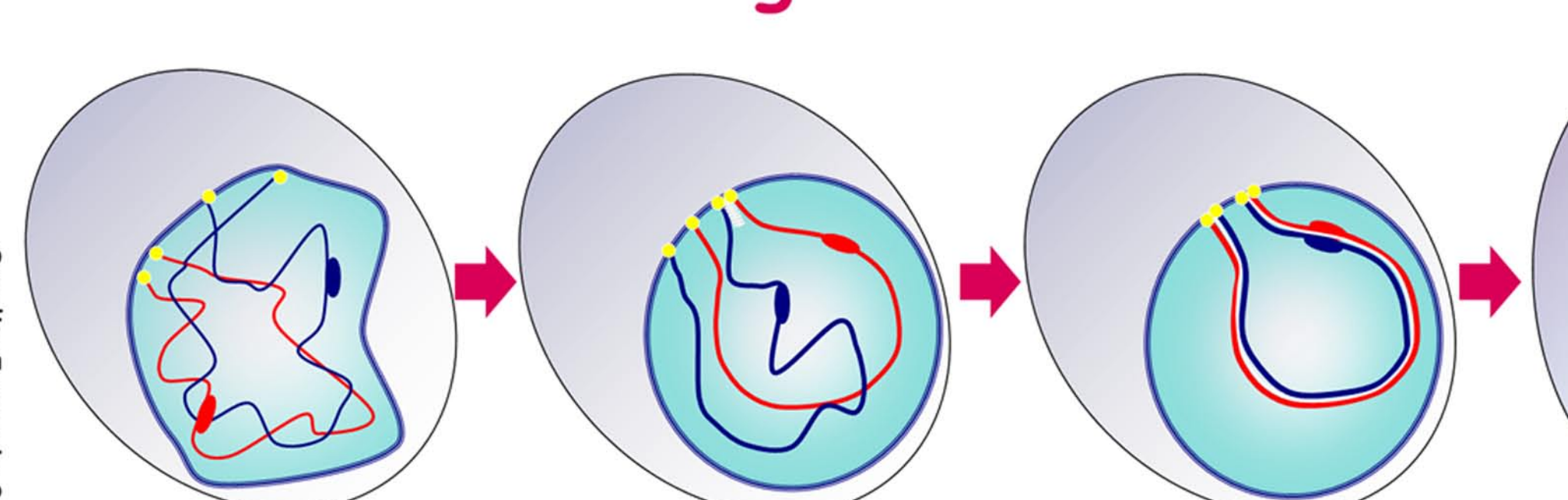
Control Of Meiotic RECombination

Due to the increasing global population, predicted to reach 9 billion by 2050, food security has become an issue of paramount importance, thus finding ways to produce more food to feed our future generation is a key challenge for plant scientists today

