

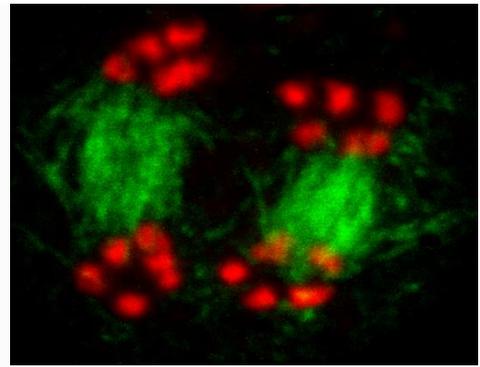


S U C C E S S S T O R Y



HYPER-REC: to accelerate plant breeding

The HYPER-REC technology is based on the introduction of recessive mutations in plant genetic material upstream of a breeding scheme. By increasing the number of meiotic recombinations by a factor of 7,5, **it can reduce increase the diversity in breeding populations and increase the power of related activities** such as genetic mapping... Proof of concept of the increase in recombinations in cultivated species was initiated by INRA as early as 2012, notably in tomato, rapeseed and pea, with one, two and then three genes responsible for this trait.



► PLANT2PRO® BODIES

Unité Mixte de Recherche Institut Jean-Pierre Bourgin (Versailles)

► CREATION CONTEXT

Raphaël Mercier, searcher at the Institut Jean-Pierre Bourgin, has discovered that the meiotic mechanism is dependent on some sixty genes, some of which prevent chromosomal crossovers and others which promote it. Mutations of these genes cause a large and unprecedented increase in the frequency of meiotic crossovers in the model plant *Arabidopsis thaliana*.

These mutations in different genes have been the subject of three successive patents filed by INRA: FANCM (2011), FIDGETIN-L1 (2013) and RECQ4 (2014).

► ADDED-VALUES FOR COMPANIES

HYPER-REC technologies reduce plant populations number by increasing the frequency of meiotic crossovers, to combine different traits of interest before breeding programmes. This promising technology can accelerate varietal breeding for seed producers and breeding companies. The HYPER-REC technology is protected by 2 patents and the proofs of concept continued in other cultivated species.

► FUTURE PROSPECTS

The proofs of concept continued in tomato and pea in order to transfer these results to the breeding schemes operated by our partners in seed production and breeding, so as to combine the different traits of interest more rapidly. Several licensing options on these patents have been granted to our partner seed producers and are now being tested in order to adapt the technology to their breeding programmes.

Learn more:

<http://www.inra.fr/en/Partners-and-Agribusiness/Results-Innovations-Transfer/All-the-news/HYPER-REC>

Institut Jean-Pierre Bourgin
<https://www-ijpb.versailles.inra.fr/en/index.htm>

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