



SEXSEAWEEED

GENETIC MECHANISM AND SEXUAL DIFFERENTIATION IN BROWN ALGAE REPRODUCTION

In genetically controlled sexual systems, male and female sex is determined either by defined chromosomal regions or by whole sex chromosomes.

The structure, function and evolution of a number of these Sex Determining Regions (SDRs) have been extensively studied in certain animals, plants and fungi, but little information is available on other eukaryotic lineages – living organisms whose cells have a nucleus.

The brown alga *Ectocarpus* is particularly interesting as it possesses an extremely primitive sexual system with minimal differences between male and female individuals. In addition, in *Ectocarpus* sex is determined during the gametophyte stage (generation of the life cycle that produces the plant's gametes), a feature that has important repercussions for SDR evolution.

The SDR has recently been identified in the *Ectocarpus* genome and the objective of the SEXSEAWEEED project is to study the history of how this chromosomal region has evolved and to understand how the locus – that is the precise and invariable physical positioning on a chromosome where a gene is located – controls sexual differentiation.

The project will enable important progress to be made in understanding both the evolution of sexual systems in general and the evolution of the SDR in particular.

In a broader sense, the data generated on the project will enhance our knowledge of the biology of sexual chromosomes.

Partner

Research center

Laboratoire Végétaux Marins et Biomolécules (UMR 7139 CNRS-Université de Paris VI), Roscoff [\[Project Developer\]](#)

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931 K€