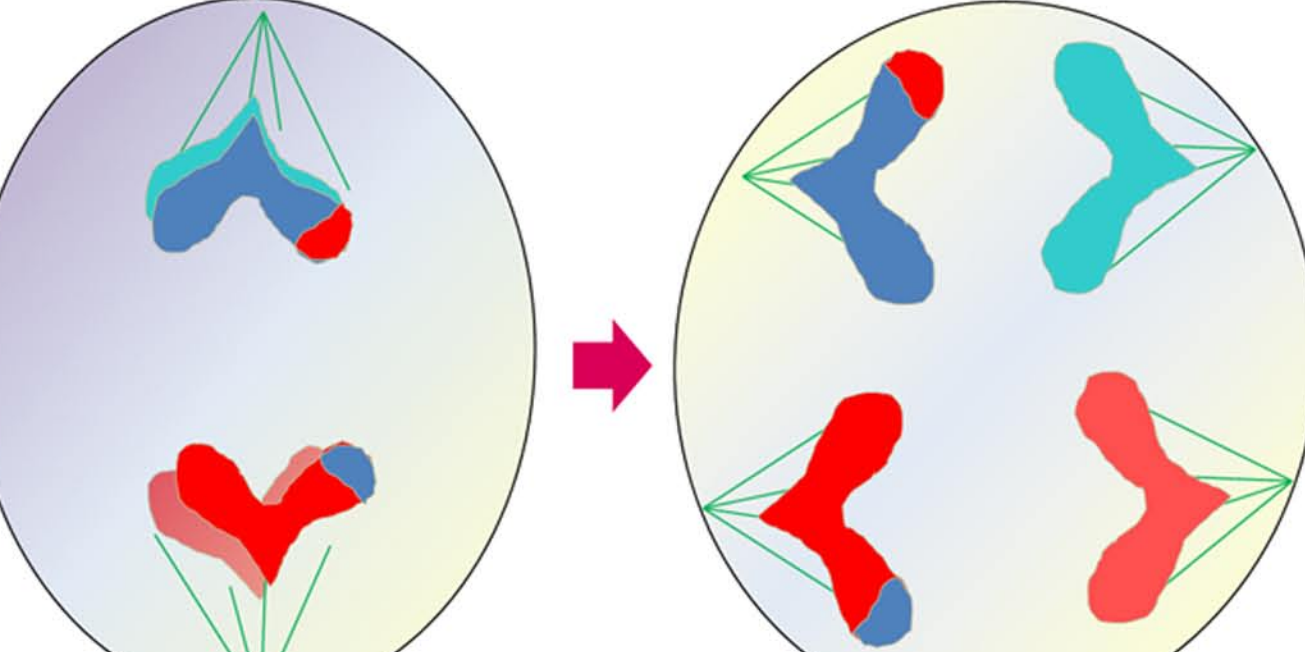
Meiosis is the process which leads to formation of gametes and enables genetic variation. Maintenance or loss of specific traits through the generations depends on how this genetic shuffling is achieved during meiosis. Therefore, understanding the factors that control meiotic recombination is of great significance for the improvement of crop breeding and application of new techniques



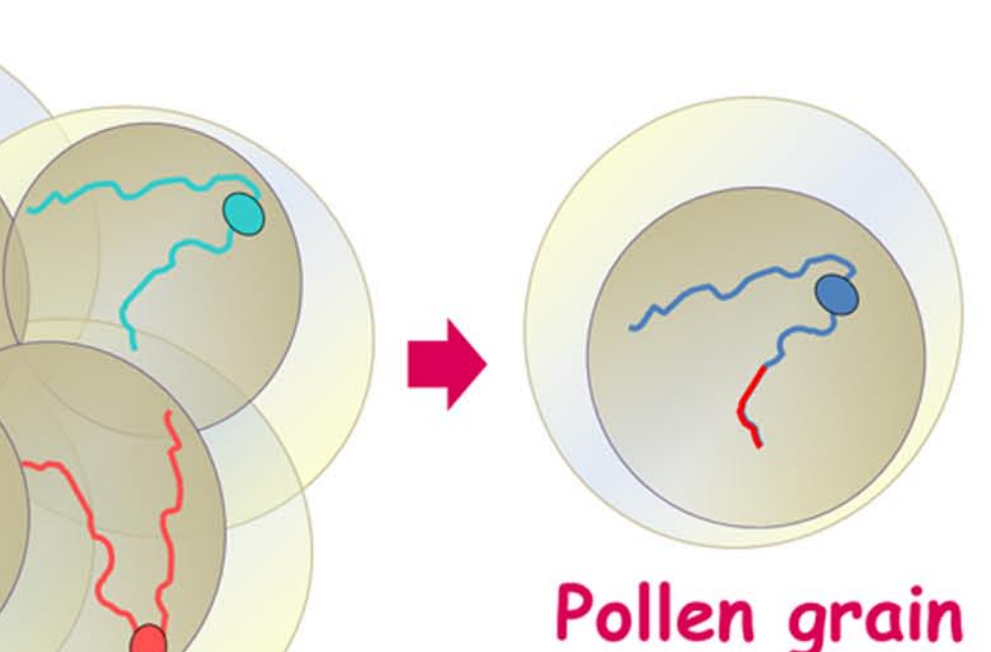
Chromosome Pairing and Recombination



Chromosome Segregation



Gamete Formation



Meiosis allows a diploid cell (with half the chromosomes from mum and half from dad) to produce haploid gametes (with half the total chromosome number). When two haploid gametes (mum & dad) fuse a new diploid cell is formed, restoring the original chromosome number.

