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enseignant: Pierre Morice

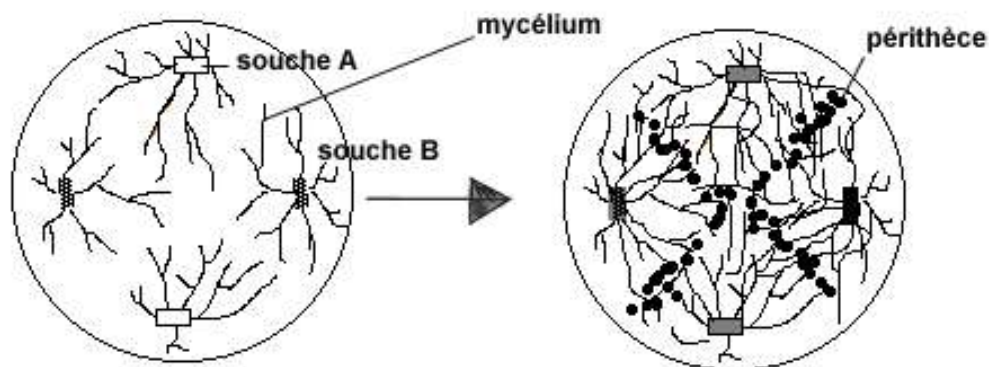
TP 1: SORDARIA

Sordaria macrospora est un champignon ascomycète qui forme des filaments: le mycélium. Les cellules du mycélium sont haploïdes. Lorsque deux mycéliums se rencontrent ils fusionnent formant des cellules à deux noyaux. Ces cellules vont former le périthèce, le quel peut être assimilé à l'organe reproducteur. Lorsque les deux noyaux fusionnent, on peut parler de la fécondation. De cette cellule diploïde vont se développer des asques, enfermant chacune huit spores. L'ensemble des asques est enfermé dans le périthèce.

La raison principale pour la quelle cette souche est utilisé dans les études de la génétique est que les asques sont ordonnés. Leur disposition dans l'asque nous permet de déceler le moment de la séparation des deux allèles¹.

Protocole:

Nous avons effectués deux croisements: la souche 1902 (jaune) avec la souche 1802 (noire) et la souche 1798 (blanche) avec 1900 (noire). Les spores sont d'abord comptés "en vrac", sur le couvercle² puis on observe et on compte les différentes types d'asques.



¹ Dans le cas où il s'agit de deux allèles différents

² lorsqu'il en a.

Résultats:

type d'asque	O			O		O		O
	O			O		O		
	O		O		O			
	O		O		O			
		O		O		O		
		O		O				
		O	O			O		
		O	O			O		
1798*1900	25	30	20	16	17	13	α	α
1802*1902	77	51	7	7	5	3	173	145

Interprétation des résultats:

(voir schéma montrant la façon dont on obtient les différents types d'asques)

Le croisement des souches 1798 et 1900 donne 6 types d'asques dont la fréquence d'apparition est similaire. Le type d'asque "4x4" est appelé type "préreduit" et les types "2x2" sont appelées "postreduits". Cela désigne le fait que les allèles se séparent soit dans la première soit dans la deuxième division mitotique.

Nous avons effectués ici un test de ségrégation 2/2, ce qui nous permet de conclure qu'il s'agit probablement d'une seule mutation (nombre spores + = nombre spores mutées).

Dans ce cas le phénotype [spore blanche] et [spore noire] seraient deux allèles du même gène, les 4 configurations post réduites ont été obtenus suite a un crossing-over, avec une distance du centromère de 50 cM.

Le croisement entre la souche 1802 et 1902 donnent les résultats semblables. Le nombre de spores jaunes et noires "en vrac" est le même, donc il s'agit d'une seule mutation du même gène. Ce sont deux allèles. Par contre la fréquence de crossing-over est plus faible. Elle serait égale a $\frac{(7+7+5+3)*4}{(77+51+7+7+5+3)*4} * 100 = 15 \text{ cM}$.

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Version 1.2, November 2002

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