COMREC is a European Union funded Network, consisting of a consortium of laboratories, led by a number of the worlds' leading experts on meiosis research. COMREC aims to translate knowledge previously gained from studying meiosis in the model plant, Arabidopsis, to analyze this process in crops. A cohort of 13 Early Stage Researchers are receive training whilst carrying out individual research projects, to enable the development of strategies and to modify meiotic recombination in crops, contributing to efforts to ensure food security.

Influence of temperature on CO formation in barley

Who: Mikel Arrieta
Where: The James Hutton Institute, United Kingdom
Plant: *Hordeum vulgare* (barley)
Contact: mikel.arrieta@hutton.ac.uk

Defining recombination hotspots in tomato

Who: Jihed Chouaref
Where: University of Amsterdam, The Netherlands
Plant: *Solanum lycopersicum* (Tomato)
Contact: j.chouaref@uva.nl

Development of cytogenetic tools for advancing breeding

Who: Vanesa Calvo
Where: University of Wageningen, The Netherlands
Plant: *Arabidopsis thaliana*
Contact: vanesa.calvo@gmail.com

Bioinformatic analyses of meiotic recombination in tomato hybrids and related species

Who: Sevgin Demirci
Where: University of Wageningen, The Netherlands
Plant: *Solanum lycopersicum* (Tomato)
Contact: sevgin.demirci@wur.nl

Chromosome axis organisation in relation to the coordination of meiotic recombination

Who: Marina Martinez Garcia
Where: University of Birmingham, UK
Plant: *Arabidopsis thaliana*
Contact: m.martinezgarcia@bham.ac.uk

A forward EMS genetic screen for Arabidopsis genes that control meiotic recombination

Who: Divyashree Nageswaran
Where: University of Cambridge, UK
Plant: *Arabidopsis thaliana*
Contact: dcn23@cam.ac.uk

Control of meiotic recombination during the diploidisation of autopolyploids

Who: Pablo Parra
Where: Universidad Complutense de Madrid, Spain
Plant: *Arabidopsis thaliana*

Understanding factors affecting CO variation in oilseed rape (Brassica napus)

Who: Adrián Gonzalo
Where: INRA, France
Plant: *Brassica napus* (Oilseed rape)
Contact: agonzalo@versailles.inra.es



We are COMREC

Live cell imaging of meiosis in Arabidopsis thaliana

Who: Maria Ada Prusicki
Where: University of Hamburg, Germany
Plant: *Arabidopsis thaliana*
Contact: maria.prusicki@uni-hamburg.de

Modifying meiotic recombination in tomato

Who: Amy Whitbread
Where: KIT, Germany
Plant: *Solanum lycopersicum* (Tomato)
Contact: amy.whitbread@kit.edu

Roles of recombination proteins in meiotic pairing and synapsis of specific chromosomal regions in Arabidopsis

Who: Gunjita Singh
Where: CNRS, France
Plant: *Arabidopsis thaliana*
Contact: gunjita.singh@etudiant.univ-bpclermont.fr

Generation and analysis of an artificial "cold-spot" of meiotic recombination

Who: Jason Sims
Where: University of Wien, Austria
Plant: *Arabidopsis thaliana*
Contact: jason.sims@univie.ac.at

How does meiosis work in species with holocentric chromosomes?

Who: Mateusz Zelkowski
Where: IPK, Germany
Plant: *Hordeum vulgare* (barley)
Contact: zelkowski@ipk-gatersleben.de

